Assessment of Environmental Effects

on behalf of

Meridian Energy Limited

Mt Munro Wind Farm Project

May 2023

Quality Control

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Contents

Executive Summary

Meridian Energy Limited is seeking resource consents to construct, operate and maintain a wind farm, including all ancillary activities such as earthworks, transmission lines and substations, on a site known as Mt Munro, located approximately 5km south of Eketāhuna in the northern Wairarapa. The site, and its surrounds, are rural in nature and primarily used for pastoral farming.

Projections from energy sector organisations forecast a need to double the total electricity supply in Aotearoa New Zealand by 2050. Through commitments made under the Paris Agreement in 2015, the Climate Change Climate Change Response (Zero Carbon) Amendment Act 2019 and the Towards a productive, sustainable and inclusive economy, Aotearoa New Zealand's First Emissions Reduction Plan (ERP), the forecast demand in electricity supply must be met by renewable generation.

The site is classified as having a Class I wind energy resource. Therefore it has one of the best wind resources available. It is proposed to construct up to 20 wind turbines on the site, each up to 160m tall (comprised of a hub height of 92m and a blade diameter of 136m). An envelope approach is proposed, whereby the final location of each turbine is yet to be determined, however the location must be within the identified Turbine Envelope Zone. All supporting infrastructure, including access roads and cables, can be located in the Turbine Envelope Zone or in another development envelope named the Turbine Exclusion Zone. This approach allows for flexibility in final turbine size and location. For the purposes of the resource consent application, the maximum potential development within the envelope has been assessed.

The site lies across the boundary of the Tararua and Masterton Districts, and Horizons and Greater Wellington regions, with resource consents being required from each of those Councils. Resource consents are also required under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. Overall, the necessary resource consents have a discretionary activity status.

The objective and policy framework which guides the resource consent application and Assessment of Environmental Effects includes the relevant Council statutory planning documents, as well as higher order documents being the National Policy Statement on Renewable Electricity Generation 2011 and the National Policy Statement for Freshwater Management 2020.

The proposal gives rise to substantial positive effects, in that it will provide for additional electricity generation at a time when it is needed, and doing so in a way which contributes towards meeting Aotearoa New Zealand's renewable electricity needs and commitments outlined above.

The potential adverse effects of the proposed wind farm arise in respect of the following matters:

- Landscape, natural character and visual amenity;
- Noise;
- Traffic;
- Ecological;
- Earthworks;

- Cultural;
- Signage;
- Archaeological and historic heritage;
- Radio interference;
- Aviation;
- Electromagnetic fields;
- Hazardous substances; and
- Contaminated land.

In order to assist with the Assessment of Environmental Effects, including how the proposal gives effect to the relevant objectives and policies, a number of expert assessments have been undertaken. While the level of effect varies (including significant effects on visual amenity experienced from four dwellings which sit outside of the subject site), it is concluded in all expert reports, and in this Assessment of Environmental Effects, that, with the imposition of conditions to assist in the avoidance, remediation or mitigation of actual and potential adverse effects, the actual and potential adverse effects are either minor, can be appropriately avoided, remedied or mitigated or are otherwise acceptable.

In coming to this conclusion, recognition is given to Aotearoa New Zealand's reliance on electricity, and the need to provide for renewable energy generation.

Meridian undertook community consultation and stakeholder engagement during the development of this proposal. This included public open days, visits to neighbours meetings with tangata whenua and meetings with other key stakeholders. While some individuals who will be affected do not want the proposal to proceed, there is also public and stakeholder encouragement for it to advance.

1 Introduction

Meridian Energy Limited ('the Applicant' or 'Meridian') is seeking resource consents to construct, operate and maintain a wind farm on Mt Munro, approximately 5km south of Eketāhuna. The wind farm site is bisected by the boundaries between the Tararua and Masterton District Councils, as well as the Horizons and Greater Wellington Regional Councils. Consequently resource consents are sought from each of these Councils. This Assessment of Environmental Effects identifies and assesses the effects of the proposal in the context of each authority's relevant planning framework, as well as the applicable higher level Resource Management Act 1991 (RMA) instruments, and forms part of the resource consent application for the project.

1.1 Merdian Energy

Meridian is Aotearoa New Zealand's largest electricity generator and generates approximately 30% of the country's electricity from renewable energy. Meridian generates electricity only from 100% renewable sources – wind, water, and sun. Meridian is a significant developer of renewable energy projects in Aotearoa New Zealand (and has overseas development and operational experience with past developments in Australia, Antarctica, United States and Tonga).

In Aotearoa New Zealand Meridian owns and manages the nation's two largest hydro power schemes: the Waitaki Power Scheme (from Lake Pūkaki downstream comprising 6 power stations), and the Manapouri Power Scheme. These hydro schemes produce approximately 90% of Meridian's generation and are critical to Aotearoa New Zealand's security of electricity supply.

Meridian also owns and operates five wind farms in Aotearoa New Zealand: Te Uku (Raglan), Te Apiti (Manawatu), Mill Creek (Wellington), West Wind (Wellington) and White Hill (Southland). These wind farms generate enough electricity to power around 200,000 homes each year.

Meridian is currently constructing a 176MW wind farm in Hawke's Bay, the Harapaki Wind Farm, and a 100MW Battery Energy Storage System at Ruakaka.

Extensive new renewable electricity generation development is necessary for the country to take accelerate the transformation of the economy to clean energy sources, meet Government targets and give effect to international obligations related to climate change.

Meridian is listed on the New Zealand Stock Exchange and Australian Securities Exchange and is a mixed ownership model company, 51% owned by the New Zealand Government. Meridian's core business is the generation, marketing, trading and retailing of electricity.

1.2 Project Overview

Meridian's proposed wind farm at Mt Munro, the subject of this application, comprises 20 wind turbines, generating up to 90MW (enough to power up to 42,000 homes annually). The wind turbines will be connected by an underground internal cable network. An overhead transmission line on poles

will connect the wind farm to a new substation located near the national grid, about 3.5km to the west of the nearest turbine.

The proposed wind farm will include:

- 20 wind turbine generators (turbines) up to 160m high (ground level to blade tip at its highest point);
- Access roads, turbine hard stands and concrete foundations;
- An internal electricity network connection of 33kV underground cables and fibre network;
- Construction laydown area/site management area;
- Wind monitoring mast;
- Overhead transmission line from the wind farm to the national grid;
- New substations; and
- Operations and maintenance buildings.

Earthworks, including 1,672,100m^3 of cut volume and 477,000m^3 of fill volume are proposed to facilitate the wind farm, as well as various discharges ancillary to the construction of the wind farm.

Other temporary works are required during the construction, including but not limited to concrete batching, geotechnical investigations, site offices and rock blasting.

1.3 Consenting Approach

Interlinked resource consents are sought from Tararua and Masterton District Councils, and Horizons and Greater Wellington Regional Councils, to enable the proposal. Consideration is required against national direction, regional and district statutory planning documents.

As such, this Assessment of Environmental Effects requires an integrated approach. For this reason, this application is a single document lodged with each of the four resource consent authorities, and identifies and assesses the objective, policy and rule framework applicable to each authority.

The information contained within this Assessment of Environmental Effects is to assist the four consent authorities and any other parties to understand the proposal in its entirety.

2 Description of the Proposal

2.1 Plan and Documentation

The following plans and documentation form part of the proposal and are attached as appendices:

- Appendix A – Civil Design Plan Set;
- Appendix B – Records of Title;
- Appendix C – Ecological Assessment;
- Appendix D – Civil Engineering Report;
- Appendix E – Transportation Assessment;
- Appendix F – Construction Water Management Plan and Effects Assessment Report;
- Appendix G – Relevant Statutory Document Objectives and Policies;
- Appendix H – Noise Effects Assessment;
- Appendix I – Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa Cultural Values Assessment;
- Appendix J – Ngāti Kahungunu ki Tamaki nui a Rua Cultural Values Assessment;
- Appendix K – Assessment of Landscape Effects;
- Appendix L – Long-tailed Bat Impact Assessment;
- Appendix M – Assessment of Archaeological Effects; and
- Appendix N – Radio Compatibility Assessment.

2.2 Rationale/Background

2.2.1 Electricity Supply and Demand in Aotearoa New Zealand

The electricity system, from generation to local distribution, is essential to Aotearoa New Zealand's economy and society. For more than one hundred years, electricity has shaped how New Zealanders live and work. Electricity is so central to modern life that there is often no convenient substitute.

Reliable and cost-effective access to electricity is fundamental to the ongoing progress of both Aotearoa New Zealand and its economy. It is a key element in delivering New Zealanders' standard of living. Electricity is an essential resource input for all parts of the economy.

Without modern electric devices and technology Aotearoa New Zealand's industry would not be competitive in the world market. Accordingly, electricity is a critical ingredient to industry and commerce in support of economic growth, which leads to business investment and jobs.

Electricity supply is also critical to the on-going operation of communication networks and essential social infrastructure, as well as the operation of banks, hospitals, schools and other public and private institutions. These make up the fabric of social, economic and cultural well-being and ensure the health and safety of people and communities.

2.2.2 Future Electricity Supply in Aotearoa New Zealand

Projections from energy sector organisations such as Transpower[1], the Electricity Authority[2], the Ministry of Business, Innovation and Employment (MBIE)[3], and the Climate Change Commission[4] all align around the need to double the total electricity supply by 2050, and to supply this from renewable sources.

Aotearoa New Zealand's electricity supply will become more diverse, with a substantially higher proportion of intermittent generation. For example, wind generation is projected to increase from around 5% of total annual generation to around one third by 2050. As is evident from the energy sector organisation reports, the development of wind generation resources is widely seen as a key element in meeting the projected demand.

There is strong agreement regarding the need to act now to urgently decarbonise the economy. Parliament passed a motion declaring a climate emergency in recognition of this.[5] The motion also committed to implementing policies required to meet the targets in the Climate Change Response (Zero Carbon) Amendment Act 2019 (inserted as Part 1B of the Climate Change Response Act 2002), and to increase support for striving towards 100% renewable electricity generation and low carbon energy and transport systems.

The motion states explicitly:

> *implement the policies required to meet the targets in the Climate Change Response (Zero Carbon) Amendment Act 2019, and to increase support for striving towards 100 percent renewable electricity generation, low carbon energy, and transport systems;*

A 2022 report produced by Boston Consulting Group titled *Climate Change in New Zealand: The Future is Electric*[6] found that the electricity sector in Aotearoa New Zealand contributes up to 70% of the gross emissions reduction required under the Country's 2050 net zero carbon target.

Further, Aotearoa New Zealand is a signatory to and ratified the Paris Agreement 2015 on 4 October 2016, committing the nation to reducing greenhouse gas (GHG) emissions to 30% below 2005 levels by 2030. The Climate Change Response (Zero Carbon) Amendment Act 2019 establishes Aotearoa New Zealand's 2050 GHG emissions target of net zero long lived gases.

The country is also committed to achieving a low-emissions, climate-resilient economy in accordance with *Towards a productive, sustainable and inclusive economy, Aotearoa New Zealand's First Emissions Reduction Plan (ERP)* dated May 2022. The ERP identifies the need to develop an energy strategy that

[1] Transpower, Whakamana i Te Mauri Hiko https://www.transpower.co.nz/about-us/our-strategy/whakamana-i-te-mauri-hiko-empowering-our-energy-future
[2] Electricity Authority, Powering the Future https://www.ea.govt.nz/about-us/what-we-do/powering-the-future/#:~:text=As%20New%20Zealand's%20electricity%20regulator,100%25%20renewable%20electricity%20by%202030
[3] MBIE, Energy strategies for New Zealand https://www.mbie.govt.nz/building-and-energy/energy-and-natural-resources/energy-strategies-for-new-zealand/
[4] Climate Change Commission,Ināia tonu nei: a low emissions future for Aotearoa https://www.climatecommission.govt.nz/public/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa/Inaia-tonu-nei-a-low-emissions-future-for-Aotearoa.pdf
[5] 2 December 2020
[6] https://www.bcg.com/publications/2022/climate-change-in-new-zealand

considers how to ensure the electricity system is ready to meet future needs. The ERP seeks to phase out fossil fuels while "*massively ramping up renewables in transport, electricity generation and industry.*"[7] A key issue identified is to decarbonise the energy sector. The ERP notes that the energy and industry sectors are essential to the economy and the lives of New Zealanders[8].

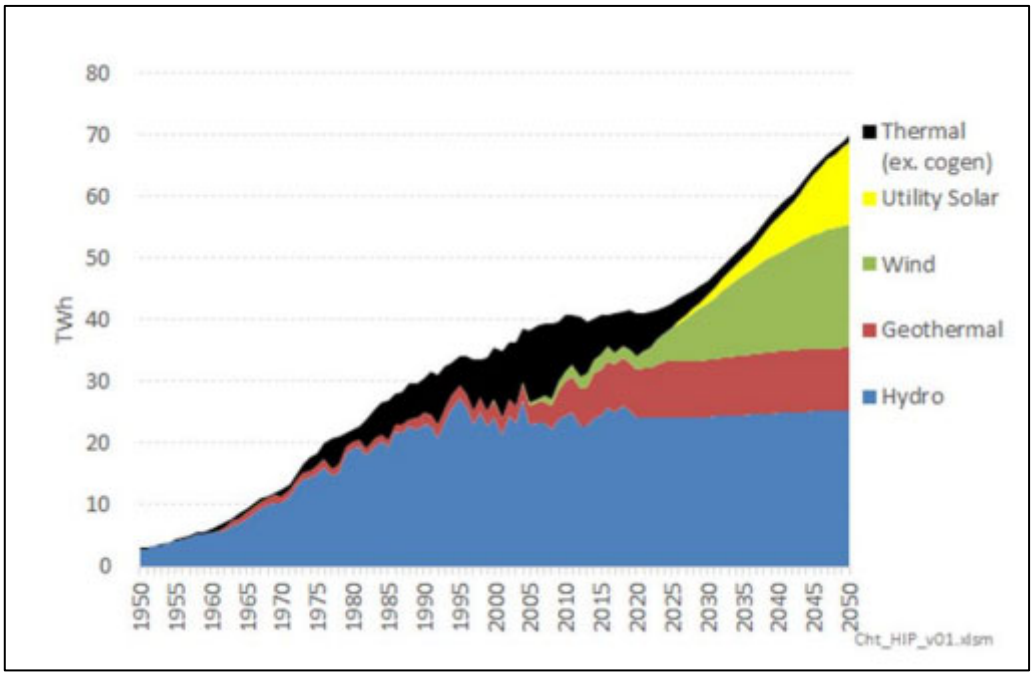
2.2.3 Meeting The Demand/Scale of New Renewable Electricity Generation to Address Climate Change

Aotearoa New Zealand faces an unprecedented need to develop new generation to meet its decarbonisation objectives.

As identified below Figure 1 and Figure 2 show actual generation from 1950 through to 2020 as well as projected levels to 2050 to meet Aotearoa New Zealand's decarbonisation goals. Around 1,250 GWh of new renewable generation will be required on average each year until 2050. This is equivalent of one West Wind windfarm generation project every 5 months until 2050[9]. Further, for additional context an average of 380 GWh of new renewable generation was commissioned annually in the 30 years to 2020. As such, Aotearoa New Zealand will need to be constructing around 300% more generation every year until 2050, than it has been over the past 30 years.

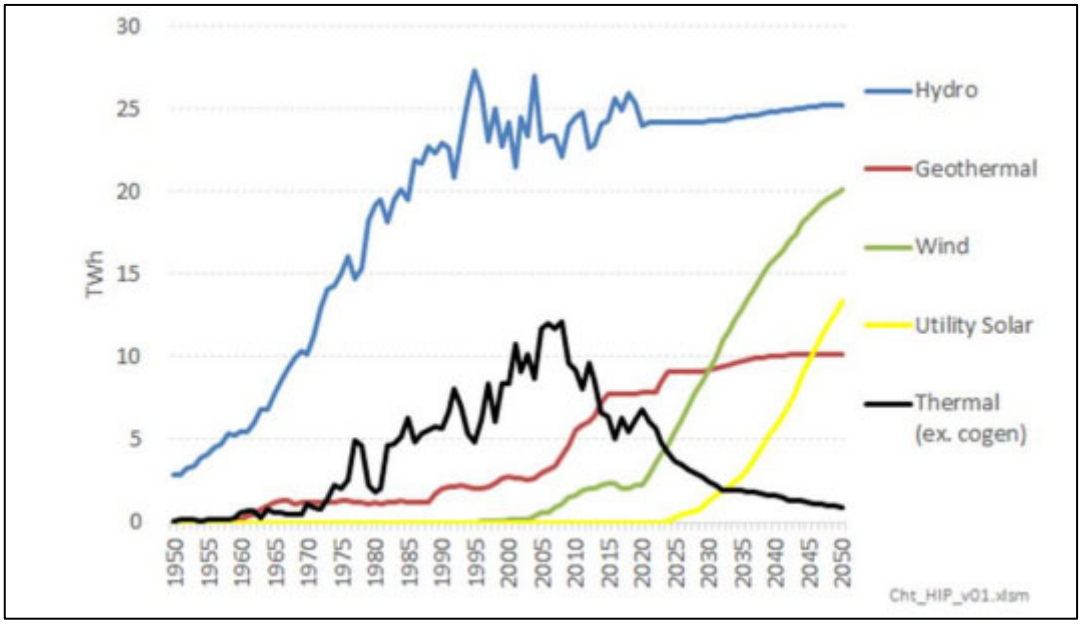
The graphs in Figures 1 and 2 below are drawn from a report prepared by Concept Consulting to independently assess the extent of new renewable generation required to achieve climate change targets[10]. The general assessments and conclusions are in broad agreement with other similar work that has also been undertaken for the Climate Change Commission, Transpower's predictions and modelling/assessments completed for MBIE.

[7] Page 21, 2nd bullet point, ERP
[8] Page 204, 2nd paragraph, ERP
[9] West wind is Aotearoa New Zealand's second largest operating wind farm being 62 wind turbines with 142 MW capacity and is situated in Makara, Wellington.
[10] See KC Opinion dated 10 June 2022, Report by Concept Consulting, pages 2- 3. The report is contained in the bundle of material supporting the Electricity Sector Environment Group submission on the Natural Built Environments and Spatial Planning Bills which can be found at https://www.parliament.nz/resource/en-NZ/53SCEN_EVI_129831_EN15479/9ecff6c7dbb70bbb81d99a484478136d1f551f9e.



Excerpt from Meridian's submission on the Natural and Built Environments Bill

Figure 1: Central Projection of Generation Levels



Excerpt from Meridian's submission on the Natural and Built Environments Bill

Figure 2: Central Projection of Generation Levels (by type)

2.2.4 Previous Resource Consent Application

In 2012, Meridian lodged an application for resource consents for a wind farm on the same site. That wind farm proposal, which had a potential generation capacity of about 60MW, included:

- 20 3MW turbines, 15 on the main ridge with groups of two and three on the lower hills to the northwest of the main ridge;
- Turbine height (to vertically extended blade tip) up to 130m, with a rotor diameter up to 101m and a rotor hub height up to 80m; and
- A substation located off the core site adjacent to the existing 110kV Mangamaire to Masterton transmission line.

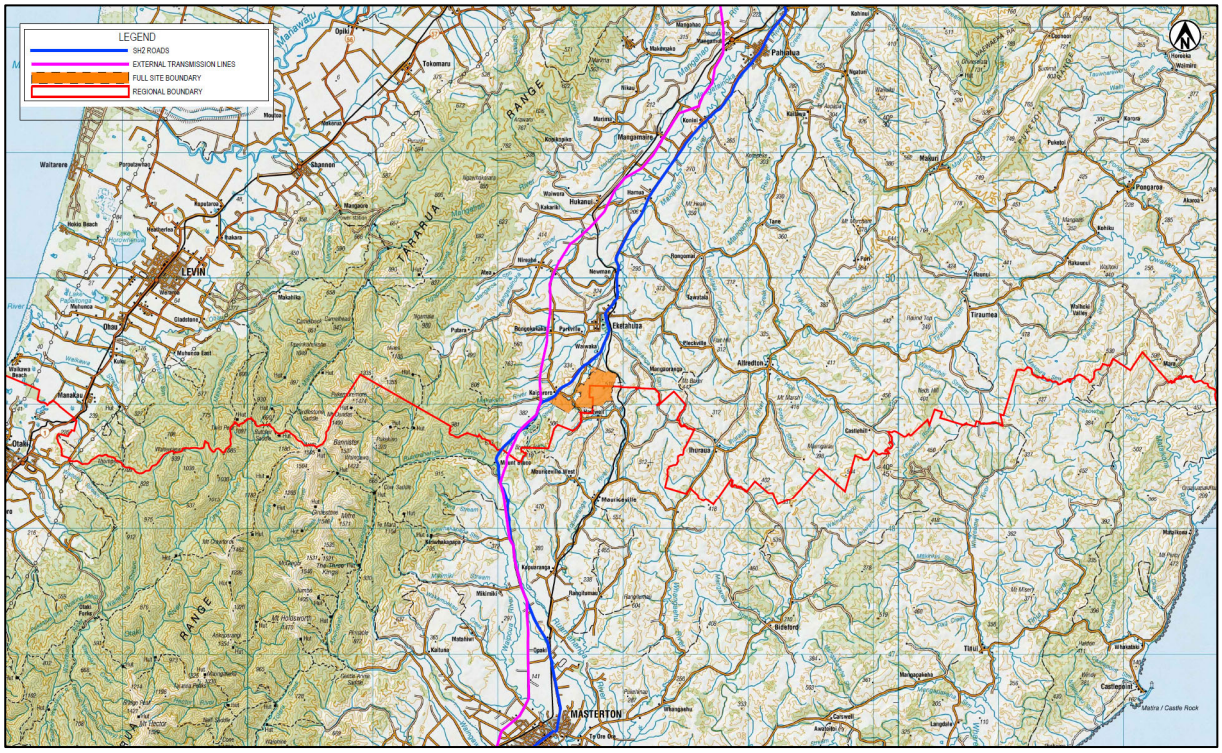
During the processing of that application, Meridian made the decision to withdraw it, on the basis of a drop in electricity demand.

Recent changes to demand and supply, as outlined above, have now meant that Meridian is seeking this current application for a wind farm on the same site.

2.3 The Site and Surrounds

2.3.1 Location

The Mt Munro Wind Farm is proposed to be located approximately 5km south of Eketāhuna, on land approximately bound by Falkner Road to the west, Kaipororo Road and State Highway 2 to the southwest, Old Coach Road to the north, Hall Road and Smiths line to the east, and Opaki-Kaipororo Road and Coach Road South to the south. The site's location is shown in the following figure:



Excerpt from Civil Design Plan Set in Appendix A

Figure 3: Site Location

The site has an overall area of approximately 897.5ha.

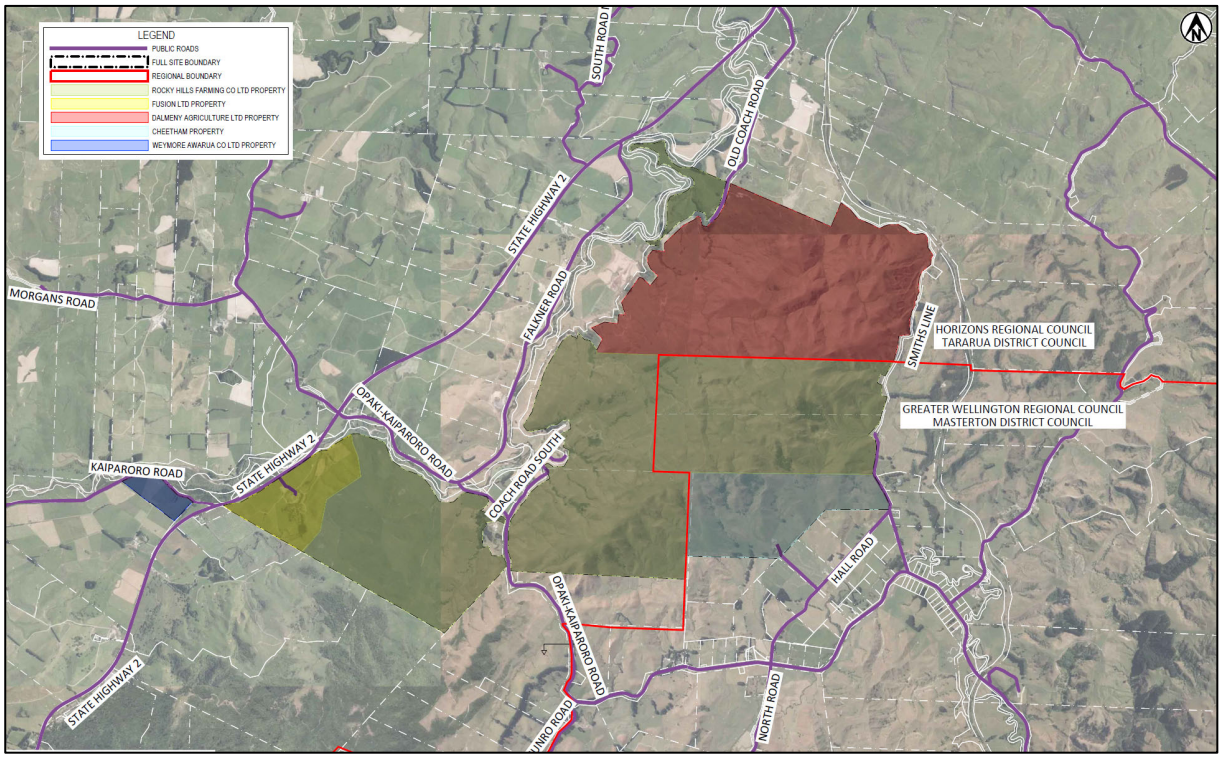
2.3.2 Ownership

The subject land is held in nine allotments, owned by five parties, as follows:

Table 1: Application Site Legal Descriptions and Ownership

Legal Description	Record of Title	Relevant Interests	Area	Ownership
Section 147 Block IX Mangaone Survey District	WN47/208	None	15.7827ha	Rocky Hills Farming Company Ltd
Lot 2-3 Deposited Plan 665	WN31D/709	None	162.1980ha	Rocky Hills Farming Company Ltd
Lot 1 Deposited Plan 665	WN31D/706	None	79.6421ha	Rocky Hills Farming Company Ltd
Section 129 Block XIII Mangaone SD	WN85/199	None	115.7401ha	Rocky Hills Farming Company Ltd
Part Lot 1 Deposited Plan 1263	WN56A/365	None	136.2373ha	Rocky Hills Farming Co Ltd
Section 133 Block IX Mangaone SD	WN89/188	None	256.5707ha	Dalmeny Agriculture Ltd
Section 131 Block XIII Mangaone SD	WN24C/895	None	78.1043ha	G and L Cheetham
Section 186 Block XIII Mangaone Survey District and Lot 1 Deposited Plan 90879	WN58A/971	None	42.0661ha	Fusion Limited
Section 1 and Section 62 Block XIV Tararua Survey District	WN25C/219	None	11.1328ha	Weymore Awarua Co. Ltd

Copies of the Records of Title are provided in Appendix B. The locations of the above are shown in the following property plan (detailed by ownership):



Excerpt from Civil Design Plan Set in Appendix A

Figure 4: Land Ownership and Council Boundary Location

Old Coach Road, which provides access to the north of the site, extends into the site as unformed legal road for a portion between the Rocky Hills Farming Co Ltd and Dalmeny Agriculture Limited properties in the northwestern corner of the site, and as such forms part of the application site. Likewise, the proposed transmission line will cross State Highway 2 and Kaiparoro Road, and therefore these legal roads also form part of the application site. Old Coach Road and Kaiparoro Road are under the control of Tararua District Council, while State Highway 2 is administered by Waka Kotahi New Zealand Transport Agency.

2.3.3 Iwi

There are four iwi/hapu which have an interest in the site, being:

- Rangitāne o Tamaki nui-ā-Rua;
- Rangitāne o Wairarapa;
- Ngāti Kahungunu ki Tamaki nui a Rua; and
- Ngāti Kahungunu ki Wairarapa.

2.3.4 Current Site Use and Characteristics

Each of the sites identified above are used for pastoral agriculture purposes, primarily being the farming of sheep and beef, and consequently the Ecological Assessment in Appendix C notes that 97% of the project footprint is on improved pasture. There are however interceding pockets of vegetation other than pasture on the site, including:

- Rushland and wet pasture;
- Divaricating shrublands;
- Manuka/Kanuka shrublands;
- Mahoe/broadleaf treeland;
- Mahoe/kamahi forest;
- Mahoe treeland;
- Mahoe and low forest;
- Rank grasslands/weedlands; and
- Exotic trees and garden ornamentals.

The vegetation that exists on site is detailed in the Ecological Assessment.

From a topographical perspective, the site is dominated by a main ridge which extends from northeast to southwest through the Dalmeny Agriculture Ltd and Rocky Hills Farming Co Ltd properties. The ridge has a high point of approximately 502m above sea level. Secondary ridges exist on the same properties to the northwest of the main ridge. The land is steep with a number of slopes greater than 28 degrees.

The main ridge slopes down to Opaki-Kaipororo Road in the south, which is located in a valley. The Rocky Hills Farming Co Ltd block and Fusion Ltd property on the western side of Opaki-Kaipororo Road contain steep hills. The Weymore Awarua Co Ltd property on the western side of State Highway 2 is relatively flat.

Given this topography, the site is punctuated by gullies which contain ephemeral and perennial streams, as well as 44 natural inland wetlands (as defined in the National Policy Statement for Freshwater Management 2020 (NPSFM)). These are identified in the Ecological Assessment Maps in Appendix C, and consist of four broad wetland types, being:

- Gully mud sponges;
- Gully heads and hollows on the upper ridge line;
- Stream terraces; and
- Steep hill seepage slumps.

Of the 44 natural inland wetlands identified as per the NPSFM, none were indigenous dominated representative wetlands. Rather, all are induced opportunistically colonised features with a small diversity of exotic and indigenous wet tolerant species.

The majority of these waterbodies drain to the Makākahi River in the Horizons Region, which is located close to the western boundaries of the Dalmeny Agriculture Ltd and Rocky Hills Farming Co Ltd properties. A small portion of the site, on the eastern side of the ridge, drains to the Kopuaranga River in the Greater Wellington Region.

2.3.5 Surrounding Area Characteristics

Similar to the application site, the primary use of the adjoining and surrounding land is pastoral farming for sheep and beef. However other land uses also exist, including:

- Rural residential type housing;
- 110kV Mangamaire to Masterton national grid transmission line to the west, approximately adjacent to State Highway 2;
- Pūkaha National Wildlife Centre at Mt Bruce, approximately 4km to the south;
- Wairarapa railway line to the east and north; and
- Quarrying activities.

2.3.6 Wind Resource

Meridian has had an 80m high wind monitoring mast established on the main ridge since 2009. The data collected by this mast shows that wind resource at the site is Class I. Class I refers to the classification under IEC Standard 61400, (which is a set design standard for wind turbines), and means an average mean wind speed of up to 10m/s, the highest general wind speed classification.

As shown in Figure 5 below, the wind direction is predominantly from the northwest, which is the direction that the main ridge, and the two secondary ridges are perpendicular to.

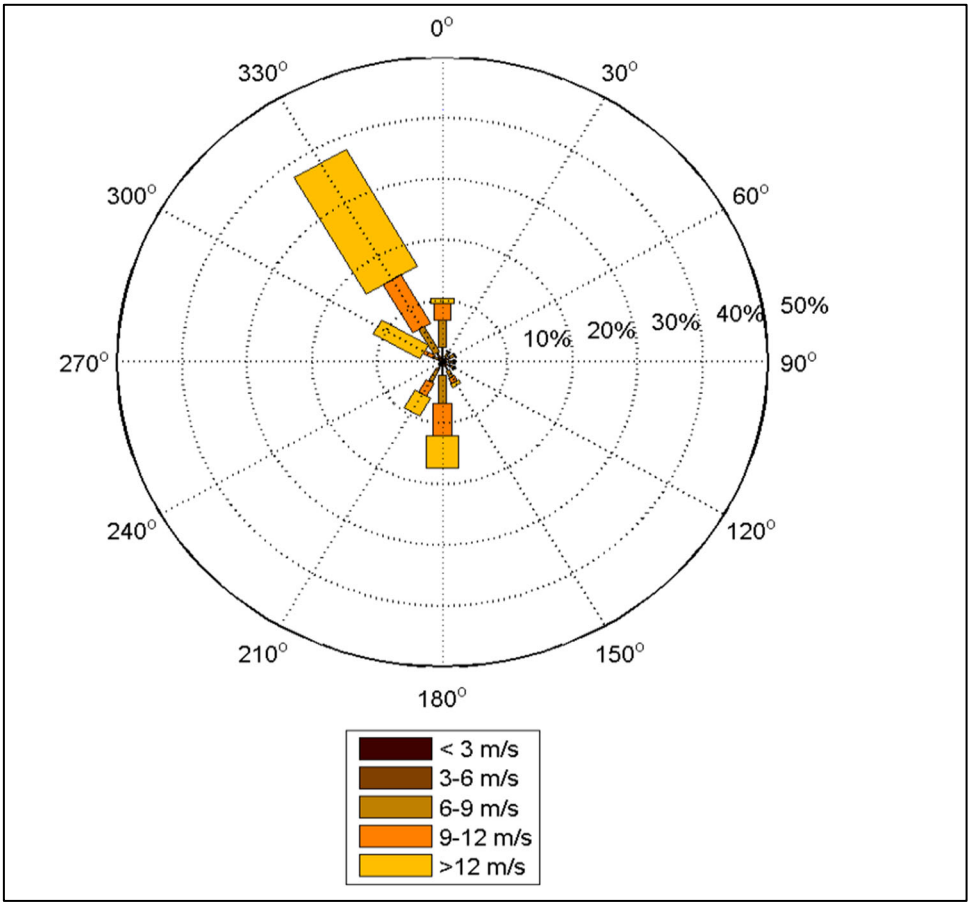


Figure 5: Mean Wind Speeds and Directionality at the Subject Site

2.3.7 Applicable Councils

Figure 2 of this application shows the location of the local government boundary that bisects the site, with the Horizons Region and Tararua District Councils covering the majority of the site to the north and west, and the Greater Wellington Region and Masterton District Councils covering a portion of the site to the southeast. Each of these four Councils have resource management documents which apply to the site, being:

- Horizons Regional Council:
  - One Plan, operative 2014, including both the Regional Policy Statement and Regional Plan Functions.
- Greater Wellington Regional Council:
  - Regional Policy Statement for the Wellington Region, operative 2013;
  - Proposed Change 1 to the Regional Policy Statement for the Wellington Region, notified August 2022;
  - Proposed Natural Resources Plan, notified 2015[11];
- Tararua District Council:
  - Tararua District Plan, operative 2012; and
- Masterton District Council:
  - Combined Wairarapa District Plan, operative in part 2011.

2.3.8 Regional Plan Scheduled Values

Horizons One Plan

Under the Horizons One Plan, the site is within the Mana_8 Schedule A: Surface Water Management Zone (and the Mana_8d Water Management Sub-Zone). The applicable Schedule B: Surface Water Management Values that apply to the site are:

- Water Supply;
- Regionally Significant Trout Fishery;
- Trout Spawning (in the Makākahi River); and
- Life Supporting Capacity of Hill Mixed.

It is in the Tararua Ground Water Management Zone under Schedule D and is in the Mangatainoka Chapter 14: Target Catchment (Water Management Sub-Zone). There are no other scheduled values which apply to the site.

It is noted that there is an abstraction point for the Pleckville Rural Water Supply Committee which allows the take of surface water from the Makākahi River approximately 2.7km north of the site.

[11] Decisions on the Proposed Natural Resources Plan were publicly notified on 31 July 2016. The Proposed Natural Resources Plan has subsequently been amended in accordance with those decisions. On 18 September 2019, appeals were filed with the Environment Court, and went through a Court assisted mediation process. There are currently no unresolved appeals, and therefore the Proposed Natural Resources Plan is beyond challenge. As such there is no requirement to consider Greater Wellington's Operative Regional Plans. For the purposes of this application, the Appeals version of the PNRP has been relied on as the most up to date version.

Greater Wellington Natural Resources Plan

Under the Greater Wellington Natural Resources Plan, the Te Awa o Kopuaranga (Kopuaranga River) to the south of the site is identified in Schedule B Nga Taonga Nui a Kiwa. The Kopuaranga River is also identified in Schedule I as an important trout fishery river and spawning water. Finally, the Kopuaranga River catchment is identified as a Priority Catchment under Schedule Y.

The site is also within the Kopuaranga River Groundwater Zone and the Ruamahanga Wahitua. The River Classes within the site include Class 2, 3 and 6.

2.3.9 District Plan Zones, Notations and Overlays

Tararua District Plan

Under the Tararua District Plan, the site is zoned Rural. There are no notations or overlays which apply to the site.

Wairarapa Combined District Plan

Under the Wairarapa Combined District Plan, the site is zoned Primary Production. There are no notations or overlays which apply to the site.

2.4 The Proposal

As stated, Meridian proposes to construct a wind farm comprised of 20 wind turbines, generating up to approximately 90MW (enough to power up to 42,000 homes annually). The wind turbines will be connected by an underground internal cable network and new access roads. An overhead transmission line on poles will connect the wind farm to from a new substation near the southernmost turbine, to a new terminal substation located near the national electricity grid, about 3.5km to the west of the nearest turbine.

The wind turbines, internal cable network, new access roads and a substation are proposed to be located only on the land on the northwestern side of Opaki-Kaipororo Road. This land is referred to in this Assessment of Environmental Effects as the 'core wind farm site'. It has an overall area of approximately 708.0379ha and is comprised of Records of Title WN47/208, WN31D/709, WN31D/706 WN85/199, WN89/188 and WN24C/895 identified in Table 1 above.

The transmission line will extend from the core wind farm site substation near the southernmost wind turbine, across Opaki-Kaipororo Road and the Rocky Hills Farming Co Ltd and Fusion Ltd Properties, within State Highway Two and the Kaipororo Road road reserve to the Weymore Awarua Co Ltd property, where a new terminal substation is proposed to be located next to the existing national grid. The sites used for transmission and substation purposes have a total area of approximately 189.4362ha, excluding the legal road relied upon, and is comprised of Records of Title WN56A/365, WN58A/971 and WN25C/219 identified in Table 1 above.

2.4.1 Envelope Approach

Meridian is seeking resource consents for an 'envelope' for development within the site for the location of the wind farm components (as opposed to seeking consent based on fixed component locations). This allows for a degree of flexibility in terms of the final placement of infrastructure on the site, following detailed design work which is yet to be undertaken.

The limitation that exists with the fixed component location approach is that a change in the location of any individual turbine or associated infrastructure can have a flow on effect on the surrounding turbines. A single change could require the relocation of many turbines, and there is a risk that a consent lodged with such an approach does not provide such flexibility. Furthermore, changes in technology can advance quickly, meaning turbine types considered during the consenting phase may not be available when a wind farm is constructed.

From an effects assessment perspective, this Assessment of Environmental Effects, including the appended expert reports, have assessed the maximum development allowed under the envelope approach. This includes the largest turbine size, largest earthworks cut, fill and volumes, traffic movements and noise. Essentially, what has been assessed is a worst case scenario from an effects perspective, with the envelope approach allowing flexibility which will not generate any effects greater than what has been assessed.

Resource consent is sought for three location based envelopes, being:

- A Turbine Envelope Zone;
- A Turbine Exclusion Zone; and
- A transmission corridor to electrically connect the wind farm to a new terminal substation and the national grid.

The components proposed to be located within these envelopes are detailed in the following subsections. By way of a summary, the wind turbines can only be located within the Turbine Envelope Zone. Other proposed infrastructure (such as roads and underground cabling) can be located within either the Turbine Envelope Zone or Turbine Exclusion Zone.

The locations of these corridors are shown in the following figure and are provided in detail in the Civil Design Plan Set in Appendix A.

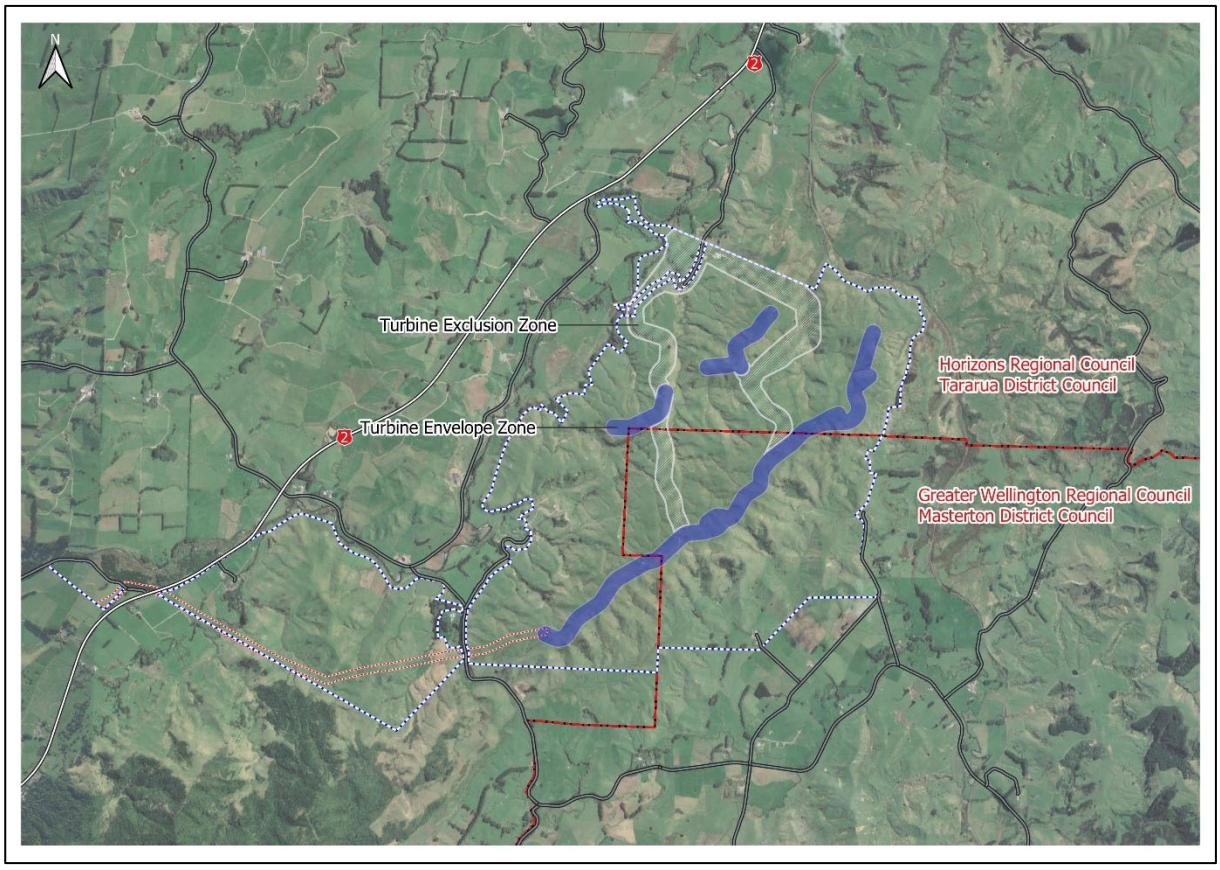


Figure 6: Proposed Envelopes, shown are detailing the Turbine Envelope Zone (blue shaded area), Turbine Exclusion Zone (white hashed area), and Transmission Corridor (red dashed line). All turbines and infrastructure will be located within these areas.

2.4.2 Turbines

Up to 20 wind turbines are proposed to be located within the Turbine Envelope Zone, each with a generating capacity of approximately 4.5MW. Up to 14 are proposed to be located in the envelope along the main ridge, and up to 3 in each of the two secondary ridge envelopes to the northwest.

The turbine make or model is not specified, rather resource consent is sought for maximum turbine parameters, shown on Figure 7 below, where:

- A = Tip height of up to 160m;
- B = Hub height of up to 92m; and
- C = Blade diameter of up to 136m.

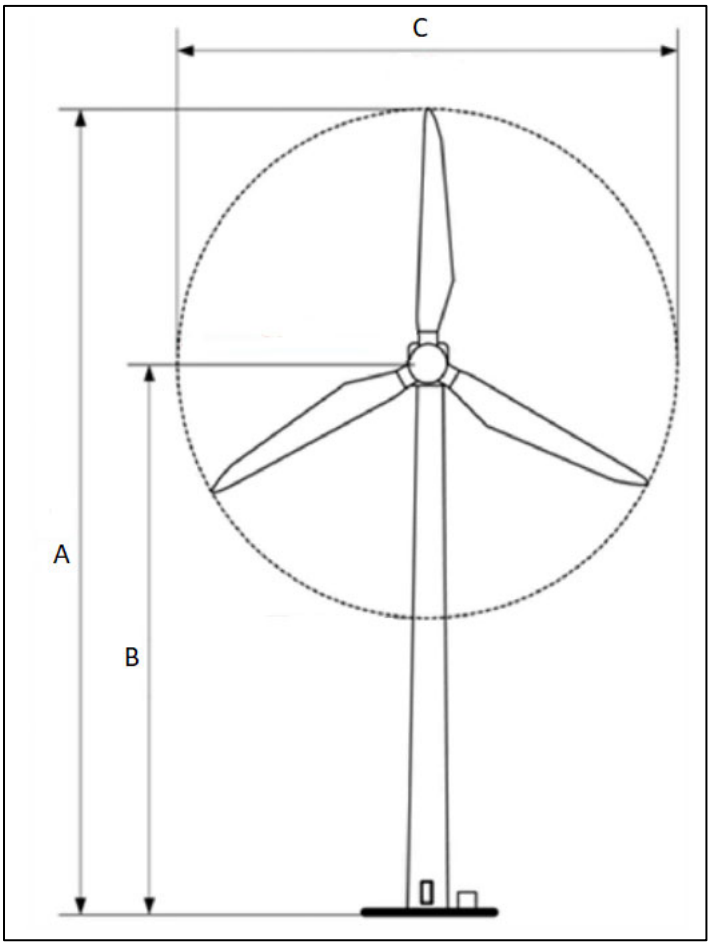


Figure 7: Maximum Turbine Parameters

In addition, the turbines must have the following characteristics:

- Each wind turbine must be of an upwind, horizontal axis, three-bladed, variable speed pitch regulated design on tubular/ conical towers;
- Each wind turbine comprises a tower, a nacelle[12], and a rotor hub with three blades;
- The colour of each wind turbine must be light grey which is uniform over the blades, hubs, nacelles and towers. A low reflectivity finish will be used on the blades specifically to limit the amount of blade glint;
- Electromagnetic interference from each wind turbine shall comply with directive EMC 89/336/EEC;
- Aviation lighting must be installed on the top of the nacelle as required by Civil Aviation requirements; and
- Noise from turbine operational activity complies with the limits recommended by NZS6808:2010 at all dwellings external to the wind farm.

Each wind turbine will require a foundation, crane pad, and blade laydown area on which each wind turbine will then be erected. The type of foundation will be finalised through detailed design, with the

[12] A nacelle is a cover housing that houses all of the generating components in a wind turbine, which may including the generator, gearbox, drive train and brake assembly.

largest type being a Gravity Pad Foundation, which will be octagonal with a width of approximately 23m and a depth of approximately 3.5m.

A hardstand area of approximately of approximately 125 m at its longest point, and 60 m at it widest will be required close to each wind turbine location, typically alongside hardstands or roads for the temporary storage of components. Construction staff facilities in the form of temporary Portacom buildings and Portaloos, may be located within these laydown areas.

Turbine unit transformers that step the voltage up at each wind turbine generator to the internal voltage of 33kV will be located either inside the base of each turbine tower, or outside the tower (in a cabinet or mounted pad, approximately 4.5 metres long, 3 metres wide and 2.7 metres tall).

For the purposes of expert assessments which form part of this application, an indicative turbine layout has been designed by the applicant. This layout was designed assuming a turbine blade length of 136m and spacing assuming an ellipse of 1.8 x blade lengths perpendicular to the wind, and 3.8 blade lengths parallel to the wind. Turbines were placed so that all the associated infrastructure (turbine, foundation, laydown area, roading, transformer and cabling) would fit within the Turbine Envelope Zone. Turbines were further micro-sited to place turbines on high elevation points, to avoid placement on steep slopes, and to ensure turbines on each ridge formed an approximate straight line.

The resulting indicative turbine locations shown on Civil Design Plan Set drawing 1016884.1000-006 and titled Indicative Turbine Layout Plan (Appendix A) are the locations which have been used for assessment purposes, showing the maximum development under the envelope approach. This indicative layout has been used as the basis for a maximum level of effect when assessed for noise landscape, natural character and visual impact.

2.4.3 Meteorological Mast

The existing wind monitoring mast within the site will be decommissioned and removed. It will be replaced with one new wind monitoring mast up to 92m high (to match the wind turbine hub height) and up to 500mm in diameter. It will be of either tubular or lattice construction, and will be anchored to a concrete base and secured to the ground by guy wires, which radiate from the mast for a distance of up to 50m, and are anchored to the ground via an anchor block constructed of concrete.

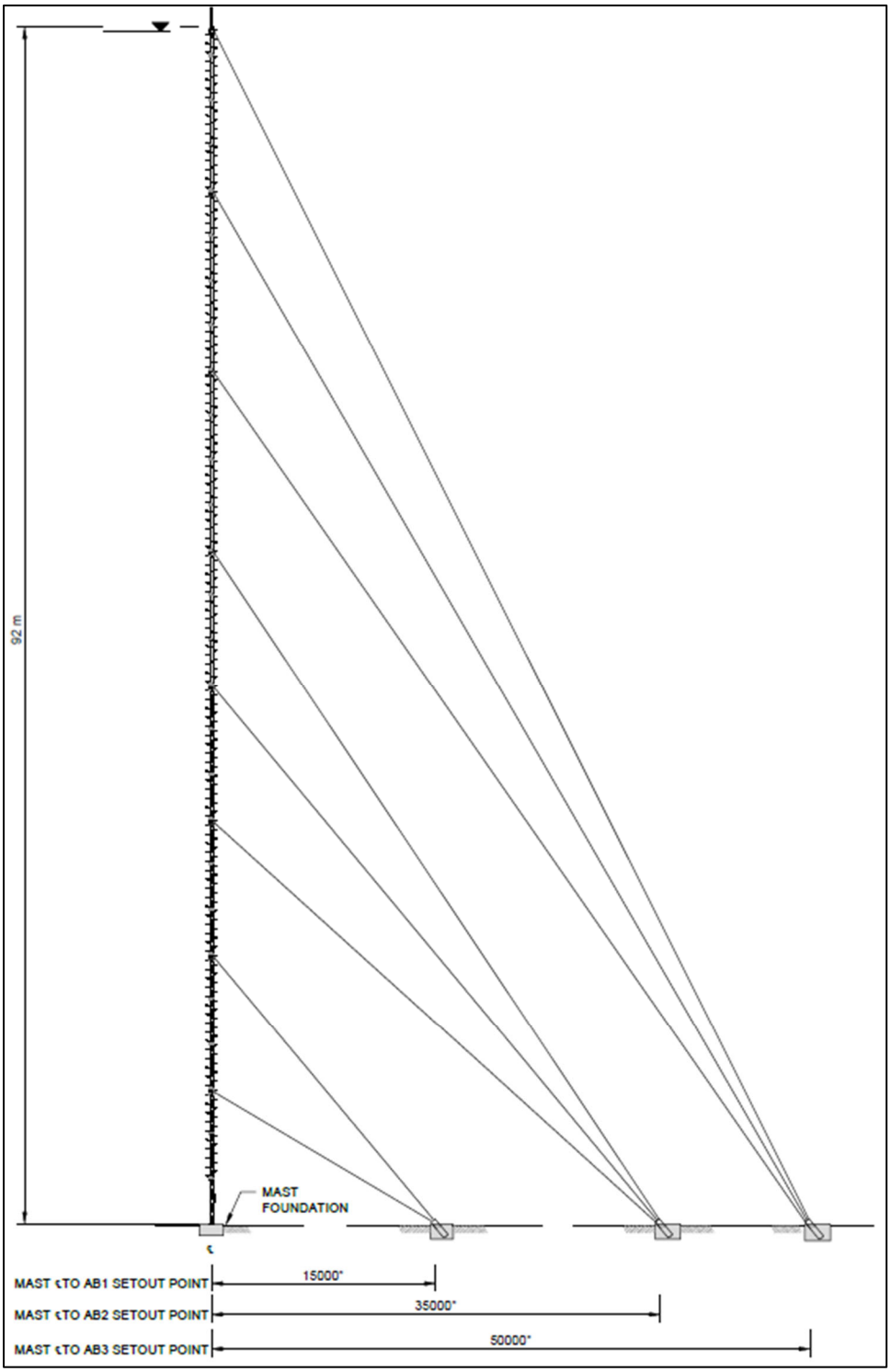


Figure 8: Profile elevation drawing of a tubular mast, showing details of one of three sectors of supporting guy-wires

The mast will be located within the Turbine Envelope Zone along the main ridge.

2.4.4 Internal Road Network

Construction of an internal road network will be required within the core wind farm site to install and service the wind turbines. Roads will be located within the Turbine Envelope Zone and Turbine Exclusion Zone. The final alignment of the roads will be determined through detailed design. However, similar to the wind turbines themselves, the roads must be designed and constructed within the following parameters:

- Roads within the Turbine Envelope Zone will be between 8m and 11m wide, and have a combined length of less than 6km; and
- Roads within the Turbine Exclusion Zone will be between 6m and 8m wide, and have a combined length of less than 5.5km. Two main roads will likely be built for safety and practicality reasons: for example, one for the heavy components and one for light traffic/service vehicles.

The specified widths above are the widths of the full bearing capacity part of the road and do not include feathered edges, drains, or removal of banks on the road shoulders to enable the passing of turbine blades.

Three issues determine the width of each road:

- The transportation requirements of the largest components (turbine blades and tower base sections);
- The width of the crane that performs the lift of the nacelle on the erected tower; and
- The buried strings of cables forming the internal underground 33 kV network.

The roads will require earthworks (discussed below) as well as reclamation and crossings of existing waterbodies on the site.

Stream crossings for the new roads will be in the form of three culverts and a single bridge. The detail for each of these elements (including locations) is provided in the Civil Engineering Report in Appendix D.

By way of a summary, the proposed culverts are estimated to be sized as follows:

- Culvert 1 – located in a side tributary to the Mangaroa River. It will have a diameter of approximately 1200mm and length of approximately 110m;
- Culvert 2 –also located in a side tributary to the Mangaroa River. It will have a diameter of approximately 1050mm and length of approximately 100m; and
- Culvert 3 –located in a tributary to the Makākahi River. It will have a diameter of approximately 900mm and length of approximately 30m.

Each culvert will contain scour protection and provide for fish passage. Final culvert length will be determined as part of the detailed design of the road layout within the envelopes.

The bridge is proposed as a permanent structure across a tributary of the Makākahi River. It is likely to consist of driven steel piles, steel girders and a concrete deck, and have an indicative length of 28m and width of at least 5.0m (subject to confirmation during detailed design).

Concrete abutments will be set back from the stream bank so that no excavation will take place within the waterway. If retaining is required around the abutments this will be undertaken using rock gabions or similar type construction. No earthworks or retaining will be undertaken within the waterway.

The level of the underside of the bridge will be set at 1.0m above the 2% AEP, (1 in 50 year) flood level. An allowance for climate change has been included when assessing the 2% AEP flood level.

Up to six of the natural inland wetlands identified on the site will be directly affected by the road alignments within the proposed envelopes. This area of wetland sums to approximately 0.32ha. There are a further six natural inland wetland features that are within 50m of the road layout, which will not lie underneath the road, but may be within a berm of construction affected area. These sum to approximately 0.84ha of natural inland wetland. The total area of natural wetland within 100m of the envelopes is 3.26 ha.

At the scale of the wetland survey area, the Ecological Assessment estimates that 9.8% of the natural wetlands identified will be lost. Wetland offset action is proposed in the ecological assessment, adjacent to the yards accessed via Old Coach Road.

The internal 33kV cabling that will link each wind turbine unit transformer and the Site Substation will be underground within or immediately alongside the internal road network. Fibre networks for turbine control and cable monitoring will generally be co-located with the cable network.

It is noted that there are existing internal farm tracks which may also be used during project development, for light or emergency vehicles only. The transmission line and terminal substation will be accessed via existing farm tracks and via paddocks. Some minor resurfacing of existing tracks will occur.

2.4.5 Public Roads

The proposed internal road network will be accessed via Old Coach Road. Two other construction accesses are also proposed, being via Opaki-Kaipororo Road for the construction and maintenance of a section of the transmission line, and Kaipororo Road for the construction and access of the substation and associated building.

As is detailed in the Transportation Assessment (attached as Appendix E), each of the three vehicle accesses will:

- Be 1:8 or flatter across the first 6m of the access from the road;
- Have 6m by 6m unobstructed visibility triangles; and
- Geometric layouts that include a 7m radius and a 5m connecting width.

It should be noted that there is an existing access to the site via Coach Road south, which may be used from time to time for operational and emergency access matters, but not for construction. The only construction access for the core wind farm site will be via Old Coach Road.

In order to facilitate the construction traffic along Old Coach Road, upgrades are proposed. These are detailed in the Transportation Assessment, and in summary include:

- Seal widening at the Old Coach Road/State Highway 2 intersection;
- Seal widening along sections of the road;
- Vegetation removal at locations along the length of the road;
- Power pole relocation at locations along the length of the road;
- Bank cutting at locations along the length of the road;
- Extension of existing culverts beneath the road[13];
- Easing of vertical gradients;
- Upgrades to existing road drainage; and
- Widening at the site entrance.

These upgrades will provide permanent enhancements to the local road network. No other upgrades to public roads are proposed (although a portion of the Turbine Exclusion Zone will include an internal road within an unformed portion of the Old Coach Road road reserve).

Turbine components will access Old Coach Road via State Highway 2 likely from the north, and are most likely to be transported to the site from the Port of Napier.

2.4.6 Main Laydown and Site Administration Area

Laydown areas are required to service the wind farm site during construction and long-term operations.

During construction the main storage laydown area is proposed to be located on the western side of Old Coach Road, opposite the wind farm site entrance, as detailed on Figure 9 below and in the Civil Engineering Report. This laydown area will be used to store turbine components transported in by road prior to being taken to the turbine site. It will also be used as a contractor's establishment/administration area and contain a constructed pond where water will be imported via tankers and stored to be used for construction purposes (such as the manufacture of concrete, dust suppression etc). Rainwater may also be collected from roofs of temporary buildings and stored for construction purposes.

[13] All culvert extensions are to maintain the same diameter as the existing culvert, contain scour protection and provide for fish passage.

Excerpt from Civil Design Plan Set in Appendix A

Figure 9: Main Laydown and Site Administration Area Location

This area is relatively flat and will require minimal earthworks to be established. The yard formation will be constructed by stripping topsoil from the full extent of the laydown area and stockpiling on site. A granular hardfill layer will be placed to provide a sound working surface. The size of the laydown area required will depend on the project construction schedule, the number of turbine components and other parts and equipment being stored, the requirements for any pre-erection activities such as preliminary work on the nacelles and the temporary building location and layout.

The temporary buildings in this area will be portacoms, and include:

- Kitchen and chiller portacom structures.
- 12m x 3m portacoms adjacent to the dwelling being used as temporary offices, toilet blocks and general staff areas.
- Smaller (6m x 3m) portacoms, to be used as a security office, located at the eastern end of the Site Entrance area.

The portacom structures are single storey buildings and will be removed upon the completion of the construction phase.

Water supply for the portacoms will be by rainwater collection from the site establishment building roofs into storage tanks, supplemented by water tanker top-ups as and when required.

There is no proposal for on-site wastewater disposal to service the portacoms, with all wastewater being directed to an on-site holding tank which will be periodically emptied on an as required basis. In addition to the wastewater facilities proposed in the laydown area, portaloos will be placed around the site where works are currently taking place and will be serviced on an as required basis.

Post construction, some or all of this storage laydown area will be retained for spare parts storage, and workshop buildings will be established for the servicing of the turbines and as a base for the operations and maintenance teams. This may include the Operation and Maintenance Services/Building, which will be approximately 35m long by 20m wide and up to 6.5m high[14].

All structures no longer required will be removed and the areas they were located in will be rehabilitated back to their original state.

2.4.7 Temporary Concrete Batching

A temporary concrete batching plant will be established within the site. The final location is yet to be determined, but will be within either the Turbine Envelope Zone or Turbine Exclusion Zone.

The concrete batching plant will occupy an area of approximately 100m by 60m, surrounded by a fence. The temporary structures to be located in this area would include the following (indicative dimensions included in brackets):

- Control room and storage building (6m long x 3m high x 3m wide);
- Portacoms for office and amenities (6m long x 3m high x 3m wide);
- Mobile batching plant unit which includes, but is not limited to, hoppers, aggregate storage bins, compressor, cement silos and conveyors (18m long x 4m wide x 7m high);
- Additional cement storage silo (6m long x 3m wide x 3m high);
- Diesel storage facility;
- Water tank;
- Aggregate stockpile area (50m x 20m); and
- Generator.

At the completion of construction all of these temporary structures will be removed and the land reinstated.

The concrete batching plant yard will be constructed by stripping topsoil and stockpiling on site and placing a granular hardfill layer to provide a sound working surface. Upon completion of the wind farm construction and at the discretion of the landowner, the hardfill can be removed, the stockpiled topsoil reinstated, and the area re-sown with grass.

The batching plant(s) will be self-contained including all aggregate, cement and water storage. The batching plant will require a number of small temporary buildings for staff facilities, administration and equipment storage. These buildings are likely to be small Portacom type structures.

There is no proposal for on-site wastewater disposal, with all wastewater being directed to an on-site holding tank which will be periodically emptied on an as required basis.

[14] The Operation and Maintenance/Services building may also be located at the terminal sub station – see section 2.4.16 of this Assessment of Environmental Effects.

An on-site diesel fuel storage facility of approximately 3,000 litres may also be required to service the batching plant. This will be bunded to contain any spilled fuel.

There is a requirement for limited washing of concrete trucks at the concrete batching plant. The chutes of the concrete trucks will be pre-washed at the foundation sites following the delivery of each load of concrete. At the end of a concrete pour the bowls of the concrete truck will require washing. The washing will be undertaken on a metalled pad. The runoff will be directed to a decanting pond before discharging to ground.

Stormwater runoff from within the concrete batching plant area will be collected on the perimeter of the site using bunds and cut-off drains and directed to a settlement pond(s). The outlet of the pond will be controlled by a valve. The purpose of the valve is so water can be retained in the pond in the event that there is a spillage with high cement content in the yard.

2.4.8 Temporary Fuel Storage

A 30,000L diesel tank will be located within either the Turbine Envelope Zone or Turbine Exclusion Zone. The tank will be steel, and designed with integral secondary containment to provide bunding, and footings, with a 2-hour fire rating.

2.4.9 Aggregate Supply

Suitable sources of quarry material will likely be sought from local suppliers in the region, which would depend on the final volume required, and the quality and quantity available. No quarrying activities will occur on the project site, although material extracted during earthwork removal, may be crushed and used for base material for roading.

2.4.10 Substations

A Site Substation will be located at the southern end of the Turbine Envelope Zone. The Site Substation will have a total footprint of approximately 70m x 90m and will consist of a switchyard and potentially up to two small control buildings, one approximately 20 m x 10m and the other approximately 10 m x 6 m and both up to 7m in height. The external perimeter of the compound will be fenced, and the surfacing will generally consist of a granular hardstand with concrete plinths to support heavy items of plant such as transformers. All equipment containing oil within the compound will be bunded to contain any spillage.

The Site Substation will take power from the underground cables from the wind turbines and connect to the Internal Transmission Line. The main transformer (33 kV to 110 kV) will be housed here (or at the Terminal Substation), as well as various switches and electrical protection devices.

At the other end of the Internal Transmission Line, within the Weymore Awarua Co Ltd property, will be the Terminal Substation, being the substation connecting directly into Transpower's existing 110kV Mangamaire to Masterton transmission line. The terminal substation will house all the necessary electrical and protecting equipment, including buildings for both Meridian and Transpower.

The main transformer (33 kV to 110 kV) will be housed either here or at the Site Substation, and correspondingly, the Internal Transmission Line will either be 110 kV or dual circuit 33 kV.

The Terminal Substation site will consist of a switchyard and control building over a footprint of approximately 100 m x 125 m. The external perimeter of the compound will be enclosed with a lockable security fence and the surfacing will generally consist of a granular hardstand with concrete plinths to support heavy items of plant such as transformers. All equipment containing oil within the compound will be bunded to contain any spillage.

A permanent control building up to approximately 30m x 25m in footprint and up to approximately 6.5m high will be included within the substation compound, together with a water storage tank, on-site wastewater treatment, storage facilities and car parking. A second building for servicing the windfarm may also be housed on this substation site (see section 2.4.16 below).

2.4.11 Internal Transmission Line

A new 110 kV or dual circuit 33 kV transmission line will be constructed within the transmission corridor envelope. The line will be approximately 3.5km in length between the Site Substation and Terminal Substation, and will be supported by poles up to 20m high. These poles will be a mixture of single pole and dual "Pi" pole configurations, with each pole having a diameter of up to 1.2 m. Examples of these pole types are provided in the following figure.

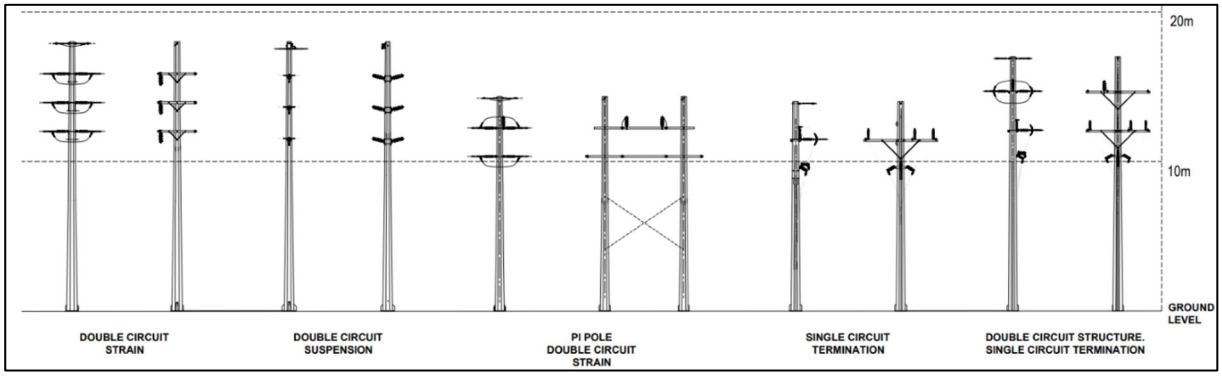


Figure 10: Potential Pole Types to be used for Transmission Line

The internal transmission line will be accessed primarily by existing farm tracks and routes to minimise earthworks, noting as stated some minor surfacing of existing tracks will be required. In some instances, there will be excavator only access to the transmission line.

2.4.12 Earthworks

In order to facilitate the above wind farm components, earthworks are required within the envelopes identified in the core wind farm site, as well as for the transmission line and terminal substation.

The majority of the earthworks are on the access road, in particular in the Turbine Exclusion Zone to construct roads from the site entrance on Old Coach Road to the Turbine Envelope Zone. The estimated earthworks volumes are calculated in the Civil Engineering Report, and total of 87,900m^3 of

topsoil stripping, 1,672,10 m^3 of cut (up to approximately 25.5m in height) and 477,000m^3 of fill is proposed.

As the earthworks are likely to result in excess fill, it is proposed to dispose of the fill within the Turbine Envelope Zone and Turbine Exclusion Zone. As detailed in the Civil Engineering Report, all fill locations are to meet the following criteria:

- *An inspection by a suitability qualified engineer or geologist to approve the fill site location and the proposed batter slope profiles;*
- *Fill disposal areas should be chosen in areas that are visibly free of groundwater seepages and instability;*
- *All topsoil and soft or loose surficial soils to be removed prior to fill placement where needed to ensure fill slope stability;*
- *Bench in the base of the fill disposal area into stiff or medium dense soil, or rock;*
- *Engineer to determine under drainage details. This would include layout and centres, additional drains and capacity to be installed over potential seepage zones.*
- *Fills should be placed and compacted in layer thicknesses and to compaction standards defined during detailed design; and*
- *Further considerations from respective experts in Ecology, Sediment Control and Visual and Landscape should also be taken into account, e.g.:*
  - *Avoid wetlands and streams.*
  - *Avoid vegetation.*
  - *Visually acceptable.*
  - *Catchment areas above fill sites are minimised and, where these exist, are diverted around the fill area.*

Fill stability is strongly governed by effective under drainage and surface water control. Under drainage details could comprise a central drain under the fill disposal area where groundwater inflows are relatively low. Where there is a larger / broader groundwater inflow, a more detailed under drainage detail could be undertaken with additional drains extending out of the main spine drain to tap localised groundwater seepages or outflows.[15]

Based on advice received through the preliminary geotechnical appraisal, hydraulic excavators, large dozers with ripping attachments and motor scrapers are likely to be used for the earthworks. In the event that harder material is encountered, it may be necessary to use controlled blasting operations.

All earthworks will be managed through the measures set out in the Construction Water Management Plan and Effects Assessment Report attached in Appendix F. The key erosion control measures proposed are:

- Construction staging and sequencing;
- Clean and dirty water diversions;
- Contour drains;

[15] Section 11 (Page 24) of the Civil Engineering Report in Appendix D.

- Rock check dams;
- Stabilisation for erosion and dust management purposes;
- Pipe drop structure/flume; and
- Stabilised construction entrance way.

The key sediment control measures proposed are:

- Sediment retention ponds;
- Decanting earth bunds;
- Hybrid decanting earth bunds;
- Pumping activities;
- Silt fences and super silt fences; and
- Flocculation.

The details for each of the above are provided in the Construction Water Management Plan and Effects Assessment Report. All erosion and sediment control measures will remain in place until such a time as the catchment contributing to that device is stabilised.

Likewise, the Construction Water Management Plan and Effects Assessment Report details the specific earthworks construction methodologies for all activities proposed to be undertaken on the site.

Finally, if controlled blasting is employed, it is anticipated that small amounts of explosives will be used to break up rock masses into more manageable pieces. Rock drilling to plant the explosives will also be required. Management measures and methodologies for controlled blasting operations will be documented in a Controlled Blasting Management Plan (CBMP) in advance of any work commencing. This will set out management measures, health and safety requirements, blast design, methods, site protocols, warning systems, and noise monitoring requirements as required under current Hazardous Substances and New Organisms (HSNO) Regulations.

2.4.13 Use of Contaminants

During construction, non-sediment contaminants will be used on the site. These include:

- Adhesives;
- Asphalt paving;
- Cleaning products;
- Concrete;
- Flocculants;
- Sanitary waste; and
- Vehicle and equipment use.

The management approach for each of these contaminants is set out in the Construction Water Management Plan and Effects Assessment Report.

2.4.14 Signage

Signs advising people of the project, and health and safety matters are proposed. Signs would be up to 3m by 1.2m.

Signs would be required for the duration of the wind farm construction period, being approximately two years. At the end of construction, the signs would be removed.

The signs will include a sign at the project entrance off Old Coach Road. The purpose of the sign at the entrance to site is to inform the public or visitors to the site that the site entrance is controlled during construction and to advise visitors to the site of the procedures that apply in order to meet health and safety requirements. This will be the only sign which is visible from publicly accessible areas.

Signs may also be required on the site itself to advise construction workers of any hazards or speed limits. These signs will be relatively small and not visible outside the site.

2.4.15 Personnel

During construction, it is anticipated that personnel numbers on site will range between 100 and 150 people depending on specific activities that are being undertaken.

Once the wind farm has been commissioned, it is likely to require up to eight full time staff to manage the maintenance and operational aspects of the wind farm (excluding any additional staff requirements that would be associated with major maintenance activities).

2.4.16 Operation and Maintenance/Services Building

A permanent Operation and Maintenance/Services Building will be located either within the main laydown area or Terminal Substation area.

This building will house a workshop, control room for managing the wind farm, and will be approximately 50m by 20m, and 6.5m high.

2.4.17 Pastoral Farming

The current pastoral farming use which occurs on the subject sites will continue in parallel with both the construction and operational phases of the proposed wind farm.

2.4.18 Proposal Summary

Based on the above proposed parameters, Meridian has calculated the potential energy generation capacity for the project to be up to approximately 90MW, depending on the final wind turbine used. Annual energy production is estimated at approximately 300GWh which compares with Meridian's Mill Creek (Wellington) and Te Uku (Waikato) wind farms. This generation prediction is equivalent to the electricity needs of 42,000 average homes.

2.4.19 Consent Duration and Lapsing

The construction period for the proposal is likely to be within the vicinity of 24-36 months (weather dependant). Commencement of construction and pace of construction will be dependent upon a number of factors, including electricity demand and availability of appropriate turbines.

As such, pursuant to sections 123 and 125 of the RMA, the duration for implementation of all land use consents sought under this application will be 10 years, with the exception of the land use consents sought for works within the beds of rivers. The term sought for the land use consent for works within the beds of rivers, together with all associated diversions and discharges is 35 years. These lapse periods provide sufficient flexibility for full implementation of the proposed activity.

3 Planning Framework

Due to the location of the proposed wind farm extending across the boundaries of the Tararua and Masterton Districts, and Horizons and Greater Wellington Regions (as shown on Figures 4 and 6 of this Assessment of Environmental Effects), the planning framework for the proposed wind farm must consider the relevant planning documents from each of the four consent authorities, as well as the relevant higher order planning documents which apply to the proposal. As such, the statutory planning documents which apply are:

- National Policy Statement for Renewable Electricity Generation 2011 (NPSREG);
- National Policy Statement for Freshwater Management 2020 (as amended in February 2023) (NPSFM);
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (version as at 5 January 2023) (NESF);
- Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NESHDW);
- Operative Horizons One Plan – Part 1: Regional Policy Statement (Horizons RPS);
- Operative Regional Policy Statement for the Wellington Region 2013 (GW RPS);
- Proposed Change 1 to the Regional Policy Statement for the Wellington Region, notified August 2022;
- Operative Horizons One Plan – Part 2: Regional Plan;
- Proposed Greater Wellington Natural Resources Plan (GW NRP);
- Tararua Operative District Plan; and
- Combined Wairarapa District Plan.

The relevant provisions for each document are contained in Appendix G, with a summary provided below.

Note, consideration was given to the National Policy Statement on Highly Productive Land (NPSHPL), which applies to Land Use Class 1, 2 or 3 land. Under the Maanaki Whenua Landcare Research Mapping, the Mt Munro Site is not highly productive land, and therefore the NPSHPL is not applicable.

Consideration was also given to the National Policy Statement on Electricity Transmission 2008 (NPSET) and Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (NESET). Both of these national direction documents relate to management of the national grid, not electricity generation or the transmission from the generator to the national grid.

Lastly, consideration was given to Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS). The NESCS provides regulations for the disturbance of land that has had an activity identified in the Ministry for the Environment *Hazardous Activities and Industries List* (HAIL) undertaken on it. The Horizons Regional Council, Greater Wellington Regional Council and Tararua District Council hold databases identifying land where HAIL activities have been undertaken. None of the land included in this application has been identified as having had HAIL activities undertaken on it.

3.1 National Policy Statement for Renewable Electricity Generation 2011

The NPSREG contains one objective and 13 policies, that seek to *enable the sustainable management of renewable electricity generation under the Resource Management At 1991*[16].

The objective is:

> *to recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation*.

The relevant policies to this resource consent application and Assessment of Environmental Effects require decision makers to recognise and provide for the national significance of renewable electricity generation activities, and have particular regard to meeting or exceeding central government's renewable electricity generation targets.

The policies note that meeting or exceeding renewable electricity generation targets will require the significant development of renewable electricity generation activities, while acknowledging the practical constraints of the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

There is also policy direction for the consideration of any residual environmental effects of renewable electricity generation activities that cannot be avoided, remedied or mitigated, where regard shall be given to offsetting measures or environmental compensation including measures or compensation which benefit the local environment and community affected.

3.2 National Policy Statement for Freshwater Management 2020

The NPSFM 2020 (as amended February 2023) contains one objective and 15 policies, all of which have some relevance to the proposal.

The objective prioritises the health and well-being of water bodies and freshwater ecosystems, the health needs of people, and the ability for people and communities to provide for their social, economic and cultural well-being.

The policies provide for Te Mana o te Wai, tangata whenua involvement and values, integrated management of freshwater, improvement of freshwater quality, natural inland wetlands (including no loss of extent, protection of values and promotion of restoration), loss of river extent being avoided as practicable, protect habitats of indigenous freshwater fish, trout and salmon, efficient water allocation, monitoring and information requirements and providing for communities social, economic and cultural wellbeing consistent with the NPSFM.

[16] Page 3 (Preamble) of NPSREG.

3.3 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

The NESF sets regulations governing the activity status of activities that can affect freshwater resources.

Regulation 45 provides for the *construction of specified infrastructure.* Specified Infrastructure is defined via the NPSFM as including infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002 (CDEMA)) or regionally significant infrastructure identified as such in a regional policy statement or regional plan.

Schedule 1 of the CDEMA states that a lifeline utility can be an entity that generates electricity for distribution through a network as a lifeline utility. Further, the Wellington Regional Policy Statement definition of regionally significant infrastructure includes facilities for the generation and transmission of electricity where it is supplied to the network, as defined by the Electricity Governance Rules 2003. The Horizons One Plan does not define regionally significant infrastructure, however Policy 3-2 of the One Plan states that the regional council and territorial authorities must recognise facilities that generate more than 1 MW of electricity and its supporting infrastructure as being physical resources of regional or national importance.

Consequently the proposal is specified infrastructure under the NESF.

The NESF also contains regulations regarding natural inland wetlands as well as culvert construction and operation.

All relevant regulations are identified and assessed in Section 4 of this document.

3.4 Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007

The NESHDW sets regulation to protect sources of human drinking water from becoming contaminated. As there is an abstraction point from the Makākahi River approximately 2.7km north of the site, all relevant regulations are identified and assessed in Section 4 of this document.

3.5 Operative Horizons One Plan – Part 1: Regional Policy Statement

Part 1 of the Horizons One Plan contains the Regional Policy Statement (Horizons RPS) objectives and policies for the Horizons Region. Part 1 of the Horizons One Plan is split into ten chapters, of which eight contain objectives and policies. The objectives and policies in the chapters are summarised as follows.

3.5.1 Chapter 2: Te Ao Māori

The objectives and policies in Chapter 2 provide for Te Ao Māori, and require recognition of relationship between tangata whenua and land, including katiakitanga, wāhi tapu, wāhi tūpuna and other sites of significance to Māori identified, as well as the mauri of water.

3.5.2 Chapter 3: Infrastructure, Energy, Waste, Hazardous Substances and Contaminated Land

The objectives and policies in Chapter 3 provide for infrastructure and energy, which are fundamental to this proposal. They require the recognition of benefits of infrastructure (including electricity generation), including infrastructure of regional or national importance, which is defined in Policy 3-1 as *facilities for the generation of more than 1 MW of electricity and its supporting infrastructure where the electricity generated is supplied to the electricity distribution and transmission networks*. The proposal fits within this definition.

Policy 3-3 provides direction on adverse effects on the environment from infrastructure of regional or national importance. Under this policy, decision makers must allow all minor adverse effects associated with infrastructure, and avoid, remedy or mitigate all more than minor adverse effects, while taking into account the need for the infrastructure, its function, operational or technical constraints and available alternatives. It also allows for offset of effects (including financial contributions) if more than minor adverse effects cannot be adequately avoided, remedied or mitigated.

Objective 3-2 seeks an increase in the use of renewable energy resources within the region. Subsequent Policy 3-6 seeks that the benefits of use and development of renewable energy resources are given particular regard, including the region's potential for renewable energy generation, the need for renewable energy activities to locate where the renewable resource is located, the benefits of the increased generation capacity, and the logistical and technical practicalities that exist with renewable electricity generation activities.

3.5.3 Chapter 4: Land

The objectives and policies in Chapter 4 apply to land use, and of particular relevance to this Assessment of Environmental Effects are Objective 4-2 and Policy 4-2 which seek to avoid, remedy or mitigate accelerated erosion and resulting increased sedimentation in water bodies.

3.5.4 Chapter 5: Water

Chapter 5 provides objectives and policies for water. The provisions establish the framework for water management values in the region, and through Objective 5-2 and its subsequent policies, detail water quality targets, and mechanisms to achieve those targets.

Objective 5-4 provides for works affecting the beds of rivers and lakes, such as stream crossing works. Beds of rivers and lakes are to be managed in a manner which sustains their life supporting capacity, provides for the instream morphological components of natural character, recognises any specific values, and provides for infrastructure purposes.

3.5.5 Chapter 6: Indigenous Biological Diversity, Landscape and Historic Heritage

Objective 6-1 seeks that indigenous biological diversity is maintained, with subsequent policies primarily directed at significant indigenous vegetation and significant habitats of indigenous fauna, as well as rare, threatened or at-risk habitat, none of which have been identified on the site.

Objective 6-2 provides for outstanding natural features and landscapes, and natural character. The site does not contain any outstanding natural features or landscapes identified in any statutory planning documents, however natural character requires consideration. This is considered through the subsequent Policy 6-8, which specifically requires the natural character of wetlands and rivers and their margins to be preserved and protected from inappropriate subdivision use and development, and restored and rehabilitated where this is appropriate and practicable.

3.5.6 Chapter 7: Air and Chapter 9: Natural Hazards

Finally, Chapter 7 considers air discharge, with Objective 7-2 directed at fine particle levels, and Chapter 9 considers natural hazards, including consideration of the effects of climate change.

3.6 Operative Regional Policy Statement for the Wellington Region 2013

The Operative Regional Policy Statement for the Wellington Region 2013 (GW RPS) largely mirrors the same themes as the Horizons RPS. The objectives and policies are summarised as follows.

3.6.1 Air Quality

Objective 1 seeks that discharges of odour, smoke and dust to air do not adversely affect amenity values and people's wellbeing.

3.6.2 Energy and Infrastructure

Objective 9 seeks that the region's energy needs are met including by diversifying the type and scale of renewable energy development and maximising the use of renewable energy resources.

Objective 10, and subsequent Policy 39 require recognition of the benefits from renewable energy, with, under Policy 39, particular regard being given by decision makers to social, cultural and environmental benefits of renewable electricity generation, the need for renewable electricity generation facilities to locate where the renewable energy resources exist; and the significant wind renewable energy resources within the region. The explanation to the policy states the benefits of renewable energy generation include the security and diversification of energy resources, reduction on dependency of imported energy resources, reduction in greenhouse gas emissions and the contribution to the national renewable energy target.

3.6.3 Fresh water

Objective 12 seeks that the quantity and quality of freshwater meets the range of uses and values for which water is required, that the life supporting capacity of water bodies is safeguarded, and that the reasonably foreseeable needs of future generations are met.

The subsequent policies set out methods to achieve the objective, including Policy 40 which is to safeguard aquatic ecosystem health in water bodies, Policy 41 minimising the effects of earthworks and vegetation disturbance (relating to erosion and silt and sediment runoff into water) and Policy 42 to minimise contamination in stormwater from development.

Objective 13 seeks that the region's rivers, lakes and wetlands support healthy, functioning ecosystems. The subsequent policies are Policy 43 protecting aquatic ecological function of water bodies, Policy 44 managing water takes to ensure efficient use and Policy 45 using water efficiently.

3.6.4 Indigenous Ecosystems

Objective 16 seeks that indigenous ecosystems and habitats with significant biodiversity values are maintained and restored to a healthy functioning state. Subsequent Policy 47 sets out the considerations required by decision makers to manage effects on ecosystems and habitats with indigenous biodiversity values.

Policy 23 sets out the methodology that requires indigenous ecosystems and habits with significant indigenous biodiversity values are identified for district and regional plans. Policy 24 then sets out that district and regional plans must include provisions to protect the identified areas from inappropriate subdivision, use and development.

3.6.5 Natural Hazards

Objective 19 considers the risks and consequences from natural hazards and climate change, and that effects are reduced. Objective 21 seeks that communities are more resilient to natural hazards. Subsequent Policy 51 aims to minimise the risk and consequences of natural hazards events through sound preparation, investigation and planning prior to development.

3.6.6 Tangata Whenua

Objective 24 and Policy 28 require that the principles of Te Tiriti o Waitangi are taken into account in decision making. Objective 25 seeks that kaitiakitanga is integrated into decision making. Objective 26 seeks that Mauri is sustained, particularly in water. Objective 28 is to provide for the cultural relationship of Māori with their ancestral lands, water, sites, waahi tapu and other taonga. Policy 49 seeks the implementation of these matters.

3.6.7 Soils and Mineral

Objective 29 seeks that land management practices do not accelerate soil erosion.

3.7 Proposed Change 1 to the Regional Policy Statement for the Wellington Region

Proposed Change 1 to the Regional Policy Statement for the Wellington Region (Proposed Change 1) was notified on 19 August 2022. According to GW[17], these changes were to account for new national direction and include:

- Enabling urban development and infrastructure in appropriate locations. Encouraging more intensive urban development that is sensitive to the environment and meets the needs of more people.
- Developing objectives with mana whenua to protect waterways, including:
  - How Te Mana o Te Wai applies to freshwater in the region.

[17] GWRC webpage on Proposed RPS Change 1 - summary of changes (downloaded 5 May 2023)

  - Long-term visions for freshwater bodies in areas with completed whaitua processes.
- Responding to the climate emergency:
  - Through provisions to reduce emissions.
  - By recognising the role that natural ecosystems play.
  - By reducing the impacts of climate change.
- Strengthening the existing provisions for indigenous ecosystems to maintain and restore ecosystem processes and biodiversity generally, not just significant biodiversity.

Proposed Change 1 is a substantial change in regional policy direction, and there are a number of submissions challenging provisions within Proposed Change 1. As such it could be subject to substantial change. These factors limit the weighting it can be given under s104(1)(b). However, this needs to be balanced against the fact that it seeks to give effect to national direction and strategies on matters of national import such as climate change and freshwater management.

While there are numerous changes proposed, the amended provisions listed below are considered to be most relevant to this proposal.

3.7.1 Climate change, energy and infrastructure

Eight new climate change specific objectives are proposed, which flow on to numerous new and amended policies. Objective CC.1 and CC.3 are most relevant to this proposal.

Objective CC.1 sets out a low-emission and climate resilient vision for the region by 2050, which includes mitigation of emissions being a part of sustainable management of resources, well-functioning environments and well-planned infrastructure. This objective is linked to policies that seek to create climate resilient urban areas which is integrated with sustainable transport options amongst other matters.

Objective CC.3 seeks that greenhouse gas emissions from various sectors including transport, agriculture, stationary energy, waste, and industry in the Wellington Region are reduced, with an overall target of net-zero emissions by 2050. This objective is linked to a number of polices that seek to enable activities that reduce emissions, including Policy 7 which seeks to recognise the benefits from renewable energy and regionally significant infrastructure.

These objectives are relevant to the proposal as they seek to enable a low-emission future for the region, of which renewable energy generation is a critical component.

3.7.2 Fresh Water

Amendments are proposed to freshwater provisions to give effect to the NPSFM, and insertion of Te Mana o te Wai visions/objectives as required by the NPSFM.

Objective 12 is amended to inset the hierarchy of Te Mana o te Wai, including:

- Six principles to inform the RPS and its implementation including Mana whakahere, Kaitiakitanga, manaakitanga, governance, stewardship and care and respect.
- Te Mana o te Wai expression statements from Kahungunu ki Wairarapa and Rangitāne o Wairarapa.

As outlined in elsewhere in this application, both these iwi have an interest in the site and these statements provide an expression of their visions and values with regard to freshwater that is relevant to this proposal.

3.7.3 Indigenous Ecosystems

Amendments are proposed to provisions for indigenous ecosystems, including three new proposed objectives relating to giving effect to Te Rito Harakeke, incorporating mana whenua/tangata whenua values, and the recognition of the values and roles of landowners in regard to biodiversity. While these proposed changes are not new matters as those listed in the above sections, they are relevant to the assessment of ecological effects of this proposal.

3.8 Operative Horizons One Plan – Part 2: Regional Plan

Part 2 of the Horizons One Plan contains the regional planning provisions. These provisions provide more detailed direction than what is contained in the RPS section, and include objectives, policies and rules. The relevant objectives and policies are summarised below, with the rules identified in the activity status section of this application.

3.8.1 Chapter 13: Land Use Activities, Indigenous Biological Diversity, and Natural Inland Wetlands

Objective 13-1 and Policy 13-2 seek to manage effects associated with accelerated erosion from vegetation clearance and land disturbance. This includes through the provision of Erosion and Sediment Control Plans (including taking into account rainfall and storm events) and the need to establish infrastructure of regional or national importance.

Objective 13-2 is the regulation of activities affecting indigenous biological diversity. Subsequent Policy 13-3A is specifically for natural inland wetlands, seeking that the loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted. This repeats the NPSFM. For a resource consent for specified infrastructure that affects natural inland wetlands, the decision maker must be satisfied that the activity is necessary for the construction of the infrastructure, that the infrastructure will provide significant natural or regional benefits, that there is a functional need for the specified infrastructure to be in the proposed location, and that the effects of the activity are managed through applying the effects management hierarchy.

The effects management hierarchy is a process provided for in the NPSFM[18], and forms part of the Ecological Assessment in Appendix C.

[18] It is defined in the NPSFM as, *in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that: (a) adverse effects are avoided where practicable; then (b) where adverse effects cannot be avoided, they are minimised where practicable; then (c) where adverse effects cannot be minimised, they are remedied where practicable; then (d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; then (e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; then (f) if aquatic compensation is not appropriate, the activity itself is avoided*

3.8.2 Chapter 14: Discharges to Land and Water

Objective 14 provides for the management of discharges to land and water that can affect ground and surface water quality. Policy 14-1 outlines what decision makers must consider for discharges to water, with Policy 14-2 providing the same guidance for discharges to land. The processes include the avoidance of discharges which contain persistent contaminants likely to accumulate in the water body or its bed, the appropriateness of the best practicable option. Policy 14-3 requires the consideration of industry based standards, Policy 14-4 requires consideration of alternative discharge options, and Policy 14-9 refers back to the NPSFM requirements.

3.8.3 Chapter 16: Takes, Uses and Diversions of Water, and Bores

Objective 16-1 seeks that the take, use and diversion of water is undertaken in a manner that provides for any identified values, and the relevant objectives and policies in Chapter 5 of the One Plan (being the Horizons RPS water chapter).

Policies 16-1, 16-2 and 16-4 detail the decision making framework for discharges to water, takes and uses of surface and ground water and diversions and drainage, respectively. Similar to the discharge policies in Chapter 14, consideration is to be given to contamination, appropriateness, the RPS, as well as existing activities, effects on rare, threatened or at-risk habitats and natural character. Policy 16-2 requires consideration of alternatives.

3.8.4 Chapter 17: Activities in Artificial Watercourses, Beds of Rivers And Lakes, and Damming

Objective 17-1 requires structures and activities in artificial watercourses and in the beds of rivers and lakes to safeguard life supporting capacity and provide for any recognised values, as well as consider the RPS. Objective 17-2 requires fish passage is maintained or improved, unless there is an ecological reason not to.

Policy 17-2 provides the consent decision making framework, which includes consistency with best management practices, any reasonable alternatives, the duration and necessity of the activity, and the RPS.

3.9 Greater Wellington Natural Resources Plan

The relevant objectives and policies are summarised below, with the rules identified in the activity status section of this application.

3.9.1 Ki uta ki tai and integrated catchment management

Objective O1 seeks that air, land, freshwater and the coastal marine area are managed as integrated and connected resources. Objective O2 recognises that the social, economic and cultural well-being and health of people and the community interacts with air, land, water and ecosystems. Objective O3 requires the enhancement and replenishment of mauri.

Policy P2 specifically refers to cross boundary matters, requiring particular regard be given to relevant provisions contained in any bordering territorial authority's proposed and/or operative district plan

when assessing a resource consent for an activity and/or the effects of an activity that spans mean high water springs or other jurisdictional boundaries, including the beds of lakes and rivers.

3.9.2 Beneficial Use and Development

Objective O9 recognises the social, economic, cultural and environmental benefits of renewable energy generation activities, and Objective O10 seeks that renewable energy generation activities that meet the needs of present and future generations are enabled in appropriate places and ways.

Policy P13 details how renewable electricity generation should be provided for, requiring that they are in appropriate places and ways, and have particular regard to the strategic integration of infrastructure and land use, the location of existing infrastructure and structures, the need for renewable energy generation activities to be located where the renewable energy resource exists and the functional and operation requirements associated with renewable energy generation activities.

3.9.3 Māori relationships

Objective O12 is to recognise the relationship of Māori with their ancestral land, and Objective O13 requires recognition of kaitiakitanga and mana whenua participation in planning and decision making.

Policy P9 requires freshwater to be of a quality suitable for Māori customary use, Policy P18 requires the consideration of mauri in freshwater, Policy P19 considers Mana whenua relationships with Ngā Taonga Nui a Kiwa (which applies to the Kopuaranga River), Policy P20 requires recognition of Māori values, Policy P21 concerns the exercise of kaitiakitanga and Policy P22 concerns statutory acknowledgements.

3.9.4 Natural character, form and function

Objective O14 seeks to preserve and protect the natural character of natural wetlands and rivers and their margins from inappropriate use and development. Policy P24 details how this is to be achieved, which for areas that are not considered to have high natural character, is to avoid, remedy or mitigate adverse effects on natural character.

3.9.5 Water Quality

Objective O17 seeks that water quality is maintained or improved, with Objective O18 seeking that rivers and natural wetlands are suitable for contact recreation and Māori customary use. Objective O34 seeks that adverse effects on soil and water from land use activities are minimised, including to assist with achieving the outcomes and indicators of desired environmental states for water.

3.9.6 Biodiversity, aquatic ecosystem health and mahinga kai

Closely related to water quality, is aquatic ecosystem health and mahinga kai. Objective O19 seeks that biodiversity, aquatic ecosystem health and mahinga kai in freshwater bodies are safeguarded from a water quality and quantity perspective, encouraging restoration. Objective O21 seeks that vegetated riparian margins are stablished or managed to enhance water quality, aquatic ecosystem health, mahinga kai and indigenous biodiversity. Objective O22 seeks that the extent of natural wetlands is

maintained or increased, their values are protected, and their condition is restored. Objective O23 seeks that fish passage is provided for, and Objective O24 is to maintain or improve trout habitat.

These objectives are supported by policies. Policy P30 sets out how the adverse effects of use and development should be managed, including through hydrology, water quality and habitat restoration measures. Policy P31 sets out an effects management hierarchy for adverse effects on biodiversity, aquatic ecosystem health, and mahinga kai. Policy P32 seeks provision for fish passage.

In terms of wetlands, Policy P34 outlines the value of natural wetlands and Policy P35 encourages the restoration of wetlands.

Policy P45 seeks that protection of trout habitat shall have particular regard given to it.

3.9.7 Sites with significant indigenous biodiversity value

While there are no mapped sites in the NRP that identify any areas of significant indigenous biodiversity value, Policy P42 states that *all natural wetlands in the Wellington Region are considered to be ecosystems and habitats with significant indigenous biodiversity values as they meet at least two of the criteria listed in Policy 23 of the Regional Policy Statement 2013 for identifying indigenous ecosystems and habitats with significant indigenous biodiversity values; being representativeness and rarity*. Consequently, the objectives and policies concerning sites with significant indigenous biodiversity value require consideration.

Objective O28 requires ecosystems and habitats with significant indigenous biodiversity values to be protected from the adverse effects of use and development, and where appropriate restored to a healthy functioning state.

Policy P44 sets out how effects on these sites should be managed, including through the maintenance and enhancement of ecological connections, the use of buffers around the sites, and avoidance of cumulative adverse effects on and the incremental loss of significant indigenous biodiversity values.

Policy P46 requires wetland restoration management plans if any restoration activity will have more than minor adverse effects on natural inland wetlands.

3.9.8 Activities in beds of lakes and rivers

Policy P110 is similar to the purpose of the NPSFM in that the loss of extent of waterbodies, including as a result of reclamation and drainage, is avoided unless, for an inland natural wetland, the reclamation and drainage is necessary for the construction of the specified infrastructure, the specified infrastructure will provide significant national or regional benefits, and there is a functional need for the specified infrastructure in the proposed location, noting that any effects will be managed through application of the effects management hierarchy.

3.9.9 Discharges to land and water

Objectives O36 and O37 seek to minimise the amount of runoff and contaminants (including sediment) from entering water. Greater detail is provided through Policies P65 and P66. Policy P98 sets out how discharges to land shall be managed, and Policy P69 promotes discharges to land over water if a

discharge to water would have adverse effects on aquatic ecosystem health, mahinga kai, contact recreation or Māori customary use. Policies P78, P79 and P80 manage point source discharges.

3.10 Tararua Operative District Plan

The Tararua District Plan sets objectives and policies for the functions of the Tararua District Council under the RMA.

3.10.1 Renewable Energy Generation

Objective 2.8.4.1 is *to recognise the potential of the District's Rural Management Area for renewable electricity generation and wind farms in particular*. It is supported by two policies at 2.8.4.2 of the plan, which recognise the local, regional and national benefits of renewable energy resources, and *to remedy, mitigate or avoid, where possible, the actual and potential adverse effects on the environment of wind farms and other renewable electricity generation facilities, by recognising that they have the potential to cause significant adverse effects on the environment, particularly in respect of amenity values, landscape ecology, noise and traffic, and may therefore be inappropriate in some locations*.

While Objective 2.8.4.1 and Policies 2.8.4.2 are particularly relevant, there are other objectives and policies within the Tararua District Plan which require consideration. These are summarised as follows.

3.10.2 Activities in Rural Area

Objective 2.3.3.1 seeks to maintain the vitality and character of rural areas. Subsequent policy 2.3.3.2(b) acknowledges that activities which require a rural location or which specifically serve or support the rural community, where their effects are compatible with the surrounding rural area and environmental results should be provided for.

3.10.3 Amenity

Objective 2.3.4.1 seeks to ensure a high level of environmental quality and amenity throughout the rural areas of the district. Objective 2.6.2.1 is to maintain and or enhance amenity values and environmental quality for present and future generations.

Policies 2.3.4.2 seek that actual and potential adverse effects of activities are avoided, remedied or mitigated, and to maintain and/or enhance the character, level of amenity and environmental quality of rural areas. Likewise, Policy 2.6.2.2 is to manage the adverse effects of activities on amenity values, including through minimum environmental standards.

3.10.4 Waterbodies

Objective 2.6.6.1 seeks protection of natural, scenic, ecological, cultural and amenity values of the District's lakes, rivers, and wetlands and to maintain and/or enhance public access to and along their margins. Its subsequent policies require consideration of the protection of natural character of wetlands, lakes and rivers and their margins from inappropriate use and development, as well as the maintenance of existing public access along rivers and lakes.

3.10.5 Transport

Objective 2.8.3.1 seeks to ensure the safe, efficient and effective operation of the District's transportation networks while avoiding, remedying or mitigating adverse environmental effects. Subsequent policies listed at 2.8.3.2 are to specify standards for traffic movements, and to avoid, remedy or mitigate the adverse effects of transportation activities on the environment.

3.10.6 Tangata Whenua Participation

Objective 2.10.2.1 and its subsequent Policy 210.2.2 require the principles of Te Tiriti O Waitangi are taken into account, and include direction for tangata whenua in planning and decision making processes.

3.10.7 Cross Boundary Matters

Objective 2.11.2.1 requires resource management issues which cross administrative boundaries to be addressed in a coordinated and integrated manner. Subsequent policy 2.11.2.2 seeks that Tararua District Council will cooperate with other District and Regional Councils and other relevant agencies, and to facilitate joint hearings where appropriate, to address resource management issues in an integrated manner.

3.11 Combined Wairarapa District Plan

Similar to the Tararua District Plan, the Combined Wairarapa District Plan, which is the relevant plan for Masterton District Council, has renewable energy generation objectives and policies, and other objectives and policies, all of which require consideration.

3.11.1 Renewable Energy Generation

Objective NUE2 is *to move the Wairarapa towards a sustainable energy future by encouraging energy efficiency and the generation of energy from renewable sources*. The subsequent NUE2 policies require recognition of the local, regional and national benefits to be derived from renewable energy generation, recognition and management of appropriate development of the significant potential renewable energy resource, provide for renewable energy generation while, as far as practicable, avoiding, remedying or mitigation adverse effects, particularly of large scale and/or prominent facilities, and use environmental management codes of practice and best practice methods.

3.11.2 Character and Amenity

Objective Rur1 is to *maintain and enhance the amenity values of the Rural Zone, including natural character, as appropriate to the predominant land use and consequential environmental quality of different rural character areas within the Wairarapa*. Subsequent policies include consideration of an appropriate scale, density and level of environmental effect, and manage development in a manner which recognises the attributes that contribute to rural character such as openness and a productive working landscape.

Objective GAV1 seeks to maintain and enhance general amenity values, with its subsequent policies considering noise, vibration, lighting and odour. Policy GAV1(f) is to *manage activities with unacceptable visual effects on amenity values, in accordance with the qualities of each environmental zone. As a guide to determining if an activity has unacceptable visual effects, consideration will be given to other policies relevant to a particular activity or environmental zone*.

3.11.3 Tangata Whenua

Objective TW1 and its subsequent policies seek to ensure tangata whenua values and input into resource consent processes, as well as the principles of Te Tiriti.

3.11.4 Indigenous Biodiversity

Objective Bio 1 is to maintain and enhance the biological diversity of indigenous species and habitats. The subsequent policies seek the ecological integrity is maintained, areas are protected and adverse effects are avoided, remedied or mitigated.

3.11.5 Freshwater Environment

Objective Fwe1 and its subsequent policy seek to maintain or enhance the freshwater environments in the Wairarapa.

3.12 Planning Framework Summary

Overall, the objectives and policies provided by the relevant planning framework can be grouped into the following themes, being:

- Recognising the benefits of renewable energy generation, while acknowledging that there can be adverse effects. If adverse effects cannot be practically avoided, remedied or mitigated then options such as offset or financial contributions can be used;
- Recognise that renewable energy generation activities need to be located where the renewable energy resource is located, as well as other functional and operational requirements.
- Protect, and maintain or improve water quality and habitat (including fish passage) within existing waterbodies, including water used to source human drinking water;
- No loss of current extent of natural inland wetlands, and use the effects management hierarchy to determine how effects are to be managed (noting that the proposal is for specified infrastructure);
- Include tangata whenua in the process, recognise kaitiakitanga and provide for the mauri of water through the resource consent process;
- Avoid, remedy or mitigate accelerated erosion of land;
- Provide resilience to natural hazards, and minimise the consequences of natural hazards;
- Avoid, remedy or mitigate potential airborne contaminants;
- Maintain and enhance the rural amenity and character of rural environments;
- Provide a safe and efficient transport environment on roads and at accesses;
- Avoid, remedy or mitigate adverse visual effects, noting that this may not always be practicable. Determine if the proposal is in an appropriate location if visual effects are more than minor; and

- Consent authorities work together, including consideration of joint decision making, for cross boundary activities.

4 Resource Consent Activity Status

The following regulations, rules and standards in the relevant statutory planning documents provide the resource consents and activity status to establish, operate and maintain the wind farm as detailed in Section 2.4 of this Assessment of Environmental Effects.

4.1 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

4.1.1 Subpart 1 – Natural Inland Wetlands

As stated in Section 3 of this application, Regulation 45, which concerns the *construction of specified infrastructure* is applicable.

Regulation 45 states that the following are discretionary activities, with assessment of the proposal against the subclauses of Regulation 45 included in the following table:

Table 2: Assessment of NESF Regulation 45

NESF Regulation 45 Subclause	Assessment
(1) Vegetation clearance within, or within a 10m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.	Of the 44 natural inland wetlands identified in the ecological assessment, six are within the identified envelopes, and therefore may be directly affected by the proposed works, including vegetation clearance and earthworks within or within a 10m setback.
(2) Earthworks or land disturbance within, or within a 10m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.	
(3) Earthworks or land disturbance outside a 10m, but within a 100m, setback from a natural inland wetland is a discretionary activity if it— *(a) is for the purpose of constructing specified infrastructure; and* *(b) results, or is likely to result, in the complete or partial drainage of all or part of the natural inland wetland.*	Earthworks and land disturbance will occur within 100m of 44 natural wetlands, again for the purpose of constructing specified infrastructure.
(4) The taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if— *(a) the activity is for the purpose of constructing or upgrading specified infrastructure; and* *(b) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and*	No taking, use, damming or diversion of water within, or within a 100 m setback from, an identified natural inland wetland is proposed.

(c) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland.	
(5) The discharge of water into water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if— *(a) the discharge is for the purpose of constructing or upgrading specified infrastructure; and* *(b) there is a hydrological connection between the discharge and the wetland; and* *(c) the discharge will enter the wetland; and* *(d) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.*	No discharge of water into water, or within a 100m setback from, an identified natural inland wetland is proposed.
(6) A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—	
(a) satisfied itself that the specified infrastructure will provide significant national or regional benefits; and	The applicant considers that the proposal will provide significant national or regional benefits, through assisting Aotearoa New Zealand to meet government stated renewable electricity generation targets.
(b) satisfied itself that there is a functional need for the specified infrastructure in that location; and	As per the recognition in the NPSREG, Horizons RPS, GW RPS, Horizons Regional Plan and GW Natural Resources Plan, renewable energy generation activities need to be located where the renewable energy resource exists. The wind resource at the site is Class I, and is within relatively close proximity to national grid infrastructure for the transmission of power that is generated. These are functional requirements for a wind farm to be in a particular location
(c) applied the effects management hierarchy.	The effects management hierarchy has been applied in the Ecological Assessment attached as Appendix C.

Given the above, the construction of a wind farm in the proposed location is a **discretionary activity under Regulation 45** of the NESF.

4.1.2 Subpart 3 – Passage of Fish Affected by Structures

Subpart 3 of the NESF also requires consideration, as the proposal includes new culverts placed in the beds of rivers, as well as extensions to existing culvert structures. Under Regulation 60, the regulations

in subpart 3 only apply to structures constructed post 2 September 2020. The culverts to be upgraded under Old Coach Road are older than this date, and as such are excluded from compliance.

Regulations 62 and 63 set out information requirements which, under 62(2) and 63(2) must be provided to the relevant regional council within 20 working days of the activity being finished. This will be met by the applicant.

Regulation 70 states that *the placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions*.

Table 3: Assessment of NESF Regulation 70(2) Conditions

NESF Regulation 70(2) Conditions	Compliance
(a) the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and.	**Will comply** – the Ecological Assessment (Appendix C) has not identified any impediments to fish passage resulting from the proposed culverts.
(b) the culvert must be laid parallel to the slope of the bed of the river or connected area; and.	**Will comply** – condition (b) can be met through detailed design.
(c) the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and	**Will comply** – condition (c) can be met through detailed design.
(d) the culvert's width where it intersects with the bed of the river or connected area (s) and the width of the bed at that location (w), both measured in metres, must compare as follows: *(i) where $w \leq 3$, $s \geq 1.3 \times w$:* *(ii) where $w > 3$, $s \geq (1.2 \times w) + 0.6$; and*	**Will comply** – condition (d) can be met through detailed design.
(e) the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and	**Will comply** – condition (e) can be met through detailed design.
(f) the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and	**Will comply** – condition (f) can be met through detailed design.
(g) the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).	**Will comply** – condition (g) can be met through detailed design.

Based on the above, the proposed culverts are a **permitted activity under Regulation 70(2)**.

4.2 Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007

Regulations 7 and 8 outline activity standards for discharge permits upstream of an abstraction point. Under Regulation 6, Regulations 7 and 8 *only apply to an activity that has the potential to affect a*

registered drinking-water supply that provides no fewer than 501 people with drinking water for not less than 60 days each calendar year. The number of people for whom the registered drinking water supplies is not known. Therefore, on the basis of caution, Regulations 7 and 8 have been applied.

Regulation 7 provides the considerations for a Regional Council to grant a water permit upstream of an abstraction point where drinking water meets health quality criteria. Regulation 8 provides the considerations for Regional Councils where drinking water has not been tested or does not meet health quality criteria.

Both regulations seek that any water permits granted upstream of an abstraction point do not increase, by more than a minor amount, the concentration of any determinands in the water at the abstraction point.

The measures outlined in the Construction Water Management Plan and Effects Assessment Report (Appendix F) will result in Regulations 7 and 8 of the NESHDW 2007 being met.

4.3 Operative Horizons One Plan – Part 2: Regional Plan

4.3.1 Chapter 13: Land Use Activities, Indigenous Biological Diversity, and Natural Inland Wetlands

Rule 13-1 permits, subject to the activity not being regulated by rules 13-6, 13-8 and 13-9 and conditions/standards/terms being met, land disturbance up to 2,500m^2 per property per 12-month period.

The proposal will disturb more than 2,500m^2 of land on a single property within a 12-month period.

Further, Rule 13-6 relates to specified vegetation clearance, land disturbance or cultivation in a Hill Country Erosion Management Area. A Hill Country Erosion Management Area is defined in the One Plan as:

> *Any area of land with a pre-existing slope of 20^o or greater on which vegetation clearance, land disturbance, forestry or cultivation and ancillary land disturbance for the purposes of constructing erosion and sediment control methods to minimize run off to water is being or is to be undertaken.*

The site has land which has pre-existing slopes in excess of 20^o and therefore any works on these slopes must be assessed under Rule 13-6.

Similar to Rule 13-1, Rule 13-6 is subject to Rules 13-8 and 13-9.

Rules 13-8 and 13-9 apply to activities within at-risk habitats. At-risk habitats are defined in the One Plan as an area identified in Schedule F. There are no Schedule F areas within the site, and consequently these rules are not applicable.

As such, Rule 13-6 is the applicable rule for the consideration of the proposal in regard to land use activities, indigenous biological diversity and natural inland wetlands on the areas of the site which are greater than 20^o. Rule 13-2 is the applicable rule in regard to land disturbance on areas of the site which are less than 20^o, with Rule 13-5 being the applicable rule in regard to vegetation clearance in the same areas.

Rule 13-2 provides for, as a controlled activity, any land disturbance that is outside of a Hill Country Erosion Management Area and at-risk habitat and is in excess of 2500m^2 per property per 12-month period, and any ancillary diversion of water and discharge of sediment resulting from the land disturbance.

The conditions/standards/terms include matters such as the activity not being undertaken in a coastal foredune, have an erosion and sediment control plan, meet water quality standards and not be within or within 10m of a feature identified in Schedule B or F of the One Plan. Each of these are met. However, condition/standard/term (d) states that *the activity must not occur on land that is within 5m of the bed of a river that is permanently flowing, or the bed of a river that has an active ben width greater than 1m*. Earthworks may be undertaken within 5m of some streams on the site, including where the bridge is proposed. As such, Rule 13-2 cannot be relied on, and the activity becomes a **discretionary activity under Rule 13-7**.

Rule 13-5 provides for, as a Permitted Activity, any vegetation clearance that is outside of a Hill Country Erosion Management Area and any ancillary diversion of water and discharge of sediment resulting from the land disturbance.

The conditions/standards/terms include matters such as the activity not being undertaken in a coastal foredune, meet water quality standards and not be within or within 10m of a feature identified in Schedule B or F of the One Plan. Each of these are met. However, condition/standard/term (c) is the same as condition/standard/term (d) under Rule 13-2, and does not permit vegetation clearance *within 5m of the bed of a river that is permanently flowing, or the bed of a river that has an active ben width greater than 1m*. Vegetation clearance may be undertaken within 5m of some streams on the site, including where the bridge is proposed. As such, Rule 13-5 cannot be relied on, and the activity also becomes a **discretionary activity under Rule 13-7**.

Rule 13-6 provides for, as a restricted discretionary activity in a Hill Country Erosion Management Area, any:

(a) land disturbance of more than 100 m^2 per property per 12-month period, or

(b) vegetation clearance of 1 ha or greater per property per 12-month period where the age of the vegetation in the area to be cleared is greater than seven years, or

(c) cultivation,

It also allows, in association with these activities, any

(a) diversion of water pursuant to s14(2) RMA on the land where the vegetation clearance, land disturbance or cultivation is undertaken, or

(b) discharge of sediment into water pursuant to s15(1) RMA resulting from the vegetation clearance, land disturbance or cultivation

The proposal includes land disturbance of more than 100 m^2 per property per 12-month period and vegetation clearance in excess of 1ha per 12-month period. As such, it is a **restricted discretionary under Rule 13-6**.

It should be noted that as Rule 13-6 provides for the discharge of water and sediment as a result of the land disturbance activity, this aspect of the proposal does not require consideration under Chapter 14 (discharges to land and water).

4.3.2 Chapter 14: Discharges to Land and Water

Discharge of Stormwater to Water

Notwithstanding that the discharge of water associated with land disturbance is provided for under Rule 13-6, consideration of other aspects of the proposal against the rules in Chapter 14 is required.

Rule 14-18 permits, subject to conditions/standards/terms being met, the discharge of stormwater to surface water and land. During the construction phase, stormwater discharges will be managed as per the erosion and sediment control plan. As construction is completed and the proposal moves into the operational phase, stormwater discharges will continue. The conditions/standards/terms are assessed as follows:

Table 4: Assessment of Rule 14-18 Conditions/Standards/Terms

Rule 14-18 Conditions/Standards/Terms	Compliance
a. The discharge must not include stormwater from any: *i. industrial or trade premises where hazardous substances stored or used may be entrained by the stormwater* *ii. contaminated land where the contaminants of concern may be entrained by the stormwater* *iii. operating quarry or mineral extraction site* *unless there is an interceptor system in place*	**Complies** – no industrial or trade premises will be located on site, but hazardous substances will be temporarily stored. Management approaches, which include interceptors/catchment, are detailed in the Construction Water Management Plan and Effects Assessment Report (Appendix F).
a. The discharge must not cause or exacerbate the flooding of any neighbouring property.	**Complies** – the Construction Water Management Plan sets out the methodology for minimising the potential adverse effects on the receiving environment, by using measures, both structural and non-structural that meet or exceed industry best practice and GWRC Guidelines. As a result, the discharges associated with the wind farm will not cause or exacerbate the flooding of any neighbouring property.
b. The activity must not cause erosion of any land or the bed of any water body beyond the point of discharge unless this is not practicably avoidable, in which case any erosion that occurs as a result of the discharge must be remedied as soon as practicable.	**Complies** – the discharges associated with the wind farm will not cause scouring or erosion of any land or bed of a water body beyond the point of discharge. The Construction Water Management Plan and Effects Assessment Report sets out the methodology for minimising the potential adverse effects on the receiving environment, by using measures, both structural

	and non-structural that meet or exceed industry best practice and GWRC Guidelines.
c. *There must be no discharge to any rare habitat, threatened habitat, at-risk habitat, or reach of river or its bed with a Schedule B Value of Natural State.*	**Complies** – the discharges are not to any rare, threatened or at-risk habitats.
d. *For discharges of stormwater onto or into land:* i. *the discharge must be below a rate that would cause flooding outside the design discharge soakage area, except in rain events equivalent to or greater than the 10% annual exceedance probability design storm. Any exceedance must go into designated overland flow paths* ii. *there must not be any overland flow resulting in a discharge to a natural surface water body, except in rain events equivalent to or greater than the 10% annual exceedance probability design storm* iii. *the discharge must not contain concentrations of hazardous substances that are toxic to aquatic ecosystems, or accumulate in soil.*	**Complies** – the discharge will not cause flooding, result in an overland flow to a natural surface waterbody, or contain hazardous substances. As detailed in the Construction Water Management Plan, Dirty Water Diversions will be used to transfer sediment laden water to sediment retention devices for treatment. They are effectively a conveyance device and are designed to cater for the 20-year ARI rain event with a 1 hour duration (plus a 300mm freeboard). The DWD design criteria for the Project will ensure that all construction runoff from rain events up to the 20-year ARI event will be transferred to treatment devices. This design (including the freeboard provision) effectively has the same capacity as a 100-year rainfall event and therefore is assessed as providing a robust and best practice approach.
e *For discharges of stormwater into surface water bodies the discharge must not cause any permanent reduction of the ability of the receiving water body or its bed to convey flood flows.*	**Complies** – the discharges will not change the ability of waterbodies to convey flood flows.
f. *For discharges of stormwater into surface water bodies the discharge must not cause, after reasonable mixing, any of the following effects in the receiving water body:* i. *the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials* ii. *any conspicuous change in the colour or visual clarity of the receiving water* iii. *any emission of objectionable odour* iv. *the rendering of fresh water unsuitable for consumption by farm animals* v. *toxicity to aquatic ecosystems.*	**Complies** – the discharges will meet this condition. Measures are addressed in full in Construction Water Management Plan and Effects Assessment Report. Section 8 allows for monitoring and ongoing checks and balances of the earthwork activity to ensure effective management throughout the construction process.
g. *The activity must not be to any historic heritage identified in any district plan or regional plan.*	**Complies** – there are no historic heritage items near the discharge locations.

Based on the above, the proposed discharge of water into water and land is a **permitted activity under Rule 14-18**.

Discharge of Contaminants

The application includes concrete batching, a diesel tank for refuelling, and the use of oil within the wind turbine components. These all contain contaminants. While, as described, measures are in place to control the discharge of contaminants, potential remains to discharge these from the site. Further, the use of flocculation as part of the proposed sediment discharge is a contaminant.

Rule 14-26 permits, subject to conditions/standards/terms being met, the discharge of contaminants to surface water. The conditions/standards/terms are assessed as follows:

Table 5: Assessment of Rule 14-26 Conditions/Standards/Terms

Rule 14-26 Conditions/Standards/Terms	Compliance
a. The rate of discharge must be no greater than 50 m^3/d.	**Will comply** – the rate of discharge will be managed so that is does not exceed 50m^3/day.
b. The discharge must not contain agricultural waste, sewage, stormwater, cleanfill material, contaminants from composting activities, or contaminants from landfills.	**Complies** – no landfills are proposed.
c. The discharge must not cause or exacerbate the flooding of any other property.	**Complies** – as stated above for Rule 14-18, the discharges associated with the wind farm will not cause or exacerbate the flooding of any neighbouring property
d. The discharge must not cause any scouring or erosion of any land or bed of a water body beyond the point of discharge.	**Complies** – as detailed above for Rule 14-18, the discharges associated with the wind farm will not cause scouring or erosion of any land or bed of a water body beyond the point of discharge. The Construction Water Management Plan and Effects Assessment Report sets out the methodology for minimising the potential adverse effects on the receiving environment, by using measures, both structural and non-structural that meet or exceed industry best practice and GWRC Guidelines.
e. The discharge must not alter the natural course of any water body or its bed.	**Complies** – the discharges will not alter the natural water course of a water body.
f. There must be no discharge to any natural lake, rare habitat, threatened habitat, at-risk habitat, Site of Significance - Aquatic or reach of a river or its bed with a Schedule B Value of Natural State.	**Complies** – no discharge is proposed to a natural lake, rare, threatened or at risk habitat, or any Schedule B Value of Natural State river.
g. The discharge must not cause, after reasonable mixing, any of the following effects in the receiving water body: *i. the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials* *ii. any conspicuous change in the colour or visual clarity of the receiving water*	**Will comply** – as detailed above for Rule 14-18, the discharges will meet this condition. Measures are addressed in full in Construction Water Management Plan and Effects Assessment Report. Section 8 allows for monitoring and ongoing checks and balances of the earthwork activity to ensure effective

	iii. any emission of offensive or objectionable odour.	management throughout the construction process.
h.	*The discharge must not, after reasonable mixing, cause the receiving water body to breach the water quality standards for that water body set out in Schedule E, either from the discharge itself or in combination with any other discharges.*	

Based on the above, the proposed discharge of contaminants into water is a **permitted activity under Rule 14-26**.

4.3.3 Chapter 15 – Discharges to Air

There is potential for a discharge to air from a mobile aggregate crushing plant and the concrete batching plant. The discharge to air from these sources is provided for as a **controlled activity under Rule 15-16(b)**, provided conditions/standards/terms are met. The conditions/standards/terms are assessed as follows:

Table 6: Assessment of Rule 15-16 Conditions/Standards/Terms

Rule 15-16 Conditions/Standards/Terms		Compliance
a.	*The discharge must not result in offensive or objectionable odour, dust, smoke or water vapour at the boundary of any sensitive area as defined in Policy 15-2(d).*	**Will comply** – the nearest sensitive areas are surface water bodies. The aggregate crushing and concrete batching plants will be managed so that the discharge does not result in offensive or objectionable odour, dust, smoke or water vapour at these locations.
b.	*The discharge must not result in any noxious or dangerous levels of gases or particulates at the boundary of any sensitive area as defined in Policy 15-2(d).*	**Complies** – there will be no noxious or dangerous levels of gases or particulates resulting from the discharge.
c.	*The discharge of dust from the source at any site where minerals or aggregates are dried or heated or prepared for the manufacture of hot mix asphalt must not exceed 5 kg/hr.*	**Complies** – if asphalt is used on site, it will be managed so that it meets the requirements of c. to f.
d.	*A mobile asphalt plant must not be located at any one site or property for more than 24 continuous months.*	
e.	*Mobile asphalt plants must be equipped with temperature sensors and aggregate proximity sensors that limit and control operating temperatures within the drum.*	
f.	*Air pollution control equipment for mobile asphalt plants must be designed so that the discharge of particulates (corrected to 0°C, 12% CO2, 1 atmosphere, and a dry gas basis) is no greater than:*	

	i. *50 mg/m^3 for plants established after the date of notification of this Plan (31 May 2007);* ii. *150 mg/m^3 for plants established on or before the date of notification of this Plan (31 May 2007); except that these limits may be exceeded for a maximum of 30 minutes when starting the fuel-burning equipment from cold, providing the opacity of the discharge is minimised as far as practicable.*	
g.	*The discharge must not cause a reduction in visibility on any designated commercial or military flight path.*	**Complies** – there are no designated commercial or military flight paths in the area.
h.	*The vertical velocity of the discharge must not exceed 4.3 m/s, at 60 m above ground level or the discharge does not penetrate the obstacle limitation surface of an aerodrome.*	**Complies** – the discharge does not penetrate the obstacle limitation surface of an aerodrome.

Based on the above, the proposed discharge of contaminants into air is a **controlled activity under Rule 15-16(b)**.

4.3.4 Chapter 17: Activities in Artificial Watercourses, Beds of Rivers and Lakes, and Damming

Chapter 17 applies due to work being undertaken within streams, including culverts and bridges, as well as reclamation within up to six natural wetlands.

Table 17.2 in section 17.3 of the Plan provides for general conditions for all permitted and controlled activities involving the beds of rivers and lakes. The relevant conditions are assessed as follows:

Table 7: Assessment Table 17.2 Conditions

Table 17.2 Conditions		Compliance
a.	*The activity must not adversely reduce the ability of the water body or its bed to convey flood flows, floating debris or sediment, except for a period of not more than 12 consecutive hours during construction.*	**Will comply** –it is stated in the Civil Engineering Report that the proposed culverts are designed to provide for the 10% AEP design storm. The underside of the proposed bridge is set at 1.0m above the 2% AEP design storm.
b.	*There must be no discharge of contaminants, other than sediment and other contaminants inherent to the water or bed, into the river or lake except where the discharge is explicitly allowed by the activity description of a rule in this chapter.*	**Will comply** – the culverts and bridge will be inert post construction.
c.	*Any discharge of sediment into water directly caused by the activity, that causes the visual clarity standards in Schedule E to be breached, must not be undertaken for more than 24 hours in total across 5 consecutive days. There must be no more*	**Will comply** – as per the Construction Water Management Plan and Effects Assessment Report in Appendix F, sediment will be managed to comply with visual standards in Schedule E.

	than one activity per river per property in any 12 month period.	
d.	*Any discharge of sediment into water under (c) must not, after reasonable mixing, cause any conspicuous change in the colour of water in the receiving water or any change in horizontal visibility greater than the target set in the visual clarity % change column of Schedule E, more than 12 hours after completion of the activity.*	
e.	*Any materials used must be necessary for the activity and must not be toxic to aquatic ecosystems.*	**Does not comply** – Table 5 of the Construction Water Management Plan and Effects Assessment Report outlines potential contaminants that will be used on site, including concrete.
f.	*Any materials no longer required as part of the activity, including any temporary structures, must not be stored in or on the bed of any river or lake and must be removed after completion of the activity.*	**Will comply** – nothing will be stored in the bed of a river.
g.	*Refuelling of machinery must not take place in any area where spills may enter surface water.*	**Will comply** – refuelling will be managed in accordance with this condition.
h.	*The activity must be undertaken in a manner that provides for the safe passage of fish both upstream and downstream, including past any structure.*	**Will comply** – culverts will be designed so that they provide for fish passage, as per guidance provided in the NESF, and detailed in the Ecological Assessment.
i.	*Any diversion of water required for works ancillary to a structure must be temporary, must be within the bed of the river, must not exceed 100 m in length, must not be between catchments, must not involve a lake, and the diversion channel must have sufficient capacity to carry the same flow as the original channel.*	**Will comply** – any temporary diversions needed for culvert installation will be less than 100m in length, remain in the same catchment, are not in a lake and will have sufficient capacity to carry the same flow as the original channel.
j.	*Upon completion of any channel bank works, the banks must be reinstated to a natural contour and revegetated.*	**Will comply** – the methods outlined in section 6.7 of the Construction Water Management Plan and Effects Assessment Report will be employed.
k.	*Any straightening or channelling of a river must not exceed a length equal to two times the bed width of the river in any 2 km length of river in any 12 month period.*	**Not applicable** – no straightening is proposed.
l.	*There must be no removal of instream woody debris less than 2 m^3 in size unless this is required to reduce the risk of flooding or erosion.*	**Will comply** – as stated in the Civil Engineering Report, the proposed bridge will not require any excavation within the waterway. The waterbodies which are proposed to be culverted do not contain woody debris.
p.	*The use of mobile machinery in or on the bed of a river or lake in a manner that disturbs the bed of the active flowing*	**May not comply** – machinery may be used in the water between 1 May and 3 September.

	channel must not take place 1 May to 30 September (inclusive).	
q.	*Activities must not result in suspended sediment that causes the visual clarity standards in Schedule E to breached during Saturdays, Sundays and public holidays 1 December to 28 February (inclusive).*	**Will comply** – this will be met through the methods proposed in the Construction Water Management Plan and Effects Assessment Report.

Rule 17-10 permits the placement of culverts in, on, under or over the bed of a river or lake, and any ancillary excavation, drilling, tunnelling or other disturbance, damming or diversion of water, discharge of water or sediment into water and deposition of substances, subject to meeting conditions/standards/terms. These are assessed as follows:

Table 8: Assessment of Rule 17-10 Conditions/Standards/Terms

Rule 17-10 Conditions/Standards/Terms	Compliance
a. A new culvert must not be erected or placed in: *i. a river or lake regulated under Rule 17-3* *ii. a reach of a river with a Schedule B Value of Flood Control and Drainage, unless the work is undertaken by or on behalf of the Regional Council.*	**Complies** – Rule 17-3 considers disturbances of rivers with Schedule B Values of Natural State, Sites of Significance - Aquatic and Sites of Significance – Cultural. These are not applicable to the proposed culvert locations. Likewise, there are no culverts are proposed in a reach of a river with a Schedule B Value of Flood Control and Drainage.
b. Where multiple culverts are placed side by side, the total cross-sectional area of the multiple culverts must not be less than that of a single culvert which complies with this rule.	**Not applicable** – the proposal does not include multiple culverts placed side by side.
c. The culvert, associated fill and culvert placement must comply with the following dimensions: *i. a maximum culvert length of 20 m* *ii. for circular culverts a culvert diameter of 0.3 m to 1.2 m (inclusive)* *iii. for non-circular culverts a width and height of 0.3 m to 1.2 m each (inclusive)* *iv. a maximum fill height of 2 m above the top of the culvert unless a spillway is constructed to enable the passage of a 200 year flood without the fill being overtopped* *v. a minimum culvert installation depth below the bed of 20% of the width of the culvert.*	**Does not comply** – the proposed new culverts are estimated to exceed 20m in length. Each proposed culvert will be circular, and have diameters which meet the permitted 1.2m diameter standard. Fill height above the culvert could exceed 2m in the more incised waterbodies. Culvert installation will be so that fish passage is provided for as detailed in the Ecological Assessment, but may not be below 20% of the culvert width.
d. The culvert must be positioned so that its alignment and gradient are the same as the river.	**Will comply** – all culverts will be positioned so that their alignment and gradient is the same as the river.
e. The culvert must be constructed to allow:	**Will comply** – as detailed in the Civil Engineering Report, the culvert design is for a 10% AEP.

i. *the flow from a 5% annual exceedance probability (20 year return period) flood event without overtopping, unless the overtopping flows to a specifically designed spillway* ii. *the flow from a 2 year return period flood event without any flow impediment.*	
f. The culvert inlet and outlet must be protected against erosion.	**Will comply** – detailed design culverts will include erosion protection at the inlet and outlet.
g. All practicable steps must be used to minimise the release of sediment during construction.	**Will comply** – the steps outlined in the Construction Water Management Plan and Effects Assessment Report.
h. The culvert must be constructed and maintained to avoid any aggradation or erosion of the bed.	**Will comply** – culverts will be managed to avoid aggradation or erosion of the bed.
i. The culvert must be kept clear of accumulated debris.	**Will comply** – culverts will be managed to keep clear of accumulated debris.
j. The activity must comply with the general conditions listed in Section 17.3.	**Does not comply** – Table 7 above assesses Table 17.2 (found in Section 17.3 of the Plan), and not all general conditions are met.
k. The activity must not take place in any rare habitat, threatened habitat or at-risk habitat.	**Complies** – the site is not scheduled as a rare, threatened or at-risk habitat.

As conditions/standards/terms c. and j. are not complied with, resource consent is required as a **restricted discretionary activity under Rule 17-22**. The matters over which discretion has been restricted are:

- *measures to avoid, remedy or mitigate the effects of the activity in relation to any noncompliance with the matters listed in Section 17.3*
- *duration of consent*
- *review of consent conditions*
- *compliance monitoring*
- *the matters in Policy 14-9.*

Rule 17-11 permits the placement of a bridge in, on, under or over the bed of a river or lake, and any ancillary excavation, drilling, tunnelling or other disturbance, damming or diversion of water, discharge of water or sediment into water and deposition of substances, subject to meeting conditions/standards/terms. These are assessed as follows:

Table 9: Assessment of Rule 17-11 Conditions/Standards/Terms

Rule 17-11 Conditions/Standards/Terms	Compliance
a. A new structure must not be erected or placed in: *i. a river or lake regulated under Rule 17-3* *ii. a reach of a river with a Schedule B Value of Flood Control and Drainage,*	**Complies** – Rule 17-3 considers disturbances of rivers with Schedule B Values of Natural State, Sites of Significance - Aquatic and Sites of Significance – Cultural. These are not applicable to the proposed culvert locations. Likewise, there are no culverts are proposed in a reach of

unless the work is undertaken by or on behalf of the Regional Council.	a river with a Schedule B Value of Flood Control and Drainage.
b. For bridges and other access structures, except fords and temporary bridges for military training purposes that are removed within 2 weeks of their erection, located in, on, under or over the bed of a river or lake, the catchment area above the structure must be no greater than 200 ha.	**Will comply** – the area above the bridge location is less than 200 ha.
c. For all structures located in, on, under or over the bed of a river or lake, the structure must occupy a bed area no greater than 20 m^2 except for: *i. whitebait and maimai structures which must not exceed 5 m^2* *ii. fords which must occupy a bed area no greater than 40 m^2* *iii. temporary bridges for military training purposes that are removed within 2 weeks of their erection.*	**May not comply** – as detailed in the Civil Engineering Report, the bridge will consist of concrete abutments placed back from the stream bank so that no excavation will take place in the waterway. However rock gabions may be used if retaining is required around the abutments. Given the definition of a riverbed under the RMA, abutments and rock gabions may be clear of flowing water but still in the defined bed. As such, this condition/standard/term may not be met, depending on size and location of the abutments, which will be determined during detailed design.
d. The structure must be constructed and maintained to avoid any aggradation or scouring of the bed that may inhibit fish passage.	**Will comply** – no earthworks or structures are proposed in the nominal flow of the waterbody, and therefore no aggradation or scouring of the bed will occur (section 12.3 of Civil Engineering Report) and fish passage will be maintained.
e. The activity must comply with the general conditions listed in Section 17.3.	**Does not comply** – Table 7 above assesses Table 17.2 (found in Section 17.3 of the Plan), and not all general conditions are met.
f. The activity must not take place in any rare habitat, threatened habitat or at-risk habitat.	**Complies** – the site is not scheduled as a rare, threatened or at-risk habitat.

As conditions/standards/terms c. and e. may or are not complied with, resource consent is required as a **restricted discretionary activity under Rule 17-22**. The matters over which discretion has been restricted are outlined above.

4.4 Greater Wellington Natural Resources Plan

4.4.1 Chapter 5.3 Land Use

The NRP specifically provides for land preparation works and its subsequent effects associated with renewable energy generation through Rule R106.

This rule is titled *earthworks and vegetation clearance for renewable energy generation*, and provides for *the use of land, and the associated discharge of sediment into water or onto or into land where it may enter water from earthworks not permitted by Rule R101 or vegetation clearance on erosion prone land that is not permitted by Rule R104 associated with the use, development, operation, maintenance*

and upgrade of renewable energy generation as a restricted discretionary activity, provided conditions are met.

Rule R101 provides for up to 3,000m^2 of earthworks per property per 12-month period as a permitted activity, with Rule R104 providing for vegetation clearance up to a total area of 2ha per property per 12 month period on erosion prone land as a permitted activity. Rule R101 will not be met by the proposal and Rule R104 may not be met.

Rule R106 conditions are assessed as follows:

Table 10: Assessment of Rule R106 Conditions

Rule R106 Conditions	Compliance
(a) the earthworks or vegetation clearance and associated discharge are associated with the following construction activities: *(i) the formation of access tracks,* *(ii) the formation of laydown areas and stockpile areas,* *(iii) the formation of wind turbine platforms, including foundation formation,* *(iv) foundations for any operations building or transmission line,* *(v) placement of excess fill associated with any of the activities listed in (i) to (iv) above,* *(vi) ancillary works necessary to construct or maintain any erosion and sediment control measures associated with (i) to (v) above, and*	**Complies** – the proposed earthworks are for the activities outlined in (i) to (vi) of Rule R106(a). It is noted that a substation is not provided for within (i) to (vi), however the proposed terminal substation will be located within the Horizons Region and therefore the earthworks associated with it do not require separate consideration under the NRP.
(b) the activity does not occur within the coastal marine area, and	**Complies** – the site is not near the coastal marine area.
(c) soil or debris from earthworks or vegetation clearance is not placed where it can enter a surface water body or the coastal marine area, and	**Will comply** – the methods outlined in the Construction Water Management Plan and Effects Assessment Report will be employed.
(d) the earthworks or vegetation clearance will not create or contribute to instability or subsidence of a slope or another land surface at or beyond the boundary of the property where the earthworks or vegetation clearance occurs, and	**Will comply** – the methods outlined in the Civil Engineering Report will be employed.
(e) work areas are stabilised within six months after the completion of the earthworks, and	**Will comply** – the methods outlined in the Construction Water Management Plan and Effects Assessment Report will be employed, and require rapid stabilisation of earthworks.
(f) any earthworks shall not, after the zone of reasonable mixing, result in any of the following effects in receiving waters:	**Will comply** – the methods outlined in the Construction Water Management Plan and Effects Assessment Report will be employed.

(i) the production of conspicuous oil or grease films, scums of foams, or floatable or suspended materials, or *(ii) any conspicuous change in colour or visual clarity, or* *(iii) any emission of objectionable odour, or* *(iv) the rendering of fresh water unsuitable for consumption by animals, or* *(v) any significant effect on aquatic life, and*	
(g) the earthworks or vegetation clearance shall not, occur within 10m of a surface water body or coastal marine area.	**May not comply** – while all proposed bridge and culvert structures are located in the Horizons portion of the site, there is still potential for earthworks within, or within 10m of, wetlands and ephemeral streams identified in the Ecological Assessment, that are within or within 10m of the proposed envelopes, and are within the Greater Wellington Region portion of the site.

As condition (g) may not be complied with, Rule R106 cannot be relied on. Instead the proposed earthworks and vegetation clearance are a **discretionary activity under Rule R107**. For completeness this rule is as follows:

> ***Rule R107: Earthworks and vegetation clearance – discretionary activity***
>
> *The use of land, and the associated discharge of sediment into water or onto or into land where it may enter water from earthworks, or vegetation clearance on erosion prone land that is not permitted by Rules R101, R102, R104 and R105, and not controlled by Rule R103, or not restricted discretionary by Rule R106 is a discretionary activity.*

4.4.2 Chapter 5.1: Air Quality

The proposed works require consideration against the air quality rules in the plan.

Rule R27 permits handling of bulk solid materials[19], including from quarrying activities and crushing, provided that *the discharge shall not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke, vapours, droplets or ash beyond the boundary of the property*. The crushing of aggregate will be undertaken in a way to prevent dust and particulates from extending beyond the boundary of the property. As such, any aggregate crushing that will occur on the site will be a **permitted activity under Rule R27**.

Rule 28 permits *the discharge of contaminants into air from the storage, handling, redistribution or packing of cement in fully enclosed silos and conveyance systems is a permitted activity* subject to meeting the following condition:

[19] Defined in the pNRP as *materials consisting of, or including, fragments that could be discharged as dust or particulate. These materials include but are not limited to: gravel, quarried rock, quarry overburden, fertiliser, coal, flour, rock aggregate, grains, compost and woodchip.*

(a) the discharge shall not cause noxious, dangerous, offensive or objectionable odour, dust, particulate, smoke, vapours, droplets or ash beyond the boundary of the property.

The concrete batching system is yet to be determined and may not include a fully enclosed silo and conveyance system. Consequently, the activity is a **discretionary activity under Rule R42**. For completeness this rule is as follows:

Rule R42: All other discharges– discretionary activity

The discharge of contaminants into air that are not permitted, controlled, discretionary, non-complying or prohibited is a discretionary activity.

4.4.3 Chapter 5.2 Discharges to Land and Water

Rule 107 addressed above provides for discharges associated with earthworks activities.

In terms of stormwater discharge, Rule 48 is the appropriate rule for consideration. This rule permits the discharge of stormwater from an individual property. While the site is comprised of a number of individual properties, each stormwater discharge is within in an individual property. Other stormwater discharge rules were considered, but were assessed as not being relevant.

Rule R48 provides for the discharge of stormwater into water or onto land where it may enter water as a permitted activity, provided that conditions are met. These are assessed as follows:

Table 11: Assessment of Rule R48 Conditions

Rule R48 Conditions	Compliance
(a) the discharge does not originate from industrial or trade premises where hazardous substances are stored or used unless: *(i) hazardous substances cannot enter the stormwater system, or* *(ii) the stormwater contains no hazardous substances except petroleum hydrocarbons, and the stormwater is passed through an interceptor and the discharge does not contain more than 15 milligrams per litre of total petroleum hydrocarbons prior to release, and*	**Will comply** – while hazardous substances will be used on site during construction, the proposed interventions through double skin and bunds are to ensure that they do not enter the stormwater system.
(b) the discharge is not from, onto or into SLUR Category III land, unless the stormwater does not come into contact with SLUR Category III land, and	**Complies** – the site is not SLUR Category III land.
(c) the discharge is not from a local authority stormwater network, a port, airport or state highway, and	**Complies** – the discharge is not from a local authority stormwater network, port, airport or state highway.
(d) the discharge shall not contain wastewater, and	**Complies** – the discharge will not contain wastewater.
(e) the concentration of total suspended solids in the discharge shall not exceed:	**Will comply** – The discharge will not enter any Schedule A, C, F1, F3, F4 or H1 sites or habitats.

(i) 50g/m^3 where the discharge enters a site or habitat identified in Schedule A (outstanding water bodies), Schedule C (mana whenua), Schedule F1 (rivers/lakes), Schedule F3 (identified natural wetlands), Schedule F4 (coastal sites), or Schedule H1 (contact recreation), or *(ii) 100g/m^3 where the discharge enters any other water, and*	The discharge quality is managed so that total suspended solids so not exceed 100g/m^3.
(f) the discharge shall not cause any erosion of the channel or banks of the receiving water body or the coastal marine area, and	**Will comply** – no stormwater discharge points are proposed, rather water will be discharged to land and soaked and dispersed.
(g) the discharge shall not give rise to the following effects beyond the zone of reasonable mixing: *(i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials, or* *(ii) any conspicuous change in the colour or visual clarity, or* *(iii) any emission of objectionable odour, or* *(iv) the fresh water is unsuitable for consumption by farm animals, or* *(v) any significant adverse effects on aquatic life.*	**Will comply** – discharges will not give rise to the listed effects beyond the mixing zone.

As all conditions are met, stormwater discharges associated with the proposal are a **permitted activity under Rule R48**.

4.4.4 Chapter 5.4 Wetlands and Beds of Rivers and Lakes

Wetlands

At section 5.4.2 of the plan are general conditions for activities in natural wetlands. These conditions are assessed as follows:

Table 12: Assessment of Section 5.4.2 General Conditions for Activities in Natural Wetlands

Section 5.4.2 Conditions	Compliance
(a) the vegetation and the bed of the natural wetland or outstanding natural wetland shall not be disturbed to a depth or an extent greater than that required to undertake the activity, and	**Will comply** – all works within wetlands will be limited to solely the extent necessary.
(b) there shall be no discharge of contaminants (including but not limited to oil, petrol, diesel, paint, solvent, heavy metals and other toxicants) to water or the bed, except where this is the result of the disturbance of	**Will comply** – measures will be employed to ensure condition (b) is complied with.

	sediment and other materials already existing in the water or bed, and	
(c)	*no cleaning or refuelling of machinery or equipment, or storage of fuel shall take place in, or within 10m of, a natural wetland or outstanding natural wetland, or at any location where fuel can enter a water body, and*	**Will comply** – management will be in place to ensure no cleaning or refuelling of machinery or equipment, or storage of fuel shall take place in, or within 10m of a natural wetland or at any location where fuel can enter a water body.
(d)	*all machinery, equipment and materials used for the activity shall be removed from the natural wetland or outstanding natural wetland every night and on completion of the activity. This includes any excess material from the construction operation, any materials used during construction of any structure but not part of that structure, and any material removed or demolished from any structure, and*	**Will comply** – management will be in place to ensure all machinery, equipment and materials used for the activity are removed from the natural wetland every night and on completion of the activity.
(e)	*structures are designed, installed and maintained, and activities are carried out in a manner to ensure that fish passage is maintained at all times, unless a temporary restriction of no more than 48 hours is required for construction or maintenance activities, and*	**Not applicable –** no structures are proposed in the streams within the Greater Wellington Region portion of the site.
(f)	*in any part of the natural wetland or outstanding natural wetland with inanga spawning habitat identified in Schedule F1b (inanga spawning), no bed disturbance, diversions of water or sediment discharge shall occur between 1 January and 31 May, except that material accumulated at the outlet of a stormwater discharge pipe may be removed between 1 January and 1 March, so long as there is no associated trimming or removal of vegetation (including weeds) on the bed or banks, and*	**Not applicable –** none of the wetlands within the Greater Wellington Region portion of the site are identified as inanga spawning habitat in Schedule F1b.
(g)	*the diversion of water shall not be for longer than the time required to undertake the activity, and any diversion of water required to undertake the activity must be for fewer than 14 consecutive days, and must occur prior to the disturbance of the bed of the natural wetland or outstanding natural wetland, and*	**Will comply** – for any works within natural wetlands, diversion of water will be for fewer than 14 consecutive days. .

Rule R117 provides for the following activities in a natural wetland as a discretionary activity:

(a) The placement of structures;

(b) The discharge of water or contaminants not permitted by Rule R91, where the adverse effects on aquatic life are no more than minor

(c) the clearance of indigenous wetland vegetation, (excluding the removal of pest plants under Rule R114 and the removal of plants for Māori customary use or for the use of an individual under R115, and vegetation clearance regulated by Regulations 43, 44, 45, 46, 47 and 54 of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020

(d) activities not meeting the conditions of Rules R113, R114 or R115,

including any associated:

(e) disturbance of a river or lake bed, or foreshore or seabed that forms part of a natural wetland, and

(f) deposition in, on, or under a river or lake bed, or foreshore or seabed that forms part of a natural wetland, and

(g) damage to a part of the foreshore or seabed that forms part of a significant natural wetland, and

(h) diversion of water, and

(i) discharge of sediment to water

In assessing the above, it is noted in Rule R117 that Regulation 45 of the NESF prevails over Rule R117(a). It has been established in Section 4.1 of this Assessment of Environmental Effects that resource consent is required under Regulation 45 of the NESF. Therefore Rule R117(a) is not relevant to this application.

In terms of Rule R117(b), the Ecological Assessment assesses that adverse effects on aquatic life from discharges are no more than minor.

In considering Rule 117(c), the Ecological Assessment identifies no indigenous wetland vegetation on the site.

In terms of Rule R117(d), Rules R113, R114 and R115, which provide for existing structures, planting and pest control and Māori customary use, none of these circumstances apply to this application.

Based on the above Rule R117 is therefore not relevant to this application, with Regulation 45 of the NESF setting the activity status.

Beds of Rivers

Consideration was also given to works in the beds of rivers rules, given there are a number of ephemeral streams in the Greater Wellington Region which intersect with the proposed envelopes (as detailed in the Ecological Assessment Maps at Appendix C). It is likely that should works intersect with these areas, the ephemeral streams would be reclaimed.

Table 5.4.4 provides general conditions for activities in the bed of a river.

Table 13: Assessment of Section 5.4.4 General Conditions for Activities in the Beds of Rivers or Lakes

Section 5.4.4 Conditions	Compliance

(a) except where the discharge is expressly allowed by the activity description of a rule in this chapter there shall be no discharge of contaminants (including but not limited to oil, petrol, diesel, paint, solvent, heavy metals or other toxicants) to water or the bed, except where this is the result of the disturbance of sediment and other materials already existing in the water or bed, and	**May not comply** – the Construction Water Management Plan and Effects Assessment Report (Appendix F) report states that the management of identified non-sediment contaminants will be subject to specific best management practice and industry guidelines. It is currently unclear as to the specific non-sediment contaminants that will be used or the associated volumes; however, Table 5 of the Construction Water Management Plan and Effects Assessment Report provides guidance as to the expected management approach of these contaminants for the Project
(b) no cleaning or refuelling of machinery or equipment, or storage of fuel shall take place in, or within 10m of, a river or lake bed, or at any location where fuel can enter any water body, and	**Will comply** – management will be in place to ensure no cleaning or refuelling of machinery or equipment, or storage of fuel shall take place in, or within 10m of a river or at any location where fuel can enter a water body.
(c) all machinery, equipment and materials used for the activity shall be removed from the river or lake bed every night and on completion of the activity. This includes any excess material from the construction operation, any materials used during construction of any structure but not part of that structure, and any material removed or demolished from any structure, and	**Will comply** – management will be in place to ensure all machinery, equipment and materials used for the activity are removed from a river bed every night and on completion of the activity.
(d) structures are designed, installed and maintained, and activities are carried out in a manner to ensure that fish passage is maintained at all times, except: *(i) as required for the operation of backflow devices during heavy rainfall events, or* *(ii) a temporary restriction of no more than 48 hours is required for construction or maintenance activities.*	**Will comply** – as per the Ecological Assessment, fish passage will be maintained.
(e) unless the structure is a culvert or weir, other than a customary weir, installed after 2 September 2020, then *(i) the placement, use, alteration, extension or reconstruction of the culvert or weir in, on, over or under the bed of any river or connected area must provide for the same passage of fish upstream and downstream as would exist without the structure, except as required to carry out the construction works.*	

	The design, installation, maintenance and use of all structures shall avoid any aggradation or scouring of the bed of the river or lake that may inhibit fish passage, and	
(f)	*in any part of the river bed identified as inanga spawning habitat in Schedule F1 (rivers/lakes), no bed disturbance, diversions of water or sediment discharge shall occur between 1 January and 31 May, except that material accumulated at the outlet of a stormwater discharge pipe may be removed between 1 January and 1 March, so long as there is no associated trimming or removal or vegetation (including weeds) on the bed or banks, and*	**Not applicable –** none of the ephemeral streams within the Greater Wellington Region portion of the site are identified as inanga spawning habitat in Schedule F1.
(g)	*in any part of the river or lake bed covered by water, which is identified as trout spawning waters in Schedule I (trout habitat), disturbance of the bed or diversions of water shall not take place during the spawning period of between 31 May and 31 August, and*	**Not applicable –** none of the ephemeral streams within the Greater Wellington Region portion of the site are identified as trout spawning waters in Schedule I.
(h)	*all reasonable steps shall be taken to minimise the generation and release of sediment from the activity, and the discharge of any sediment to water from any activity in, on, over or under the bed of a river or lake must not, after reasonable mixing, result in any conspicuous change in the colour of water in the receiving water or change in horizontal visibility of greater than 30%, and*	**Will comply** – the methods outlined in the Construction Water Management Plan and Effects Assessment Report will be employed.
(i)	*car bodies or demolition rubble shall not be used for any purpose on the bed of any river or lake, and*	**Will comply**
(j)	*all reasonable steps shall be taken to minimise the duration of the diversion of water, and any diversion of water required to undertake the activity shall:* *(i) only be temporary and for a period no longer than that required to complete the activity, and* *(ii) must not involve a lake, and* *(iii) any diversion channel required must have sufficient capacity to carry the same flow as the original channel, so as not to cause flooding or erosion of any neighbouring property, and*	**Will comply** – the methods outlined in the Construction Water Management Plan and Effects Assessment Report and Civil Engineering Report will be employed.

(k) the activity shall not result in erosion or scour of the river banks or shall not result in flooding of any neighbouring property, and	**Will comply** – the methods outlined in the Civil Engineering Report will be employed.
(l) any structure, other than a stormwater intake structure or debris arrestor, shall be designed so that it does not reduce the ability of the river to convey flood flows. All structures shall be maintained to manage flood debris accumulated against the structure and the conveyance of flood flows, and	**Will comply** – the methods outlined in the Civil Engineering Report will be employed.
(m) any structure shall not alter the natural course of the river, including any diversion of water from the natural course during floods. Tree planting or vegetative bank edge protection works that are limited to the banks of the river and do not extend into the active channel are not considered to alter the course of the river for the purpose of this condition, and	**May not comply** – if a structure is needed in an ephemeral stream it will be to divert it from the area which is to be used for infrastructure.
(n) the river or lake bed shall not be disturbed to a depth or an extent greater than that required to undertake the activity, and	**Will comply** – any works within a stream bed will be limited to the extent necessary.
(o) in any part of a river or lake bed identified in Schedule F2a (birds- rivers) or Schedule F2b (birds-lakes), no structure shall be constructed, and no disturbance shall take place, during the critical period identified in Schedule F2a (birds-rivers) or Schedule F2b (birds-lakes) if the named birds are identified as nesting, roosting and foraging at the work site, and	**Complies** – no disturbance is proposed in any Schedule F2a or F2b rivers.

Rule R142 provides for the reclamation of bed of a river or lake outside of a site identified in Schedule A1 (outstanding rivers), Schedule A2 (outstanding lakes) or Schedule C (mana whenua) as a discretionary activity. The ephemeral streams potentially affected are not scheduled. There is an exception for piping, which is not relevant. As such, any reclamation of ephemeral streams within the Greater Wellington portion of the site will be a **discretionary activity.**

4.4.5 Chapter 7 Ruamāhanga Whaitua

The rules of the Ruamāhanga Whaitua Chapter were considered. However as these only apply to water take, and as no water take is proposed, the rules are not relevant to this proposal.

4.5 Tararua Operative District Plan

The Tararua Operative District Plan provides regulation for land development in the Tararua District. Section 5 of the Plan contains the general development rules.

Renewable energy generation facilities are specifically provided for at Section 5.3.7. However other aspects of the proposal, including earthworks, transport matters, noise, signs, building and structure height, and lighting are also provided for.

The relevant sections are assessed below:

4.5.1 Section 5.3.7 Renewable Electricity Generation Facilities

Standard 5.3.7.2(b) provides for, as a discretionary activity in all management areas (zones) *the construction, operation and maintenance of renewable electricity generation facilities, including wind farms, not otherwise provided for as permitted activities, shall be considered as discretionary activities in all Management Areas.* There is no permitted provision for wind farms.

There is no definition provided in the plan for electricity generation facilities or wind farms. Based on the advice of Tararua District Council, *renewable electricity generation facilities* includes the turbines, access roads and internal cable network, transmission line, substations and the various ancillary aspects of the proposal[20] which relate to the core wind farm.

Standard 5.7.3.4 provides assessment criteria for activities requiring resource consent under 5.3.7.2(b). These are:

(a) The contribution that the proposed renewable electricity generation facility will make to the achievement of energy policy objectives and/or renewable energy generation targets of the New Zealand government;

(b) The local, regional and national benefits to be derived from renewable electricity generation and use;

(c) The extent to which the facility will adversely affect the amenity values of the locality, having particular regard to the impact of the development on existing residential dwellings, and including (but not limited to) the following effects:

(i) Electromagnetic interference to broadcast or other signals

(ii) Glint resulting from the reflection of the sun off of turbine blades

(iii) Shadow flicker resulting from shadows generated by moving turbine blades.

(d) The visual and amenity effects of the facility with regard to the existing character of the area to which the proposal relates, the desired characteristics for the relevant Management Area as set out in Section 3.2 of this Plan, any significant landscapes or natural features identified in this Plan and/or any Regional Policy Statement and/or Regional Plan that applies to the area in which the site of the proposal is located;

(e) The ecological effects of the facility, including any effect on significant natural areas including areas and habitats of indigenous flora and fauna, as identified in this Plan or any Regional Policy Statement or Plan that applies to the area in which the site of the proposal is located;

[20] These include earthworks in the core windfarm site, borrow areas, temporary concrete batching and mobile aggregate crushing plants, temporary project offices and facilities, laydown areas and security gates and fences.

(f) The effects of the facility on recognised archaeological and/or historic heritage features identified in this Plan or in other heritage registers;

(g) The expected noise effects arising from the construction, maintenance and operation of the facility, with particular regard to the impact of noise on existing dwellings and the ability of the proposal to meet any relevant standards such as NZS6808:2010 Acoustics – Wind Farm Noise and the NZS6803:1999 Construction Noise or any subsequent versions of these standards.

(h) The effects of the facility on aviation, navigation and existing network facilities.

(i) The ability of the land to accommodate the earthworks, roads, building platforms or other infrastructure necessary to construct, maintain and operate the facility.

These matters have been used to inform the assessment of environmental effects undertaken in Section 5 of this Assessment of Environmental Effects.

4.5.2 Earthworks

Standard 5.1.5.2 permits land disturbance in the Rural Management Area, subject to standards. These standards include allowing up to 1,000m^3 *of minerals, clean fill material, or soil may be excavated from and placed on land held in the same certificate of title in any one calendar year* or *1,000m^3 of clean imported fill, comprising topsoil, subsoil and/or demolition rubble may be placed on land which is not part of an approved subdivision or approved development, provided the Council is informed before the activity is carried out*.

The earthworks required to facilitate this proposal exceed these volumes. Therefore they become a **discretionary activity under Standard 5.1.5.3**.

Standard 5.1.5.4 includes information requirements for applications for mining or quarrying activities (noting some on site material may be utilised for aggregate). These are:

(a) description of the area (including legal description and physical features);

(b) objective of the activity;

(c) methods/processes to be used (including any hazardous substances to be used);

(d) timeframe for works;

(e) an assessment of the effects of the activity on vegetation, livestock and wildlife habitats, topographical features, watercourses, air quality, waahi tapu, archaeological, historic or other significant sites, and on any nearby residential activities;

(f) traffic movements and routes to be used;

(g) rehabilitation programme;

(h) details of other proposed mitigation measures;

Standard 5.1.5.5 provides assessment criteria. These are:

(a) significance of actual and potential environmental effects;

(b) extent (if any) to which there may be a detraction to, or adverse affect upon, the amenity of nearby residential activities, or other sensitive activities;

(c) significance of any effects on drainage patterns;

(d) effect on the sustainable management of the land;

(e) significance of any effects of traffic movements on the safety and efficiency of the road network;

(f) significance of any adverse visual impact;

(g) extent to which there is any disturbance to any heritage feature or important natural feature;

(h) whether there will be adequate compaction of fill for likely future uses;

(i) whether acceptable plans for rehabilitation of the area have been provided, including an implementation programme;

(j) details of other mitigation measures proposed;

(k) recommendations of the Regional Council or other relevant agency.

The matters under Standard 5.1.5.4 and 5.1.5.5 have been used to inform Section 5 of this Assessment of Environmental Effects.

4.5.3 Section 5.3.1 Roads

Standard 5.3.1.4(a) permits the widening of roads, subject to standards. Standards (i), (ii) and (iii) relate to natural hazard areas, site investigations and the reconstruction or realignment or establishment of a corner splay complying with section 5.2.3.6, respectively. These do not apply to the proposed road widening. The remaining standards concern permitted network utilities and permitted vehicle crossings. Vehicle crossings are assessed below. Given the above, the proposed road widening is considered to be a **permitted activity under standard 5.3.1.4(a)**.

4.5.4 Section 5.3.2.3 Loading Spaces

Standard 5.3.2.3 requires one on site loading space per each general business, bulk retail or industrial activity. A wind farm is not defined in the Tararua District Plan as a general business, bulk retail or industrial activity. Therefore this standard is not applicable.

4.5.5 Section 5.3.3 Access and Intersections

Standard 5.3.3 provides the permitted standards for vehicle accesses and intersections. The relevant standards to this proposal are:

- 5.3.3.2(e)(ii) regarding access radii;
- 5.3.3.2(e)(iii) regarding gradients;
- 5.3.3.2(g) regarding visibility triangles; and

- Appendix 10.1, regarding physical distances between access and intersections, and sight distance from accesses.

These standards have been assessed in the Transportation Assessment in Appendix E and have been determined to be compliant with 5.3.3.2(e)(iii) and (g) and Appendix 10.1 and these aspects therefore are a permitted activity.

The access radii specified in 5.3.3.2(e)(ii) cannot be met, as accesses on Old Coach Road will exceed the specified access radii to accommodate over-dimension vehicles. As such, resource consent is required as a **discretionary activity under standard 5.3.3.3**.

4.5.6 Section 5.4.1 Noise

Standard 5.4.1.2(a) requires general noise sources to be *measured in accordance with NZS6801: 2008 and shall be assessed in accordance with NZS6802: 2008. Where NZS6802: 2008 does not include the type of noise in question, the appropriate standard or regulation which covers that type of noise shall be used*.

Standard 5.4.1.2(b) sets permitted noise standards to be measured with the *notional boundary of any dwellinghouse on land held in a separate certificate of title or, if the complainant's dwellinghouse is on the same certificate of title, at any point within the notional boundary of the complainant's dwellinghouse* in the Rural Management Area. The standards are 55 dB $L_{Aeq(15min)}$ between 7am and 7pm and 45 dB $L_{Aeq(15min)}$ and 75 dB L_{AFmax} between 7pm and 7am.

Further, section 5.3.7.4(g) provides the following assessment criteria:

> *The expected noise effects arising from the construction, maintenance and operation of the facility, with particular regard to the impact of noise on existing dwellings and the ability of the proposal to meet any relevant standards such as NZS6808:2010 Acoustics – Wind Farm Noise and the NZS6803:1999 Construction Noise or any subsequent versions of these standards.*

The Noise Effects Assessment in Appendix H assesses the above standards and concludes that:

- *New Zealand Standard 6808:2010 provides a suitable noise performance standard for windfarms which has been applied to this assessment. The standard establishes a noise limit for turbine noise of 40 dBA L90 or 5 decibels above the existing ambient L90, whichever is the higher. The predicted noise levels from turbine operational activity complies with the limits recommended by NZS6808:2010 at all dwellings external to the wind farm.*
- *Noise levels predicted from other operational activities from the proposed windfarm will comply with the limits recommended by the District Plans' noise provisions.*
- *Construction activities will comply with the provisions of NZS6803:1999.*

As such, the permitted noise standards in the Tararua District Plan are met and noise, including that which is emitted during both the construction and operation phase of the proposal will comply with the relevant standards listed under 5.4.1.2 and therefore a **permitted activity**.

4.5.7 Section 5.4.3 Signs

Standard 5.4.3.2(a) provides general standards applicable to all signs. Signs used for the proposal will align with the requirements of this section.

Standard 5.4.3.2(d) permits signs in the rural management area, subject to standards. Standard 5.4.3.2(d)(iii) limits the number of signs to one for each lawfully established activity, provided the sign is no larger than 1.5m^2. As more than one sign is proposed and the size may exceed 1.5m^2, the signs are not a permitted activity. Resource consent is required as a **discretionary activity under standard 5.4.3.4**.

The assessment criteria listed under 5.4.3.5 are:

(a) That the sign relates well to built and natural features existing in the vicinity of the proposed location of the sign, and is visually appropriate to the area;

(b) That the sign is tidy in appearance and does not detract from the amenities of the area, while still being able to be easily read by drivers (where applicable) without creating a traffic hazard;

(c) That the sign will not cause a nuisance to any person, nor any adverse effect on traffic safety;

(d) That there is a demonstrable need for the sign and sufficient reason why the Plan's standards cannot be met;

(e) That any sign to be erected adjacent to the State Highway has been given written approval from the NZTA.

These are assessed in Section 5.8 of this Assessment of Environmental Effects.

4.5.8 Section 5.4.4 Height and Recession Plane Controls

Standard 5.4.4.2(a) permits building and structures in the rural management area up to 10m high.

Standard 5.4.4.2(d) exempts activities permitted under standards 5.3.6.2(a) and (b). As such, the height of the transmission lines do not require consideration. However, as standard 5.3.6.2(c) (relating to the substation) and 5.3.7.2(b) (renewable energy generating facilities) are not specifically exempted, they require consideration under 5.4.4.2(a).

The wind turbines and wind monitoring mast exceed 10m in height. The substation and onsite buildings are less than 10m high.

However, given the height of the wind turbines and wind monitoring mast, resource consent is required as a **discretionary activity under Rule 5.4.4.3**. The assessment criteria are:

(a) Topographical or other site constraints;

(b) The desirability of maintaining consistency in design and appearance with existing buildings on the site;

(c) The desirability of protecting existing trees, vegetation or other significant physical feature on the site;

(d) Whether the boundary to which the standard relates is a common boundary with an area of permanent open space, the use of which will not be detrimentally affected by any increased shading;

(e) The extent to which the neighbouring property will be affected by increased shading, loss of daylight (having regard to the orientation of the boundary in relation to the sun), amenity value and privacy;

(f) The extent to which the building or structure visually intrudes on any significant ridgeline or skyline or significant landscape, the degree of necessity for the location due to operational and technical requirements, and what measures are proposed to reduce the visual impact of that intrusion;

(g) In relation to front boundaries, the extent to which the development will be compatible with the existing character of the streetscape;

(h) Details of any other mitigation measures proposed.

4.6 Combined Wairarapa District Plan

Chapter 21 of the Combined Wairarapa District Plan provides for District Wide Land Use Rules.

It should be noted that the transmission line and associated substations to link the wind farm to the national grid are located entirely within the Tararua District and therefore do not require consideration under the Combined Wairarapa District Plan. Likewise, no alterations to the existing public road network are required in the Masterton District.

4.6.1 Wind Energy Facilities

Rule 21.6(j) provides for wind energy facilities[21] as a **discretionary activity**.

Given the wide scope of the definition of wind energy facilities in the Plan, the aspects of the proposal which require additional consideration are the temporary concrete batching plant, aggregate crushing, vegetation removal, dust and use of hazardous substances.

Assessment criteria for wind energy facilities are set under Rule 22.1.20, being:

(i) The landscape and visual effects of the proposal, including:

(1) The extent to which the proposal will adversely affect rural character, views from residences, key public places, including roads, and recreation areas.

(2) The visibility of the proposal, including the number of turbines and their height.

(3) The extent to which the proposal will adversely affect the natural character of the coastal environment, waterbodies, and outstanding landscape or natural features.

(4) The extent to which any aspects of the proposal can be sited underground.

[21] Wind energy facilities are defined in the Plan as *the land, buildings, substations, turbines, structures, underground cabling, earthworks, access tracks and roads associated with the generation of electricity by wind force and the operation of the wind energy facility. It does not include: Small scale turbines of less than 5kW; Any cabling required to link the wind energy facility to the point of entry into the electricity network, whether transmission or distribution in nature*.

(ii) *The ecological impact of the proposal, including the extent of disruption to vegetation and habitat, any impacts on waterways, and the likely effect on birds and other fauna.*

(iii) *The effects on heritage, cultural, geological and archaeological values and sites.*

(iv) *The effects of traffic and vehicle movements.*

(v) *The actual or potential noise effects of the construction, development and operation of the wind energy facilities, including particular consideration of the special audible characteristics, and the proximity to and effect on settlements or dwellings, and the ability to meet NZS 6808:1998 "Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators; and other relevant standards such as NZS 6803:1999 "Construction Noise"".*

(vi) *The extent to which the proposal will adversely affect amenity values of the surrounding environment, including the effects of electromagnetic interference to broadcast or other signals, blade glint and shadow flicker.*

(vii) *The extent of any earthworks, including the construction of access tracks, roads and turbine platforms.*

(viii) *The cumulative effects of the proposal.*

(ix) *The benefits to be derived from renewable energy.*

(x) *Mitigation and rehabilitation works.*

(xi) *Operational and technical considerations.*

These have been used to inform the assessment of environmental effects in Section 5 of this application.

4.6.2 Temporary Concrete Batching Plant and Mobile Aggregate Crushing

The temporary concrete batching plant may be located within and mobile aggregate crushing may occur within the Masterton District. Neither of these activities are listed as an activity provided for under the definition of *wind energy facility* and therefore require separate consideration under the Combined Wairarapa District Plan.

Concrete batching and *stone or mineral crushing* are listed as a primary industry in Appendix 4 of the Plan (Schedule of Primary Industry). If undertaken in the Masterton District, the concrete batching plant and mobile aggregate crushing would be in the Rural zone.

The Rural zone rules are listed in Chapter 4 of the Plan. **Rule 4.5.6(a)** provides for, as a **discretionary activity**, *any activity listed in the Schedule of Primary Industry (Appendix 4)*.

4.6.3 Indigenous Vegetation Removal

Rule 21.1.6 permits indigenous vegetation removal, provided that conditions are met. These conditions are assessed as follows:

Table 14: Assessment of Rule 21.1.6 Conditions

Rule R152 Conditions	Compliance
(b) Any activity involving disturbance, removal, damage or destruction ("modification") of naturally occurring indigenous vegetation (excluding kanuka, manuka and tauhinu) which is more than 4 metres high, or which has a trunk diameter of more than 30 centimetres measured at a height of 1.4 metres above the ground, provided that no more than 10% of the total area of indigenous vegetation is "modified" per site up to a maximum of 200m^2 in any 5 year period.	**Will comply** – as detailed in the Ecological Assessment.
(c) The removal of up to 50m^3 of timber per 10-year period per Certificate of Title for personal use.	**Not applicable** – no timber removal for personal use is proposed.
(d) The harvesting of indigenous timber undertaken in accordance with an approval under Part IIIA of the Forests Act 1949.	**Not applicable** – no harvesting of indigenous timber is proposed.
(e) The disturbance, removal, damage or destruction of naturally occurring indigenous vegetation that has grown under the canopy of a plantation forest.	**Not applicable** – there is no plantation forest on the site.
(f) The clearance or modification of indigenous vegetation that has been planted and managed specifically for commercial production forestry, horticulture or agriculture purposes.	**Not applicable** – no commercial production forestry, horticulture or agriculture is proposed.
(g) The disturbance or damage, but not destruction of naturally occurring indigenous vegetation as a consequence of harvesting of plantation forest, including where the harvesting involves: *(i) The lifting and/or dragging of logs;* *(ii) The construction and maintenance of forestry roads and stream crossings.*	**Not applicable** – no harvesting of plantation forest is proposed.
(h) The disturbance, removal, damage or destruction ("modification") of naturally occurring indigenous vegetation by any network utility operator to ensure the safety and integrity of any network utility or to maintain access to the network utility.	**Not applicable** – no indigenous vegetation removal for existing network utility use is proposed.
(i) The disturbance, removal, damage or destruction ("modification") of naturally occurring indigenous vegetation associated with the maintenance of existing access tracks, fencelines and firebreaks and the construction of new fencelines and firebreaks.	**Not applicable** – no indigenous vegetation removal for existing farm use is proposed.

(j) Any activity involving disturbance, removal, damage or destruction ("modification") of indigenous vegetation and habitats necessary for the avoidance of imminent danger to human life or property.	**Not applicable** – no indigenous vegetation removal for the avoidance of imminent danger to human life or property is proposed.
(k) Activities are carried out subject to and in accordance with any specific covenants or other legal agreements entered into with the District Council, or Wellington Regional Council, or Department of Conservation, or QEII Trust.	**Not applicable** – there are no covenants or other legal agreements registered on any affected Record of Title protecting vegetation on the site.

As all the conditions under **Rule 21.1.6** are met, vegetation removal within the Masterton District will be a **permitted activity**.

4.6.4 Dust

Dust generated by activities are permitted under Rule 21.1.12 provided it is temporary or intermittent in nature; not subject to a discharge consent; and do not create a nuisance at or beyond the site boundary to the extent that they cause an adverse effect. These permitted activity conditions can be satisfied in respect of the construction, operation and maintenance phases of this project. As such this is a **permitted activity**.

4.6.5 Lighting

The proposal will involve artificial lighting during the construction period and aviation lighting required by the Civil Aviation Authority. The emission of light (including glare) is permitted under Rule 21.1.11 provided that the artificial light level does not exceed eight lumens per square metre when measured at 1.5m above ground level at the site boundary. This requirement will be satisfied by the proposal. As such this is a **permitted activity**.

4.6.6 Hazardous Substances

The construction, operation and maintenance of the wind farm will involve the use and storage of hazardous substances, particularly during the construction phase. Under Rule 21.1.22, the total permitted quantities of hazardous substances on the site must not exceed those specified in Appendix 2.1: Hazardous Facilities Consent Status Table.

Appendix 2.1: Hazardous Facilities Consent Status Table has been reviewed. The transformer oil within the turbines located on the Masterton District portion of the site and any cement material associated with the concrete batching plant (if that is located in the Masterton District portion) will likely exceed the specified thresholds.

As such, resource consent is required as a **discretionary activity** for this aspect under Rule 21.6(n), which provides for hazardous substances which cannot meet the thresholds specified in Appendix 2.1.

It is noted that the use of fuel in motor vehicles or small engines is specifically exempt from the standards outlined in Rule 21.1.22. Therefore it is considered that fuel within construction vehicles and machinery such as generators is excluded from consideration under these rules.

4.7 Activity Status – Summary

Overall, the resource consents sought for the proposed wind farm are:

Table 15: Overall Resource Consent Status

Rule/Regulation	Topic	Activity Status
NESF		
Regulation 45	Construction of specified infrastructure	Discretionary
Horizons Regional Plan		
Rule 13-7	Land disturbance near waterbodies	Discretionary
Rule 13-6	Land disturbance in a Hill Country Erosion Management Area	Restricted Discretionary
Rule 15-16(b)	Discharge to air from concrete batching plant and mobile aggregate crushing	Controlled
Rule 17-22	Culverts and bridge	Restricted Discretionary
Greater Wellington Natural Resources Plan		
Rule R107	Earthworks and vegetation clearance near waterbodies	Discretionary
Rule R42	Discharge to air from concrete batching plant and mobile aggregate crushing	Discretionary
Rule R142	Reclamation of ephemeral streams	Discretionary
Tararua District Plan		
Standard 5.3.7.2(b)	Construction, operation and maintenance of a wind farm	Discretionary
Standard 5.1.5.3	Earthworks	Discretionary
Standard 5.3.3.3	Transport – access radii	Discretionary
Standard 5.4.3.4	Signs	Discretionary
Standard 5.4.4.3	Height of structures	Discretionary
Combined Wairarapa District Plan		
Rule 21.6(j)	Wind energy facilities	Discretionary
Rule 4.5.6(a)	Concrete batching plant and mobile aggregate crushing	Discretionary
Rule 21.6(n)	Quantity of hazardous substances	Discretionary

Therefore resource consent is sought for the proposed wind farm as a **discretionary activity** under the applicable statutory planning documents.

5 Assessment of Environmental Effects

This section provides an assessment of the actual and potential effects of the proposal, in accordance with section 88 and the Fourth Schedule of the Act. The effects have been identified through the statutory planning framework that applies to the site, as well as from experience of other wind farm resource consent processes and developments which the applicant has been involved in.

Environmental effects can result from both the construction and operational phases of a wind farm project. Consequently, the assessments below consider both of these phases. Overall, the wind farm effects assessed, as guided by the relevant statutory documents, are:

- Positive Effects;
- Effects on Tangata Whenua;
- Landscape, Natural Character and Visual Effects;
- Noise Effects;
- Traffic Effects;
- Ecological Effects;
- Earthworks Effects;
- Signage Effects;
- Archaeological and Historic Heritage Effects;
- Radio Interference Effects; and
- Aviation Effects.

5.1 Positive Effects

The positive effects of any resource consent application should be considered as the meaning of effect under the RMA includes positive effects.

Further, in considering the applicable objective and policy analysis, the benefits of renewable generation must be considered. Relevant provisions include:

- Policy 15 of the NPSFM, to provide for social, economic and cultural wellbeing;
- The sole Objective and Policies A, B C1 and C2 of the NPSREG, recognising the national significance and benefits of renewable energy generation, the need for more renewable energy generation facilities, and recognising that all adverse effects may not be avoided, remedied or mitigated;
- Objective 3-1 and 3-2 and Policies 3-1, 3-3, 3-6 and 5-26 of the Horizons One Plan (Part 1, RPS), requiring recognition of the benefits of renewable energy;
- Objectives 9 and 10, and Policy 39 of the GW RPS, requiring recognition of the benefits of renewable energy;
- Objectives CC.1 and CC.3 of Proposed Change 1 to the GW RPS which seek to ensure a low-emission future for the Wellington Region, including being carbon neutral by 2050;

- Objectives 2, 9 and 10, and Policy 13 of the GW pNRP, to recognise and provide for renewable energy generation activities, including recognition of future generations, appropriateness of the proposed location, and the functional and operational needs of the renewable generation activity;
- Objectives NUE2 and Policies NUE2(b), (c), (d) and (e) of the Combined Wairarapa District Plan, which seek to move the Wairarapa to a sustainable energy future by encouraging energy efficiency and the generation of energy from renewable sources.

The proposal will give rise to a number of local, regional and national benefits.

5.1.1 National Benefits

As outlined in Section 2.2 of this application, Aotearoa New Zealand requires a significant increase in electricity to be generated to match forecast demands, and through commitments to climate change (including the ERP and the 2015 Paris Agreement), this demand needs to be met by renewable generation.

As stated in Section 2.2.1, reliable and cost-effective access to electricity is fundamental to the ongoing progress of both Aotearoa New Zealand and its economy. It is a key element in delivering New Zealanders' standard of living, and provides for the on-going operation of communication networks and essential social infrastructure, as well as the operation of banks, hospitals, schools and other public and private institutions. These make up the fabric of social, economic and cultural well-being and ensure the health and safety of people and communities. The proposal assists to sustain the benefits of electricity usage into the future, powering the equivalent of 42,000 homes.

Through the ERP, Aotearoa New Zealand must increase its use of renewable energy generation in order to meet existing and future demand, as well as reducing reliance on fossil fuels. The proposal on this site makes use of the Class I wind resource which exists in this location.

5.1.2 Local and Regional Benefits

As well as increasing Aotearoa New Zealand's generation capacity, the proposed wind farm will benefit the local and regional surrounds.

During the construction period, the wind farm will provide employment for between 100 to 150 people (depending on the specific activities that are being undertaken) which is estimated to take 24-26 months, the use of local materials and plant and machinery sourced locally as far as possible. In addition, it is expected that there will be some downstream or secondary economic benefits from the construction phase as workers buy food, fuel and potentially require accommodation in the local area.

Operation of the wind farm will benefit the local economy by providing an estimated eight new jobs associated with ongoing turbine operation and maintenance. It is also likely that local people would be involved in maintenance of the wind farm roading network, transmission line and the services building.

The proposal also provides for diversification of the existing farms on which it is proposed to be located. Further, the proposal utilises only a small area of land, and is compatible with existing farming activities. It will create a new revenue stream that complements existing activities on the sites. The proposal would also result in the upgrade of some existing farm tracks, which will improve erosion control and could reduce erosion over the long term within existing catchments.

Finally, the proposal will upgrade Old Coach Road, improving its safety.

5.1.3 Community Fund

Meridian is a part of and contributes to the communities in which it operates.

For the past 15 years, Meridian has worked with community groups and projects through their Power Up Community Fund. Each year, Meridian put their support where it is needed with the help of local Power Up panels, made up of community members who together choose which initiatives should receive funding.

In addition, the staff members that live in Meridian's generation communities are encouraged to play an active role in these activities.

Power Up Funds are established for:

- Ashhurst and Woodville - Te Āpiti wind farm;
- The Waitaki Valley from Aoraki Mount Cook to Waitaki Bridge, including Twizel, Omarama, Otematata, Kurow, Hakataramea, Duntroon, Ikawai, Papakaio and Glenavy between Kurow and Tekapo in respect of the Waitaki Power Scheme;
- Mossburn, Dipton and Lumsden - White Hill wind farm;
- Manapōuri, Te Anau, Tuatapere and Clifden in relation to the Manapōuri Power Scheme;
- Mākara, South Mākara, Mākara Beach and Takarau Gorge - West Wind farm;
- Ohariu Valley and North Mākara - Mill Creek wind farm; and
- Raglan, Te Mata, Waitetuna and Te Uku - Te Uku wind farm.

The decision making criteria for each funds is determined after surveys of the individual local communities, and is based on the issues which are considered to be of most importance to each community. The typical objectives which these funds address include:

- Promoting environmental awareness and improving the quality of the environment in the community;
- Contributing to the sustainability of non-profit organisations and volunteer services;
- Promoting lifelong learning opportunities for all;
- Fostering opportunities for sporting, social and recreational activities;
- Contributing to programmes that will enhance the attractiveness and appearance of the community.

In the past 15 years Meridian has undertaken a wide range of local projects, investing more than $9 million into 1,241 projects. If this proposal proceeds to construction it is likely, at the discretion of the Meridian Board, a fund would be established for the local community with appropriate annual committed funding.

The Power Up Fund is an example of Meridian's commitment to contribute to the viability and vitality of the communities in which it operates, and in which its staff live. It is anticipated that over the course of the development of this project, Meridian would be able to similarly engage with the community to ascertain where best to assist the community to achieve its aspirations.

5.2 Effects on Tangata Whenua

The applicant has directly engaged with:

- Rangitāne o Tamaki nui-ā-Rua;
- Rangitāne o Wairarapa;
- Ngāti Kahungunu ki Tamaki nui a Rua;
- Ngāti Kahungunu ki Wairarapa.

The engagement has enabled Meridian to gain a better understanding of iwi relationships with the site and wider environs while iwi have gained an understanding of the project through assisting with identifying any potential effects arising from the project.

The relevant objectives and policies of the statutory planning documents which apply to tangata whenua in regard to this application are:

- Policies 1 and 2 of the NPSFM, relating to Te Mana o te Wai, and active involvement of Tangata Whenua;
- Objective 2-1 and Policy 2-1 of the Horizons One Plan (Part 1, RPS), relating to Te Ao Māori and iwi and hapu involvement in resource management;
- Objectives 24, 25, 26, 27 and 28 and Policies 48 and 49 of the GW RPS, relating to Kaitiakitanga, the principles of Te Tiriti o Waitangi, Mauri, Mahinga Kai and relationships of tangata whenua with the land;
- Objective 12 of Proposed Change 1 to the GW RPW which inserts the hierarchy of Te Mana o te Wai, including Te Mana o te Wai expression statements from Kahungunu ki Wairarapa and Rangitāne o Wairarapa
- Objectives 1, 3, 12, 13 and Policies 9, 18, 19, 20, 21 and 22 of the GW pNRP relating to Kaitiakitanga, the principles of Te Tiriti o Waitangi, Mauri, Mahinga Kai and relationships of tangata whenua with the land;
- Objective 2.11.2.1 and Policy 2.11.2.2(a) of the Tararua District Plan relating to the principles of Te Tiriti o Waitangi and iwi and hapu involvement in resource management; and
- Objective TW1 and Policies TW1(a), (b) and (c) of the Combined Wairarapa District Plan, relating to tangata whenua values and relationships, and kaitiakitanga.

Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa have provided the applicant with a joint Cultural Values Assessment, attached as Appendix I[22]. The Cultural Values Assessment states that the chances or Māori archaeological sites at the site are slim, with no evidence that Mount Munro was of high spiritual significance. The Cultural Values Assessment also includes a range of recommendations, which the applicant has worked with. These recommendations include an ongoing Memorandum of Partnership, the use of an accidental discovery protocol, ecological matters and landscape and visual amenity matters.

Likewise, Ngāti Kahungunu ki Tamaki nui a Rua has provided a Cultural Values Assessment, attached as Appendix J. It is concluded in this Cultural Values Assessment that Ngāti Kahungunu ki Tamaki nui a Rua:

> *acknowledge the benefits of capturing the energies of Nga Atua to generate sustainable ways of generating power for the continuum of generations of people moving forward, stepping away from the uses of Fossil fuels to generate power and the impacts this has had on the environment.*
>
> *This methodology of renewable generation aligns itself with Iwi/Māori tikanga/kawa principles living in a collaborative way with all things Natural.*[23]

The recommendations included in the Cultural Values Assessment include a Memorandum of Commitment between Ngāti Kahungunu ki Tamaki nui a Rua and the applicant; cultural health monitoring of the Mākākahi and Kopuaranga awa, use of an accidental discovery protocol, procedures for the discovery of taonga or sites of significance to hapu, restoration and biodiversity enhancements, construction monitoring and social outcomes (employment opportunities). The applicant will continue to work with Ngāti Kahungunu ki Tamaki nui a Rua on these recommendations.

There has also been ongoing engagement with Ngāti Kahungunu ki Wairarapa.

5.3 Landscape, Natural Character and Visual Amenity Effects

An Assessment of Landscape Effects is attached as Appendix K. This assessment assesses the proposal in regard to landscape, natural character, visual, cumulative and shadow flicker effects. It also considers the reversibility of effects identified.

Guiding the Assessment of Landscape Effects are the relevant objectives and policies in the various applicable statutory planning documents. For reference, these are:

- Objective 6-2 and Polices 6-8 and 6-9 of the Horizons One Plan (Part 1, RPS), relating to natural character;
- Objective 14 and Policy 24 of the GW pNRP, relating to preserving natural character (including natural wetlands) from inappropriate use and development;

[22] It is noted that the date on the cover page for the Cultural Values Assessment is 2014, however on Page 2 it is stated that it has been updated in 2023 and that "*Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa are happy for this Assessment and its accompanying Map Book, written by Pat Parsons for the 2012 application, to be lodged for this 2023 application*".
[23] Section 9 (Page 25) of Ngāti Kahungunu ki Tamaki nui a Rua Cultural Values Assessment, attached as Appendix J

- Objectives 2.3.4.1, 2.6.2.1, 2.8.2.1 and Policies 2.3.4.2(a) and (b), 2.6.2.2(a) and (b) of the Tararua District Plan, which seek a high level of environmental amenity in the Rural Zone, while recognising the regions potential for renewable wind energy generation.
- Objective RUR1 and Policies RUR1 and NUE1 of the Combined Wairarapa District Plan to maintain and enhance rural amenity values, including that it is a productive working landscape, and avoid, remedy or mitigate any adverse effects on amenity and character, particularly on outstanding natural features and landscape.

As is stated in the Assessment of Landscape Effects, the principal elements of the proposal that could give rise to landscape, natural character and visual effects are:

- *Excavation and construction of up to 20 turbine foundations, crane pads and laydown areas;*
- *Erection and operation of up to 20 wind turbines, with a 136m blade diameter, 92m hub height and 160m blade tip height;*
- *Construction of a main ridgeline road of around 5.5km in length and up to 11m in width;*
- *Construction of other access roads around 5.2km in length and up to 8m in width;*
- *Installation and operation of a wind monitoring mast;*
- *Construction and operation of a temporary construction compound at Old Coach Road, including construction/installation and operation of temporary portacom buildings and further permanent services and O&M buildings and a temporary 30,000L fuel storage tank;*
- *Construction and operation of a terminal substation, internal substation and internal underground transmission network; and*
- *Construction and operation of a 3.5km long 33kV, dual circuit 33kV or 110kV transmission line connection between the substations.*[24]

A summary of the effects assessed is as follows.

5.3.1 Landscape Effects

The Assessment of Landscape Effects states that *Landscape character is derived from the distinct and recognisable pattern of elements that occur consistently in a particular landscape*[25]. It notes that the site forms part of a working rural landscape, characterised by a larger expanse of rolling rural hill country.

It is stated in the Assessment of Landscape Effects that:

> *The effect of the proposed development on landscape character will depend on key characteristics of the receiving landscape; the degree to which the proposed wind farm is considered consistent with or at odds with them; and how the proposed wind farm development would be perceived within the setting. Such differences in perceptions are complex and change over time. The potential magnitude of landscape change is also dynamic and may be influenced by:*

[24] Section 6.1.4 (Pages 18 and 19) of the Assessment of Landscape Effects in Appendix K.
[25] Ibid Section 6.2.1 (Page 19)

- *the distance to the Site;*
- *atmospheric conditions including changes in weather and different times of the day and year; and*
- *the appearance and 'fit' of the proposed wind farm within the landscape.*

Given the scale of turbines and their inherent potential to be highly visible in elevated locations, wind farms can undoubtedly change the character of a landscape. While some people are averse to the changes in character which may result, others may consider the nature of effect to be benign or sometimes enriched by a coherent array of wind turbines utilising the natural element of wind. Notwithstanding differences between individual's preferences and the corresponding nature of effect (described in further detail relating to visual effects below), the proposed wind farm has also been sited to limit broader landscape effects and ensure the landscape's broader established working rural character will continue. It should also be highlighted that visibility and change are not of themselves adverse landscape effects. Rather, adverse effects are the consequences of change on the landscape's values in the context of outcomes anticipated in the relevant planning provisions.

When assessing landscape effects, there is an overlap between the perception of change to landscape character and visual amenity; landscape character is derived from the combination and pattern of landscape values and elements within the view. Relevant factors in assessing effects on landscape values are the wind farm's scale and fit within the Site including construction related effects and maintenance of rural character. The effects of the proposed wind farm on landscape character arises from its relationship to these combinations and patterns and forms an outcome for the accompanying landscape values. By comparison, visual effects are effects on landscape values as experienced in views and influences the amenity enjoyed by viewers.[26]

Rural Character effects have been assessed in the Assessment of Landscape Effects as part of the Landscape Effects.

The Landscape and Rural Character Effects are summarised in the Assessment of Landscape Effects as follows:

In landscape terms, the wind farm has the greatest effects within 2km of the Site, where turbines have potential to be viewed as prominent elements along the skyline. The wind farm would be viewed in conjunction with roads, an existing transmission line and ongoing agricultural activities which form part of established views. The layout of the turbines within the envelope spaced along the ridgelines helps achieve a visually coherent layout and minimises landform disruption. The simple forms of the turbines and light grey colour also assists with reducing landscape effects. Farming activities can continue below the turbines and the Site will retain its underlying rural character.

[26] Section 6.2.3 to 6.2.5 (Pages 19 and 20) of the Assessment of Landscape Effects in Appendix K.

Moderate biophysical landscape effects will result from the earthworks necessary to create the access roads, turbine platforms and construction and laydown areas. Roads have been designed to generally follow the main and secondary ridgelines of the Site to minimise the need to cut and benching works. A summary of the identified landscape effects is set out below in Table [6-1]:[27]

The Assessment of Landscape Effects summarises the landscape effects as follows.

Table 16: Landscape and Visual Effects Assessment[28]

	Description of Effect	Level of Effect	
		Construction	Operation
Effects on existing landform	• *Construction of the Site access roads, turbine platforms and laydown/construction areas will require earthworks* • *The access envelope has been located to follow existing ridgelines and spurs, responding to the existing contour to minimise landform effects* • *While earthworks are locally substantial in some areas, the visual effects of earthworks are largely contained within the Site and limited due to the nature of the surrounding landform*	Moderate adverse	Low adverse
Effects on existing vegetation	• *The access envelope has generally been designed to avoid areas of vegetation however some small areas may require removal for track widening and where fill is required tie in to slopes*	Low adverse	Neutral
Landscape Character Effects	• *The wind farm would exert its greatest influence on land within 2km of the Site, where it would be viewed as a prominent element on the skyline in some views* • *The layout of the turbines within the envelope spaced along the ridgelines helps to achieve a visually coherent layout which appears well integrated within the local topography* • *The effect of the wind turbines would reduce significantly at distances between 2km and 5km due to topography and intervening landscape features, such as shelterbelts and settlement obscuring the wind farm and distance reducing the relative scale of the turbines.*	Low gradually increasing to Moderate-High adverse during operation (within 2km). Low to Moderate between 2km and 5km. Low adverse beyond 5km.	Moderate-High adverse (within 2km). Low to Moderate between 2km and 5km. Low adverse beyond 5km.
Effects on Regionally Significant landscapes, ONFLs and SALs	• *The nearest ONFL to the Site is Mount Bruce (Pukāha), which lies 2.7km to the southwest of the Site. The proposed wind farm will not disrupt the visibility of Mount Bruce from the State highway or be highly visible from the walking tracks within the area, nor will it modify any of the recognised natural values.*	Low adverse	Low adverse

[27] Section 6.2.24-6.2.25 (Page 23) of the Assessment of Landscape Effects in Appendix K.
[28] Ibid Section 6.2.25 (Pages 23 and 24).

	• *While there will be intervisibility between the Ruahine and Tararua Ranges and the Site, the larger landform of the ranges will remain dominant and the proposal will not affect any of the recognised recreation, historic or scenic characteristics of the Ranges.*		

Section 6.37 of Te Tangi A Te Manu, the *New Zealand Institute of Landscape Architect's Guidelines for Landscape Assessment in a Statutory Planning Context 2021* states that a *very low* landscape or visual effect is *less than minor* under the RMA, a *low* and *low-moderate* landscape or visual effect is *minor*, a *moderate* and *moderate-high* is *more than minor*, and *high and very high* are *significant*.

5.3.2 Natural Character Effects

In regard to natural character, the Assessment of Landscape Effects notes that the site is outside of the coastal environment and while there will be some change to the natural character of some on site waterbodies, concludes that *based on the modified and elevated rural context within which the proposed wind farm is located, and corresponding limited and localised waterbody effects, it is therefore considered that any adverse effects on natural character will be very low and readily addressed in accordance with recommendations as identified in the ecological assessment.*[29]

There are no Outstanding Natural Features and Landscapes, Significant Amenity Landscapes or any other such features on or in the immediate vicinity of the site.

5.3.3 Visual Effects

In assessing visual effects, it is stated in the Assessment of Landscape Effects that

> *it should be emphasised that a change in a landscape or view does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing in both subtle and more dramatic transformational ways; these changes are both natural and human induced. What is important in managing landscape change is that the potential for visual effects is sufficiently mitigated to ameliorate or address adverse effects. The aim is to maintain or enhance the environment through appropriate design outcomes whilst recognising that both the level and nature of effects may change over time.*[30]

It also notes that individual perceptions of wind farms are variable, subjective and dependant on a range of factors including personal philosophy, whether a person is resident in the area, a passer-by or comes to the area for recreation, as well as the value a person places on the existing landscape character, on the use of renewable energy resources, and their familiarity with wind farm technology and the environmental consequences of alternative methods of generating power.

[29] Section 6.3.2 (Page 24) of the Assessment of Landscape Effects in Appendix K.
[30] Ibid Section 6.4.2 (Page 25).

Public attitudes to wind farms are canvassed in the Assessment of Landscape Effects, which outlines how various research that has been undertaken notes that perceptions can change over time.

The Assessment of Landscape Effects considers views from 10 different publicly accessible viewpoints from between 1.1km to 5.7km away from proposed turbines. The potential levels of adverse visual effect during construction are determined to be Low or Very Low, while during operations, effects range from Low, Low-Moderate, Moderate, Moderate-High and High, generally correlating with the distance of the viewpoint from the nearest turbine (the further away, the lower the potential level of adverse visual effect).

Effects on views from dwellings within 2km of turbine locations have also been assessed. This includes dwellings within the Site, which were determined to have very high and high (and therefore significant) visual effects[31]. Outside of the site, a further four dwellings were identified as potentially having high (and therefore significant) visual effects, where turbines appear prominent but not dominant. It is noted that views from these dwellings will continue to encompass the current wider working rural landscape, which influences the overall nature of visual effects. Other dwellings in the 2km radius are considered as having visual effects that range from very low to moderate high. These views, including to the transmission line and substations where relevant, are typically limited by existing vegetation, viewing distance and intervening landform.

Dwellings beyond 2km from the site are considered to have the following levels of visual effects:

- Low from the east of the site in the vicinity along Bowen Road;
- Low from the southeast of the site on land to the north of Mauriceville;
- Some moderate from the southwest of the site, including dispersed dwellings along South Road No. 2 and west of State Highway 2;
- Some moderate from the area to the west of State Highway 2 as well as dwellings accessed along SH2 north of Waiwaka beyond around 2km from the nearest turbines;
- Low-moderate from dwellings and commercial areas within Eketāhuna;
- Low-moderate to low from areas to the west of Eketāhuna; and
- Very low from areas to the north of Eketāhuna.

From locations of interest, the level of effects also varies. It is stated that:

> *there will be no visual effects at the site of the historic Mauriceville Church as the Site remains screened by landform from the church and its curtilage. Views towards the Site are available from the Anzac Bridge, another historic site. Intervening landform limits the view from here however the tops of turbine blades will appear as dynamic elements which sweep along the skyline with low-moderate visual effects during operation.*[32]

[31] A Very High effect rating is described in Appendix 1 to the Assessment of Landscape Effects as *Total loss of key elements / features / characteristics, i.e. amounts to a complete change of landscape character and in views. Turbines would appear dominant and overbearing in primary views*. A High effect is described as *major modification or loss of most key elements / features / characteristics, i.e. little of the pre-development landscape character remains and/or result in a major change in primary views. Turbines would appear prominent, but not necessarily dominant*. It is understood this is derived from the New Zealand Institute of Landscape Architect's Best Practice Note.
[32] Section 6.4.20 (Page 34) of the Assessment of Landscape Effects in Appendix K.

In terms of the proposed transmission line and terminal substation, visual effects are effectively mitigated through the relative small distance that the transmission line has to travel (noting that transmission lines of the size proposed are a permitted activity under the Tararua District Plan), and that existing vegetation provides effective containment of the terminal substation site.

5.3.4 Cumulative Effects

The cumulative effects considered in the Assessment of Landscape Effects are summarised as *rather than the character of the landscape being that of a landscape with a wind farm in it, the landscape becomes a 'wind farm landscape'*[33]. Other wind farms in the surrounding area have been identified, with the closest being the Turitea wind farm 23.2km to the north.

It is concluded that:

> *given the nature of the surrounding landscape - the rolling hill country to the east of the Site, and the distance between the Site and surrounding wind farms, views of the Mount Munro Site in combination with other wind farms are infrequent, with most other turbines in the area being of such a distant scale as to be indistinguishable within the wider landscape. Therefore, the cumulative effect on the landscape character of the area is assessed as very low*.[34]

5.3.5 Shadow Flicker

As described in the Assessment of Landscape Effects, shadow flicker is a phenomenon caused when the sun interacts with the rotation of turbine blades, which cast intermittent shadows that appear to 'flicker' as the sun passes behind the blades. The phenomenon is most noticeable at windows of dwellings[35].

As is stated in the Assessment of Landscape Effects, international guidelines, such as the Australian Draft *National Wind Farm Development Guidelines*, 2010, state that acceptable levels of exposure to shadow flicker are deemed to be either 30 hours per year (modelled) or 10 hours per year (actual).

The Assessment of Landscape Effects have undertaken an assessment of the extent of shadow flicker from the proposal. This analysis identified eight dwellings where more than 30 hours per year of shadow flicker would be experienced. It is noted that the identified hours of shadow flicker do not take account of existing structures or vegetation around the eight dwellings which may affect the shadow flicker experienced.

It is recommended in the Assessment of Landscape Effects that assuming no on-site mitigation is undertaken, Meridian could mitigate the shadow flicker effects to acceptable levels through either a curtailment strategy where certain turbines are shut off during periods of the year, or construction of

[33] Section 6.5.1 (Page 35) of the Assessment of Landscape Effects in Appendix K.
[34] Ibid Section 6.5.11 (Page 36).
[35] Ibid Section 6.6.1 (Page 36).

structures or planting windbreaks in strategic locations. Relying on this recommendation, a condition of consent has been proposed in Section 8 of this Assessment of Environmental Effects.

5.3.6 Reversibility of Effects

It is stated within the Assessment of Landscape Effects that:

> *any adverse landscape or visual effects associated with the proposed wind farm are largely reversible. The wind turbines could be removed in the future should the wind farm no longer be required. The residual wind turbine platforms would not appear prominent, and the access roads would not look out of place as farm roads*.[36]

5.3.7 Landscape, Natural Character and Visual Effects Conclusions

Overall, the Assessment of Landscape Effects concludes that:

> *the proposed Site is considered appropriate for a windfarm and enables such development to remain well integrated within this underlying rural setting. The proposed layout of turbines will appear responsive to the undulating topography with limited views of earthworks from beyond the Site. Whilst turbines may be prominent elements from some areas, including a relatively small number of private views in close proximity to the Site, such views remain relatively localised and embedded within the context of this broader working rural landscape which will also essentially remain. Such outcomes are consistent with the statutory landscape provisions in the Tararua District Plan and Wairarapa Combined Plans and therefore enable the windfarm to be effectively absorbed within this area of landscape.*[37] .

In terms of rural amenity values, the Assessment of Landscape Effects notes that as primary production will continue outside the turbine footprints and access tracks, the site and surrounds will largely retain their existing rural character following construction of the wind farm.

Overall, the proposal is consistent with the outcomes envisaged by the landscape, rural character and amenity provisions in the Tararua District Plan and Combined Wairarapa District Plan.

5.4 Noise Effects

While the Noise Effects Assessment in Appendix H states that the permitted noise standards in the Tararua District Plan are met, the actual or potential noise effects of the construction, development and operation of wind energy facilities are to be addressed under the assessment criteria for the Discretionary Activity status of the proposal under the Wairarapa Combined District Plan. Further, Section 16 of the RMA sets out a duty to avoid unreasonable noise.

[36] Section 6.7.1 (Page 37) of the Assessment of Landscape Effects in Appendix K.
[37] Ibid Section 8.1.12 (Page 42)

Noise sources for this proposal occur during both the construction and operational phases. Construction noise includes noise from:

- The construction of turbine foundations and platforms;
- Operation of concrete batching plant;
- Construction of internal roads;
- Construction traffic noise.

Operational noise results from:

- Operating turbines;
- Substations;
- Activities in the Operations and Maintenance facilities;
- On-site road traffic.

As detailed in the Noise Effects Assessment:

> *acoustic amenity in the rural environment focuses on dwellings within the rural zone. At dwellings, and for the immediate land surrounding them, peaceful living conditions (particularly during sleeping hours) are to be protected. Away from residences, rural amenity is manifested in the ability to carry out production activities, which often produce noise*.[38]

A full assessment of the construction and operational noise effects are provided in the Noise Effects Assessment in Appendix H, with the conclusions being:

5.4.1 Construction Noise Effects

> *The noise from construction activities will in most cases to the southeast of the wind farm be received in the context of daytime rural activities, characterised by quiet periods dominated by bird and insect noise, stock and dog noise, and wind in vegetation, and punctuated by vehicles and farm machinery. To the northwest of the wind farm, daytime noise will commonly be dominated by traffic noise from SH2.*
>
> *… In general, the daytime background sound level at neighbouring residential … is around 30 dB L_{A90} during relatively calm wind conditions.*
>
> *The effects of noise from construction can be considered against the existing noise environment. Noise levels which are 10 decibels above the background (L_{A95}) sound level generally are considered acceptable as normal, ongoing activities; construction noise activities are tolerated at significantly higher levels due to being temporary.*
>
> *For most properties the construction noise effects will be slight, as they are of the same level as typical daytime activity noise, and not more than 10 decibels above the "calm conditions"*

[38] Section 2.1 (Page 7) of the Noise Effects Assessment in Appendix H.

background noise level. For much of the time, wind noise would significantly mask construction noise sound, rendering it a negligible effect.

For a number of properties, initial entrance and road construction will cause a noticeable increase in daytime noise levels, although noise levels will comply with daytime permitted activity noise limits, and comply by a large margin with construction noise limits for long-term construction activities.

Following the initial establishment of the entrance and site roads, construction activities are predicted to comply with daytime and night-time permitted activity limits (and with the construction noise limits at all times) and to have a negligible noise effect.[39]

5.4.2 Construction Traffic on External Roads

Noise from construction traffic on external roads, like noise from any other vehicles on the roads, is not controlled by the district plan. It may however be considered amongst the noise effects of the project…

For the intensive period where aggregate is being brought to site, residents along Old Coach Road will experience significantly more traffic noise from public roads than they presently do. This will be a temporary activity with temporary effect, and as such will be more readily tolerated than if it were a permanent operational activity.[40]

5.4.3 Operational Noise Effects

Operational wind farm noise at the [identified] noise sensitive locations[41] *... has been assessed by comparing the calculated turbine noise levels with the background noise measurements taken at the dwellings, or at nearby representative dwellings.*[42]

At each identified noise sensitive location, the noise level produced by an operating Siemens DD120 turbine (considered in the Noise Effects Assessment to have the highest level of noise), was considered to be *reasonable – less than the night-time permitted activity noise limit, and such that World Health Organisation recommendations for sleeping environments would be met with windows open*.[43]

Noting the envelope approach proposed in this application, the Noise Effects Assessment recommends that

the noise assessment presented in the report should be reviewed prior to construction of the wind farm. This review shall include a re-calculation of the windfarm sound output once the wind turbine selection has been finalised and their operating parameters are known. This investigation shall produce a Final Operational Noise Assessment Report, in which it shall be determined that

[39] Section 4.3 (Page 21) of the Noise Effects Assessment in Appendix H.
[40] Ibid Section 4.4 (Pages 21 and 22)
[41] Being 24 dwellings located in the area surrounding the subject site, as shown in Figure 14 of Ibid.
[42] Ibid Section 6.2 (Page 30).
[43] Ibid Section 6.2.1 (Page 31).

the noise limits established in NZS6808:2010 shall be met for all dwellings external to the windfarm project.[44]

Consequently, this is the basis for a proffered condition in Section 8 of this Assessment of Environmental Effects, as is the recommendation in the Noise Effects Assessment that *a suitable monitoring programme should be established, ensuring that the sound levels produced by the operational windfarm do not exceed the noise limits at the sites investigated and modelled in this report*.[45]

Likewise, noise resulting from the terminal substation, operation and maintenance facilities and from road noise traffic will comply with the relevant District Plan permitted standards.

5.4.4 Conclusion

Overall, the Noise Effects Assessment concludes that:

- *New Zealand Standard 6808:2010 provides a suitable noise performance standard for windfarms which has been applied to this assessment. The standard establishes a noise limit for turbine noise of 40 dBA L90 or 5 decibels above the existing ambient L90, whichever is the higher. The predicted noise levels from turbine operational activity complies with the limits recommended by NZS6808:2010 at all dwellings external to the wind farm.*
- *Noise levels predicted from other operational activities from the proposed windfarm will comply with the limits recommended by the District Plans' noise provisions.*
- *Construction activities will comply with the provisions of NZS6803:1999.*
- *During the final design and wind turbine selection process, further consideration must be had in regard to the wind turbine selection to ensure that the limits are met.*

On the basis of this assessment, all noise emissions related to this project are reasonable.[46]

Based on the Noise Effects Assessment, the actual and potential adverse noise effects associated with the proposal are considered to be less than minor.

5.5 Traffic Effects

The wind farm site will be accessed via a new entry from Old Coach Road in the Tararua District. The Tararua District Plan, through Objective 2.8.3.1 and Policies 2.8.3.2(c) and (h) directs that wind farm activities have safe and efficient transport effects.

While the proposal complies with all permitted activity standards in the Tararua District Plan except the access radii, assessment criteria 5.3.7.4(h) in the Tararua District Plan requires consideration of *the*

[44] Section 8 (page 36) of the Noise Effects Assessment in Appendix H.
[45] Ibid Section 8 (page 36).
[46] Ibid Section 9 (Page 37)

effects of the [wind farm] on aviation, navigation and existing network facilities. Network facilities is undefined, but could be considered as meaning network utilities, which include roads.

There is no proposed road access to the site, or proposed road upgrades within the Masterton District. However, it is possible that construction traffic (moving people and aggregate to the site) could use roads within the Masterton District. As such, Assessment Criteria 22.1.10(iv) the effects of traffic and vehicle movements has been considered.

The Transportation Assessment in Appendix E identifies and assesses the actual and potential traffic effects associated with the proposal. This includes potential effects of the project on the external road network during construction and operation, an appraisal of port-to-site considerations for the transport of large turbine components, and the local road access in terms of safety and functionality.

The traffic movements associated with the proposal primarily occur during the construction phase, being:

- Initial delivery of earthmoving machinery and ongoing service and maintenance visits;
- Importing aggregate for road basecourse and concrete production;
- Importing water, principally for concrete production and dust control, where it is not available on-site;
- Delivery of construction materials, including transformers, for the off-site substation;
- Delivery of other construction materials and consumables to the wind farm site;
- Delivery of electricity circulation and transmission infrastructure including the conductors for the on-site underground cabling and poles for the transmission line between the site and the terminal substation;
- Transport of over-dimension and overweight turbine components; and
- Regular movement of personnel on site during construction.

During construction, up to 150 staff are estimated to be on site, depending on tasks that are being undertaken. Staff would arrive in light vehicles. The Transportation Assessment estimates approximately 50 vehicles per day to take staff to and from the site, which are expected to be approximately evenly split, with 50% travelling from the south and 50% from the north.

In terms of heavy vehicles during construction, the Transportation Assessment estimates up to 326 Heavy Commercial Vehicles are expected to arrive and leave the site during a day. Trips are expected to be spread evenly throughout the day and vary from day to day based on site requirements. Up to 33 Heavy Commercial Vehicles (66 trips) could occur during a peak hour for construction activity.

Traffic volumes during the operation phase of the wind farm will typically be low, with higher periods from time to time as maintenance is required. During periods of maintenance, up to 24 vehicles are expected to arrive and leave site during the day. Up to 4 vehicles (8 trips) could occur during a peak hour.

Based on these volumes, the Transportation Assessment includes the following key findings:

- *The majority of the intersections off SH2 achieve the recommended sight distances, with the exception of Opaki-Kaipararoro Road and Kaipararoro Road. Vegetation removal within the road reserve is recommended to increase sight distance. Appropriate sight distance at the proposed site entrances should be achievable. Based on this assessment and subject to the mitigation proposed, the proposed accesses and intersections are expected to operate safely for site traffic and existing road users;*
- *The site entrances will be sealed, minimising the tracking of material and edge break along the existing road surfacing;*
- *Indicative port to site assessment has concluded that equipment can be transported to site from multiple North Island ports with some temporary removal of roadside infrastructure (signs, barriers, etc.) and upgrades to some structures. Specific liaison with the relevant road controlling authorities regrading transport of these components will be subject to the port selection process;*
- *The traffic volumes in this area are low. Construction traffic is unlikely to result in significant delays for road users on the surrounding road network. Upgrades are likely to be required to Old Coach Road;*
- *Operational traffic volumes are expected to be much less than during construction, and are not expected to result in any significant delay to other road users;*
- *During construction the traffic volumes on Old Coach and Kaipararoro Roads will increase significantly. Depending on use of local quarries and volume of aggregate sourced, traffic volumes during construction may also increase significantly for Opaki-Kaipararoro and Falkner Roads. Temporary traffic signs are proposed on these roads and on the SH2 approach to Old Coach Road to warn approaching drivers of the increased traffic on these roads during construction;*
- *No specific control measures are proposed during operation; and*
- *Departures from the relevant transport rules in the Tararua District Council District Plans have been assessed with no issues noted from a transport perspective.*[47]

The Transportation Assessment also contains a number of recommendations regarding local road upgrades and inspections, as well as the preparation of a Construction Traffic Management Plan (CTMP) to determine how construction traffic will be safely and efficiently managed to and from site, and to consider the effects of existing road users.

These recommendations, where relevant, have been used as the basis for proffered conditions in Section 8 of this Assessment of Environmental Effects.

The Transportation Assessment concludes, that based on the recommendations being implemented, *the proposed development can be undertaken safely and without significantly impacting the level of service for other road users and can be supported from a transport perspective*.[48]

[47] Section 7.1 (Page 56) of the Transportation Assessment in Appendix E.
[48] Ibid Section 7.1 (Page 56)

Consequently, based on the Transportation Assessment, the actual and potential adverse traffic effects associated with the proposal are considered to be less than minor.

5.6 Ecological Effects

The primary Ecological Assessment is attached as Appendix C. This assessment assesses the construction and operational actual and potential effects of the proposal on terrestrial vegetation, wetlands, other freshwater bodies, herpetofauna and avifauna.

A separate assessment, entitled Long-tailed Bat Impact Assessment was also produced, and is attached as Appendix L.

The following provides a summary of the conclusions reached in those reports.

5.6.1 Effects on Terrestrial Vegetation

The relevant objectives and policies in the statutory framework that guide effects on terrestrial vegetation are:

- Objective 16 and Policy 47 of the GW RPS, relating to effects on indigenous ecosystems and habitats with significant indigenous biodiversity values;
- Objective 13-2 of the Horizons One Plan (Part 2: Regional Plan) relating to activities affecting indigenous biological diversity;
- Policy 44 of the GW pNRP relating to managing effects on ecosystems and habitats with significant indigenous biodiversity values from activities outside these ecosystems and habitats;
- Objective Bio1 and Policies Bio1(d), (e) and (h) of the Combined Wairarapa District Plan, relating to maintenance and enhancement the biological diversity of indigenous species and habitats within the Wairarapa.

The Ecological Assessment considers that the overall effects on terrestrial vegetation will be very low. This is based on the assessment that the terrestrial vegetation within the site has negligible value, and the proposal has a low magnitude of effect.

97% of the terrestrial vegetation within the project footprint is pasture. The Ecological Assessment states that:

> *The pasture on site is extremely common, not just on site and in the region, but throughout the entire country, and ecologically provides little function or habitat, and is a highly modified, exotic-based community not representative of previous forest communities. When assessed at the catchment scale, this loss of pasture does not appear significant or impactful upon the wider communities. The single trees and shrubs within the footprint, when taken with the context of the nearby significant areas of vegetation show that there is preferable nearby habitat and seed source. Those native vegetation species present are locally common, and not representative.*[49]

[49] Section 8.1.1 (Page 72) of the Ecological Assessment in Appendix C.

There are not expected to be any effects from wind farm construction and operation on terrestrial vegetation.

5.6.2 Effects on Natural Inland Wetlands

Works within natural inland wetlands are guided by the following relevant objectives and policies from the statutory planning documents:

- The sole objective and Policies 1, 3, 4, 5, 6, 12, 13 and 14 of the NPSFM, relating to improving freshwater environments and protecting natural inland wetlands;
- Objectives 5-1, 5-2 and 5-4 and Policies 5-1, 5-2, 5-3, 5-4, 5-5, 5-22, 5-23, 5-24 and 5-25 of the Horizons One Plan (Part 1, RPS), relating to water quality and activities in beds of lakes and rivers;
- Objectives 12, 13 and 16 and Policies 41, 42, 43 and 47 of the GW RPS, relating to the quality of freshwater and wetlands supporting healthy ecosystems;
- Objectives 13-2, 17-1 and 17-2 and Policies 13-3A and 17-1 of the Horizons One Plan (Part 2, Regional Plan, relating to natural inland wetlands and activities in water courses;
- Objectives 14, 18, 21 and 22 and Policies 24 and 30 of the GW pNRP relating to natural inland wetlands; and
- Objective Fwe1 and Policies Fwe1(a), (b) and (c) of the Combined Wairarapa District Plan, relating to maintaining and enhancing the environmental qualities of waterbodies in the Wairarapa.

The Ecological Assessment identifies 44 natural inland wetlands in the project site, of which 6 lie under proposed infrastructure and 6 are within 50m of infrastructure. The remainder are within 100m of infrastructure. It is also noted that the gullies which in part or in whole contain natural inland wetlands that are within 100m of the identified envelopes could potentially receive earthworks generated sediment, or incur a hydrological change in the wetlands through an increase (or decrease) in the level of the water table.

Effects are related to construction only, with the Ecological Assessment stating that *once the roading network is established, and given where the turbines are to be located, there will be no operational effects to natural inland wetlands*.[50]

The construction effects relate to the physical loss of wetlands, potential effects of sediment discharge and potential effects of hydrological change. The Ecological Assessment findings on these matters are summarised as follows.

Physical loss of natural inland wetlands

It has been assumed in the Ecological Assessment that the 6 identified natural inland wetlands which are within the proposed envelopes will be directly impacted through filling and therefore loss. This area totals approximately 0.32ha of natural inland wetlands, which is assessed as being of low quality negligible value, exotic dominated natural inland wetland. The area of affected wetland may reduce as the road alignments are refined within the envelopes proposed.

[50] Section 8.2 (Page 72) of the Ecological Assessment in Appendix C.

The 6 identified natural inlands wetlands which are within 50m of the infrastructure (current road alignment), but which do not lie underneath the road but may be within a berm of construction affected area, total 0.84ha of natural inland wetland. The total area of natural inland wetland within 100m of the construction envelope is 3.26ha.

The Ecological Assessment states that:

> *the level of loss we assess as being of a Negligible magnitude, which combined with Negligible value of the features results in a Very Low level of effect overall* and that *such a Very Low level of effect does not require management and can be accepted without any loss of indigenous biological diversity or meaningful loss of wetland function on site*.[51]

The Ecological Assessment, following the direction set in the NPSFM, has assessed that a 1:1 offset should be applied to any area of wetland directly impacted through filling and loss, and identifies an appropriate location for this to occur. As such, this offset is included in this proposal, through the proffered conditions of consent in Section 8 of this Assessment of Environmental Effects.

Potential effects of sediment discharges

It is noted that typical hill country sheep farming in Aotearoa New Zealand releases between 900 and 3200kg/ha/year of sediment into its gullies and streams, resulting in most waterways and waterbodies in farmed landscapes experiencing considerable sedimentation. The current flora and fauna in natural inland wetlands have adapted to those conditions. The natural inland wetlands are considered in the Ecological Assessment to be a product of that process.

The erosion and sediment control measures outlined in the Construction Water Management Plan and Effects Assessment Report (Appendix F) provide mitigation for additional sedimentation. However the Ecological Assessment states that if those measures fail, an affected wetland would recover to its existing state.

Overall, the Ecological Assessment states that:

> *because of the type, nature, location and history of the wetlands present, sediment discharge is both the reason why they are present but also why there is no ecological concern over such a process involving repeat sedimentation and recolonisation of the largely exotic wetland species present* and that *the overall effects of potential sediment discharges during construction on the natural wetlands to be Very Low given the Negligible value of the wetlands and a Low magnitude of effect*.[52]

Potential effects of hydrological change

The only potential hydrological change identified in the Ecological Assessment is from the diversion of clean water away from earthworks locations, which might then divert water away from a wetland, as well as from earthworks. This can change the ground surface such that rain fall discharge is altered

[51] Section 8.2.1 (Page 73) of the Ecological Assessment in Appendix C.
[52] Ibid Section 8.2.2 (Page 74)

away from any wetland feature. Both are considered to be unlikely effects which can be managed by ensuring that worked surfaces will continue to discharge surface flows to the same sub-catchments and that diversion drains also still deliver clean water to the same sub-catchment after passing the open works area.

With measures in place to manage clean water diversions, the Ecological Assessment considers *the potential overall effect of hydrological changes to be Very Low based on the Negligible value of the wetlands and a Negligible magnitude of effect*.[53]

5.6.3 Effects on other Freshwater Bodies

Works within other freshwater bodies are guided largely by the same objectives and policies to natural inland wetlands, as well as the following relevant objectives and policies from the statutory planning documents:

- Objectives 13-1, 14-1 and 17-2 and Policies 13-2, 14-1, 14-2, 14-4, and 17-1 of the Horizons One Plan (Part 2, Regional Plan), relating to biodiversity, discharges, and fish passage; and
- Objectives 3, 4, 7, 19, 23, 24 and Policies 1, 9, 30, 31, and 32 of the GW pNRP relating to cultural use, recreation, fish passage and trout habitat.

Effects on freshwater environments result from:

- Loss of stream habitat (culverts/infilling);
- Sediment release during construction;
- Contaminant release during construction; and
- Impediments to fish passage.

A summary of Ecological Assessment of these effects is as follows.

Loss of Aquatic Habitat

The proposal includes the construction of new and upgrade of existing culverts. Culverts are proposed to be located in tributaries to the Makākahi and Mangaroa rivers.

The loss of aquatic habitat in the Mangaroa tributaries is considered to have a moderate magnitude of effect at the local (sub-catchment scale), but a low magnitude of effect at the larger Mangaroa tributary scale. The Ecological Assessment considers the Mangaroa catchment the most relevant test scale, and on this basis, there will be a low magnitude of effect on the Mangaroa tributary (low value), which results in a very Low overall level of effect. However, it is recommended that the stream loss is offset at a ratio of 3:1, undertaking an enhancement of around 1.5km of a similar perennial nearby tributary. Enhancement would include excluding stock and planting riparian indigenous vegetation, with management of at least 5 years.

[53] Section 8.2.3 (Page 74) of the Ecological Assessment in Appendix C.

In the Makākahi tributary, an additional length of culvert (approximately 10m) is proposed. The Ecological Assessment considers this stream to be:

> *more linear wetland than open flowing stream and has elements of both a gully mud sponge and open flowing stream... The extent of wetland loss that will occur is negligible and the value of such a linear mud sponge water cress feature is very low as a wetland or low as a stream habitat, meaning an effect in level of very low*.[54]

Sediment Release

It is assessed in the Construction Water Management Plan and Effects Assessment Report (Appendix F) that, with mitigation in place, sediment loss from construction activities that affects receiving environments will be minor and unlikely. This is referenced in the Ecological Assessment. However, it is noted that there remains a residual risk that during adverse weather events, mitigation controls can be compromised and extraneous material can enter aquatic systems.

In this instance, and given existing levels of sedimentation entering waterbodies from the project site and environs, the Ecological Assessment concludes that *any sediment release into the streams during construction is expected to have a Low magnitude of effect on the Low or Moderate freshwater values that are present; thus resulting in a Low to Very Low overall level of effect*.[55]

It is also stated that no measurable operational sediment release effects are expected *as the tracks are proposed to be lined with loose metal (or sealed) and will not discharge sediment beyond what is already, and typically, released on farmed land*.[56]

Contaminant Release

The most likely contaminant release into freshwater is concrete (powder or slurry), which will be rare in occurrence. However, measures are proposed to isolate downstream/downslope aquatic systems from any area where concrete is being used, stored or made.

The Ecological Assessment states that

> *though unlikely, a concrete discharge event to any intermittent or perennial system can be expected to have a High magnitude of effect on aquatic fauna (predominantly the macroinvertebrate communities). Based on the ecological values of the waterways, the overall level of potential effect ranges between Low to Moderate (Table 32). We note however, that any such effect would be short term and would be resolved through natural remedial processes within six months of any such event*.[57]

[54] Section 8.3.1 (Page 76) of the Ecological Assessment in Appendix C.
[55] Ibid Section 8.3.2 (Page 77).
[56] Ibid Section 8.3.2 (Page 77).
[57] Ibid Section 8.3.3 (Page 78).

Impediments to Fish Passage

In the Mangaroa tributary, red fin bully have been recorded, and tuna (eel) are also likely. The two proposed culverts in this tributary are 100m and 110m long; both are of a length that is stated in the Ecological Assessment as not causing a migration passage issue to fish. The Ecological Assessment also states that the effect of proposed culvert installation at the wider Mangaroa tributary scale results in a very low overall effect.

By following the NESF culvert installation guidance, the placement and/or upgrade of any proposed culvert will avoid the issue of impeded fish passage where the culvert upgrades are short (less than 50m).

Migrating fish have been recorded in both the Makākahi and Kopuaranga catchments on site. However, the proposal does not require new instream culverts in these areas.

5.6.4 Effects on Herpetofauna

There is little lizard habitat located on the site, limited to the rank grasslands/weedlands at the western end of the transmission line and potentially the ornamental garden to the northwest of the site.

It is considered in the Ecological Assessment that during construction that

> *the scale of potential clearance in these habitats is low relative to available surrounding habitat and it is considered likely that only common and robust species would persist in these areas, and any impact to these species from the proposed works would be very unlikely to have a measurable effect on the wider population. If any sensitive or rare species are present within the proposed footprint, they likely would be in very low numbers and would not constitute a stable population. So, overall, the magnitude of effect on lizards is expected to be Low, and the level of effect to be Very Low.*[58]

Regardless, as all lizards are protected under the Wildlife Act 1953, and disturbance of potential populations cannot be carried out without a Wildlife Act Authorisation from the Department of Conservation. Therefore, authorisations will be necessary under the Wildlife Act 1953, which will further minimise any effects to lizards.

No effects on lizards are expected from the operation of the proposed wind farm.

5.6.5 Effects on Avifauna

Wind farms can adversely affect avifauna during both the construction and operational phases through permanent habitat loss, habitat disturbance, strike risk and displacement. The following is a summary of the Ecological Assessment with regard to Avifauna.

[58] Section 8.4.1 (Page 80) of the Ecological Assessment in Appendix C.

Permanent Habitat Loss

The loss of pasture can adversely affect the New Zealand Pipit (classified as *Threatened* or *At Risk*), however for various reasons including the quality of that habitat and the abundance of pasture available outside of the project footprint, is assessed in the Ecological Assessment to *result in a Very Low overall effect*.[59]

Inland natural wetlands can provide habitat for pukeko, paradise shelduck and kingfisher (all classified as *Not Threatened* species). Given that there is only a small amount of wetland habitat being lost (which will be offset) and that induced gully wetlands are common in the wider landscape, it is determined in the Ecological Assessment that the loss of this habitat will *result in a Very Low overall effect*.[60]

Regenerating shrublands and remnant fragments of indigenous forest/tree land provides habitat for forest species such as long-tailed cuckoo, grey warbler, silvereye. Approximately 1.36ha of this habitat would be lost under the proposal. The Ecological Assessment states that because of the small quantity of this habitat that would be lost, and that these species are mobile species that can use alternative habitat when lost, it will *result in a Very Low to Low overall level of effect*.[61]

The Ecological Assessment also notes that as the wider surrounding landscape is predominantly pastoral or undeveloped and the nearest wind farms are sufficiently far away, there are no cumulative wind farm habitat loss effects to consider.

Disturbance

The Ecological Assessment states that *people, activities and noise associated with construction of wind farms can disturb birds and displace them from the project area. This disturbance is temporary and is restricted to the construction phase of the project*.[62]

Falcon, New Zealand pipit and Kaka have been observed on site. The Ecological Assessment considers that the overall disturbance on Falcon and New Zealand pipit will have a Low overall level of effect, as well as a Very Low overall level of effect on Kaka.[63]

Other native bird species on site that may be exposed to construction disturbance are all common Non- Threatened species that can occupy alternative habitat in the surrounding landscape if displaced. This is considered to be a *Very Low overall level of effect*.[64]

Collisions with Structures

It is stated in the Ecological Assessment that *international and national studies have shown that wind farms have the potential to kill birds through turbine strikes*. Of the species present in the project area,

[59] Section 8.5.2 (Page 82) of the Ecological Assessment in Appendix C.
[60] Ibid Section 8.5.1 (Page 81).
[61] Ibid Section 8.5.1 (Page 81).
[62] Ibid Section 8.5.2 (Page 82).
[63] Ibid Section 8.5.2 (Page 83).
[64] Ibid Section 8.5.2 (Page 83).

the Ecological Assessment considers there to be a Very Low level of effect on most species, with the exception of Bush falcon and Long-tailed cuckoo, where the effect is assessed as being Low.[65]

5.6.6 Effects on Long Tailed Bat

During data collection for the Ecological Assessment, a single bat pass was detected. Consequently, further surveys were undertaken and a specific Long-tailed Bat Impact Assessment was commissioned. This is attached as Appendix L. It is stated within the Assessment that the site does not provide appropriate habitat for short-tailed bats, and as such they are not considered further in the Assessment.

It is stated in the Long-tailed Bat Impact Assessment that long-tailed bats are classified as Threatened – Nationally Critical under the New Zealand Threat Classification System. As such, the ecological value of long-tailed bats is Very High in accordance with the Ecological Impact Assessment Guidelines (EcIA guidelines) published by the Environmental Institute of Australia and New Zealand in 2018.[66]

Long-tailed bat activity recorded over four surveys across three years strongly suggests that while long-tailed bats are present in the wider landscape, the site is not of importance for these bats. Consequently, the ecological value of the site for long-tailed bats is assessed as Low. The magnitude for potential effects on bats is moderate, primarily because of the residual potential for turbine strike. Therefore, it is stated in the Long-tailed Bat Impact Assessment that *the overall level of effect on long-tailed bats resulting from the proposed Mt Munro Wind Farm is anticipated to be Low*.[67]

However, there is uncertainty identified in terms of the potential impacts of wind turbines on long-tailed bats. This, coupled with the Threatened – Nationally Critical status of long-tailed bats has resulted in the Long-tailed Bat Impact Assessment recommending a precautionary approach to managing potential impacts. As such a monitoring and adaptive management approach is recommended.[68]

The recommended adaptive management approach proposes undertaking acoustic bat monitoring during the first five years of operation of the wind farm and an adaptive management framework is to be prepared if regular bat activity is recorded at turbines. Adaptive management could include turbine-specific mitigation measures being initiated, such as curtailment if deemed appropriate.

Based on the very low level of bat activity recorded on site to date, bat specific offsetting or compensation is not recommended. However, this could form part of the adaptive management framework if the proposed post-construction acoustic bat monitoring suggests additional effects management is required.

[65] Section 8.5.3 (Pages 84-91) of the Ecological Assessment in Appendix C.
[66] Section 4.5 (Page 23) of the Long-tailed Bat Impact Assessment in Appendix L.
[67] Ibid Executive Summary.
[68] Ibid Section 7 (Page 31).

5.6.7 Ecological Effects - Conclusion

It is concluded in the Ecological Assessment that:

- *In the context of the wider landscape and in fact nationally, the existing ecological values (terrestrial vegetation, wetlands, freshwater and avifauna) associated with the Mt Munro project site are relatively low.*
- *The overall potential effects of the project will be less than minor and can be appropriately addressed through best practice construction management (e.g. culvert installation, erosion and sediment control measures), and offset measures to address the loss of small areas of natural wetlands and aquatic habitat associated with a piping in a tributary for an internal access road.*

5.7 Earthworks Effects

The earthworks proposed give rise to four broad effects, being land stability, erosion and sediment, visual and traffic.

The visual and traffic effects of earthworks have been assessed in the Landscape, Natural Character and Visual Effects (section 5.3 above and Appendix K), and Transportation Assessment (section 5.5 above and Appendix E).

Likewise, the Ecological Assessment (section 5.6 above and Appendix C) considers the effects of erosion and sedimentation on aquatic ecology. The Construction Water Management Plan and Effects Assessment Report (Appendix F) also addresses erosion and sedimentation, and is summarised below.

The Civil Engineering Report (Appendix D) considers stability and contains a specific geotechnical assessment as an appendix. This is also commented on below.

5.7.1 Erosion and Sediment Effects

Objective 4-2 and Policy 4-2 of the Horizons One Plan (Part 1: RPS), Objective 29 and Policy 41 of the GW RPS, Objective 13-1 and Policy 13-2 of the Horizons One Plan (Part 2: Regional Plan) all seek to regulate erosion and require consideration of sediment control.

The Construction Water Management Plan and Effects Assessment Report provides an assessment of the construction water management measures (including erosion and sediment control). The scope of the Report is:

- *Identify the construction-related erosion and sediment management issues for the Project;*
- *Identify the construction erosion and sediment control principles for the Project;*
- *Describe the environmental management issues and solutions, including erosion and sediment control (ESC) measures for the construction process;*
- *Develop indicative erosion and sediment control management methodologies for key construction activities including some specific "Focus Area" ESCPs;*

- *Assess environmental risks associated with the key construction activities; and*
- *Identify monitoring procedures.*[69]

The approach taken to manage construction water is broadly set out, with principles and control as per the Erosion and Sediment Control Principles and Plans as detailed in Appendices B and C of the Construction Water Management Plan and Effects Assessment Report. These measures and plans will be refined through the use of Specific Environmental Management Plans (SEMP) to be submitted to the relevant regional council for certification prior to earthworks being undertaken. They will consider the specific environmental and ecological values and will then determine the most effective and appropriate form of construction water management practices required to be implemented during the construction period. The number of SEMPs to be developed will be directly linked to the construction sequence and timing and this will be determined prior to implementation. For ease of implementation however, the project will minimise the number of SEMPs as much as practicable throughout the construction period.

The erosion and sediment control measures proposed include:

- Clean water diversions;
- Construction staging and sequencing;
- Contour drains;
- Dirty water diversions;
- Pipe drop structures/Flumes;
- Rock check dams;
- Stabilisation for erosion and dust management purposes;
- Stablised entrance ways;
- Sediment retention ponds;
- Hybrid decanting earth bunds;
- Flocculation;
- Super silt fences and silt fences and filter socks;
- SEMPs;
- Decommissioning of devices; and
- Pumping activities; and stream works.

Based on implementing the measures detailed in the Construction Water Management Plan and Effects Assessment Report, the following matters are identified in the planning framework as requiring to be appropriately addressed:

Table 17: Earthworks Effects Assessment – Matters of Discretion[70]

Matter for Consideration	Project Detail
Effects of the activity and associated sediment run-off on soil conservation, surface water	*Addressed within the Construction Water Management Plan and Effects Assessment Report. Section 8 allows for monitoring and*

[69] Section 1.1 (Page 1) of the Construction Water Management Plan and Effects Assessment Report in Appendix F.
[70] Replica of Table 6, Section 9.2 (Pages 54 and 55) of the Construction Water Management Plan and Effects Assessment Report in Appendix F.

quality and aquatic ecology and the methods to be taken to avoid, remedy or mitigate them.	*ongoing checks and balances of the earthwork activity to ensure effective management throughout.*
The provision of an Erosion and Sediment Control Plan, prepared to a standard that satisfies each Council. In the Greater Wellington Region, the erosion and sediment control measures must include consideration of hazard mitigation and the risk of any associated accelerated soil erosion.	*This Construction Water Management Plan and Effects Assessment Report provides an overview of the approach to be taken and provides an assessment of the various activities. Prior to construction a SEMP will be established and certified by Councils with the detail and content of this SEMP confirmed within this Report.*
Compliance with visual clarity water quality targets in receiving waters.	*Section 8 allows for monitoring and ongoing checks and balances of the earthwork activity to ensure effective management throughout. This includes measuring turbidity during rain events.*
Staging of works and progressive stabilisation.	*Progressive stabilisation forms a key principle of all earthworks for the Project. The SEMPs to be established also require specific identification of risk and details of how non stabilised areas will be managed.*
The placement and treatment of stockpiled materials on the site, including requirements to remove material if it is not to be reused on the site.	*Fill sites will be established as part of the Project implementation. No material is to be removed from the site. The fill sites will be managed as independent fill locations and will be subject to the full requirements of this Report and the SEMP process.*

It is concluded in the report that *based on the nature of the earthworks, the proposed erosion and sediment control measures, and the information gathered through this assessment and the site visits, that the earthworks can occur within the Turbine Envelope and Turbine Exclusion Zones and still achieve an overall minor effect only*.[71]

5.7.2 Effects on Land Stability

It is concluded in the Geotechnical Report that *based on analysis of geological and geotechnical factors in the previous sections, as well as the topography, the ridgeline is well suited to a wind farm from a civil engineering viewpoint.*

In terms of access roads, specific parameters are recommended, primarily concerning the use of a suitably qualified engineer or geologist being used to assess the road cuts and confirm the appropriate batter angles. Ground conditions are expected to be suitable for turbine foundations, with site specific investigations to be undertaken prior to construction.

5.8 Signage Effects

During construction, signs are proposed at the entrance to the wind farm site and within the site.

[71] Section 9.2 (Page 53) of the Construction Water Management Plan and Effects Assessment Report in Appendix F.

Both relevant District Plan's provide for signs in their rural zones[72], but seek to control the size and location of signs in order to maintain the character of the rural environment. The sign at the entrance to the sites is likely to exceed the size limits specified for permitted activities under the Tararua District Plan. The size of this sign will be determined by the safety information that must be provided and the need for this information to be clearly readable from vehicles as they approach the site entrance.

The entrance sign is located at the end of a no-exit road, and will be visible only to users of that road. The remaining signs will be located within the site, in locations where they will not be readily visible beyond the site boundary.

Consequently, the proposed signs are not considered to have an adverse effect on rural character.

5.9 Archaeological and Historic Heritage Effects

Assessment criteria 5.7.3.4(f) in the Tararua District Plan and 22.1.20(iii) in the Combined Wairarapa District Plan require consideration of the proposals effect on archaeological and heritage matters.

As such, an Archaeological Assessment of Effects was commissioned (attached as Appendix M).

The only proposed works identified in the Archaeological Assessment of Effects that may impact a possible archaeological site is within the site entrance area to the west of the Old Coach Road. The possible archaeological site is a farmhouse and outbuilding potentially built in 1887.

The recommendations made in the report are to create an exclusion zone where no ground disturbance activities can occur so as to not impact any subsurface archaeological features, and if this cannot practically occur, seek a general Archaeological Authority from Heritage New Zealand Pouhere Taonga.

Outside of the identified possible archaeological site, the recommendation in the Archaeological Assessment of Effects is that an Accidental Discovery Protocol is followed. This forms a proffered condition in Section 8 of this Assessment of Environmental Effects.

Based on the above, the proposal will have less than minor actual and potential effects on archaeology or historic heritage (noting tangata whenua heritage matters are discussed in Section 5.2 above).

5.10 Radio Interference

Assessment criteria 5.7.3.4(h) in the Tararua District Plan requires consideration of the proposal's effect on existing network facilities. There are no similar assessment criteria in the Combined Wairarapa District Plan.

[72] Noting that any signage is a structure associated with a wind farm and therefore are covered by Rule 21.6(j) in the Combined Wairarapa District Plan as that applies to the site.

Consequently, Kordia were engaged to undertake a radio compatibility assessment. Their resulting report is attached as Appendix N.

In the report, it is concluded that *the proposed Mt Munro Wind Farm indicative layout is not expected to cause any harmful interference effects to licensed radio communication services operating in the vicinity of the wind farm.*[73]

The report recommended that wireless internet service providers operating the area be contacted. The applicant has done this, with wireless internet service providers feedback not raising any issues. Their feedback is also attached as Appendix N.

5.11 Aviation Effects

Assessment criteria 5.7.3.4(h) in the Tararua District Plan requires consideration of the proposals effect on aviation and navigation. There is no similar assessment criteria in the Combined Wairarapa District Plan.

The Kordia Radio Compatibility Assessment Report in Appendix N states that *during the development of the final design, the turbine layout and turbine dimensions should be provided to Airways Corporation of NZ. This allows Airways to undertake their own assessment and update their RADAR signatures if required*[74]*.* This advice will be followed.

Likewise, if the Civil Aviation Authority require lights to be placed on top of turbine nacelles, this will be accommodated (noting effects of lighting on landscape and visual matters have been assessed in the Assessment of Landscape Effects in Appendix K).

5.12 Electromagnetic Fields

Wind farms, like all electricity generators, create electromagnetic fields. All electromagnetic fields from the proposed wind farm will comply with the relevant limits for general public and occupational exposure, as set in the International Commission on Non-Ionizing Radiation Protection ('ICNIRP') Guidelines 2010 – which have been endorsed by the Ministry of Health.

The proposed wind farm will be managed to ensure compliance with the ICNIRP Guidelines, which results in there being no risk to public health and safety from electro-magnetic fields.

5.13 Hazardous Substances

As has been stated, the proposed construction and operational activities will require the storage and use of potentially hazardous substances, such as diesel and oil. The use and handling of these substances will be undertaken in a manner that complies with all relevant requirements of the

[73] Section 4 (Page 15) of the Radio Compatibility Assessment in Appendix N.
[74] Ibid Section 4 (Page 15).

Hazardous Substances and New Organisms Act 1996 and the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Careful management of potentially hazardous materials will substantially reduce the risk of spills. To avoid spillages, an appropriate location for re-fuelling and a suitable storage facility will be decided by the appointed contractor prior to the commencement of construction. The fuel storage location will be located at least 50 m away from waterbodies, will be appropriately bunded and spill kits will be stored at this location at all times.

Significant oil leaks are highly unlikely with the electricity substations, but should oil leak from the transformer tanks, or the radiator body, the full volume will be able to be safely drained and accommodated within the electricity substation facility. In this regard, bunded areas will be able to contain more than 110% of the total volume of oil in the transformers.

A Spill Contingency Management Plan (SCMP) will also be developed by the applicant, which will detail measures to minimise the risk of spill events occurring. The SCMP will also provide an internal and external notification procedure in the event of a spill occurring and identify any measures to be undertaken to remediate a contaminant spill.

In addition, appropriate containment will be adopted for the storage of hazardous substances required for the ongoing operational phase of the windfarm. These will be stored within the operations and maintenance building in a designated hazardous substances store. The types of substances required will include operational quantities of solvents, oils, grease and similar materials.

Overall, it is concluded that any potentially adverse effects associated with the storage and use of hazardous substances can be appropriately avoided, remedied or mitigated.

5.14 Contaminated Land

As has been stated, the subject site is not identified as contaminated or potentially contaminated on any Council held database. However, the HAIL activities include some aspects of pastoral farming such as livestock dips. As such, there is potential that during works contaminated land may be discovered.

In such an event, works will immediately cease in the affected area, the area will be isolated and a contaminated land specialist will be contacted to assess the unexpected contamination, delineate its extent and advise a suitable management or remediation approach for implementation.

6 Consideration of Alternatives

Section 6(1)(a) of Schedule 4 to the RMA states that *if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity*.

The Assessment of Landscape Effects (Appendix K) identifies that there are four locations outside of the site which will experience *high effects where turbines form prominent but not dominant elements in primary open views from dwellings*[75]. As stated in Section 5.3 of this application, under Section 6.37 of Te Tangi A Te Manu, a high or very high landscape or visual effects equates to a significant RMA effect.

Given the potential for a significant adverse effect, alternatives to the project must be considered.

6.1 Overall Approach to Considering Alternatives

Meridian, as a generator of 100% renewable energy, generates power from wind, water and solar resources. At any one time, Meridian is evaluating options to generate more power from each of these potential sources.

In terms of wind, Meridian and its predecessors have been investigating and evaluating the potential for wind energy generation in Aotearoa New Zealand for 30 years. During this time, it is estimated that well in excess of 200 sites have been investigated. Meridian holds data from 150 historic wind monitoring masts and approximately 20 existing masts and wind monitoring stations throughout Aotearoa New Zealand.

Meridian is currently carrying out detailed analysis on approximately 20 sites in Aotearoa New Zealand with the best wind generation potential known to Meridian. These are sites for which Meridian has the necessary landowner agreements to enable it to carry out detailed investigations into the resources and constraints associated with the area. These potential sites are not necessarily proven to have the capability to be developed into a wind farm. All of these sites are continually under review and a limited number of them will be progressively advanced through to consenting based on a detailed assessment of their performance against a range of parameters including feasibility and adverse effects. It is against this background of knowledge that Meridian has decided to advance this project at this time.

6.2 Site Selection

The determining factors fundamental to wind farm development extend beyond wind speed alone. In particular, the ability to connect into local networks or the national grid, ease of construction,

[75] Section 6.4.19 (Page 34) of the Assessment of Landscape Effects in Appendix K.

environmental considerations, and feasibility implications of each site location are key influences that feed into the selection process.

Of most importance are high and consistent wind speeds. This is because the power available in the wind is proportional to the cube of the wind speed, i.e. if the wind speed is doubled there is generally eight times more power available to harness.

In addition to wind speed, other criteria which Meridian has identified as applicable to the development of a viable wind farm are:

- A smooth, laminar airflow – low turbulence;
- Elevation. In general terms, for every 100m increase in elevation there is approximately a 7% increase in wind speed;
- Proximity to the local electricity grid. There is a large cost associated with providing new power line connections from sites that are remote from these high-capacity power lines;
- Site accessibility. The local road network needs to be able to accommodate the delivery of wind turbine components and construction equipment. Access within the project site itself can be largely facilitated by the upgrading of existing farm tracks;
- Land access. Availability of privately-owned, freehold land with supportive landowners;
- Land use. Land predominantly needs to be cleared, and/or with low ecological value;
- Landscape and amenity values need to be taken into consideration and this is usually undertaken against a recognised framework that considers the project location in respect to local, regional and national landscape classifications;
- Adequate distance between neighbouring houses and turbine locations to ensure noise standards can be met at neighbouring residential house locations; and
- Engineering limitations related to the physical features of the sites.

The criteria listed above exclude large areas of land within Aotearoa New Zealand as being appropriate for the development of a wind farm.

A key step for Meridian in initial site identification is using a high-level digital mapping assessment, carried out across the whole country. This assessment scores each point on the map for wind resource and other key criteria above. The combined score provides a good indication of areas that are suitable, and not suitable for wind projects.

The best areas are then assessed on a more detailed medium-level, examining all criteria as listed above. This assessment identifies potentially viable sites, and also provides a good indication of which potentially viable sites are better than others. All of these factors have come together with Mt Munro in a way that has led to Meridian concluding that the proposed site is the best commercially viable site available to Meridian at this time in the Tararua or Masterton Districts and Horizons and Greater Wellington Regions.

Based on the data collected by Meridian across the 150 historic wind monitoring masts and approximately 20 existing masts and wind monitoring stations, the site is one of the best in the country, if not the best site, that is available to Meridian.

6.2.1 Developing a Technically and Commercially Feasible Project

Once the potential for a viable wind farm on a site has been confirmed, the next stage of the project development is to confirm to a high degree of certainty that the project is technically and commercially feasible. The development team assesses all aspects of the project in order to determine:

- The wind resource available across the site; and how much energy could be generated, and what levels of turbulence could be expected;
- What environmental and planning constraints exist on the site; and
- What can be constructed and built where, and at what cost.

With the various constraints accounted for, wind modelling and digital terrain modelling is carried out to provide an indicative layout on the remaining areas. This focus is on achieving the maximum number of technically feasible turbine sites to provide an upper bound for further assessment such as landscape and noise. At this stage access options from the public road network as well as existing tracks are also examined. Other criteria and key aspects considered in developing the turbine and access road layout include:

- Where possible, routes are chosen to follow existing tracks, contours and ridgelines to minimise the earthwork footprint and to reduce environmental effects;
- Taking into account, or avoiding where possible, large rock outcrops/formations or other significant natural features, presence of trig stations, air strips, overhead lines, watercourses and natural inland wetlands, indigenous vegetation areas and also landowner requirements.

Sections of roading are modelled to confirm the best general route and viability. A cut to waste philosophy is generally adopted for sidling cuts in steeper terrain to ensure the cut or fill is acceptable and minor optimisation is undertaken to minimise cut or fill. While a cut-to-fill approach is envisaged during final detailed design, a cut-to-waste approach is assumed solely for the purposes of estimating the earthworks quantities for roads in gentle terrain. This provides an upper bound earthworks quantity and demand for spoil fill site capacity requirements.

6.3 Alternative Site Locations

As described in the previous section, the early development process considers alternative site locations during site selection process and only the best projects are taken forward to later stages of development. At a less generalised level Meridian has reviewed approximately nine other locations and properties (excluding Te Apiti wind farm) within the Tararua and Masterton Districts in terms of the criteria outlined above for their suitability for development. Of these eight were not progressed beyond a site visit. No sites within Masterton District have been further progressed. One site within Tararua District has progressed to further investigations and a wind monitoring mast was erected at that location. The results of the wind monitoring at this site have shown that the site has a wind resource which was significantly inferior to that of Mt Munro. The monitoring has shown that site to be uneconomic and wind monitoring and the investigation agreement were terminated. Meridian does not have development agreements in relation to any other sites in either the Tararua or Masterton Districts at the present time.

Effects on landscape and visual amenity are related factors in the selection of a wind farm site. However, landscape effects can be assessed at a high level, and on a district basis and so are more suited to an enquiry into alternatives. It is noted that most, if not all wind farm applications advanced under the RMA to date have been in rural areas and have affected or concerned residents beyond the project site. It is also noted that a fine grain assessment to determine and compare visual amenity effects on individual surrounding properties is not necessary.[76]

The effects anticipated from other aspects of the proposal (noise, traffic, ecology, earthworks, cultural, signage, archaeological and historic heritage, radio interference, electromagnetic eilds, hazardous substances and contaminated land), have not been determined to be significant. Consequently, there is no need to undertake an assessment of alternatives on these aspects of the proposal.

Meridian has now gained a high level of understanding of the Aotearoa New Zealand wind environment through the development of a range of projects across the country. Meridian is undertaking wind monitoring in a range of locations with a view to considering future wind farm projects. However, within the Tararua and Masterton Districts the Mt Munro site is considered to be the best option available to Meridian from a commercial and environmental perspective.

6.4 Alternatives within the Application Site

Given the subject site is the best option available to Meridian, alternatives within the site also require consideration.

The turbine size which has been assessed for this application is the largest that practicably fits on the site. Meridian seeks to maximise the wind resource, but with manufacturers continuously producing larger more efficient turbines, it also needs to ensure that the selected size of turbine will still be available in the future.

It is detailed in the Assessment of Landscape Effects (Appendix K) that:

> *The scale and relationship between proposed turbines and their surroundings form a key aspect relating to rural character and amenity effects. The proposed wind turbines are a different order of size to other vertical elements within this area of rural landscape, such as buildings and trees. Notwithstanding this, the actual size of wind turbines can sometimes be difficult to gauge accurately given the absence of any inherent scale references within their form (i.e. wind turbines of different scales typically have the same generic shape). How wind turbines are perceived (and associated visual effects) is generally not proportional to their dimensions. The scale of turbines also influences the speed of rotation of turbine blades, with larger turbines having a slower and somewhat more graceful speed of rotation. Larger wind turbines also generate more electricity so can be a more efficient use of the landscape resource with fewer numbers of wind turbines overall and less associated clutter where visible in combination, all other things being equal.*[77]

[76] *Meridian Energy Limited v Central Otago District Council* anors, CIV 2009-412-000980
[77] Section 6.2.18 (Page 22) of the Assessment of Landscape Effects in Appendix K.

As such, an alternative wind turbine size is unlikely to result in a differing level of effect.

6.5 Conclusion to Alternatives

Section 2.2.2 of this application describes the strong demand and for new renewable generation in Aotearoa New Zealand, and the need to build new projects to meet this demand. In this context, if Meridian had access to alternative high-quality projects similar to what the current application site offers (which is not the case) and those sites were similarly advanced in their development stage, then it would likely be seeking resource consent and looking to build those projects as well.

7 Stakeholder and Community Engagement

Meridian staff supported by technical specialists have engaged with key stakeholders, neighbouring landowners and the community generally regarding the proposed wind farm.

This section outlines Meridian's stakeholder engagement philosophy, how it has been implemented for this proposal to date, and feedback and reaction to the proposal to date. Meridian intends to continue stakeholder engagement post lodgement of this resource consent application and Assessment of Environmental Effects.

7.1 Meridian's Stakeholder Engagement Philosophy

In all major projects, Meridian undertakes an approach to stakeholder engagement that is underpinned by a commitment to a genuine process of engagement, which is early, open and honest.

7.2 Meridian's Stakeholder Engagement Objectives

For this proposal, Meridian's stakeholder engagement objectives have been to:

- provide information to the community to allow an informed understanding of the project;
- provide accurate and factually based information about wind generation;
- receive stakeholder feedback and incorporate it where appropriate;
- build rapport with stakeholders and deliver key project messages;
- increase awareness and understanding of project benefits;
- support the resource consent process; and
- identify opportunities to avoid, remedy and mitigate actual and potential adverse effects associated with the proposal.

7.3 Meridian's Stakeholder and Community Engagement Tools

The tools which Meridian utilises when undertaking stakeholder and community engagement include:

- Public information events – open days have been held to enable the public to view plans and designs, ask questions and discuss the Project with team members and provide feedback;
- Project website – a section of the Meridian Energy website provides information on the Project and gives the public the opportunity to engage with the Project team;
- Social media – information is available through the Meridian Energy pages on facebook and Instagram;
- Flyer drops; and
- Media releases.

7.4 Specific Stakeholder Consultation

Meridian identified key stakeholders for whom direct approaches to engage were made. These include neighbouring landowners/residents, iwi and the Department of Conservation. A summary of these processes are as follows.

7.4.1 Neighbouring Landowners and Residents

The term "neighbouring" is used in a general sense to define those landowners and/or residents who are near the subject site but are not directly linked to the project via development agreements with Meridian.

Communication with neighbouring landowners and residents regarding the proposed wind farm began during the earlier consent process in mid-July 2011, and again during the current process in mid-August 2022. Meridian staff contacted neighbouring owners and occupiers directly, arranged suitable times, and began a series of meetings with residents in their homes. These initial meetings were attended by two Meridian Project Managers or a Project Manager and the Head of Development, all of whom have substantial experience and knowledge of the project.

Meetings with neighbours served to:

- Introduce Meridian and the proposal;
- Provide an outline of the proposed wind farm project and the timing of its development through to lodging of a resource consent application;
- Provide Meridian with an opportunity to listen to neighbouring landowners and their issues and concerns;
- Provide a point of contact for residents; and
- Discuss potential measures to avoid, remedy and mitigate actual and potential adverse effects associated with the proposal.

During the discussions with the adjacent landowners and residents, a number of people responded favourably to the wind farm, recognising the need for additional electricity generation and that the wind farm layout was designed to minimise environmental effects of vegetation clearance, erosion and sediment run off, effects on bird life, and visual and noise effects on neighbouring residents and on traffic effects. A small number of neighbouring residents, however, expressed concerns about issues including visual effects, potential noise effects, traffic effects and property values.

Additional information has been supplied to many neighbours and follow-up visits have occurred with project staff and consultants where appropriate to discuss landscape issues.

Meridian will continue to offer to consult with the owners of the four dwellings that the Assessment of Landscape Effects identifies as high visual effects. The aim of this consultation is to discuss further options to avoid, remedy or mitigate this effect. Likewise, Meridian will continue to offer to consult with properties accessed from Old Coach Road in regard to traffic movements, vehicle access and associated effects.

7.4.2 Iwi

As has been established, Meridian has engaged with the following iwi groups to determine whether or not there are sites or matters of interest to tangata whenua arising from this application:

- Rangitāne o Tamaki nui-ā-Rua;
- Rangitāne o Wairarapa;
- Ngāti Kahungunu ki Tamaki nui a Rua; and
- Ngāti Kahungunu ki Wairarapa.

Discussions have enabled Meridian to gain a better understanding of iwi relationships with the site and wider environs while iwi have gained an understanding of the project through assisting with identifying any potential effects arising from the project.

Meridian is committed to continued discussions with iwi throughout the resource consent process and beyond, establishing a long-term working relationship.

7.4.3 Department of Conservation

Meridian has engaged with the Department of Conservation (DOC) on two distinct aspects of the project:

- as a nearby neighbouring landowner (through its involvement at Pukāha Mt Bruce); and
- as an organisation with a key interest in ecology and conservation.

Meridian has committed to long-term consultation with DOC as a key stakeholder in the project. The Ecological Assessment in Appendix C has been prepared in consultation with DOC.

7.4.4 Pūkaha Mt Bruce Board

Meridian has engaged with the Board and Staff members for Pūkaha Mt Bruce. The purpose of the engagement was to describe the proposal and findings from the Ecology report, and to visit the wind farm site (focusing on the ridge top where the nearest wind turbine to Pūkaha might be located, and to show the proposed transmission line route and terminal substation site).

7.4.5 Other Stakeholders

Meridian has engaged with many other stakeholders as part of an information-sharing exercise relating to the proposal. Meridian is committed to continued, long-term consultation with these stakeholders as the proposal progresses through the resource consent process and beyond. No project "fatal flaws' have been identified through discussions with these stakeholders and all are aware of the project extent and status. It is anticipated that many of these stakeholders will consider and respond to the resource consent application as the material becomes available. These stakeholders include:

- Transpower New Zealand;

- Tararua District Council;
- Masterton District Council;
- Horizons Regional Council;
- Greater Wellington Regional Council;
- Wiz Wireless;
- InspireNet;
- Airways New Zealand; and
- New Zealand Wind Energy Association.

7.5 Project Open Days

Meridian's engagement with the neighbouring landowners and residents and other stakeholders has been followed by two Open Days prior to lodgement of this resource consent application and Assessment of Environmental Effects.

The first open day was held on 13th December 2022 and was attended by an estimated total of 40 people excluding the project team. The second was held on the 18th February 2023 and was attended by an estimated total of 35 people.

The open days provided the opportunity for anyone interested to visit and see visual simulations of the wind farm from nine key viewpoints, collect printed material about the proposal and wind farms in general, or ask questions.

Open Days were staffed by Meridian personnel who have significant wind energy experience and/or resource management experience. These information sessions were advertised in the local newspapers, and with delivery of brochures to mailboxes around the immediate site location as well as to other locations such as Eketāhuna. Resources available to those attending open days included:

- A brochure outlining the proposal;
- Case studies about wind farm projects contributions to communities;
- Posters with large maps, key effects and the consenting process;
- Photo simulations from representative viewpoints around the project site;
- An invitation to meet with Meridian staff at a later date (if required).

Opportunities for further engagement were also presented, through the provision of an email address and the Meridian website, and also for project team members to visit particular locations identified by Open Day attendees.

7.6 Ongoing Stakeholder Engagement

Through the proffered conditions of consent, Meridian will establish a Community Liaison Group which will provide communication between the community, the Consent Holder and the District and Regional Councils on issues arising from the construction of the Mt Munro wind farm.

Further, a complaints procedure is proposed, including through the establishment of an 0800 number.

7.7 Conclusion

It is considered that stakeholder engagement for the proposal has, to date, been meaningful and comprehensive. Meridian is committed to a genuine process of engagement with affected and interested parties and intends to continue this through the resource consent process and beyond, during construction and operation of the wind farm.

8 Proffered Conditions

Conditions are proffered in order to avoid, remedy or mitigate effects identified and assessed in the expert reports and this Assessment of Environmental Effects.

As resource consent is required from both district and regional councils, two sets of proffered conditions have been prepared, one for the regional resource consents sought and one for the district resource consents sought. Note, there is some commonality or overlap between the conditions.

8.1 Proffered District Resource Consent Conditions

General Conditions

1. The construction, operation and maintenance of the Mt Munro wind farm shall be undertaken in general accordance with the information provided in the Resource Consent Application and Assessment of Environmental Effects dated 22 May 2023, including the plan set titled *Meridian Energy Limited Mount Munro Wind Farm*, prepared by Tonkin + Taylor and dated May.23, comprised of drawings 1016884.1000-000 to 1013884.1000-014.

2. Pursuant to Section 125(1) of the Resource Management Act 1991, this resource consent shall lapse if not given effect to within 10 years of the commencement of this resource consent.

Wind Farm and Wind Turbines

3. The maximum number of wind turbines in the Mt Munro Wind Farm shall not exceed 20, with all wind turbines to be located within the Turbine Envelope Zone shown on Plan 1013884.1000-007, titled *Turbined Envelope and Exclusion Plan*, *Meridian Energy Limited Mount Munro Wind Farm*, prepared by Tonkin + Taylor and dated May.23.

4. The maximum wind turbine height (to the vertically extended blade tip) shall be 160 metres above finished ground level. The maximum hub height shall be 92m above finished ground level, and the maximum blade diameter shall be 136m. Each turbine shall have three blades, and a tubular/conical steel tower.

   Note: The parameters in Condition 4 apply to all wind turbines that are installed during the life of the wind farm, including any replacement wind turbines.

5. All wind turbines and turbine blades used within the Mt Munro Wind Farm shall be finished with the same light grey or off-white colour, which is uniform over the blades, hubs, nacelles and towers. The turbines must not include any branding or logos. The finish of the turbine blades must have a light reflectance value of no greater than 30.

6. Each wind turbine may include one externally housed transformer unit located adjacent to the base of the turbine.

7. All wind turbines, turbine platforms, hard stand areas and externally housed transformer units authorised as part of this resource consent shall be located within the Turbine Envelope Zone. However, no wind turbines (defined as the base of the turbine tower and including the overhanging of blades) shall be located within those parts of the Project Envelope identified as Turbine Exclusion Zone shown on Plan 1013884.1000-007, titled *Turbine Envelope and Exclusion Plan*, *Meridian Energy Limited Mount Munro Wind Farm*, prepared by Tonkin + Taylor and dated May.23.

General Construction Conditions

8. At least 40 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall provide the Resource Consents Manager – Masterton and Tararua District Councils with a set of final design drawings and accompanying detailed design report for the Mt Munro Wind Farm. The final design drawings shall, as a minimum, include:

    a. The layout and spacing of the wind turbines;

    b. The specifications of the wind turbines, turbine platforms, foundations and hard stand areas;

    c. The location and specifications of all supporting infrastructure, including the location and design of any permanent stormwater controls to be installed against the relevant engineering standards administered by the Masterton and Tararua District Councils;

    d. The location of cabling within the Site;

    e. The location of the concrete batching plant;

    f. The location of the wind monitoring mast;

    g. The location of the site substation;

    h. The location of the operations building and associated structures;

    i. The layout and pavement composition of the internal access road network; and

    j. The location of all fill disposal sites to be used.

    The final design drawings are subject to change according to actual construction requirements, within the consented envelope. Final as-built plans will be provided upon completion in accordance with Condition 9.

    The detailed design report for the Wind Farm shall, as a minimum, include:

    k. A slope stability assessment of any cuts and fills that are required (and which are verified by a suitably qualified and experienced geotechnical engineer); and

l. Hydraulic assessment of any stormwater infrastructure, including culvert inlet and outlet structures.

9. Within 40 working days of completion of construction works for the Mt Munro Wind Farm, the consent holder shall provide the Resource Consents Manager – Masterton and Tararua District Councils with a set of as-built plans for the following:

    a. All wind turbines, turbine platforms and foundation areas;

    b. The internal access road network;

    c. The location of cabling within the Site;

    d. All fill disposal sites;

    e. All permanent supporting infrastructure; and

    f. Engineering survey plans and sections of major earthworks.

10. Within six months of the wind farm being fully operational, the following temporary structures shall be removed and the land that they were on reinstated to the satisfaction of the Resource Consents Manager – Masterton and Tararua District Councils:

    a. All portacom and portaloos;

    b. Concrete batching plant;

    c. Fuel storage structures; and

    d. Mobile rock crushing plant.

Earthworks

11. During construction, a suitably qualified engineer or geologist must assess the road cuts and confirm the appropriate batter angle if for example thick surficial deposits, groundwater seepages, adversely orientated prominent discontinuities in the rock or inactive fault zones are exposed.

12. If controlled blasting is employed, it is anticipated that small amounts of explosives will be used to break up rock masses into more manageable pieces. Rock drilling to plant the explosives will also be required. Management measures and methodologies for controlled blasting operations must be documented in a Controlled Blasting Management Plan (CBMP) in advance of any work commencing. The CBMP must set out management measures, health and safety requirements, blast design, methods, site protocols, warning systems, and noise monitoring requirements as required under current Hazardous Substances and New Organisms (HSNO) Regulations.

13. At least 20 working days prior to the commencement of controlled blasting, the consent holder must provide the Resource Consents Managers –Masterton and Tararua District Councils with the CBMP for certification. Certification of the CBMP must not be unreasonably withheld.

Shadow Flicker

14. The consent holder shall ensure that shadow flicker effects at any dwelling in existence or consented at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991 arising from the operation of the Mt Munro Wind Farm shall be no greater than the modelled limit of 30 hours per year as defined in the Australian *Draft National Wind Farm Development Guidelines* 2010, modelled to 10 times the turbine diameter.

15. The consent holder may use a curtailment strategy to achieve the modelled limit of 30 hours per year.

    Note: Consented dwellings for the purpose of this condition means any dwelling authorised by a resource consent or building consent at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991. This condition does not apply to those dwellings on the properties on which wind turbines are to be located, or where the property owner has provided their written approval and this approval has been provided to the Resource Consents Manager – Masterton and Tararua District Councils.

16. At least 20 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall submit a Pre-Instalment Shadow Flicker Assessment to the Resource Consents Manager – Masterton and Tararua District Councils. The Pre-Instalment Shadow Flicker Assessment shall be prepared by an appropriately qualified specialist and shall take account of the design details of dwellings 1, 2, 6, 10, 11, 12, 14 and 15 as identified in Figure 9 of the *Mount Munro Wind Farm Assessment of Landscape Effects, Prepared for Meridian Energy* prepared by Boffa Miskell and dated 9 May 2023). The Pre-Instalment Shadow Flicker Assessment shall demonstrate that the proposed number, layout, type and operation of wind turbines (including the curtailment strategy for turbines if necessary) to be used at the Mt Munro Wind Farm will be managed to comply with the shadow flicker limits specified in Conditions 14 and 15 above.

Noise

<u>Construction Noise</u>

17. Noise from all construction works associated with the Mt Munro Wind Farm shall be measured and assessed in accordance with the requirements and limits of "NZS6803:1999 Acoustics – Construction Noise."

<u>Operational Noise (Non-turbine related)</u>

18. Noise from all other wind farm related activities on the site (other than wind turbine operation and construction activities) shall not exceed the following limits from the Combined Wairarapa and Tararua District Plans at or within the notional boundary of any residential building (excluding any residential building on the wind farm site):

    a. 55 dBA during daytime (7am to 7pm)

    b. 45 dBA during night-time

    c. 75 dB LAmax at night-time

    The noise shall be measure in accordance with NZS6801:1991 *Measurement of Sound* and assessed in accordance with NZS6801:1991: *Assessment of Environmental Sound*.

    Note: Consented dwellings for the purpose of this condition means any dwelling authorised by a resource consent or building consent at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991. This condition does not apply to those dwellings on the properties on which wind turbines are to be located, or where the property owner has provided their written approval and this approval has been provided to the Resource Consents Manager – Masterton and Tararua District Councils.

<u>Operational Noise (turbines)</u>

19. The wind turbines shall be designed, constructed, operated and maintained so that sound levels from the Mt Munro Wind Farm comply with the requirements of NZS6808:2010 *Acoustics – Wind Farm Noise*. For the avoidance of doubt, this condition shall require the wind turbines to be designed, constructed, operated and maintained so that the Mt Munro Wind Farm sound levels (LA90 (10 min)) shall not exceed the background sound (LA90 (10min)) plus 5 dB or a level of 40 dBA (LA90 (10 min)), whichever is the greater.

    Wind farm sound shall be measured and assessed in accordance with NZS6808:2010 *Acoustics – Wind Farm Noise* at, or within, the notional boundary of any dwelling in existence or consented at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991 (excluding those dwellings on the property on which wind turbines are to be located, or where the property owner has provided their written approval and this approval has been provided to the Resource Consents Manager – Masterton and Tararua District Councils).

    Note: Consented dwellings for the purpose of this condition means any dwelling authorised by a resource consent or building consent at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991. This condition does not apply to those dwellings on the properties on which wind turbines are to be located, or where the property owner has provided their written approval and this approval has been provided to the Resource Consents Manager – Masterton and Tararua District Councils.

20. At least 20 working days prior to the commissioning of the first wind turbine authorised as part of this resource consent, the consent holder shall submit a Final Operational Noise Assessment Report to the Resource Consents Manager – Masterton and Tararua District Council. This report shall include a re-calculation of the windfarm sound output once the wind turbine selection has been finalised and their operating parameters are known.

21. The Final Operational Noise Assessment Report must determine that the noise limits established in NSZ6808:2010 are met for all dwellings external to the wind farm sites, as well as establishing a suitable monitoring programme, to ensure that the sound levels produced by the fully operational wind farm do not exceed the noise limits established in NSZ6808:2010 for all dwellings external to the wind farm sites.

    Note: Consented dwellings for the purpose of this condition means any dwelling authorised by a resource consent or building consent at the date of notice of the decision on the resource consent applications for the Mt Munro Wind Farm under Section 114 of the Resource Management Act 1991. This condition does not apply to those dwellings on the properties on which wind turbines are to be located, or where the property owner has provided their written approval and this approval has been provided to the Resource Consents Manager – Masterton and Tararua District Councils.

22. The Final Operational Noise Assessment Report shall be prepared by an appropriately qualified and experienced acoustical consultant.

Traffic

23. At least 20 working days prior to construction commencing, the consent holder must submit for certification to Tararua District Council and Waka Kotahi New Zealand Transport Agency a Construction Traffic Management Plan (CTMP). The purpose of the CTMP is to demonstrate how construction traffic will be safely and efficiently managed to and from site. The CTMP must include the following specific management controls:

    a. Construction programme and associated traffic volumes;

    b. Overweight and over-dimension permit restrictions;

    c. Driver protocols aimed at ensuring safe driving practices and full compliance with the law, including speed limits, appropriate following distances, observing engine braking restrictions, and affording priority to other traffic;

    d. Briefing of Heavy Commercial Vehicle drivers of:

        i. School bus routes and times to ensure that they take additional care when there is an increased likelihood to children on or around the roads; and

ii. The New Zealand Cycle Trail routes to ensure that they are aware of an increased likelihood of cyclists along the roads passing sites and correct procedures for passing.

e. Site specific traffic management proposed, including:

i. Signs warning of turning construction traffic to be placed on SH2 in advance of the Old Coach Road intersection for the duration of the construction period;

ii. Temporary signs to be mounted warning of turning construction traffic on Old Coach Road and main construction accesses for the duration of the construction period;

iii. Mounting of 'caution wide vehicles' supplementary plates to road narrowing signs between Eketāhuna and Masterton for the duration of the construction period.

f. Monitoring and communication requirements with stakeholders;

g. Procedures to monitor sightseeing numbers (if any) once the wind farm is fully operational to assess the need for measures to mitigate visitor traffic;

h. Ensure appropriate access is provided to accommodate any required turning circles of site vehicles and accommodate any required truck movements; and

i. Ensure adequate sight distances are provided at each access point to ensure safety on the road network.

24. Old Coach Road upgrade works are required to maintain private access and allow for heavy vehicles to pass. These works must be completed prior to the commencement of onsite works for the wind farm. The works will be designed following discussion with Tararua District Council and local landowners.

25. Should transport of aggregate through the SH2/Opaki-Kaiparoro Road intersection be required, the Safe Intersection Sight Distance as specified in Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (2021) and Guide to Road Design Part 3: Geometric Design (2021)must be assessed, and removal of any vegetation which impedes this be undertaken.

26. Prior to the commencement of principal construction works authorised as part of this resource consent, the consent holder shall provide a Pavement Condition Survey prepared by a suitably qualified pavement engineer to determine the current condition of the pavement on any local road to be used as a haulage route as part of the construction of the Mt Munro Wind Farm and recommend an appropriate standard of road maintenance to be achieved throughout the construction period.

27. As part of the Pavement Condition Survey, the consent holder shall prepare a monitoring plan to monitor and report on any damage to local roads, berms, curbs or drains and other assets administered by the Tararua District Council, as well as any third-party assets that are established within road reserve.

28. The Consent holder must maintain the local roads to be used during the construction period to the current condition identified under the Pavement Condition Survey.

Archaeological

29. At least 20 working days prior to construction commencing, the consent holder must submit for certification to Tararua District Council and Masterton District Council and an Accidental Discovery Protocol. The Accidental Discovery Protocol must outline steps to be taken should suspected archaeological deposits or features be exposed during construction.

    Note, if an Accidental Discovery Protocol is also required by Heritage New Zealand Pouhere Taonga, the same protocol can be used to satisfy Condition 29.

Aviation

30. Lights shall only be installed on the turbines when required to meet Civil Aviation Authority requirements. The light intensity and flash requirements will be determined by the Civil Aviation Authority. The lights will be directed upwards and installed on top of the nacelles.

Ecological

31. Post-construction bird strike monitoring of the wind farm and transmission line should be conducted for one year immediately after the wind farm becomes fully operational. If any mortalities of At Risk or Threatened species are detected, a review will be undertaken to determine if further monitoring is required, and any remedial, mitigation or offsetting actions need to be implemented.

32. Acoustic bat monitoring must be undertaken at all constructed turbines during the first five years of operation of the wind farm, in accordance with the Long-tailed Bat Monitoring and Management Plan in Condition 33

33. A Long-tailed Bat Monitoring and Management Plan shall be prepared by a suitably qualified and experienced bat ecologist. A draft version of the plan must be provided to the Department of Conservation for review and comment prior to submission to the Horizons and Greater Wellington Regional Councils. The plan must be certified by the Horizons and Greater Wellington Regional Councils before the turbines are fully operational.

    The plan will include:

    a. Acoustic bat monitoring methodology for the long-tailed bat monitoring required by Condition 32.

b. The assessment methodology, including bat activity criteria for determining whether additional survey effort, and/or adaptive management are required to mitigate more than minor adverse effects on the local population(s) of long-tailed bats from the operation of the Mount Munro Wind Farm, as determined by a suitably qualified ecologist with experience in long-tailed bats.

c. An adaptive management framework that will be implemented if more than minor adverse effects are determined by a suitably qualified ecologist with experience in long-tailed bats.

d. Annual review and reporting requirements, that shall include but not be limited to:

   i. Review of previous monitoring data

   ii. Results of current monitoring in respect of the bat activity criteria.

   iii. Recommendations of any ongoing monitoring and/or management.

   iv. Timing requirements of when annual monitoring reports will be issued.

Note – a minimum of 10 working days must be allowed for the Department of Conservation to provide written comments (if any) on the draft Long-Tailed Monitoring and Management Plan to the consent holder. The consent holder shall submit the Long-Tailed Bat Monitoring and Management Plan, including all written comments provided by the Department of Conservation and the consent holder's response to those comments, to Horizons and Greater Wellington Regional Councils.

Community Liaison Group

34. At least 40 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall establish and co-ordinate a Community Liaison Group for the Mt Munro Wind Farm, at its own cost and to the satisfaction of the Resource Consents Manager - Masterton and Tararua District Councils.

35. The following organisations or interested parties will be invited to nominate a representative:

    a. Independent Chair (convenor)

    b. Masterton District Council

    c. Tararua District Council

    d. Horizons Regional Council

    e. Greater Wellington Regional Council

    f. Eketāhuna Residents

g. Hastwell/Mount Munro Protection Society Inc.

h. A representative of property owners and occupiers on local roads identified for use by construction traffic

i. One representative nominated by the Consent holder will also be part of this group.

36. The function of the Community Liaison Group shall be to provide communication between the community, the Consent Holder and the District and Regional Councils on issues arising from the construction of the Mt Munro wind farm.

37. The first meeting of the Community Liaison Group must occur within 20 working days of the group being established.

38. The specific roles of the Community Liaison Group must be determined by the Group and must be to the satisfaction of the Resource Consents Manager - Masterton and Tararua District Councils. A document stating the terms of reference must be produced within three months of the first meeting.

39. The consent holder shall not be in breach of this condition if any one or more of the parties specified above do not wish to be members of the Community Liaison Group or to attend any particular meeting.

40. This Group is to meet, as a minimum, at least 6 monthly during the construction phase and over the first 2 years of the operation of the Mt Munro Wind Farm. Thereafter, the group will cease to exist.

Complaints

41. Prior to the commencement of construction, the consent holder shall establish and publicise an 0800 number so that members of the public may raise matters with, or make an enquiry of, the consent holder during the construction of the Mt Munro Wind Farm. The 0800 number shall be maintained until the completion of construction works.

42. The consent holder shall maintain and keep a Complaints Register to record any complaints about construction works and operation of the Mt Munro Wind Farm received by the consent holder in relation to traffic, noise, dust, communications interference, shadow flicker or any other environmental effects.

43. The register shall record, where this information is available, the following:

a. The name and address of the complainant;

b. Identification of the matter complained about;

c. The date, time and duration of the incident that resulted in the complaint;

d. The location of the complainant when the incident was detected;

e. The possible cause of the incident; and

f. Any corrective action taken by the consent holder in response to the complaint, including the timing of the corrective action.

44. The Complaints Register shall be available to staff and authorised agents of the Masterton and Tararua District Councils, and to members of the Community Liaison Group, at all reasonable times upon request.

45. Complaints received by the consent holder that may infer non-compliance with the conditions of this resource consent shall be forwarded to the Resource Consents Manager - Masterton and Tararua District Councils within 48 hours of the complaint being received.

8.2 Proffered Regional Resource Consent Conditions

General Conditions

1. The construction, operation and maintenance of the Mt Munro wind farm shall be undertaken in general accordance with the information provided in the Resource Consent Application and Assessment of Environmental Effects dated 22 May 2023, including the plan set titled *Meridian Energy Limited Mount Munro Wind Farm*, prepared by Tonkin + Taylor and dated May.23, comprised of drawings 1016884.1000-000 to 1013884.1000-014.

2. Pursuant to Section 125(1) of the Resource Management Act 1991, this resource consent shall lapse if not given effect to within 10 years of the commencement of this resource consent.

General Construction Conditions

3. At least 40 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall provide the Resource Consents Manager – Masterton and Tararua District Councils with a set of final design drawings and accompanying detailed design report for the Mt Munro Wind Farm. The final design drawings shall, as a minimum, include:

    a. The layout and spacing of the wind turbines;

    b. The specifications of the wind turbines, turbine platforms, foundations and hard stand areas;

    c. The location and specifications of all supporting infrastructure, including the location and design of any permanent stormwater controls to be installed against the relevant engineering standards administered by the Masterton and Tararua District Councils;

    d. The location of cabling within the Site;

e. The location of the concrete batching plant;

f. The location of the wind monitoring mast;

g. The location of the site substation;

h. The location of the operations building and associated structures;

i. The layout and pavement composition of the internal access road network; and

j. The location of all fill disposal sites to be used.

The final design drawings are subject to change according to actual construction requirements, within the consented envelope. Final as-built plans will be provided upon completion in accordance with Condition 9.

The detailed design report for the Wind Farm shall, as a minimum, include:

k. A slope stability assessment of any cuts and fills that are required (and which are verified by a suitably qualified and experienced geotechnical engineer); and

l. Hydraulic assessment of any stormwater infrastructure, including culvert inlet and outlet structures.

4. Within 40 working days of completion of construction works for the Mt Munro Wind Farm, the consent holder shall provide the Resource Consents Manager – Masterton and Tararua District Councils with a set of as-built plans for the following:

   a. All wind turbines, turbine platforms and foundation areas;

   b. The internal access road network;

   c. The location of cabling within the Site;

   d. All fill disposal sites;

   e. All permanent supporting infrastructure; and

   f. Engineering survey plans and sections of major earthworks.

5. Within six months of the wind farm being fully operational, the following temporary structures shall be removed and the land that they were on reinstated to the satisfaction of the Resource Consents Manager – Masterton and Tararua District Councils:

   a. All portacom and portaloos;

   b. Concrete batching plant;

c. Fuel storage structures;

d. Mobile rock crushing plant; and

Earthworks

6. At least 40 working days prior to earthworks (or any stream works) commencing, an Construction Environmental Management Plan (CEMP) must be submitted to Manawatū-Whanganui Regional Council (Horizons) and Greater Wellington Regional Council (GWRC). The CEMP must detail the best practice erosion and sediment control details to be used in the development of Specific Environmental Management Plans (SEMPs). The CEMP must utilise the principles detailed in Appendices B and C of the *Meridian Energy Mt Munro Wind Farm Construction Water Management Plan and Effects Assessment Report* prepared by Ridley Dunphy, dated May 2023.

7. The CEMP must be prepared by a suitably qualified erosion and sediment control specialist.

8. At least 20 working days prior to earthworks (or any stream works) commencing at a given location or locations a Specific Environmental Management Plan (SEMP) must be submitted to Manawatū-Whanganui Regional Council (Horizons) and Greater Wellington Regional Council (GWRC), depending on which jurisdiction the given location falls, for certification against CEMP.

9. A suitably qualified ecologist and/or environmental specialist shall assist in the preparation of the SEMPs, as appropriate. The SEMPs shall detail measures to minimise site disturbance and to avoid, remedy or mitigate adverse environmental effects and shall include the following as appropriate to the individual SEMP:

    a. A location plan;

    b. Details of who is undertaking the work and contact details;

    c. A method statement covering construction method, monitoring and contingencies;

    d. Design for the works covered by the SEMP;

    e. A description of the work to be undertaken;

    f. A work programme;

    g. A plan or a series of plans showing:

        i. Areas to be disturbed;

        ii. Fill areas;

        iii. Soil stock pile areas;

iv. Culverts;

v. Erosion and sediment control measures;

vi. Expected commencement dates for the implementation of erosion and sediment control devices in each area;

vii. Monitoring and maintenance for all erosion control measures on a regular frequency or within 24 hours of a rain or snowfall event that could impair the function or performance of the control measures;

viii. Measures relating to the discovery of potentially contaminated land;

ix. Measures relating to the potential for spill;

x. Expected removal or decommissioning of sediment control measures;

xi. Identification of re-vegetation to be undertaken and re-vegetation methods and any maintenance;

xii. An inspection and reporting schedule, in particular in response to adverse weather conditions;

xiii. Maintenance activities.

10. The Consent Holder may request amendments to the CEMP or any SEMP by submitting the amendments in writing to the Consent Authority prior to any change taking effect.

11. The consent holder shall select spoil fill sites for placement of excess excavated material in general accordance with the following criteria for unsuitable sites:

    a. Fill site must be within the Turbine Envelope Zone or the Turbine Exclusion Zone ;

    b. Avoid wetlands and streams;

    c. Avoid vegetation;

    d. Geotechnical assessment;

    e. Visual landscape assessment;

    f. Catchment area above fill site is minimised (5ha maximum) and where this exists it can be practically diverted around the fill area; and

    g. There is sufficient room that allows for placement of erosion and sediment control measures.

12. Upon completion of the site remediation works, the Manager Resource Consents, Horizons and Greater Wellington Regional Council will be invited to inspect the works and confirm that the earthworks and site remediation works have been carried out in accordance with the conditions of the resource consent and relevant plans.

13. During construction, a suitably qualified engineer or geologist must assess the road cuts and confirm the appropriate batter angle if for example thick surficial deposits, groundwater seepages, adversely orientated prominent discontinuities in the rock or inactive fault zones are exposed.

14. If controlled blasting is employed, it is anticipated that small amounts of explosives will be used to break up rock masses into more manageable pieces. Rock drilling to plant the explosives will also be required. Management measures and methodologies for controlled blasting operations must be documented in a Controlled Blasting Management Plan (CBMP) in advance of any work commencing.T The CBMP must set out management measures, health and safety requirements, blast design, methods, site protocols, warning systems, and noise monitoring requirements as required under current Hazardous Substances and New Organisms (HSNO) Regulations.

15. At least 20 working days prior to the commencement of controlled blasting, the consent holder must provide the Resource Consents Managers – Horizons and Greater Wellington Regional Councils and Masterton and Tararua District Councils with the CBMP for certification. Certification of the CBMP must not be unreasonably withheld.

Ecological

16. Where areas of natural inland wetland are reclaimed to give effect to the consented activities, this shall be offset through the restoration of other natural inland wetlands on the site at a ratio of 1:1.

17. Within 20 working days of the completion of the construction works, the consent holder shall provide to the Resource Consents Managers – Horizons and Greater Wellington Regional Councils as-built plans showing the areas of reclamation and restoration at the ratio of 1:1 required by Condition 16.

18. Where areas of stream are reclaimed to give effect to the consented activities, this shall be offset at a ratio of 3:1, through the enhancement of a perennial tributary near to the project site.

    Enhancement must be in the form of excluding stock and planting of riparian indigenous vegetation (minimum width of revegetation of 10 m either side from the tributary bank edge). The revegetation must be indigenous and appropriate for the site i.e., if this enhancement is to occur on the Mt Munro site, then consideration would need to be given to the planting of species that do not attract birds to avoid putting them at risk of collision with turbines.

19. The management of the enhancement required by Condition 17 must occur for 5 years to ensure successful establishment and security. In this time, any plants that do not establish must be removed and replaced.

20. A survey of the tributary to identify instream enhancements including removal of any fish barriers, inclusion of woody debris elements and improvements to substrate and flow heterogeneity, must be undertaken.

21. Where stream offsets occur, they should be considered in conjunction with the potential wetland offsets that may be required as detailed in Condition 16.

22. Within 20 working days of the completion of the construction works, the consent holder shall provide to the Resource Consents Managers – Horizons and Greater Wellington Regional Councils as-built plans showing the areas of stream enhancement at the ratio of 3:1 required by condition 18.

23. All culverts must be designed following the guidance of the New Zealand fish passage guidelines for in line with the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. Prior to installation, the proposed designs should be certified by the project aquatic ecologist and then validated in the field at the time of installation.

24. All culverts must be managed to avoid aggregation or erosion of the bed and kept clear of accumulated debris.

25. All concrete work areas must be protected against leachate or spills.

Community Liaison Group

26. At least 40 working days prior to the commencement of construction works authorised as part of this resource consent, the consent holder shall establish and co-ordinate a Community Liaison Group for the Mt Munro Wind Farm, at its own cost and to the satisfaction of the Resource Consents Manager - Masterton and Tararua District Councils.

27. The following organisations or interested parties will be invited to nominate a representative:

    a. Independent Chair (convenor)

    b. Masterton District Council

    c. Tararua District Council

    d. Horizons Regional Council

    e. Greater Wellington Regional Council

    f. Eketāhuna Residents

g. Hastwell/Mount Munro Protection Society Inc.

h. A representative of property owners and occupiers on local roads identified for use by construction traffic

i. One representative nominated by the Consent holder will also be part of this group.

28. The function of the Community Liaison Group shall be to provide communication between the community, the Consent Holder and the District and Regional Councils on issues arising from the construction of the Mt Munro wind farm.

29. The first meeting of the Community Liaison Group must occur within 20 working days of the group being established.

30. The specific roles of the Community Liaison Group must be determined by the Group and must be to the satisfaction of the Resource Consents Manager - Masterton and Tararua District Councils. A document stating the terms of reference must be produced within three months of the first meeting.

31. The consent holder shall not be in breach of this condition if any one or more of the parties specified above do not wish to be members of the Community Liaison Group or to attend any particular meeting.

32. This Group is to meet, as a minimum, at least 6 monthly during the construction phase and over the first 2 years of the operation of the Mt Munro Wind Farm. Thereafter, the group will cease to exist.

Complaints

33. Prior to the commencement of construction, the consent holder shall establish and publicise an 0800 number so that members of the public may raise matters with, or make an enquiry of, the consent holder during the construction of the Mt Munro Wind Farm. The 0800 number shall be maintained until the completion of construction works.

34. The consent holder shall maintain and keep a Complaints Register to record any complaints about construction works and operation of the Mt Munro Wind Farm received by the consent holder in relation to traffic, noise, dust, communications interference, shadow flicker or any other environmental effects.

35. The register shall record, where this information is available, the following:

a. The name and address of the complainant;

b. Identification of the matter complained about;

c. The date, time and duration of the incident that resulted in the complaint;

d. The location of the complainant when the incident was detected;

e. The possible cause of the incident; and

f. Any corrective action taken by the consent holder in response to the complaint, including the timing of the corrective action.

36. The Complaints Register shall be available to staff and authorised agents of the Masterton and Tararua District Councils, and to members of the Community Liaison Group, at all reasonable times upon request.

37. Complaints received by the consent holder that may infer non-compliance with the conditions of this resource consent shall be forwarded to the Resource Consents Manager - Masterton and Tararua District Councils within 48 hours of the complaint being received.

9 Statutory Assessment

Section 104(1) of the RMA provides that, when considering an application for resource consent, the consent authority must, subject to Part 2 of the RMA, have regard to:

- The actual and potential effects of the activity on the environment;
- Relevant plan and policy statement provisions; and
- Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

This section assesses the proposal against these relevant matters. It also briefly addresses the other potentially relevant factors listed in the remainder of section 104 and concludes with an assessment considering the Purpose and Principles of the Act in Part 2 of the RMA.

9.1 Section 104(1)(a)

Section 104(1)(a) requires the consent authority to have regard to *any actual and potential effects on the environment of allowing the activity*. An assessment of environmental effects has been provided above in Section 5 of this application.

9.2 Section 104(1)(b)

Section 104(1)(b) requires the consent authority to have regard to any relevant provisions of:

- A national environmental standard;
- Other regulations;
- A national policy statement;
- A New Zealand Coastal Policy Statement;
- An operative or proposed regional policy statement; and
- Relevant operative or proposed plans.

The relevant statutory documents and their relevant provisions are identified in Section 3 and Appendix G of this application, and the direction set has been used to inform the assessment of actual and potential environmental effects in Section 5. For completeness, the relevant statutory documents containing the relevant provisions are:

- National Policy Statement for Renewable Electricity Generation 2011 (NPSREG);
- National Policy Statement for Freshwater Management 2020 (as amended in December 2022) (NPSFM);
- Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009 (NESF);
- Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NESHDW);
- Operative Horizons One Plan – Part 1: Regional Policy Statement;

- Operative Regional Policy Statement for the Wellington Region 2013;
- Proposed Change 1 to the Regional Policy Statement for the Wellington Region August 2022;
- Operative Horizons One Plan – Part 2: Regional Plan;
- Proposed Greater Wellington Natural Resources Plan;
- Tararua Operative District Plan; and
- Combined Wairarapa District Plan.

The following table provides a summary of the key themes in the relevant provisions, including a summary of how the project addresses the relevant provisions.

Table 18: Summary of Project against key themes of the relevant statutory provisions

Statutory Provision Key Theme	Project Detail
Recognising the benefits of renewable energy generation, while acknowledging that there can be adverse effects. If adverse effects cannot be practically avoided, remedied or mitigated then options such as offset or financial contributions can be used.	The proposal provides for increased electricity generation capacity, derived from a renewable resource, at a time when demand for electricity is increasing and is forecast to continue to increase. For the most part, the adverse effects of the proposal are avoided, remedied, or mitigated. Meridian will seek to engage with the owners of those dwellings where visual effects are significant, as additional avoidance, remediation or mitigation may be achieved at these properties should the landowner be willing, or the effect can potentially be compensated.
Recognise that renewable energy generation activities need to be located where the renewable energy resource is located, as well as other functional and operational requirements.	The subject site is considered to have a Class I wind energy resources, with the ridgelines being perpendicular to the prevailing wind direction. The site is also in close proximity to the national grid.
Protect, and maintain or improve water quality and habitat (including fish passage) within existing waterbodies, including water used to source human drinking water	The measures provided in the Construction Water Management Plan and Effects Assessment Report and the Ecological Assessment address water quality and habitat.
No loss of current extent of natural inland wetlands, and use the effects management hierarchy to determine how effects are to be managed (noting that the proposal is for specified infrastructure)	With the proposed 1:1 offset for the reclamation of six natural inland wetlands, there will be no loss of current extent of natural inland wetlands.
Include tangata whenua, kaitiakitanga and provide for the mauri of water through the resource consent process	Tangata whenua have been, and will continue to be, involved in the development of this project.
Avoid, remedy or mitigate accelerated erosion of land	The measures outlined in the Construction Water Management Plan and Effects Assessment Report and the Civil Engineering Report, which have been used to inform the proffered conditions of consent, result in the avoidance, remediation or mitigation of any accelerated erosion of land.

Avoid, remedy or mitigate potential airborne contaminants	Measures are proposed to avoid, remedy and mitigate potential airborne contaminants.
Maintain and enhance the rural amenity and character of rural environments	Both the Tararua District Plan and the Combined Wairarapa District Plan recognise that renewable electricity generation derived from wind is a benefit, and an anticipated land use in the rural areas of the respective districts, and as is stated in the Assessment of Landscape Effects (Appendix K), rural character and amenity will be maintained. From an acoustic perspective, the relevant noise standards will be met. Visual effects are discussed below.
Provide a safe and efficient transport environment on roads and at accesses	The measures detailed in the Transport Assessment will provide for a safe and efficient transport environment on roads and at accesses.
Avoid, remedy or mitigate adverse visual effects, noting that this may not always be practicable. Determine if the proposal is in an appropriate location if visual effects are more than minor	Given that wind turbines, for operational and functional reasons, need to be located in elevated positions, they are readily visible from the surrounding area. The location of the proposed windfarm is considered to be appropriate in the Assessment of Landscape Effects.
Consent authorities work together, including consideration of joint decision making, for cross boundary activities	This Assessment of Environmental Effects is a single document which assesses the planning documents of four separate Councils. It is understood that the Councils are considering joint decision making for this proposal.

For reasons give above, the proposal either gives effect to or is in general accordance with the direction provided in the relevant statutory provisions.

9.3 Section 104(1)(c)

Under section 104(1)(c), the Council must have regard to any other matter the consent authority considers relevant and reasonably necessary to determine the application. This includes other relevant statutes, as well as various national and local government studies, strategies and plans.

Other matters which could assist in the determination of this application include the following:

- Emission Reduction and Energy Demand Matters:
  - The Paris Agreement 2015;
  - Climate Change Response (Zero Carbon) Amendment Act 2019;
  - Towards a productive, sustainable and inclusive economy, Aotearoa New Zealand's First Emissions Reduction Plan, New Zealand Government, 2022;
  - Whakamana i Te Mauri Hiko – Empowering our Energy Future, Transpower, 2020;
  - Powering the Future, Electricity Authority;
  - Energy strategies for New Zealand, MBIE; and

  - Ināia tonu nei: a low emissions future for Aotearoa, Climate Change Commission; and
- Strengthening national direction on renewable electricity generation and electricity transmission, MBIE and Ministry for the Environment, 2023; and
- Te Kāuru Taiao Strategy 2016.

These are assessed below.

9.3.1 Emission Reduction and Energy Demand Matters

As detailed in Section 2.2.2 of this Assessment of Environmental Effects, The Paris Agreement 2015, Climate Change Response (Zero Carbon) Amendment Act 2019 and the ERP result in Aotearoa New Zealand's 2050 GHG emissions target of net zero long lived gases.

The ERP also commits Aotearoa New Zealand to achieve a low emissions, climate-resilient economy, which includes developing an energy strategy that meets future needs, phases out fossil fuels and increase renewable electricity generation.

Whakamana i Te Mauri Hiko – Empowering our Energy Future and Powering the Future amongst other documents and studies, forecast Aotearoa New Zealand's future energy demand. Taking into account the emissions target and the direction in the ERP, this future energy demand is to be met by renewable generation.

The proposed wind farm will assist in Aotearoa New Zealand meeting forecast future energy demands while aligning with emission reduction targets.

9.3.2 Strengthening national direction on renewable electricity generation and electricity transmission, MBIE and Ministry for the Environment, 2023

In April 2023, MBIE and the Ministry for the Environment (MfE) released a document titled *Strengthening national direction on renewable electricity generation and electricity transmission*. It is a consultation document seeking feedback on changes proposed to the NPSREG as well as a proposed introduction of a National Environmental Standard for Renewable Electricity Generation (NESREG)[78].

The changes to the NPSREG and the introduction of a NESREG are being proposed, as it is stated within *Strengthening national direction on renewable electricity generation and electricity transmission* that:

> *Rapid and efficient investment in renewable electricity and the national grid is needed for New Zealand to reach its emissions reduction targets and renewable electricity goals. Current national direction for renewable electricity generation and electricity transmission was developed before emissions reduction targets were incorporated into New Zealand law, and are no longer fit for purpose to support the pace of development that is required.*

The proposed changes to the NPSREG include:

[78] Changes are also proposed to the NPSET and NESETA which, as has been stated, are not relevant to this proposal.

- Provision of stronger and more directive policy in regard to meeting renewable electricity and emissions targets, with greater emphasis on national benefits and providing for the specific requirements and needs of these activities;
- Creation of new consenting pathways to enable renewable electricity generation activities effects are avoided, remedied or mitigated to the extent practicable, and the benefits of the activities outweigh residual remaining adverse effects (including in areas with significant environment values);
- Recognise and provide for Māori interests in relation to renewable electricity generation activities;

The purpose of the proposed NESREG is to provide nationally consistent rules foe new large-scale wind generation.

Consultation is to close 1 June 2023. As such, limited weight can be afforded to the proposed changes to the NPSREG and NESREG. However, the direction they provide reinforces the need for additional renewable generation in Aotearoa New Zealand.

9.3.3 Te Kāuru Taiao Strategy 2016

The Te Kāuru Taiao Strategy 2016 was produced by the Te Kāuru Eastern Manawatū River Hapū Collective, being 11 hapū of Te Kāuru, each of whom affiliate to Rangitāne, and have a customary connection with regard to their locality occupation and connection with the Manawatū River and its tributaries.

The purpose of the strategy includes to:

- *Guide hapū of Te Kāuru (as well as the relevant RMA Officer) in their decision making in all matters that have an impact on the air, the water, the land (including rocks and minerals), and all life forms, including people in the Eastern Manawatū River catchment.*
- *Provide an immediate record for local government to consider, respect and include in the environmental decision-making processes.*
- *Be included and viewed in context with the Hapū and Iwi Taiao Management Plans that will be lodged with local government bodies.*

The 2023 updated Cultural Values Assessment from Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa (Appendix I) did not specifically discuss Te Kāuru Taiao Strategy. Likewise, it is not specifically mentioned in the Cultural Values Assessment produced by Ngāti Kahungunu ki Tamaki nui a Rua (Appendix J).

Opportunities for further input in regard to the Te Kāuru Taiao Strategy 2016 will occur during the RMA process.

9.4 Other Section 104 Matters

Section 104(2) – (7) lists a range of matters that are potentially relevant to certain applications. Of relevance to this application, no permitted baseline comparisons under s104(2) have been used to inform the conclusions reached in Section 5 above, there are no trade competition issues (s104(3)(a)(i)), and it is considered adequate information has been provided in order for the relevant consent authorities to determine the application under s104(6).

9.5 Part 2 Matters

Section 104 of the RMA sets out the matters that decision-makers are required to have regard to when considering an application for resource consent. These are addressed above. This consideration is subject to Part 2 of the RMA (Sections 5 – 8) which sets out the purpose and principles of the RMA.

Direct consideration of Part 2 is not essential, provided that Part 2 is clearly expressed through the relevant statutory planning documents, unless it is appropriate to do so. In this case, while Part 2 is expressed in the relevant documents, these documents generally pre-date the current forecasted demand for electricity and the need for this to be achieved by renewable generation, which stems from the Paris Agreement, subsequent Climate Change Response (Zero Carbon) Amendment Act 2019 and the ERP. As such, for completeness Part 2 has been given direct consideration for the proposal, as set out below.

The purpose of the RMA as expressed in Section 5 is to promote the sustainable management of natural and physical resources, with 'sustainable management' defined in Section 5(2) as:

> *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while—*
>
> *(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
>
> *(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
>
> *(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

Part 2 also sets out matters of national importance to be recognised and provided for (Section 6), other matters to be had particular regard to (Section 7), and requires the principles of the Treaty of Waitangi to be taken into account (Section 8).

The relevant Part 2 provisions are identified and assessed below.

9.5.1 Section 5

Electricity is used by people and communities to provide for their social, economic and cultural well-being and their health and safety. The measures included in this proposal seek to sustainably develop

the wind energy potential at the site which will contribute to meeting the foreseeable needs for future generations. Further, through the expert assessments and subsequent proffered conditions, the life supporting capacity of air, soil, water and ecosystems will be met, as well as the avoidance, remediation and mitigation (including offsetting) of the activity on the environment.

9.5.2 Section 6

Section 6 outlines matter of national importance which must be recognised and provided for. Of relevance to this application are:

- *s6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development; and*
- *s6(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*[79]

For reasons discussed in Section 5 of this application and in the Ecological Assessment, the proposed offsetting of lost areas of wetland is an appropriate method for this proposal, which is considered to be an appropriate development in the context of the subject site.

Likewise, for reasons discussed in Section 5 of this application the, updated Cultural Values Assessment from Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa (Appendix I) and the Cultural Values Assessment by Ngāti Kahungunu ki Tamaki nui a Rua (Appendix J), the proposal recognises and provides for the relationship of Māori, and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

9.5.3 Section 7

The proposal has appropriately responded to the following relevant Section 7 matters:

- *s7(a) kaitiakitanga*
- *s7(b) the efficient use and development of natural and physical resources.*
- *s7(c) the maintenance and enhancement of amenity values.*
- *s7(d) intrinsic values of ecosystems*
- *s7(f) maintenance and enhancement of the quality of the environment.*
- *s7(i) the effects of climate change*
- *s7(j) the benefits to be derived from the use and development of renewable energy*

[79] Consideration was also given s6(c) *the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna* given that via Policy 23 of the NRP, natural inland wetlands in the GW portion of the site are identified as areas of significant indigenous vegetation and significant habitats of indigenous fauna. However, as detailed in the Ecological Assessment, the value of these natural inland wetlands is not significant, and therefore section 6(c) is not considered to be applicable.

Of particular relevance in the above are Sections 7(b), (c), (i) and (j). This Assessment of Environmental Effects addresses each of the above matters in such detail as is commensurate with the effects of the proposal.

9.5.4 Section 8

The planning framework under which the proposal is assessed has taken into account the principles of the Treaty of Waitangi. Further, as has been discussed, tangata whenua have been consulted and have not raised any issues in this regard.

9.5.5 Part 2 Conclusion

Overall, when the benefits of the proposal are considered alongside the proposed measures to avoid, remedy or mitigate any actual and potential adverse effects, the proposal will promote sustainable management of natural and physical resources, is consistent with the purpose and principles of the RMA and is consistent with Part 2.

10 Notification

In accordance with Section 95A(3) of the Act, Meridian requests the public notification of this resource consent application. Given this, no further analysis of the notification requirements in Sections 95A – 95E of the Act are necessary.

11 Conclusion

Meridian is seeking resource consents for the installation of a wind farm, situated on farmland which straddles the boundary between the Tararua and Masterton Districts and Horizons and Greater Wellington Regions, approximately 5km south of Eketāhuna.

The proposal involves the construction, operation and maintenance of up to 20 turbines on this site and is an integral part of Meridian's response to the current electricity situation in Aotearoa New Zealand. That situation is a forecast doubling of current demand through to 2050. Commitments to the 2015 Paris Agreement and subsequent national documents such as the ERP mean the forecast increase in demand needs to be met by renewable generation.

The site has been identified and selected for its outstanding wind energy potential, and its classification as a Class I wind energy resource.

Detailed analysis of the potential positive, landscape, natural character and visual amenity, cultural, noise, traffic, ecological, earthworks, signage, archaeological and historic heritage, radio interference, aviation, electromagnetic fields, hazardous substances and contaminated land effects have been presented in this application. The assessment concludes that the effects of the proposed wind farm are either minor, can be appropriately avoided, remedied or mitigated or are otherwise acceptable. Detailed mitigation measures have been incorporated into the overall design of the proposal and proffered condition of resource consent have been put forward.

Construction of a wind farm is consistent with the objectives and policies of the relevant planning documents and will enable the effective utilisation of an important natural resource.

Meridian has also engaged widely with key stakeholders and wider public about the proposal. Meridian intends to continue this stakeholder engagement on an ongoing basis during the consenting process, and during the construction and operation of the wind farm.

Appendix A

Civil Design Plan Set

Appendix B

Records of Title

Appendix C

Ecological Assessment

Appendix D

Civil Engineering Report

Appendix E

Transportation Assessment

Appendix F

Construction Water Management Plan and Effects Assessment Report

Appendix G

Relevant Statutory Document Objectives and Policies

Appendix H

Noise Effects Assessment

Appendix I

Rangitāne o Tamaki nui-ā-Rua and Rangitāne o Wairarapa Cultural Values Assessment

Appendix J

Ngāti Kahungunu ki Tamaki nui a Rua Cultural Values Assessment

Appendix K

Assessment of Landscape Effects

Appendix L

Long-tailed Bat Impact Assessment

Appendix M

Assessment of Archaeological Effects

Appendix N

Radio Compatibility Assessment.