

of the Team Leader, Water Allocation, the requirements of this condition may be dispensed with on written confirmation by the Team Leader, Water Allocation.

- 57(b) (Conservation Lake water levels) Within three months of the commencement date, and subject to obtaining any necessary consents and landowner approvals, a water level board showing reduced levels (RL's) shall be installed in Conservation Lake (located 250m south of Black Swamp Road). Lake water levels should be measured at weekly intervals during the six month period commencing 1 November and ending 30 April each year from the date of commencement of this consent, to monitor the effect of the take on the lake. Records shall be kept of each date, time and corresponding water level. Once sufficient data has been recorded to establish such effects to the satisfaction of the Team Leader, Water Allocation, the requirements of this condition may be dispensed with on written confirmation by the Team Leader, Water Allocation.

58. (rainfall and evapotranspiration) Weekly rainfall and evapotranspiration losses shall be measured, recorded, and reported as part of the Annual Report required in condition 6463, until otherwise notified in writing by the Team Leader, Water Allocation. This data, together with the monitoring results of condition 58a57a and 58b57b, shall enable separation of natural climatic effects from those that might otherwise be caused by the exercise of this consent. Once sufficient data has been recorded to establish such effects to the satisfaction of the Team Leader, Water Allocation, the requirements of this condition may be dispensed with on written confirmation by the Team Leader, Water Allocation.

Groundwater effects contingency

59. (drawdown) In the event that groundwater level monitoring recorded as required by condition 5756 and 5857 indicates drawdown effects of the take exceed those predicted (the envelope of predicted effects), including effects within the middle aquifer trigger levels of MA3 = RL3.4m, MA7 = RL10.5m and MB3 = RL5.9m, the consent holder shall report to the Team Leader, Water Allocation in writing within 14 days of receipt of the monitoring results. The report shall document the drawdown effects, including the potential consequence of the variance in predicted effects, and what contingencies measures (if any) may be required to ensure potential adverse effects remain within the envelope considered by this consent. The final report and its recommendations shall be approved by the Team Leader, Water Allocation. Once approved any contingency measures deemed necessary in the report shall be complied within the timeframe provided.

Groundwater quality monitoring and response to potential saline intrusion

60. (water samples) Water samples shall be collected, just prior to the end of a high use day's pumping cycle (when taking water), from the production bores at monthly intervals during the 4 month period commencing 1 December of any year and ending 31 March of the following year from the date of commencement of this consent. The samples shall be analysed and the original laboratory results recorded and kept to monitor for saline intrusion. Samples shall be collected and analysed in accordance with APHA "Standard Methods for the Examination of Water and Wastewater" (latest Edition) or the equivalent as approved in writing by the Team Leader, Water Allocation. Analysis shall be for Chloride (Cl). The bores being sampled shall be purged by pumping for sufficient time to allow the volume of water contained in the bore to



be completely replaced three times by water from the surrounding rock. Record shall be kept of the length of time and approximate rate of pumping required to purge the each bore.

61. (aquifer conditions) The exercising of this consent shall be subject to the maintenance of aquifer conditions which do not indicate initiation of saline water ingress from the coast. A Programme of Response is to be submitted to the Team Leader, Water Allocation for approval within 14 days of a Chloride trigger level exceedance. The trigger levels in the production bores is are reached when the chloride concentration of the groundwater in the each any bore, sampled and analysed in accordance with condition ~~6460~~, is greater than the values for the relevant bore in the Chloride Trigger Levels Table. The Programme of Response may include but not be limited to: an increase in the frequency of water sampling for Chloride and measurement of bore water levels, reduced hourly or daily pumping rate, and reassessment of the risk of saline intrusion.

Table 1: Chloride Trigger Levels on Production Bores

Bore	Chloride level mg/l
MA1P	80
MA2P	82
MA4P	140
MA5P	100
MA6P	80

Quarterly reporting requirements

62. (reporting) The records collected in accordance Conditions ~~5352~~, ~~5655~~, ~~5756~~, ~~58-57(a) and (b)~~, ~~5958~~ and ~~6460~~ for the preceding quarter are submitted to the Team Leader, Water Allocation no later than 15 working days after the 28 February, 31 May, 31 August and 30 November each year.

Annual reporting requirements

63. (annual reporting) A report on bore elevation, water use, water level monitoring, and water chemistry monitoring required in accordance with Conditions ~~2827~~, ~~5554~~, ~~5655~~, ~~5756~~, ~~58-57(a) and (b)~~, ~~5958~~, ~~6059~~, ~~6460~~ and ~~6261~~ of this resource consent, shall be submitted by 30 June of each year to the Team Leader, Water Allocation. The report shall be prepared to a standard acceptable to the Team Leader, Water Allocation and consider all data collected, in particular examine and evaluate compliance with the consent conditions, trends, and any effects on the environment (including any reporting required under condition 60 during the previous year and since this consent was exercised.

Term of Consent / Duration

64. (s125 RMA) Under section 125 of the RMA, this consent lapses three years' after the date it is granted unless:



- (a) The consent is given effect to; or
 - (b) The Council extends the period after which the consent lapses.
65. ~~(41461-expiry)~~ Permit 41461 shall expire 5 years from the date of granting the consent unless it has been surrendered or been cancelled at an earlier date pursuant to the RMA.
66. ~~(41460- expiry)~~ Groundwater take permit 41460 shall expire on 31 May 2034 unless it has lapsed, been surrendered or been cancelled at an earlier date pursuant to the RMA.

Review condition (water take and use)

67. ~~That the conditions of this consent may be reviewed by the Council pursuant to Section 128 of the Resource Management Act 1991, by the giving of notice pursuant to Section 129 of the Act, in June 2014 and at yearly intervals thereafter in order:-~~

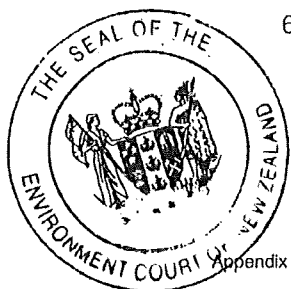
- a) ~~In relation to the water take and use, to vary the quantities, monitoring and reporting requirements, and performance standards in order to take account of information, including the results of previous monitoring and changed environmental knowledge, on:-~~
 - i. ~~water availability, including alternative water sources;~~
 - ii. ~~actual and potential water use;~~
 - iii. ~~groundwater levels; and~~
 - iv. ~~groundwater quality;~~
- b) ~~To deal with any adverse effect on the environment arising or potentially arising from the exercise of this consent including land outside of the Auckland Region.~~

~~Note: This may include varying the quantity of the water take to ensure efficient use of the resource.~~

Impacts on Neighbouring Bores

68. The Consent Holder shall remedy, to the satisfaction of the Council, any ~~reduction in the quantity of the bore water supplies,~~ lowering of static water levels that has resulted from the groundwater take that is subject to this consent, for those bores which existed as at 4 March 2013 and located on properties listed on Schedule B. This remedy shall ensure that the quantity of the water supply from these bores, as determined by measured water levels, is no less than existed prior to the use of the bores that are the subject to this consent. It shall be achieved by enhancements to existing bore facilities or provision of an alternative water supply. Any reduction in water quantity from an existing bore shall be measured in accordance with the monitoring process set out in condition ~~7069~~ below.

69. Prior to the implementation of the subject consent, the Consent Holder shall write to the existing bore owners on properties listed on Schedule B, requesting the opportunity for access to monitor existing at-rest water levels, advising of the obligations of consent conditions ~~6968~~ and ~~7069~~, and allowing existing



bore owners 30 days to respond. Where no response is forthcoming, or the bore permit holder does not allow access for monitoring, no further action is required in respect to condition 6968 and the condition is deemed to be satisfied in respect to those bores. Where access is provided, the consent holder shall measure the at-rest water level following a 12 hour pump switch off and shall provide to the Council and the bore permit holder the water level measured in the existing bore and the date on which that measurement was taken. This level shall be used, in conjunction with other monitoring well data and on-site investigations, to assess whether the bores that are the subject to this consent result in a reduction in water quantity from that bore and if so, the remedies in condition 6968 shall apply.

Ongoing Conditions

70. (Golf Course Conservation Management Plan) A Golf Course Conservation Management Plan ("CMP") shall be prepared by the consent holder with assistance from a qualified Ecologist prior to the operation of the golf course.

The CMP shall be submitted to, and approved in writing, by the Council's Team Leader Compliance & Monitoring (in consultation with Council's Ecologist).

The purpose of the CMP shall be to manage activities on the ongoing operation of the golf course Lot 2, DP 453130 ("the site"):

- (A) To assist in the establishment of establish a Conservation Management Area over the golf course area on the site in order to protect and enhance the ecological values of the golf course;
- (B) To protect and enhance the ecological values of the following areas of ecological significance on the site¹⁶ and integrate their management with the golf course:
- The dune lands coastal dunes and beach on the site between the golf course and mean high water springs; and
 - Marsden Road Wetland;
 - Harbour Road Wetland; and¹⁷
 - The boundary with the Mangawhai Wildlife Refuge Reserve¹⁸.
- (C) To protect and enhance the ecological values of the following areas adjacent to the site:¹⁹
- Mangawhai Wildlife Refuge Reserve²⁰;
 - Marsden Road Wetland;
 - Harbour Road Wetland; and
 - and²¹
 - Te Arai Stream Mouth.

If the consent holder is denied access to any of the areas above, this condition and any proposed action related to such areas under these conditions is deemed to be satisfied.²²

The CMP shall achieve its purpose through the following methods:

¹⁶ Edit to delete unnecessary reference to "site"

¹⁷ Para 111(k) of Decision

¹⁸ Para 112 of Decision

¹⁹ Edit to delete unnecessary reference to "site"

²⁰ Para 112 of Decision

²¹ Para 111(k) of Decision

²² Para 114 of Decision.



- (a) Control of invasive weed species on in the site, including the golf course²³Conservation Management Area.
- (b) Animal pest control on in the site, including the golf course²⁴Conservation Management Area.
- (c) The demarcation and protection of the areas of ecological value on the site identified in condition 70(B), the coastal dunes on the site seaward of the EEZ referred to in condition 14, including methods to prevent golfers, caddies, staff, contractors and visitors from intruding into these areas other than for maintenance purposes, such as course rules which deem such areas out of play, physical barriers, planting and signs. Subject to obtaining agreement with the Department of Conservation, the Northern Boundary of Lot 2 DP 453130 shall be fenced and planted in accordance with the Plan Change 166 Reserve Plan to achieve a 60m corridor that connects the foreshore reserve with the Marsden Road wetland. Such planting may be provided on either side of the boundary.²⁵
- (d) Identification and protection of any nests of Threatened or At-Risk shorebirds on the golf course and on the areas of ecological value on the site identified in condition 70(B). This shall include the following measures:
- (i) Protocols for the management of the golf course to ensure such shorebird nests are protected from disturbance, including where necessary providing a buffer area around the nest as out of play;
 - (ii) The demarcation of a buffer around shorebird nests (appropriate buffer areas according to shorebird species to be determined by a qualified ecologist with experience in shorebird management);
 - (iii) Information to educate golfers and caddies of the location of shorebird nests on the golf course and the importance of avoiding and not disturbing such nests, including information in both the clubhouse and on signs on the golf course.
- (e) Education through an induction process of golfers, caddies, staff, contractors and visitors as to the areas of ecological significance on the golf course and adjacent areas.
- (f) Limiting access to the golf course to golfers, caddies, staff, contractors and visitors who have been through the induction process, with any other people on the golf course to be accompanied by a person who has been so inducted.
- (g) Limiting pedestrian access for golfers, caddies, staff, contractors and visitors associated with the golf course to the single access point in the location shown as "Beach Access Point" on the plan EC-002A prepared by Darby Partners, titled Te Arai 795 Hearing- Earthworks and Trenching, dated 22/10/13, or as otherwise provided for in the CMP in a location that protects ecological values and otherwise satisfies the provisions of the CMP.



²³ Para 111(I) of Decision. Note already deleted in 1 November 2013 version of conditions

²⁴ Para 111(I) of Decision. Note already deleted in 1 November 2013 version of conditions.

²⁵ Para 103 and 110 of Decision. Note this condition is taken from the PC 166 provisions agreed and attached to the PC 166 Draft Consent Order dated 16 April 2014 (see page 11, para (iii))

- (h) Allowing for one additional private pedestrian access only (not available to golfers, caddies, staff and visitors associated with the golf course) in a location approved by the Council.
- (i) Preventing vehicle access from the golf course to the beach over the coastal dunes on the site seaward of the EEZ referred to in condition 14.

The golf course shall be operated in accordance with works, methodologies and timing set out in the approved plan, and maintained thereafter.

- 71. (Domestic animals) No domestic animals (including cats, mustelids, dogs, goats, rabbits and rodents), other than guide dogs on the leash for the visually or hearing impaired, shall be allowed on Lot 2 DP 453130, including the golf course the site. Horses may be allowed on Lot 2 DP 453130 the site²⁶, but only outside of the golf course and the areas of ecological significance on the site identified in condition 70B and 70C²⁷ above.
- ~~72. (Vehicular Access) No vehicular access shall be provided from the site to the Te Arai Beach through the dune lands except for access by a rescue craft (if required) at a location provided for in the CMP that protects ecological values and otherwise satisfies the provisions of the CMP.~~

Review condition (water take and use)

- 73. That the conditions of this consent may be reviewed by the Council pursuant to Section 128 of the Resource Management Act 1991, by the giving of notice pursuant to Section 1289 of the Act, in June 2014 and at yearly intervals thereafter in order:

e)a) In relation to the water take and use, to vary the quantities, monitoring and reporting requirements, and performance standards in order to take account of information, including the results of previous monitoring and changed environmental knowledge, on:

- i. water availability, including alternative water sources;
- ii. actual and potential water use;
- iii. Conservation Lake water levels²⁸,
- iii. groundwater levels; and
- iv. groundwater quality;

d)b) To deal with any adverse effect on the environment arising or potentially arising from the exercise of this consent including land outside of the Auckland Region.

Note: This may include varying the quantity of the water take to ensure efficient use of the resource.

²⁶ Edit to clarify areas where certain types of animals are prohibited, but horses permitted

²⁷ Edit to ensure consistency following edits to Conditions 70B and 70C

²⁸ Paras 65 and 111(m) of Decision



Schedule B – Bore Mitigation Properties

Te Arai - Land Tenure	
SCHEDULE B	
LEGAL DESCRIPTION	LAND OWNER
Lot 3, DP 199788	B Tucker, KB Atkin
Lot 2, DP 121023	MH Westlake & WM Westlake
Pt Lot 1, DP 106974	CM Wild
Lot 1, DP 121023	TJ Andrew, VJ Andrew
Lot 4, DP 121023	MH Westlake & WM Westlake
Lot 2, DP 202607	JP Harris, MP Huxford, SR Harris
Lot 1, DP 202607	AT & SA Frost
Lot 1, DP 319310	JR & MM Hendrickson, V Kerr
Lot 3, DP 121023	LA McCabe & SA McCabe
Sec 9 Blk IV Mangawhai Survey District SO 34105 (63.8897HA), Sec 35 Blk IV Mangawhai Survey District SO 45817 (7.5449HA)	<u>Brian Rana Smith & Colin Frederick Payne & Jennifer Ratanui Payne</u>
Lot 1, DP153473	Devvyn Judith Smith & Ross Michael Cameron
<u>Lot 29 DP 198639</u>	<u>John Melville Wellsted Russell & Mildred Anne Russell & David Neil Murray</u>

Advice Notes

1. The consent holder shall obtain all other necessary consents and permits, including those under the Building Act 2004, and the Historic Places Act 1993. This consent does not remove the need to comply with all other applicable Acts (including the Property Law Act 2007), regulations, relevant Bylaws, and rules of law. This consent does not constitute building consent approval. Please check whether a building consent is required under the Building Act 2004. Please note that the approval of this resource consent, including consent conditions specified above, may affect a previously issued building consent for the same project, in which case a new building consent may be required.
2. That, in the event of archaeological site evidence (e.g. shells, middens, hangi or ovens, pit depressions, defensive ditches, artifactual material or human bones) being uncovered during construction, the consent holder shall ensure that operations shall cease in the vicinity of the discovery and that the archaeologist, Auckland Council, is contacted so that the appropriate action can be taken before any work may recommence there.



All archaeological sites are protected under the provisions of the Historic Places Act 1993 (HPA). It is an offence to destroy, or modify any archaeological site whether or not the site is entered on the New Zealand Historic Places Trust (NZHPT) Register of historic places, historic areas, wahi tapu and wahi tapu areas. Under sections 11 and 12 of the Act, applications must be made to the NZHPT for an authority to destroy, damage or modify an archaeological site(s) where avoidance of effects is not practicable. It is the responsibility of the applicant (consent holder) to consult with the NZHPT about the requirements of the HPA and to obtain necessary Authorities under the HPA should these become necessary as a result of any activity associated with the proposed development. For information contact the NZHPT Regional Archaeologist – Greg Walter (09) 307 9924.

All work must be undertaken in accordance with the conditions of an archaeological authority from the New Zealand Historic Places Trust.

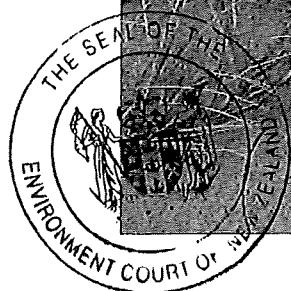
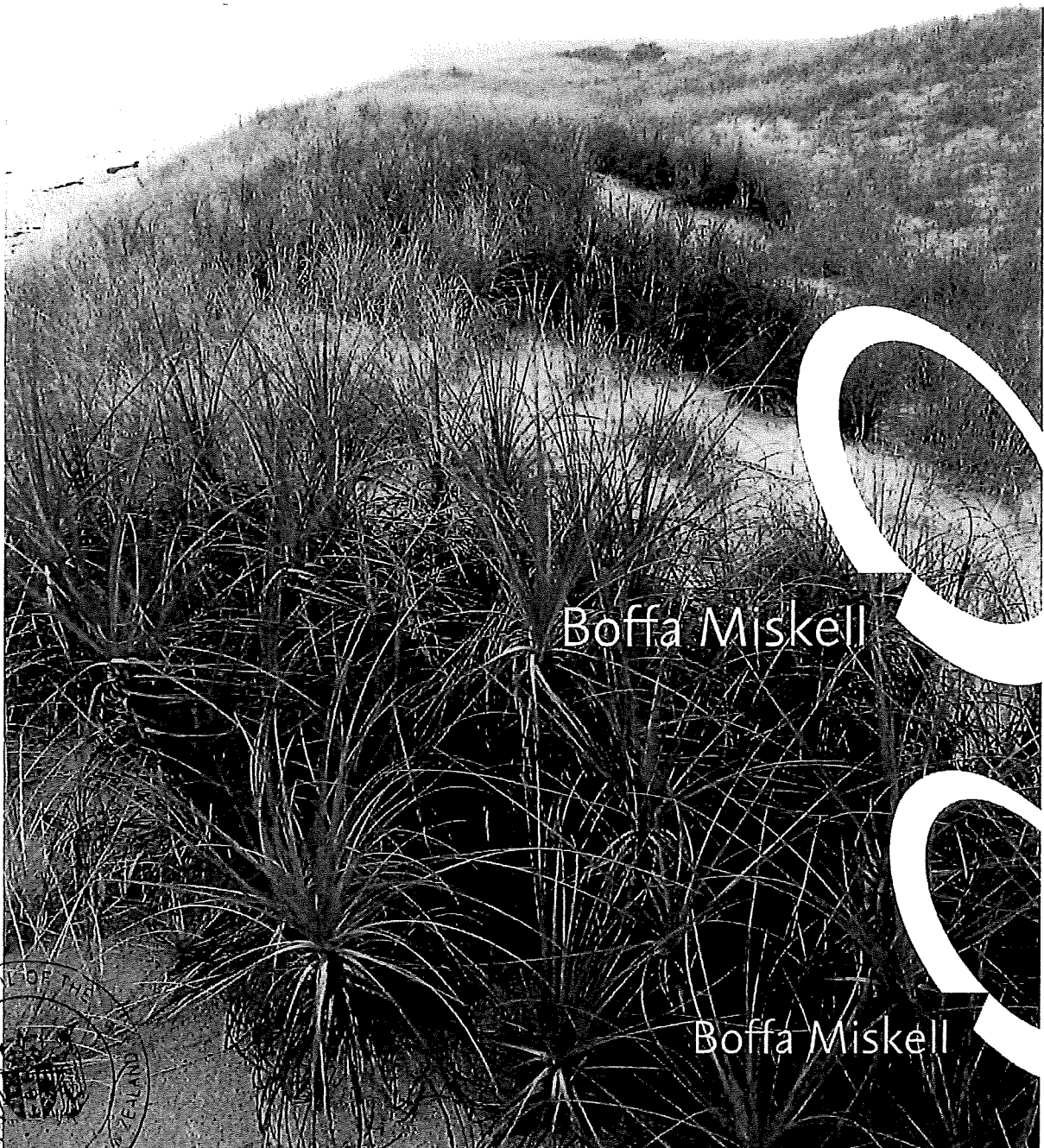
3. The granting of this resource consent does not in any way allow the applicant to enter and construct drainage within neighbouring properties, without first obtaining the agreement of all owners and occupiers of said land to undertake the proposed works. Any negotiation or agreement is the full responsibility of the applicant, and is a private agreement that does not involve Council. Should any disputes arise between the private parties, these are civil matters which can be taken to independent mediation or disputes tribunal for resolution. It is recommended that the private agreement be legally documented to avoid disputes arising. To obtain sign-off for the resource consent, the services described by the conditions above are required to be in place to the satisfaction of Council.
4. Nothing in this consent allows the consent holder to deviate from the conditions or requirements of consents or approvals obtained under other legislation, including the Overseas Investment Act 2005 and the Crown Forest Assets Act 1989.



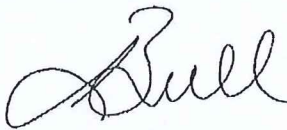

Ecological Management Plan

Prepared for Tara Iti Holdings NZ

~~7 May 2014~~ 10 June 2014



Document Quality Assurance

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Cover photograph: Te Arai coastal dunes and stream mouth © Boffa Miskell Ltd, 2013



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Appendix 1: Photos of ecological features

Appendix 2: DOC Permit





1.0 Introduction

Tara Iti golf course, situated on Lot 2 (DP 453130) of the 616 ha Te Arai property, is located within the Rodney Ecological District. The Te Arai property contains the Mangawhai Forest, a commercial pine plantation, approximately 100 ha of which has been cleared to facilitate the construction of the golf course. Despite the pine forest being of low ecological value, there are a number of habitats and species occurring on and adjacent to the site that have been identified as being of moderate and high ecological value.

Outlined in this document, following a summary of those ecological values, are the management techniques that will be used to ensure that the earthworks activities associated with the Tara Iti golf course do not impact on these areas or species of ecological importance.

2.0 Ecological Values

The **coastal frontage** of Lot 2 has been identified as being of high ecological value, with a complex coastal dune system supporting communities of native flora and fauna (Boffa Miskell Ltd, 2004, 2008; Mitchell et al., 1992). Of particular note are the populations of pingao (*Ficinia spiralis*) on the frontal dune system and sand coprosma (*Coprosma acerosa*) on the back dune (see photos in Appendix 1), both of which are classified as *At Risk* species (de Lange et al., 2013). Spinifex (*Spinifex sericeus*) and pohuehue (*Muehlenbeckia complexa*), both classified as *Not Threatened* (de Lange et al., 2013), are present and assist with dune stabilization and natural sand trapping.

There are a number of small **dune seeps** that run behind the secondary dune that are fed by groundwater. These seeps are more apparent following clearance of the pines. In their current form, these seeps have been modified through the historical activities that have occurred on the site (see photos in Appendix 1) but are still considered to be of moderate ecological value. There are no perennial water ways located within the Lot 2 site.

Harbour Road wetland, a relatively diverse wetland (approximately 0.3 ha) with an area of open water, straddles the western boundary of the site along Harbour road (see photos in Appendix 1). The largest wetland on Lot 2, **Marsden Road Northwest wetland**, is located in the north-western corner of the site (see photos in Appendix 1). This wetland is the best quality and most diverse wetland on the Te Arai property (Boffa Miskell Ltd, 2009). This wetland is relatively large (approximately 5 ha) and includes representative wetland types. The ecological values of this wetland are considered to be high and activities to enhance and protect this wetland have been undertaken as required for the resource consent R54893B.

The presence of **shore skink** (*Oligosoma smithi*) has been confirmed along the foredunes, though several years prior to any forestry clearance a single shore skink was recorded 150 m inland on the southern boundary of Lot 2 (Boffa Miskell Ltd, 2008). Shore skink are classified as *Not Threatened* (Hitchmough et al., 2013) with a habitat preference for open habitats with driftwood, rocks, mat-forming vegetation or piles of seaweed on or near the shoreline.



Also abundant along the Te Arai foredune area is the black morph of the **katipo** spider (*Latrodectus katipo*) (Boffa Miskell Ltd, 2008), this species is classified as being *At Risk - Declining* (Range Restricted qualifier) (Sirvid et al., 2012).

Terrestrial avifauna observed within the pine plantations and cleared areas include blackbird, song thrush, skylark, chaffinch, myna, goldfinch, sparrow, spur-wing plover, Australasian harrier, welcome swallow, silver-eye and fantail (Boffa Miskell Ltd, 2004, 2008). None of these species are classified as *Threatened* or *At Risk*, and only the latter five are native.

The coastal sandy environment also provides roosting, foraging and breeding habitat for a number of *Threatened* and *At Risk* **shorebirds**. Immediately north of the Tara Iti golf course is the 245 ha Mangawhai Wildlife Refuge (MWR), located on a 3.5 km long sand spit situated between the Mangawhai Harbour/Estuary and the ocean (see photos in Appendix 1). The MWR is managed by the Department of Conservation and is a significant breeding ground for a number of shorebirds including the *Threatened* northern New Zealand dotterel (*Charadrius obscurus aquilonius*) and the New Zealand fairy tern (*Sternula nereis davisae*).

The inter-tidal zone along the beach frontage Lot 2 provides foraging habitat for a number of shorebirds, and northern New Zealand dotterel have been recorded breeding there on occasion. In addition, the change in land use on Lot 2 from production pine forest to a golf course has resulted in the creation of areas of ideal breeding habitat for this species (see photo below).



3.0 Management Techniques

3.1 Earthworks Exclusion Zone

The coastal dunes, primarily the foredune and immediate back dune, have been identified as an area of high ecological value, supporting communities of native flora and fauna (including *Threatened* and *At Risk* species). No earthworks will occur in this area and the values will be protected from activities associated with the construction of the Tara Iti golf course by way of an Earthworks Exclusion Zone (EEZ) as identified on the plan EC-002A prepared by Darby Partners, titled 'Te Arai 795 Hearing – Earthworks and Trenching' dated 22/10/13. The EEZ line outlined on



that plan has been ground-truthed by the Project Ecologist to ensure that all the ecological values are included within the seaward side of the line.

Prior to earthworks, the EEZ line will be demarcated on site using standard portable pigtail or treadin posts. The posts will be placed at approximately 20 m spacings, or closer if required to clearly demarcate the boundary of the EEZ. Sturdy plastic taping will be run continuously between each of the posts and further marked with flagging tape to make the line highly visible.

The following measures are to be undertaken to further protect the ecological values within the EEZ (i.e. seaward of the line):

- No earthworks machinery is to occur within the EEZ;
- No storage of materials to occur within the EEZ;
- No vehicles to be driven within the EEZ;
- No pedestrian traffic through the EEZ unless personal are undertaking monitoring or maintenance activities in that area (e.g. revegetation or weed and pest control operations);
- All other pedestrian traffic to the beach will be by approved access points, not through the EEZ;
- Any vegetation clearance within the EEZ undertaken in accordance with the Forestry COC will be done so in a manner that minimises any ecological impacts.

3.2 Monitoring the EEZ

Following the completion of the EEZ fencing and prior to the commencement of earthworks, the Project Ecologist will confirm the correct placement and adequate visibility of the fencing as per Section 3.1.

In order to monitor the impact of the earthworks on the coastal dunes eastward of the EEZ, the Project Ecologist shall undertake monthly site checks of the EEZ (i.e. the ecological values contained within it) during the period in which the earthworks are occurring within 50m of the EEZ.

3.3 Fencing of Native Vegetation Outside the EEZ

Prior to the earthworks, all areas of significant native vegetation outside the EEZ and within 50m of the works areas will be identified by the Project Ecologist and surrounded in temporary fencing. For the purpose of this document, significant native vegetation includes:

- Native plants over 2m in height;
- Native species that have a Threat Classification;
- Native vegetation communities associated with seeps;
- Any cluster of native vegetation (excluding *Muehlenbeckia complexa*) greater than 3m x 3m in size) of native vegetation.

The method of fencing will be standard portable pigtail or treadin posts placed around the identified vegetation, with sturdy plastic taping running continuously between the posts (see

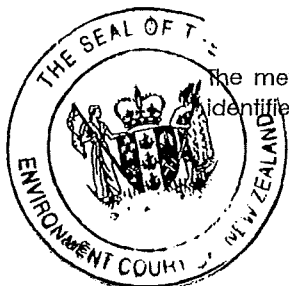
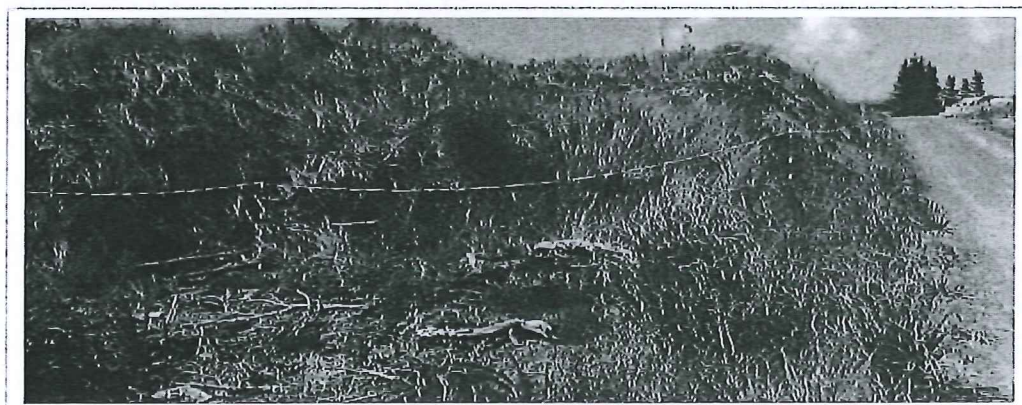


photo below). Such fencing or demarcation shall remain in place until all earthworks within the particular area have been completed. No works or storage of materials shall occur within these

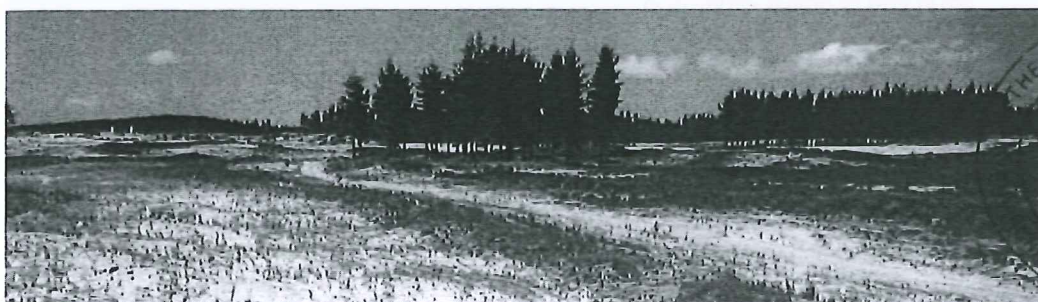


fenced areas.

3.4 Nesting Shorebirds

Prior to the commencement of any earthworks and subsequently on a monthly basis if earthworks occur between August and March, the Project Ecologist will visit the site and identify any NZ fairy tern nests, NZ dotterel nests, or any other *Threatened* or *At Risk* shorebird nest on the site that is subject to the Environment Court's decision [2014] NZEnvC 98 (Lot 2, DP 453130). Following each such site visit, a plan will be produced noting the location of any nests, or confirming that no nests are present.

The location of any such nests, and the importance of the site in relation to these species in general, will be communicated to all contractors on site through site induction and regular site meetings. All works, including construction traffic and construction personnel on foot shall be at least 500m from NZ fairy tern nests and 50m from any other *Threatened* or *At Risk* shorebird nest. Such nests on the site will be fenced or otherwise appropriately demarcated during construction works in a location approved by the Project Ecologist (see photos below of temporary fencing



previously used to demarcate nests on Lot 2).

3.5 Herpetofauna

A protocol¹ for the management of herpetofauna on the Te Arai – Tara Ihi site has been prepared and will be implemented. In summary, for shore skink this will involve deploying Artificial Cover Objects (ACOs) in areas of shore skink habitat to be earthworked a minimum of 10 weeks prior to earthworks. Immediately prior to the earthworks, the ACOs and adjacent natural refugia will be checked for the presence of shore skink and any other native herpetofauna. Any such individuals found will be captured and translocated to appropriate habitat outside of the earthworks area. A copy of the Department of Conservation permit allowing for the capture and transfer of lizards associated with this project is provided in Appendix 2.

3.6 Revegetation, Weed & Pest Control

Guidelines² for revegetation of earthworked areas have been prepared and will be implemented.

4.0 Implementation Timetable

Outlined in Table 1 is a timetable for the implementation for the measures outlined in the previous sections of this Management Plan according to the phase of earthworks (i.e. pre-, during or post-earthworks).

5.0 Key Contacts

CONTACT PERSON	ROLE	PHONE
Marcus Bird	Site Engineer	021 446 041
Jim Castiglione	Council Contact	021 464 516
Phil Vautier	Site Manager	027 227 8811



¹ Boffa Miskell Ltd (2014). *Herpetofauna Protocol*. Report prepared by Boffa Miskell Ltd for Te Arai Coastal Lands Trust & Tara Ihi Holdings NZ.

² Boffa Miskell Ltd (2014). *Earthworks & Revegetation Management Plan (including Weed & Pest Control)*. Report prepared by Boffa Miskell Ltd for Te Arai Coastal Lands Trust & Tara Ihi Holdings NZ.

Table 1: Timing and permit requirements for the ecological management of the water take & earthworks activities

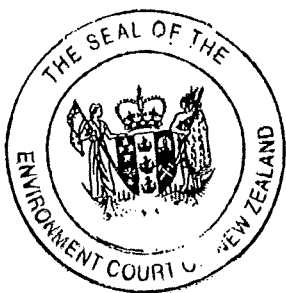
	TIMING OF ACTION	DOC PERMIT
EEZ	<p>Pre-construction/earthworks:</p> <ul style="list-style-type: none"> Erection of fencing along EEZ line; Check by Project Ecologist confirming correct placement and adequate visibility of EEZ fencing. <p>During construction/earthworks:</p> <ul style="list-style-type: none"> Monthly check of EEZ by Project Ecologist when earthworks occurring within 50 m of EEZ line. 	No DOC permit required.
Significant native vegetation	<p>Pre-construction/earthworks:</p> <ul style="list-style-type: none"> Fencing of identified significant native vegetation prior to earthworks. <p>Post-construction/earthworks:</p> <ul style="list-style-type: none"> Fencing to be removed when all earthworks within 50m of the area of significant native vegetation are completed. 	No DOC permit required.
Shore skink	<p>Pre-construction/earthworks:</p> <ul style="list-style-type: none"> Implement Herpetofauna Protocol in areas where suitable habitat overlaps with earthwork areas. Deploy ACO in areas of shore skink habitat to be earthworked a minimum of 10 weeks prior to earthworks. Check for presence of shore skink under ACO's and within adjacent natural refugia immediately prior to earthworks. 	DOC permit obtained to handle lizards for capture and possible relocation on site.
Shorebirds	<p>Pre-construction/earthworks:</p> <ul style="list-style-type: none"> Site visit by Project Ecologist prior to commencement of earthworks and subsequently on a monthly basis if earthworks occur between August and March, to identify any NZ fairy tern nests within 500m, or NZ dotterel or any other shorebird classified as Threatened or At Risk within 50m of earthworks. The presence of any breeding shorebirds to be communicated to contractors. Temporary fencing will be constructed around any nesting shorebirds. <p>During construction/earthworks:</p> <ul style="list-style-type: none"> If earthworks occur between August and March, monthly site visit by Project Ecologist to identify any NZ fairy tern nests within 500m, or NZ dotterel or any other shorebird with a specific Threat Classification of either Threatened or At Risk within 50m of earthworks. The presence of any breeding shorebirds to be communicated to contractors. Temporary fencing will be constructed around any nesting shorebirds. 	No DOC permit required to undertake visual search for breeding shorebirds or erection of temporary fencing.
Revegetation	<p>Post-earthworks:</p> <ul style="list-style-type: none"> Areas to be revegetated will be planted following the completion of earthworks in that particular area. 	



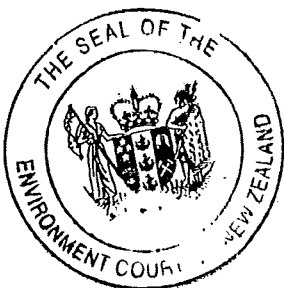
6.0 References

- Allibone, R., David, B., Hitchmough, R., Jellyman, D., Ling, N., Ravenscroft, P., & Waters, J. (2010). Conservation status of New Zealand freshwater fish, 2009. *New Zealand Journal of Marine and Freshwater Research*, 44(4), 271–287.
- Boffa Miskell Ltd. (2004). *Project Te Arai ecological investigations baseline surveys*. Prepared by Boffa Miskell for Darby Partners.
- Boffa Miskell Ltd. (2008). *Te Arai Park – additional ecological surveys 2008*. Prepared by Boffa Miskell for Darby Partners.
- Boffa Miskell Ltd. (2009). *Marsden Road north west wetlandland rehabilitation plan*. Prepared by Boffa Miskell for Te Arai Coastal Lands Trust.
- Boffa Miskell Ltd. (2012). *Te Arai earthworks: Draft herpetofauna protocol*. Prepared by Boffa Miskell for Te Arai Coastal Lands Trust.
- De Lange, P. J., Rolfe, J. R., Champion, P. D., Courtney, S. P., Heenan, P. B., Barkla, J. W., ... Hitchmough, R. A. (2013). *Conservation status of New Zealand indigenous vascular plants, 2012* (New Zealand Threat Classification Series No. 3). Wellington: Department of Conservation.
- Department of Conservation. (2012). *Conservation management strategy Northland Conservancy 2014-2024, draft*. Department of Conservation.
- Hitchmough, R., Anderson, P., Barr, B., Monks, J., Lettink, M., Reardon, J., ... Whitaker, T. (2013). *Conservation status of New Zealand reptiles, 2012* (New Zealand Threat Classification Series No. 2). Wellington: Department of Conservation.
- Miskelly, C. M., Dowding, J. E., Elliott, G. P., Hitchmough, R. A., Powlesland, R. G., Robertson, H. A., Sagar, P.M., Scofield, R.P., Taylor, G. A. (2008). Conservation status of New Zealand birds, 2008. *Notornis*, 55(3), 117–135.
- Mitchell, N. D., Campbell, G. H., Cutting, M. L., Ayres, B. D., Hilton, M., & Slaven, D. (1992). *Rodney Ecological District survey report for the Protected Natural Areas Programme 1983-1984* (New Zealand Protected Natural Areas Programme No. 18). Auckland: Department of Conservation.
- Sirvid, P. J., Vink, C. J., Wakelin, M. D., Fitzgerald, B. M., Hitchmough, R. A., & Stringer, I. A. N. (2012). The conservation status of New Zealand Araneae. *New Zealand Entomologist*, 35(2), 85–90.
- Zimmerman, R. (2011). *Potential breeding sites for New Zealand fairy tern*. Unpublished report prepared for Royal Forest and Bird Protection Society.



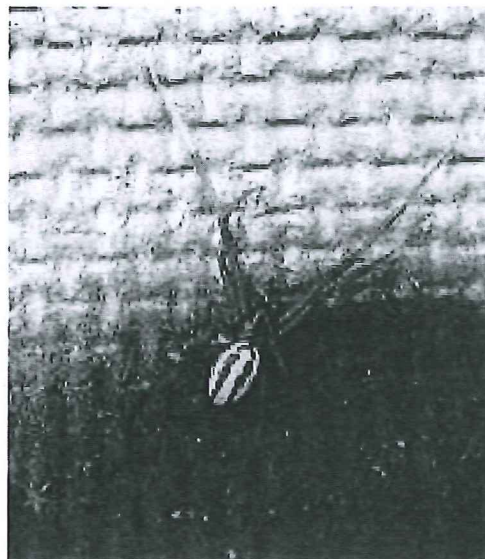


Appendix 1: Photos of ecological features





Northern end of Lot 2 - Foredune vegetation with Mangawhai Wildlife Refuge in background.

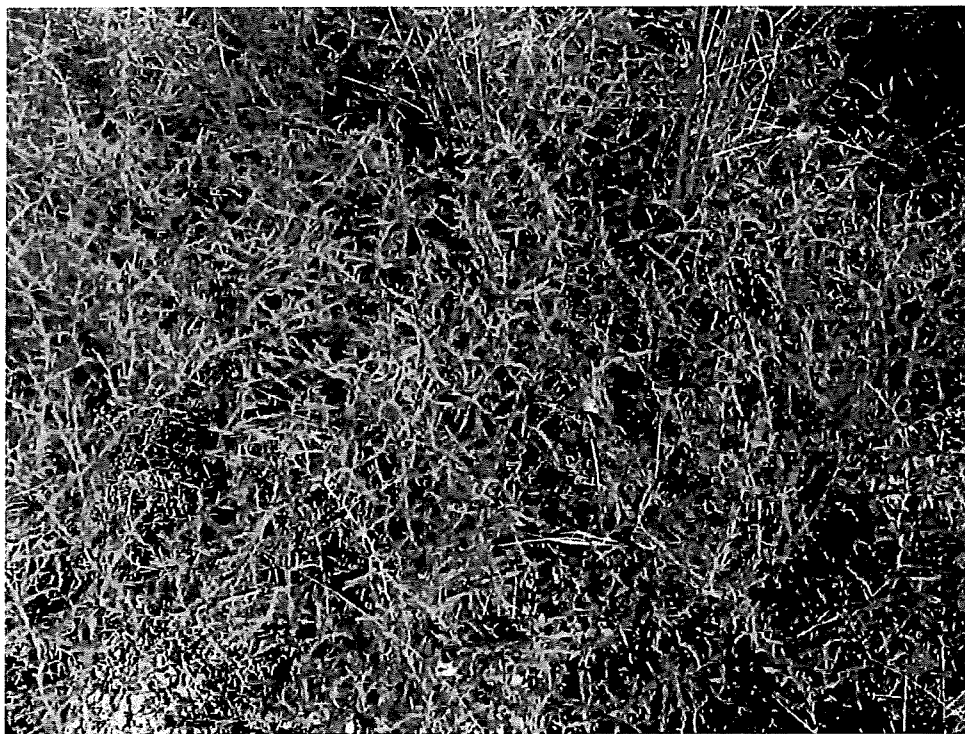


Katipo spider recorded along Te Arai fore dune.

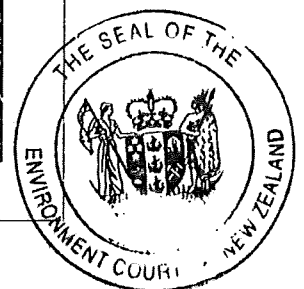




Patch of pingao on the foredune of Lot 2.



Sand coprosma located on the back dune of Lot 2.





Open water area of Marsden Road Northwest wetland.

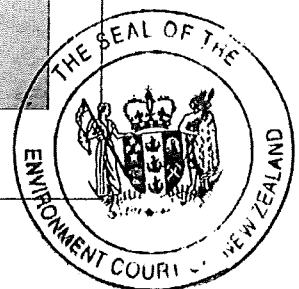


Harbour Road wetland – western boundary of Lot 2.



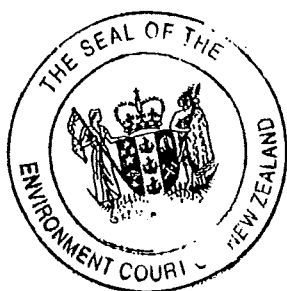


Series of seeps located along the back of the Lot 2 backdune





Appendix 2: DOC wildlife permit





Department of Conservation
Te Papa Atawhai

**Wildlife Act Authority for wildlife not
located on public conservation land**

National Permit Number: 37228-FAU
File Number: NHS-12-03

THIS AUTHORITY is made this 1st day of October 2013

PARTIES:

The Director General of Conservation (the Grantor)

Boffa Miskell Limited (the Authority Holder)

BACKGROUND

- A. The Director General of Conservation is empowered to issue authorisations under the Wildlife Act 1953.
- B. The Authority Holder wishes to exercise the authorisation on the Land subject to the terms and conditions of this Authority.

OPERATIVE PARTS

In exercise of the Grantor's powers under the Conservation legislation the Grantor **AUTHORISES** the Authority Holder under Section 53 of the Wildlife Act 1953 subject to the terms and conditions contained in this Authority and its Schedules.

SIGNED on behalf of the Grantor by:

Liz Maire

Liz MAIRE
Conservation Partnerships Manager
Warkworth District Office

acting under delegated authority
in the presence of:

Witness Signature: *David Wilson*
Witness Name: David Wilson
Witness Occupation: Public servant
Witness Address: Warkworth

A copy of the Instrument of Delegation may be inspected at the Director-General's office at 18-22 Manners Street, Wellington

