

Resource Consent Application

This application is made under Section 88 of the Resource Management Act 1991



**MARLBOROUGH
DISTRICT COUNCIL**

Please read and complete this form thoroughly and provide all details relevant to your proposal. Feel free to discuss any aspect of your proposal, the words used in this form or the application process with Council staff, who are here to help.

This application will be checked before formal acceptance. If further information is required, you will be notified accordingly. When this information is supplied, the application will be formally received and processed further.

You may apply for more than one consent that is needed for the same activity on the same form.

For Office Use

ISO 9001:2008
Document Number:
RAF0002-C11248

Lodgement Fee Paid \$

Receipt No.

Consent No.

Case Officer:

1. Applicant details *(If a trust, list full names of all trustees.)*

Name: Sanford Limited

Mailing address: P.O. Box 13
Havelock

Email Address: tjohnsson@sanford.co.nz

Phone: (Daytime) 035741801

Phone: (Mobile) 0274460815

Fax:

2. Agent Details *(If different from above or if your agent is dealing with the application.)*

Name:

Mailing address:

Email Address:

Phone: (Daytime)

Phone: (Mobile)

Fax:

3. Type of Resource Consent Applied for

☒ Coastal Permit ☐ Discharge Permit ☐ Land Use ☐ Subdivision ☐ Water Permit

4. Brief Description of the Activity

Marine farming and harvesting of Greenshell mussels (*Perna Canaliculus*) and spat using conventional surface long line methods, with the option to farm dredge oysters (*Tiostrea chilensis*) and scallops (*Pecten novaezelandiae*).

A new coastal permit is requested for farming an area of 27.66 hectares in Orchard Bay, Forsyth Island, replacing consent U041502 and Marine Farm Licences 513 and 444. The length of the term requested is 20 years.

Date Received

RECEIVED

10 DEC 2012

**MARLBOROUGH
DISTRICT COUNCIL**

5. Property Details

The location to which the application relates is (address): Orchard Bay, Outer Marlborough Sounds

Legal description (i.e. Lot 1 DP 1234): N/A

(Attach a sketch of the locality and activity points. Describe the location in a manner which will allow it to be readily identified e.g. house number and street address, Grid Reference, the name of any relevant stream, river, or other water body to which application may relate, proximity to any well known landmark, DP number, Valuation Number, Property Number.)
(Please attach a copy of the Certificate of Title.)

The names and addresses of the owner and occupier of the land (other than the applicant):

N/A

Please attach the written approval of affected parties/adjoining property owners and

Note: That as a matter of good practice and courtesy you should consult your neighbours about your proposal. If you have not consulted your neighbours, please give brief reasons on a separate sheet why you have not.

6. Assessment of Effects on the Environment (AEE) *(Attach separate sheet detailing AEE.)*

I attach, in accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.

Note: Failure to submit an AEE will result in return of this application.

7. Other Information

Are additional resource consents required in relation to this proposal? If so, please list and indicate if they have been obtained or applied for.

N/A

I attach any other information required to be included in the application by the relevant Resource Management Plan, Act or regulations.

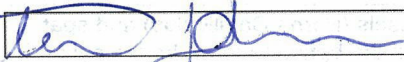
Declaration

I (please print name) Sanford Limited

agree

- (i) That I am liable for all fees and charges relating to this application.
- (ii) The lodgement fee is to be paid at the time of lodging the application for resource consent.
- (iii) That payment is due within 30 days of the issue date of any additional charges.
- (iv) That Council will charge me interest on any overdue invoices at 15% per annum from the date of issue of the invoice to the date of payment and Council may stop processing my application until an overdue invoice is paid in full. In the event of non-payment the applicant and/or agent will be liable for all legal and other costs of recovery.
- (v) That where this application is completed and signed by an agent, all communication regarding this application will be with the agent.
- (vi) The information provided in this application and the attachments to it are accurate.

Signature of applicant or authorised agent



Date

7/12/12

Privacy Information

The information you have provided on this form is required so that your application can be processed and so that statistics can be collected by Council. The information will be stored on a public register and held by Council. Details may be made available to the public about consents that have been applied for and issued by Council. If you would like access to or make corrections to your details, please contact Council.

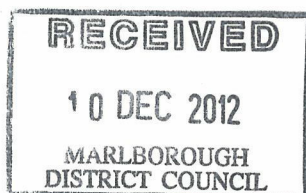
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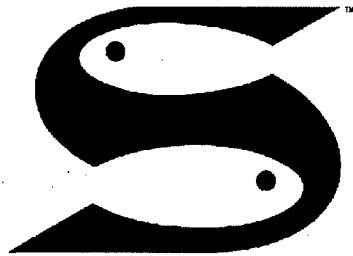
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**MARLBOROUGH
DISTRICT COUNCIL**





SANFORD LIMITED
SUSTAINABLE SEAFOOD

APPLICATION FOR A COASTAL PERMIT

To establish a new marine farm in Orchard Bay replacing sites
8138/8139/8140

Orchard Bay – Forsyth Bay, Outer Marlborough Sounds

Assessment of Environmental Effects



**APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE
RESOURCE MANAGEMENT ACT 1991**

APPLICANT:

Sanford Limited

THE LOCATION OF THE PROPOSED APPLICATION:

The location to which the application relates is Orchard Bay in Forsyth Bay, on the western side of Forsyth Island. The application site lies in coastal marine zone 2, offshore from land designated as Rural 1 zone, with the legal description Sec 2 Blk V Gore SD owned by Forsyth Island Limited. Sanford Ltd owns the marine farm licence immediately to the north of the application site, the site immediately to the south is owned by Clearwater Mussels Ltd.

Location and site plans accompany this application, as well as a plan showing the layout of the proposed marine farm structures.

THE PROPOSAL

To establish a 27.66 hectare marine farm, replacing U041502, Marine Farm Licences MFL444 and MFL513 for the purpose of farming and harvesting Greenshell mussels (*Perna Canaliculus*) and spat using conventional surface long line methods with the option of farming dredge oysters (*Tiostrea chilensis*) and scallops (*Pecten novaezelandiae*). The proposal will rationalise the space of the existing sites (8138, 8139 and 8140) allowing more effective use of the space.

THE PERMITS APPLIED FOR ARE:

- (i) Coastal Permit – occupancy of 27.66ha.
- (ii) Coastal Permit – Use, install and maintain marine farm structures.
- (iii) Coastal Permit – Disturbance of the seabed with anchoring devices
- (iv) Coastal Permit – Carry out the activity of marine farming and harvesting of the proposed species in the application area.

REQUESTED CONSENT PERIOD

The consent term requested is twenty years

1.0 Introduction – the applicant

Sanford Limited (Sanford) was established in 1904 and is a long-standing participant in the New Zealand seafood industry. Their operations include catching/farming, processing, packaging and exporting of seafood products. The company has well established markets internationally and strives to develop and promote New Zealand seafood products at every opportunity.

Sanford's interest in aquaculture started in the 1980's, has branches throughout New Zealand and is a major employer in coastal regions where their operations are located. Sanford is committed to operating in both an environmentally and economically sustainable manner to fulfill our responsibilities to our shareholders, employees, customers, communities and the environment in which we operate. They are accredited to the ISO14001 standard, operate under the Greenshell™ Mussel Industry Environmental Code of Practice and are on the Marine Farm Association Environmental committee. Sanford also takes pride in being involved with and promoting the Aquaculture Academy at Queen Charlotte College and supporting local community programmes such as the Havelock Mussel Festival and Havelock School programme.

Sanford has aquaculture interests from Coromandel to Stewart Island:

1. Greenshell™ mussels in the Coromandel, Tauranga, Marlborough Sounds, Tasman and Golden Bays, Pegasus Bay, Banks Peninsula and Stewart Island
2. Salmon in Big Glory Bay (Stewart Island)

The company is well established and practised in the marine farming industry and sees development of this industry in Marlborough as having important economic and social benefits for the region.

At Havelock, Sanford currently employs over 250 people; the economic benefit of this employment is substantial, both to Havelock and to Marlborough as a whole. The coastal permit sought would assist to maintain current production levels and demand for labour, products and services at Sanford Havelock.

In the last 12 months, Sanford Havelock harvested and processed approximately 16,000 tonnes of harvested Greenshell™ mussels in Marlborough from marine farms in the Marlborough, Tasman Bay and Golden Bay areas.

2.0 The activity

Sanford seeks a coastal permit to establish a new 27.66 hectare marine farm to replace: MFL513; MFL444 and U041502 which cover sites 8138, 8139 and 8140. If the proposed consent is granted, Sanford would relinquish MFL513; MFL444 and U041502. The development will allow Sanford to more effectively manage the area currently occupied by these licences.

The proposal is for a marine farm consisting of 3 blocks of 12 backbones and one block of 7 backbones, situated in a north east-south west orientation to follow the shoreline. This is illustrated in the plans accompanying this application.

This application is for a coastal permit for: i) Occupancy of a 27.66 hectare area of water space; ii) Use, install and maintain marine farm structures; iii) Disturbance of the seabed with anchoring devices and; iv) carry out the activity of marine farming in the application area.

It is requested that the new coastal permit be issued for the purpose of farming Greenshell mussels (*Perna Canaliculus*) and spat using the conventional surface long line methods currently used on sites U041502, MFL444 and MFL513 with the option to farm scallops (*Pecten novaezelandiae*) and dredge oysters (*Tiostrea chilensis*) as currently licenced on U041502 and MFL444.

Green Mussel seed will be sourced, either from existing known spat catching sites in the region, or, obtained from 90 Mile Beach, Northland. The product is to be farmed using the conventional farm management practices currently used on U041502, MFL444 and MFL513.

3.0 Terms of consent

If the consent is granted, Sanford seeks a consent term of 20 years to carry out the activity of marine farming; the existing licenses/permits (U041502, MFL444 and MFL513) would be then be relinquished.

4.0 The site

4.1 Location

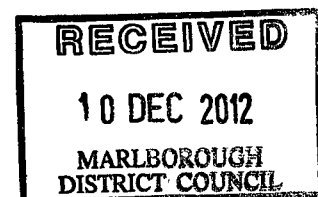
The location to which the application relates is the southern shore of Orchard Bay. Orchard Bay is located on the western side of Forsyth Island. It is a large bay, approximately 1.5km long by 2km wide. The entrance to Orchard bay opens in a south westerly direction. The northern headland extends westward 1.5km in a reef known as Duffers Reef, whereas the southern headland separates the bay from Sunday Bay further south.

The closest marine farm to the north of the application is site 8141 owned by Sanford, which is situated approximately 170 meters from the application area in Symonds Bay. To the south the closest marine farm is 8137; the southern corner boundary of the application site is sited at the location of the current southern boundary of site 8138. Water depths at the boundary of the proposed application are between 7 and 19 meters.

Orchard bay is largely sheltered from the open sea and Cook Strait to the north and east by part of Forsyth Island and Duffers Reef and the longest wave fetch is from the south.

4.2 History

History of the existing sites 8138, 8139 and 8140:



- **Site 8138:** In October 1993 The Marlborough District Council granted approval to Kiwi Marine Farms Limited to convert marine farm licence 530 to a coastal permit, U930866. Shortly after this the ownership was transferred to Marlborough Mussel Company Limited and U930866 was re-issued as U931018. The associated marine farming permit MPE171 was issued under the Fisheries Act 1983 in January 1996 then merged into U041502. Sanford acquired the licence for the site at the end of 2010.
- **Site 8139:** This site was registered in July 1990 by Southern Mussel Farms to grow mussels, then scallops (1992) and Oysters (1993) were added later. The farm was purchased by Sealord in 2002, then Sanford in 2009.
- **Site 8140:** Marine farm licence MFL513 for a 3.0 hectare site was issued in May 1993 to the consent holder under the Marine Farming Act 1971. In April 2001 Council granted resource consent U991073 for a 1.51ha extension to the northeast; this was transferred to Sanford in 2003 and expired in May 2007. Under the Aquaculture Reform (Repeals and Transitional Provisions) Act 2004, the marine farm licence is now a deemed coastal permit, expiring on the 31st of December 2024. Some of the farm lines are currently offsite; the proposed application will effectively move the inshore lines of the existing farm further seaward.

Location, site and structures plans of the proposed application accompany this application.

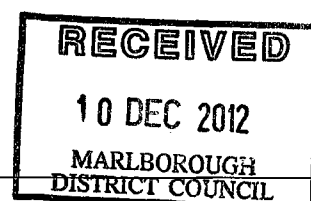
5.0 Status of the activity

The application is located in Coastal Marine Zone 2, within which marine farms are classified as either controlled, discretionary or non-complying. This application for establishment of a new farm extension to the existing sites 8138, 8139 and 8140 is outside the 50m to 200m "Discretionary Activity" zone and is therefore designated as a non complying activity under section 35.5 of the current Marlborough Sounds Resource Management Plan.

6.0 Physical effect on the locality, including any landscape and visual effects and effects on Natural Character

Relevant assessment criteria:

- Consideration of aesthetic and cultural matters including proximity to residences, land zoned for residential use and land subdivided for residential use.
- Proximity to, and likely effect on, areas of Scenic value and Recreational value
- The visual effect of the farm and its operation;



- Whether the proposal will enhance or maintain the amenity values of the surrounding area
- That the proposal does not visually intrude on any significant rigeline or significant landscape;
- That the proposal does not detract from any view or vista which contributes to the aesthetic coherence of a locality.

6.1 Setting

Forsyth island is situated in the Outer Marlborough Sounds and forms part of the eastern arm of Forsyth Bay – it is separated from the mainland by Allen Strait. Forsyth Island is characterised by modified, steep farmland which is in the process of reverting to shrubland and scrub. Patches of remnant forest are present in gullies and parts of the bay and some erosion scars are visible on the hillsides.

The highest peak on Forsyth Island is 356 meters and lies inland of Pigeon bay. Moderate to steep slopes fall away from the summit ridge down to sheer rock cliffs, coastal bluffs and shingly beaches at sea level. High peaks and their associated ridges rise to between 150 and 300 meters on the northern and southern sides of the bay. The eastern ridgeline comprises a narrow landmass (approximately 250 meters wide at the narrowest point) between Orchard bay and Lord Ashley Bay further east.

When the applicant visited the island in March 2012, there was one building visible from Orchard bay, understood to be the Paruparu accommodation lodge set approximately two thirds of the way up the ridge. The land adjacent to the proposed application has consents to erect a lodge and discharge effluent to land.

Coastal marine farming development is well established in Orchard Bay with some marine farms having been present in the area since the 1990s. The boundary between CMZ1 and CMZ2 stretches in a line from approximately 1400 meters south of Kaitira point on the western arm of Forsyth bay to 740 meters east of the northern point of Orchard bay. The closest point of the proposed development lies approximately 1100 meters from this boundary. Due to the shape of the coastline of Orchard bay, the positioning and shape of the proposed site, the farm will still fit in with the development of existing farms of the bay. The application site lies in coastal marine zone 2, offshore from land with the legal description Sec 2 Blk V Gore SD owned by Forsyth Island Ltd. According to the current Marlborough Sounds Resource Management Plan (MSRMP) maps¹, the land is designated as Rural 1 zone.

6.2 Landscape effects and Natural character

Based on Appendix 2 of Volume 3 of the MSRMP, the land opposite the application area is categorised as "Bulwer land ecosystem", while the marine environment where the proposed application is situated is categorised as "Mainly exposed – D'Urville island northern Cook Strait". Volume 1 - Appendix 2 (part 4) of the MSRMP summarises the "Bulwer" land character as:



"Steepish dissected, climatically dry coastal hill slopes stretch fingers at random into the sea, forming many bays and coves, the landmass itself being the most submerged of the Marlborough land ecosystems. Inside these splayed fingers the sea abuts the land abruptly, with few beaches. Rocks are sedimentary and weakly developed schist. Maritime influence and exposure is high, elevation generally low. Fragmented vegetation patterns, with much scrubland."

6.2.1 Policy

Section C of Appendix 2 (Natural Character) of Volume 1 of the MSRMP notes that the priorities for the Bulwer terrestrial ecosystem are:

- Priority to protect, expand and connect fragments of indigenous vegetation
- Maintenance of shrublands provides excellent opportunity for forest restoration,
- Maintenance of predator-free status of islands

As the application proposes a coastal water based activity, not terrestrial, these aspects should not be issues.

Objective 1 in Section 2.2 in Appendix 1 of the MSRMP is: "The preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins and the protection of them from inappropriate subdivision, use and development."

Policies 1.1 and 1.2 define the objective as:

Avoid[ing] the adverse effects of subdivision, use or development within those areas of the coastal environment and fresh-water bodies which are predominantly in their natural state and have natural character which has not been compromised and;

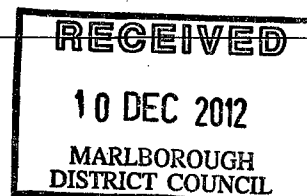
Appropriate use and development will be encouraged in areas where the natural character of the coastal environment has already been compromised, and where the adverse effects of such activities can be avoided, remedied

The proposed development will take place in an area where marine farming is permitted (coastal marine zone 2) and in the location of existing farms. In other words "Appropriate use" in an area where the coastal environment has already been "compromised". This application can be viewed as aligning to both policies 1.1 and 1.2 which looks to concentrate activities in areas which have already been affected by development.

Policy 1.3 sets out effects on components of natural character that need to be considered. These are addressed in this and other sections of the application.

Policy 1.4 Outlines the policies that need to be taken into account when assessing potential effects.

Policy 1.5 Calls for the promotion of an integrated approach to preservation of natural character.



Policy 1.6 Requires that regard shall be had to the ability to restore or rehabilitate natural character in the area subject to the proposal. This is addressed in the current application as removing the farm will restore the natural character of the site.

Policy 1.7 requires adoption of a precautionary approach in making decisions where the effects on the natural character of the coastal environment, wetlands, lakes and rivers (and their margins) are unknown. This is not an issue with the current application as the activity (marine farming) takes place in an area (Orchard Bay) where the effects are well known with some of the marine farms in the bay having been established over 20 years ago.

Policy 1.8 requires recognition that "preservation of the intactness of the individual land and marine natural character management areas and the overall natural character of the freshwater, marine and terrestrial environments identified in Appendix Two is necessary to preserve the natural character of the Marlborough Sounds as a whole."

6.2.2 Assessment of application site

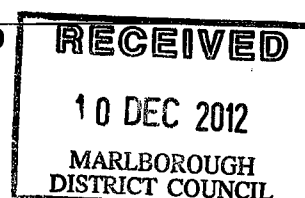
Sanford engaged Stephen Brown from Brown Environments Limited to assess the landscape character and effects of the proposed application – the site visit occurred on 4th September 2012 and the assessment accompanies this application.

Brown described Orchard Bay as a gateway in and out of the Pelorus Sound, and, while isolated from the main channel is similar to many landforms in the outer sounds 'drowned valley' system.

Brown went on to note that, like other nearby landholdings, the slopes of Orchard bay are covered in stubby to semi mature coastal forest regrowth, which is variable and quite patchy at the time of his visit. The forest cover while more established and luxuriant at the head of the bay, extending around to near Goat Point, a residue of old pasture was still apparent closer towards the Sanford application site. There solitary residence (the lodge), at the southern end of Orchard Bay, which is situated close to farm paddocks and a farm track. The report goes on to note that while the land encompassing Orchard bay is in a state of recovery from past farming activities, most of the Bay's near shoreline is lined with mussel farms, which, despite the wave fetch, remain reasonably apparent when viewed from within Orchard Bay.

Brown finishes by noting that, although all of Forsyth Island is described as an ONL (Outstanding Natural Landscape) in both the Marlborough Sounds Resource Management Plan (MSRMP) and Boffa Miskell's 2009 landscape study, this is despite the extensive existing mussel farming, the dwelling, the goat farming and the immature nature of the native regrowth. Brown also points out that while section 149G(3) in the MSRMP identifies northern, eastern and southern sides of Forsyth Island as having 'high' natural character, no such ratings are attributed to Orchard Bay or adjoining parts of the western coastline.

In terms of the effects of the current operations, Brown noted that while the current mussel farms in Orchard Bay and south east coastline do have an effect



on the perceived naturalness/natural character, landscape structure and patterns, these effects relate to quite close-up views of the existing farms (within 300 meters); the visual profile and presence of the farms diminishes rapidly when further afield to the point that they become effectively invisible just outside Orchard Bay. However, the report also notes that the existing farms would have a more significant impact on structure, patterns and overall naturalness of the bay when viewed from land, (from an elevated position on the slopes) – resulting in a moderate to moderate high level of effect on the current landscape and coastal environment.

In terms of anticipated effects of the proposed application, the Brown report notes that it would not fundamentally change the situation and when viewed from the sea, in particular, changes would be subtle as the proposal would still sit within the umbrella of existing mussel farms and operations. Overall, the report notes that the effects generated by the proposal would remain incremental, however, due to the elevated level of effect from land the overall impact of the proposal would be low/moderate.

7.0 Actual or potential ecological effects including effects on water quality, the sustainability of the marine food resource, effects on plants and animals and any physical disturbance of habitats in the vicinity

Relevant assessment criteria:

- The present nature of the site, both physical and biological - including the nature of the sea floor and species found in the area
- The effect on the marine ecology of the feed proposed to be added to the environment including the type and amount of feed, and an assessment of it's effect on the environment.
- Proximity to, and likely effect on, areas of ecological value
- Likely effects on water quality and ecology
- That the proposal does not adversely affect any habitat of any indigenous species, or compromise the integrity of any marine ecosystem.

7.1 Assessment requirements

Section 104(1)(a) of the Resource Management Act requires that, when considering an application, the consent authority must have regard to actual and potential effects of the activity on the environment.

The Marlborough Sounds Resource Management Plan contains general assessment criteria (Rule 35.4 of the Coastal Marine Zone) and specific assessment criteria for Marine Farms (Rule 35.4.2.9 Coastal Marine Zone). In addition, Sanford has had been represented in the working group and made submissions to the group developing the new Plan. The assessment criteria in



the current plan, proposed draft measures and objectives for the new plan and the requirements of Schedule 4 of the Resource Management Act have been used as a guide to determine the likely actual or potential effects on the environment of allowing the proposed marine farm.

A September 2011 reference by the Department of Conservation² does not note any ecologically significant marine sites in the proposed application area, with the exception of King shags at Duffers Reef which are addressed later in this section.

7.2 Physical marine environment of the "D'Urville Island - Northern Cook Strait" classified marine ecosystem

Section D of Appendix 2 (Volume 1) of the MSRMP describes the "D'Urville Island - Northern Cook Strait" marine ecosystem / environment as being typified by exposed shores distinguishable by steeply sloping shores with extensive bedrock and boulder reefs extending into relatively deep water, with large sand masses occurring off-shore in larger outer bays, but mud/silt/shell predominating soft bottom habitat elsewhere. Sheltered bays and inlets fringed by relatively narrow cobble (and in places bedrock) reefs. These areas have moderate to high exposure, though large bays and inlets offer reasonable protection from open sea. Clear, relatively cool oceanic waters with high current areas off headlands/between landmasses, moderate to high tidal range and relatively low sedimentation levels.

7.3 Physical marine setting of the site - overview

In September 2012, Sanford engaged NIWA to carry out a survey of the application in September 2012. The NIWA report accompanies this application.

The NIWA report states that the application area is considered to be a mainly exposed area, although the site in Orchard Bay is within a rather sheltered embayment. A narrow band of cobble and sometimes bedrock reef is common in this area, and while outer exposed reefs support rich and abundant reef communities with large stands of algae, it is noted that the sheltered bays support fewer conspicuous reef-dwelling species and considerably less algal cover.

Results from the NIWA side-scan and seabed photoquadrats show that most of the proposed extension is located over a flat mud habitat, which is the most widespread and common subtidal habitat type in the Marlborough Sounds. The NIWA report notes that a small portion of the inshore boundary of the site lies over patches of sand/shell or sand/cobble slope, which is also common throughout the Sounds, although less extensive than mud habitat.

7.4 Biological marine environment

Section D of Appendix 2 (Volume 1) of the MSRMP describes the "D'Urville Island - Northern Cook Strait" biological environment as containing near-shore and off-shore reefs supported by rich and abundant reef communities, high diversity of fish and invertebrate species with offshore areas dominated by bryozoan corals and horse mussels. Luxuriant stands of macro-algae extend into relatively deep water, but some exposed water varieties (eg; *Durvillea* spp, *Lessonia variegata*) are noticeably absent. More sheltered bays and inlets



support fewer conspicuous reef dwelling species and considerably less macro-algae cover.

Orchard bay is classified by the current Marlborough Sounds Resource Management Plan as a King Shag feeding habitat, and the current application lies at the edge of this area. NIWA, in a report from 2011³, note that, on 1st September 1951 about 50 adults and 29 nests were discovered on the penultimate rock in Duffers Reef and that the penultimate rock and the one third from the end were in use since the discovery of this colony and the outmost rock has been in use by the shags since 1964. The New Zealand king shag, a species endemic to the Marlborough Sounds, as well as Fluttering shearwaters, variable oyster-catchers, terns and gulls breed on Duffers Reef.

The 2011 NIWA report includes an assessment of the effects on seabirds from marine farm structures (primarily finfish but the effect of structures can also be applied to marine farming in general); of the factors highlighted by NIWA in the report, most such as entanglement, habitat exclusion, aggregation of shoaling pelagic fish, depletion of benthic prey and provision of roosting sites, disturbance of breeding/feeding birds, impairment of digestive tract and attraction to artificial lights are unlikely as it has been noted by Butler⁴ that King shag activities at Duffer's reef, including feeding, juvenile swimming and adult bathing tended to occur within 2km of the colony. The seaward most extent of the proposed marine farm site is located approximately two kilometres southeast of the closest point of Duffers reef. In addition, marine farms already exist in the vicinity of the application area.

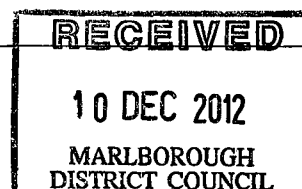
In the 2012 report for Sanford, NIWA carried out an assessment of the amount of phytoplankton depletion resulting from establishment of the extension; an assessment of the rate and extent of biodeposition on the seabed beneath the proposed extension; a description of the benthic habitat types in the vicinity of the extension based on side scan sonar and ground-truthed with photoquadrats and; a summary assessment of the likely ecological effects from the proposed extension.

7.5 Benthic effects and proposed modifications

The NIWA report notes that evidence from numerous studies and site assessments conducted in the Marlborough Sounds, indicates that the magnitude of seabed effects from mussel farming is generally low to moderate, with likely effects being minor enrichment of seabed sediments, accumulation of shell litter directly beneath the site and some changes in the relative abundances of species living at the seabed.

NIWA also note that data from previous benthic surveys from a proposed extension at the northeast end noted that the area was suitable for marine farming and described the benthic species assemblages that were commonly associated with cobble/sand slope, and flatter mud habitat throughout the Marlborough Sounds.

Based on the data collected and hydrodynamic modelling, NIWA notes that depositional effects from the proposed extension are expected to be low to moderate directly beneath the farm lines and the depositional footprint is not



expected to have any significant effect beyond 20 meters from the farm boundaries.

An area of bedrock substratum extends inside the northeast corner of the proposed extension. To avoid adverse effects to the bedrock feature of benthic deposition from the marine farm, the report recommends that the northeast corner of the extension be shifted 30 meters to the southwest, along the line of the offshore boundary of the extension. Sanford have proposed a "no structures" area set 30 meters in from the eastern boundary and 30 meters south of the offshore boundary (see accompanying plans) – this was discussed and approved by NIWA (Ken Grange, Pers. Comm. 24th September 2012).

7.6 Water column effects

The NIWA report notes that water movement at the southern end of Orchard Bay where the site is located is dominated by tide and wind-driven flows from the northern entrance to Forsyth Bay. As well as tides, this particular farm is reasonably exposed to wind-driven transport processes. Average current speed at the site is $\sim 7 \text{ cm s}^{-1}$, so the farm site is considered to have relatively fast water flow through it.

Analysis of existing studies indicates that a typical mussel farm in the Marlborough Sounds has relatively small influence on the overall concentration of phytoplankton in the water column. However, the report notes, this will vary according to the bathymetric and hydrodynamic characteristics of the site.

Based on NIWA modelling, only about 2% of the water passing through the farm is likely to be filtered by the mussel crop, and they have concluded that phytoplankton depletion is not likely to be significant, if measurable from background variation.

8.0 Navigational effects

Relevant assessment criteria:

- The consideration of navigational matters including adequate clearance from the shoreline; adjacent marine farms; jetties and log landing sites and other points of access to the shore, headlands, Navigational routes, anchorage and mooring sites, water ski lanes and sub aqueous cable

8.1 Shoreline

The application will consolidate the three existing farms and move the inshore boundary between approximately 50 and 73 meters further seaward than the existing inshore boundaries for 8139 and 8140 respectively. The seaward boundary will be between 165 and 180 meters further seaward than the existing 1839 and 8140 sites. The proposed development will enable more area inshore of the proposed farm for vessels travel, than the current setup allows. In addition, the proposed layout allows for three accessways through the farm, compared with the current two.



8.2 Headlands

There is a headland approximately 1300 meters to south of the application area. This forms the southern shoreline of Sunday bay. As a result of discussion with landscape planners (Mitchell Partnerships), the southern offshore boundary of the proposed farms was tapered along the offshore boundary of the existing site 8138; this then prevents the proposed application site from protruding and potentially impeding navigation of vessels approaching Orchard Bay from the south – around the headland between Pigeon bay and Sunday bay.

8.3 Adjacent marine farms

The closest marine farm to the south is site 8137 (Marine farm Licence 445), owned by Clearwater Mussels Ltd. The proposed application will maintain the existing gap between the two farms. The closest marine farm to the north is site 8141 owned by Sanford; the proposed positioning of the application will allow a gap of approximately 155 meters between the two farms.

8.4 Jetties and landing sites

The closest jetty is in Sunday bay, approximately 850 meters to the south of the application area, but the proposed development will not impact on this. There are no landing sites in Orchard bay itself.

8.5 Navigation routes

The proposed application will not impact on major navigation routes, the closest of which is through Pelorus Sound; Allen Strait in Forsyth Bay is a common route for vessels accessing Anakoha and Guards Bays as well as a more sheltered alternative route to rounding Culdaff Point when heading for destinations east such as Queen Charlotte Sound. Vessels entering the bay from the south (via Allen Strait) will have to travel around the southern point of Sunday Bay meaning that they will be considerably further out from shore than the outer lines of the proposed development. Access ways will be maintained between and around the farm as per the attached plans, and, as indicated in 7.1, the development has been modelled to fit in with existing farms in Orchard bay.

In addition, the site will be marked with approved lighting, floats and reflectors as per the requirements of the Navigation bylaw (2009). The bylaw also notes that vessels may not travel at more than 5 knots within 200 meters of any structure including a marine farm – this will maintain safety in the bay.

8.6 Anchorages

There are recognised anchorages in Orchard Bay itself.

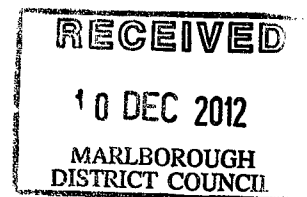
8.7 Mooring sites

There are four consented moorings around Forsyth island; the three closest, in Sunday bay, lie approximately 850 meters from the southern boundary of the application area.

8.8 Water ski lanes

There are no designated water ski lanes in Orchard bay

8.9 Subaqueous cable



Based on information from Chorus, there is no sub aqueous cable in Orchard Bay.

9.0 Recreational effects and alienation of public space

Relevant assessment criteria:

- Proximity to and likely effects on areas of recreational value
- Alienation of public space
- Whether the proposal will enhance or maintain the amenity values of the surrounding area.

The majority of recreational and tourism boat traffic occurs in the Queen Charlotte Sound and into Tory Channel. The Pelorus Sound has more small commercial marine farming traffic than the Queen Charlotte, but is a much less popular area for sailing, and has generally much less recreational traffic. Sanford do not seek to deny recreational users access in and around the proposed marine farm area. The proposed farm layout provides access to both the applicant and public alike (refer to structure plans), with accessways between the lines and space inshore of the farm to allow vessel travel. As the farm will be the redevelopment of existing farms the affect of existing amenity values should not be significant.

The area is relatively remote and has no road access from the mainland. There is one jetty in a bay approximately 850 meters to the south of the application area, but the proposed development will not impact on this. The route through Allen Strait and across Forsyth Bay is a relatively popular transit route during summer for boats travelling between Guards Bay and Pelorus Sound.

The island itself is used primarily for accommodation, boat tours, fishing excursions, kayaking, hiking and sightseeing⁵

Marine farming is the predominant activity around the western coast of Forsyth Island and the proposed development will be one of several farms around the shore of Orchard Bay. The amenity values of the area will not be affected as the proposed farm layout will not change. Sanford have service vessels which check the condition of their marine farms; in addition, Sanford are members of the Marine Farm Association's Beach debris/environmental committee which provides regular beach cleanups as well as providing education to vessel crews on farm maintenance and waste management.

10.0 Commercial and recreational fishing

Relevant assessment criteria:

- Likely effects on areas used for commercial and recreational fishing

The existing structures have not, to date, had any known adverse effects on the use of the area for commercial or recreational fishing. Sanford welcomes recreational fishers to fish in and around the proposed farm. In addition, the proposed layout

provides more space inshore of the marine farm than does the current configuration. This may provide an advantage as Orchard Bay has no moorings or recognised anchorages. With respect to commercial fishing, the proposed farm lies within the line of existing farms and the farm operations should not interfere with other commercial fishing operations as the farming operations take place within the farm area. As discussed in the NIWA report, the level of scallops under the proposed farm are very low.

11.0 Cultural effects

Relevant assessment criteria:

- Consideration of cultural matters, including proximity to and likely effects on areas of historical and traditional importance.
- Effects on the relationship of Maori and their culture and traditions with ancestral lands, water sites, waahi tapu and other toanga.
- Effects on any historic site or identified archaeological site
- Whether this proposal helps maintain the cultural values of the community.

The land opposite the site is in private ownership. The applicant is unaware of any historical or cultural sites on the adjacent land or water sites. No significant new effects on iwi are anticipated as marine farms already exist in the location.

12.0 Other effects

12.1 Socioeconomic effects

In many coastal regions aquaculture is the mainstay of small communities and makes a significant contribution to the commercial activity and economic well being of the larger service centres. Communities in the Marlborough region already benefit from, and in some cases heavily rely on, established marine farming activities.

The proposed farm would ensure ongoing supply of product to Sanford, allowing them to maintain current processing levels. This will contribute to maintaining socio-economic benefits to the community that are currently derived from these operations.

12.2 Hazardous substances and installations

Hazardous substances and installations will not be used. The lighting and marking of the marine farm at the proposed site will continue as required under the Maritime Transport Act 1994 to facilitate safe navigation by commercial and recreational vessels.

12.3 Discharge of contaminants

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Discharge of marine farm waste during harvesting is a Permitted activity under section 35.1 of the current Marlborough Sounds Resource Management Plan including the taking and discharging of coastal water and discharge of biodegradable and organic waste matter. Discharge of blue mussels, seaweed and other waste material from harvesting back into the farms is also covered under consent U100014.

The normal operation of vessels may involve small discharges such as wash down waters as well as cycling of cooling waters. These are considered to be minor and cause no adverse effects on the receiving environment. As such they are permitted activities under the Marlborough Sounds Resource Management Plan.

Vessels engaged in farming activities will carry all non-biodegradable waste back to shore for appropriate land disposal. All operations will be carried out in accordance with the industry agreed Environmental Management System, which comprises an Environmental Policy and the Greenshell™ Mussel Industry Environmental Code of Practice.

Sanford is on the Marine Farming Association 'Beach Debris' Committee which is dedicated to keeping beaches free from waste generated by marine farming activities. This is done by improving farming methods and training to reduce waste production as well as a targeted physical cleanup of beaches.

12.4 Noise

Noise emitted by vessels under way and by marine farm servicing and harvesting ships is a permitted activity in Coastal Marine Zones 1 and 2 under Exceptions detailed in Rule 35.1.1.4.2 of the Marlborough Sounds Resource Management Plan. Sanford are conscious of the potential effects of excess noise and investigates opportunities to reduce noise emissions on an ongoing basis.

12.5 Mitigation measures to reduce actual or potential effects

- Sanford has adopted the Mussel Industry Environmental Management System on a nation-wide basis. This system incorporates both an Environmental Policy and an Environmental Code of Practice (the "Greenshell™ Mussel Industry Environmental Code of Practice").
- Continued implementation our own Environmental Management System, which is accredited against the internationally recognised ISO14001 standard.
- In accordance with the Maritime Transport Act 1994, the site will be appropriately marked to facilitate navigation of vessels in and around the site. If necessary, further consideration will be given to markings to facilitate safe navigation of the proposed site.
- Vessels engaged in farming activities will carry all non-biodegradable wastes back to shore for appropriate land disposal. These vessels will operate in accordance with any rules set out in council statutory planning documents.



- Farming practices will ensure that lines, structures and navigational marking and lighting are fully maintained to avoid any breakage or failure that could result in nuisance.
- Good farm management practice can reduce potential effects as follows:
 - Appropriate line stocking densities and timely harvesting reduces drop off of mussels due to over crowding;
 - Line sinkage or breakage is prevented by use of suitable farm structure (line length, number of buoys etc) and regular inspection and maintenance;
 - Rotational harvesting minimises impacts by ensuring all lines are harvested regularly. This reduces the potential for sediment build up in any one area and ensures all lines are stripped, inspected and repaired or replaced on a regular basis.

12.6 Monitoring

Water quality will be monitored in accordance with Industry Agreed Standard 005 Shellfish Quality Assurance Programme and the Marine Biotoxin Monitoring Programme. These programmes safeguard against the effect of the environment on the quality of the product farmed (for reasons of public health) not the impact of the farm itself, however, the monitoring of product growth and health provides an excellent indicator of water quality. General farm management practices determine the suitability of a site for growing mussels; a good growing site corresponds directly with good water quality. Sanford personnel, some of whom have been in the industry for over 20 years, have the experience and technical skills to adapt and react to any adverse effects farming has on the environment. This could include a change in farm management of the site or additional investigations into the cause of any change in the environment.

12.7 Any effect on natural and physical resources having scientific value for current and future generations

The activity is situated in the coastal marine zone and there are no known active scientific activities in the area of the proposed activity. Refer also to section 7.

13.0 References

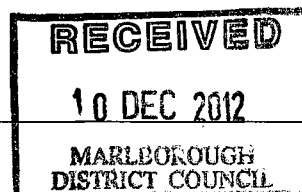
¹<http://www.marlborough.govt.nz/Your-Council/RMA/Marlborough-Sounds-Resource-Management-Plan/Volume-3.aspx>

²Davidson, R. Duffy, C. Gaze, P. Baxter, A. DuFresne, S. Courtney, S. Hamill, P. September 2011. *Ecologically Significant Marine Sites In Marlborough, New Zealand*. Marlborough District Council. 172p.

³<http://www.epa.govt.nz/Publications/Appendix%2010%20Seabirds%20Report.pdf>

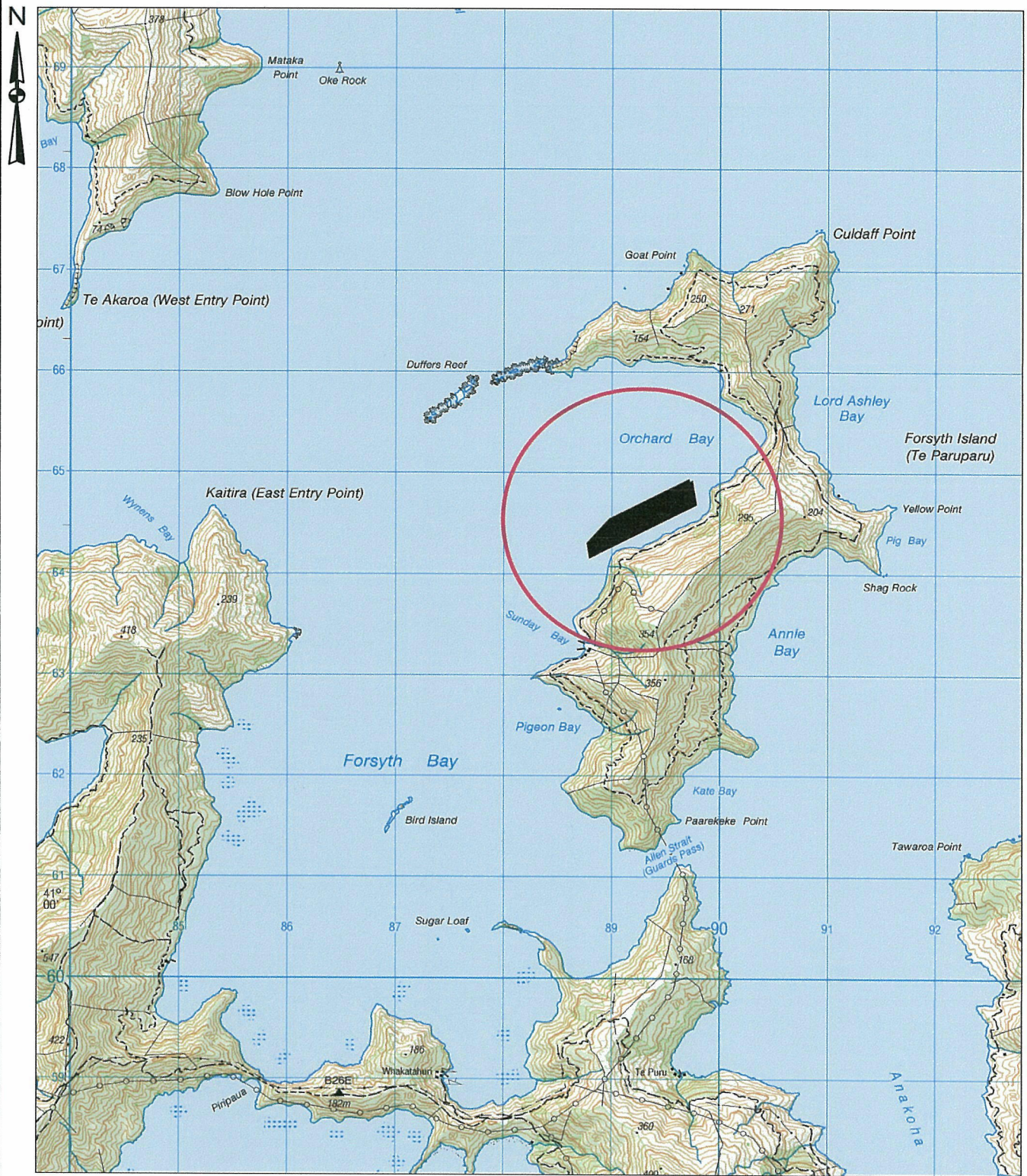
⁴http://www.aquaculture.govt.nz/files/pdfs/Possible_impacts_of_marine_farming_of_mussels_on_king_shags.pdf

⁵<http://www.forsyth.co.nz/images/Forsyth%20Prospekt.pdf>



Prepared By Tomas Johnsson
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 Sanford Havelock





Topomap 50 Sheet: BP29

Base Topographical Data sourced from Land Information New Zealand Data. Crown Copyright Reserved.

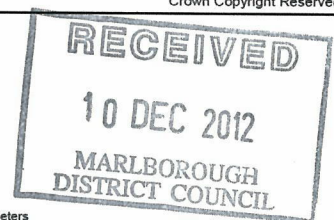


Prepared
21 November 2012

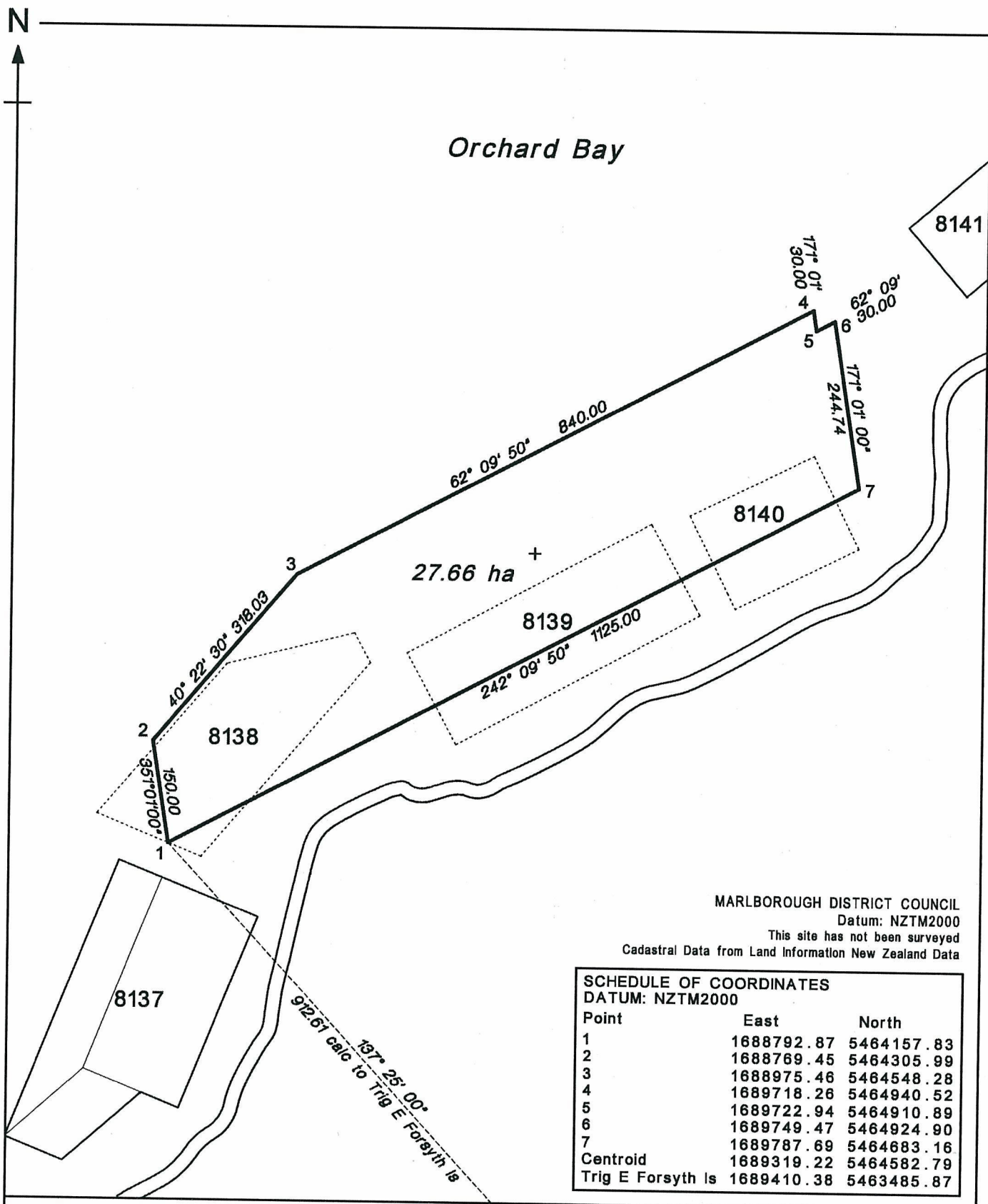
Locality Map

Proposed Coastal Permit
Orchard Bay - Pelorus Sound

Scale 1:50,000
500 0 500 1000 1500 2000 2500 3000 3500 Meters



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Proposed Coastal Permit Replacing Marine Farms 8138, 8139 & 8140 *Orchard Bay - Pelorus Sound*

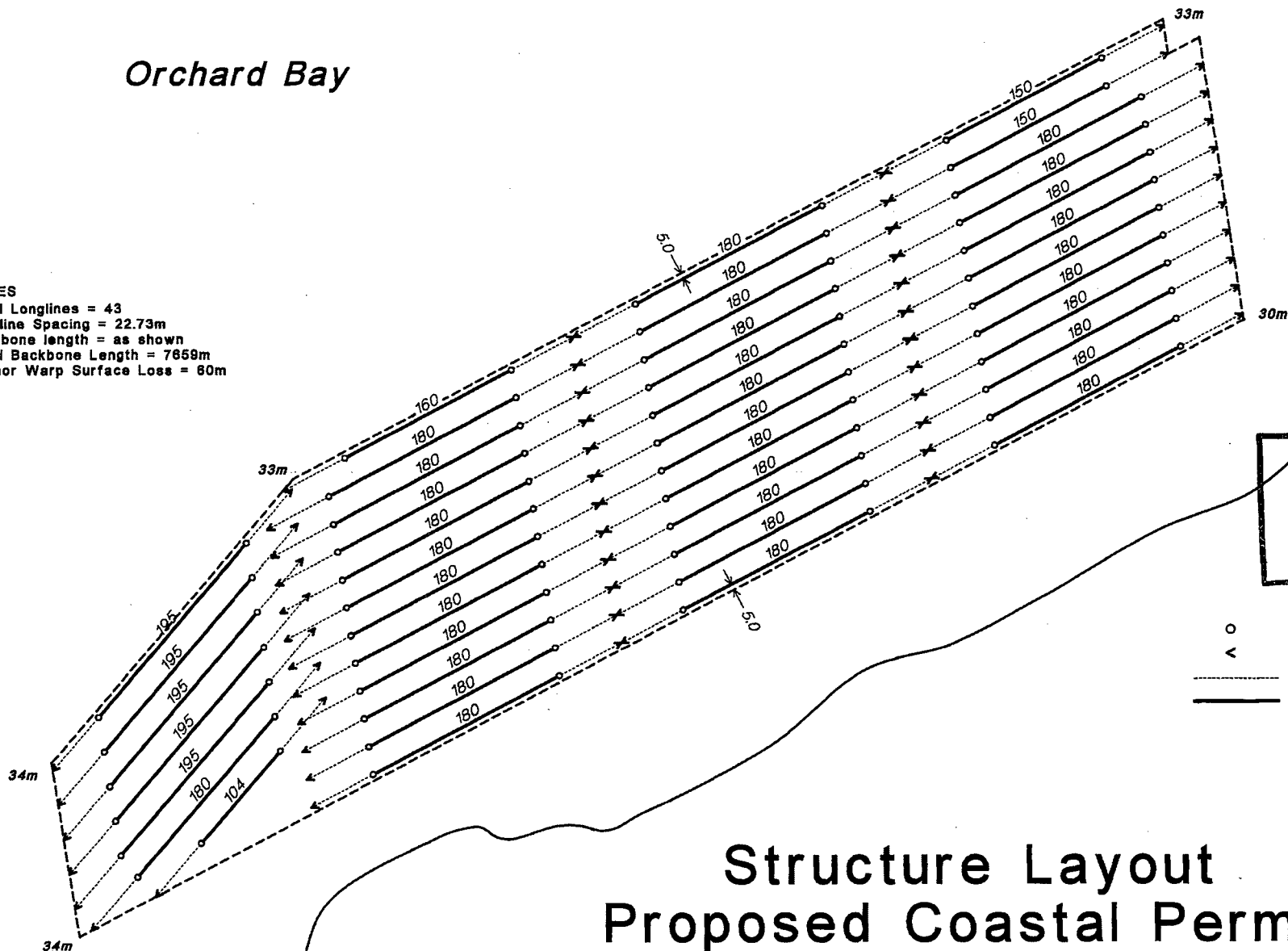
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SCALE 1:7,500
50 0 100 200 300 400 metres

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Orchard Bay

NOTES
Total Longlines = 43
Longline Spacing = 22.73m
Backbone length = as shown
Total Backbone Length = 7659m
Anchor Warp Surface Loss = 80m



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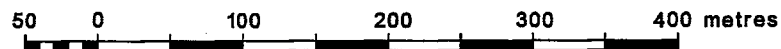
REFERENCE

○ Orange Float
 < Anchor
 --- Anchor Warp (32mm Rope)
 — Backbone (24-28mm Rope)

Structure Layout Proposed Coastal Permit *Orchard Bay - Pelorus Sound*

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SCALE 1:5,000



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