

Project West Wind



Meridian Energy

***Proposed Gravel Extraction
Oteranga Stream
Resource Consent Application and
Assessment of Environmental
Effects***

August 2007

Form 9
Application for Resource Consent Under Section 88 of the Resource Management Act 1991

To: Wellington City Council

1. Meridian Energy Limited applies for the following type of resource consent:

Land Use Consent for the abstraction and processing of gravel from the Oteranga Stream, as further described in the accompanying drawings and the assessment of effect on the environment (AEE) report, including the appendices to the AEE report, all of which are attached to and form part of the application.

2. The names and addresses of the owner and occupier of any land to which the application relates are as follows:

Transpower New Zealand Limited	Section 1 Survey Office Plan 26301 Section 97 Terawhiti District	WN33B/ 962 WN36D/ 931
Terawhiti Farming Co Limited	Section 1-4, Section 8, Section 10-13, Section 13A, Section 14-16, Section 19-26, Section 29-32, Section 51-52, Section 55-59, Section 94, Section 98, Part Section 9, Part Section 17, Part Section 33, Part Section 50, Part Section 53-54, Part Section 60-64, Part Section 71, Part Section 73, Part Section 75 and Part Section 96 Terawhiti District and Lot 3 Deposited Plan 5864	WN10B/ 306
Department of Conservation	Marginal Strip: 20m wide marginal strip located along Oteranga Stream within CT WN36D/931	

3. The resource consent application relates to land in the vicinity of Oteranga Bay, located within the land commonly known as Terawhiti Station (refer to Location Plan in Appendix 2), being legally described above. The location is further described in the AEE attached to this application.

4. The following additional resource consents are required from the Wellington Regional Council in relation to the application and have been applied for:

Land Use Consent for the abstraction of gravel from the Oteranga Stream, stream bed realignment and reclamation,

Discharge Permit for the discharge of water and minor contaminants into surface water

Water Permit for the temporary and permanent diversion of water associated with the gravel extraction and remediation works

5. I attach, in accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.
6. I attach any information required to be included in this application by the district plan, the regional plan, the Resource Management Act 1991, and any regulations made under that Act.

Lynley Fletcher
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Date: 3 August 2007

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Annexure: A description of the proposal for which the above resource consents are sought, an assessment of effects on the environment in accordance with the Fourth Schedule of the Act, and annexures thereto being part of and comprising detailed reports on matters referred to in the assessment of effects.

Form 9
Application for Resource Consent Under Section 88 of the Resource Management Act 1991

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1. Meridian Energy Limited applies for the following type of resource consent:

Land Use Consent for the abstraction of gravel from the Oteranga Stream, stream bed realignment and reclamation

Discharge Permit for the discharge of water and minor contaminants into surface water

Water Permit for the temporary and permanent diversion of water associated with the gravel extraction and remediation works

as further described in the accompanying drawings and the assessment of effect on the environment (AEE) report, including the appendices to the AEE report, all of which are attached to and form part of the application.

Meridian seeks that the period for which the resource consent is granted is 5 years from the date of commencement of the consent.

2. The names and addresses of the owner and occupier of any land to which the application relates are as follows:

Transpower New Zealand Limited	Section 1 Survey Office Plan 26301 Section 97 Terawhiti District	WN33B/ 962 WN36D/ 931
Terawhiti Farming Co Limited	Section 1-4, Section 8, Section 10-13, Section 13A, Section 14-16, Section 19-26, Section 29-32, Section 51-52, Section 55-59, Section 94, Section 98, Part Section 9, Part Section 17, Part Section 33, Part Section 50, Part Section 53-54, Part Section 60-64, Part Section 71, Part Section 73, Part Section 75 and Part Section 96 Terawhiti District and Lot 3 Deposited Plan 5864	WN10B/ 306
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3. The resource consent application relates to land in the vicinity of Oteranga Bay, located within the land commonly known as Terawhiti Station (refer to Location Plan in Appendix 2), being legally described above. The location is further described in the AEE attached to this application.
4. The following additional resource consents are required from the Wellington City Council in relation to the application and have been applied for:
- Land use consent for earthworks within 5m of a streambed and gravel processing works.
5. I attach, in accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of environmental effects in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment.

6. I attach any information required to be included in this application by the district plan, the regional plan, the Resource Management Act 1991, and any regulations made under that Act.

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1 Introduction

This application has been prepared in accordance with section 88 of the Resource Management Act 1991 (RMA) and provides a description of the proposal together with an assessment of actual and potential effects on the environment, as required by the Fourth Schedule of the Act.

Meridian Energy Limited (Meridian) is a limited liability company wholly owned by the New Zealand Government. Meridian's core business is the generation, marketing, trading and retailing of energy, and the management of associated assets including hydro-electricity dams and windfarms. Meridian is also New Zealand's largest generator of renewable energy, and is planning to increase its renewable generation capacity in the future. Part of the growth formula that Meridian is investigating includes more wind generation.

Meridian applied in July 2005 for resource consent for Project West Wind, a new wind farm located on Quartz Hill Farm and Terawhiti Station. Wellington City Council and Wellington Regional Council granted resource consents to Meridian for this wind farm in December 2005. An Environment Court decision released in May 2007 confirmed the decision made by the Commissioners on behalf of the Councils, although the number of turbines proposed has been reduced from 70 to 66. A final set of consent conditions has subsequently been issued.

This AEE supports an application by Meridian to remove and process gravel from the Oteranga Stream and flood plain for use as roading and drainage aggregate in Project West Wind.

The earthworks and works in the bed of a stream applied for in this application were not part of the original Project West Wind application. Therefore, separate consents for these activities are required

Integrated Assessment

The Resource Management Act 1991 requires integrated management and decision making where appropriate. This proposal, which requires interlinked consents from both the Wellington City Council and Wellington Regional Council, is an instance where an integrated approach is considered to be desirable. For this reason, a single AEE has been prepared to support the application for gravel extraction from the Oteranga Stream. The information contained in the integrated AEE will assist the consent authorities to understand the proposal in its entirety.

2 Site Description

It is proposed to undertake gravel extraction on a section of the Oteranga Stream approximately 1.2km in length, which extends approximately 100m from the mouth of the stream (MHWS) to the confluence with Black Gully Stream.

The site location is shown on the Plan attached as Appendix 2.

Access to the site is from the Transpower access road, which runs from South Makara Road to Oteranga Bay. The land is comprised of:

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- The marginal strip administered by the Department of Conservation (20m wide marginal strip along the Oteranga Stream within CT WN36D/931)
- Two certificates of title (WN33B/962 and WN36D/931) owned by Transpower; and
- CT WN10B/306 owned by the Terawhiti Farming Company Limited.

Copies of the certificates of title are attached in Appendix 1.

3 Proposal

Wellington City Council Consent condition 77 for Project West Wind (SR#131428) requires that

The consent holder shall take all reasonable steps to source water and aggregate from on-site sources.

The purpose of this condition is to minimise the numbers of truck movements associated with bringing in aggregates required during the construction of the wind farm, specifically for road formation and also backfilling of the trenches required for cabling. As a result of these investigations, it has been found that the gravels in the Oteranga Stream will be suitable for use as aggregate. Obtaining the gravel from the Oteranga Stream will reduce heavy truck movements on Makara Road and through Karori.

A potential benefit of using the gravel from the Oteranga Stream is that the excavation will encourage the re-establishment of a permanently flowing water course between the bar at the mouth of the stream and the continuous flowing section of the stream. At present, due to a long term build up of scree from the surrounding hillslopes, the lower 1220m - 1400m of the Oteranga Stream is elevated and is therefore unable to flow. Water flows within the gravels are typically at a depth of 1 to 1.5m below the existing streambed.

Consent is therefore sought to extract the gravel and carry out works to encourage the reinstatement of a permanent flow of the Oteranga Stream. Meridian seeks that the period for which the resource consent is granted is 5 years from the date of commencement of the consent.

It is proposed to excavate gravel over the entire length of the lower section of the stream to create a new stream bed and flood plain. Appropriately designed gravel extraction will allow natural stream channel patterns to be constructed, with the potential improvements to the physical habitat resulting in improved ecological conditions.

The proposed gravel extraction is described in detail in the report prepared by Tonkin & Taylor Limited and Environmental Management Associates Limited (refer to Appendix 3). The key elements of the methodology are described as follows:

- In order to effectively regrade the stream bed, it is estimated that it is necessary to remove up to 120,000m³ of gravel. This will require works in an area approximately 1.2km in length, 30-60m in width, with an average depth of 1m and a maximum depth of 2.5m.
- Initial works will involve the clearance of a floodplain/terrace area.
- A new river channel will be created to replicate the channel that would naturally be formed by the Oteranga Stream. This river channel will include:
 - A flood plain within which flood events are contained.
 - Within the flood plain a stream channel will be created within which normal and low flows are maintained. The stream channel will be excavated as a meandering channel within the high flow channel and will have an undulating pool/riffle bed topography.

The location of the flood plain and stream channel is shown on Figure 3 of Appendix 3.

- The width of the flood plain and stream channel will be dependant on the grade of the stream. As the grade of the river decreases, the flood plain and stream channel needs to be wider due to the loss of velocity. In the upper reaches of the stream works, it is proposed that the flood plain width will vary between 30-35m and in the lower reaches the width will increase to between 40-60m. Cross sections indicative of the upper and lower reaches are shown in Figure 4 of Appendix 3.
- Excavated material will be taken to a mobile processing plant located near to the excavation activities.

Sequencing of Work

It is estimated that the works associated with gravel extraction will be undertaken in the initial stages of construction of the wind farm, with the gravel extraction taking approximately 5-8 months.

Excavation will be undertaken in 100-250m sections, starting at the down stream limit of the works.

Works will be undertaken out of flowing water, with the use of safeguards to control any sediment generated by the excavation activities within working areas. If the new alignment and the existing river channel occupy the same area, a temporary diversion will be constructed to divert the existing stream channel away from the excavation area. Once the stream channel is constructed the water, if flowing on the surface, will be diverted into the new channel.

Gravel Processing

Section 3.4 of the Tonkin & Taylor report outlines the methodology for the gravel processing. In summary:

- Gravel extracted from the valley floor will be placed in stockpiles outside the new floodplain to ensure that the stockpiles do not impact on the ability of the Oteranga Stream to convey flood flows.
- A mobile screening plant will be taken to each stockpile and used to sort the material on the basis on size.
- The sorted material will be stored until transported away for further processing or immediate use.
- A gravel processing area will be set up on proposed laydown area on the western side of the Oteranga Valley. The processing area will consist of a crushing plant, stock piles of material to be processed, a crusher, screen, stock piles of processed aggregates, water storage tanks and settlement ponds.
- Processing gravel to produce sealing chip and filter material will require wet screening (estimated to be less than 10% of total aggregate required). Water required for the wet screening will be pumped from the Oteranga Stream, over a period of approximately 30 days. Water will be abstracted at a rate and volume within the Permitted Activity thresholds of the Freshwater Plan.
- Discharge water from the screening process will be discharged to a series of settlement ponds. After the final pond, the water will either be discharged to ground via a soak pit or decanted off and recycled.

4 Wellington District Plan Assessment

Most of the land adjacent to the Oteranga Stream is zoned 'Rural Area' in the Operative Wellington City District Plan.

A section of the Oteranga Stream adjacent to the coast is within land owned and administered by the Department of Conservation as a marginal strip, and is zoned Conservation. The gravel extraction will not fall within this Conservation zoned land.

The land owned by Transpower New Zealand Limited is designated for the Oteranga Bay Terminal Station (F6).

Plan Change 33 (Ridgelines and Hilltops and Rural Area) is subject to appeal, which means that the application must be assessed against the rules in the Operative Plan, as well as the Plan Change.

The planning assessment below assesses the activity against the rules under Plan Change 33 and then follows with the assessment against the operative District Plan.

4.1 Plan Change 33

Rural Area Rules

The proposal fails to meet the Permitted Activity conditions for earthworks in the Rural Area as the gravel extraction will be undertaken within 5m of a waterbody. Rule 15.3.5 of Plan Change 33 provides that earthworks (except for earthworks within identified ridgelines and hilltops) that do not comply with the conditions for Permitted Activities are Discretionary Activities (Restricted) in terms of the undertaking of earthworks within 5m of a waterbody or the coastal marine area.

The gravel crushing associated with the proposal is deemed a Discretionary Activity (Unrestricted) under Rule 15.4.1, which provides for non-rural activities not specifically provided for as Permitted Activities.

4.2 Operative Wellington District Plan

Rural Area Rules

The proposal fails to meet the Permitted Activity conditions for earthworks in the Rural Area as the gravel extraction will be undertaken within 5m of a waterbody or the coastal marine area. Rule 15.3.7 of the District Plan provides that earthworks (except for earthworks on ridgelines and hilltops) that do not comply with the conditions for Permitted Activities are Discretionary Activities (Restricted) in terms of the undertaking of earthworks within 5m of a waterbody or the coastal marine area.

The gravel crushing associated with the proposal is deemed a Discretionary Activity (Unrestricted) under Rule 15.4.1, which provides for non-rural activities not specifically provided for as Permitted or Controlled Activities.

4.3 Assessment Criteria

The relevant assessment criteria specified under Rules 15.3.5 (15.3.7 of the Operative Plan) and 15.4.1 are addressed below. These criteria set out the relevant

matters that need to be considered for assessment. Changes to the Operative Plan arising from Plan Change 33 are underlined.

Rural Area Rule 15.3.5

15.3.5.5 *The extent to which any earth cut or fill will remove existing vegetation, alter existing landforms, affect water quality, or affect existing natural features, such as waterbodies. (Council may require a soil rehabilitation plan to be provided.)*

As explained above, the section of the Oteranga Stream to be excavated currently runs dry for much of the year, due to the build up of gravels. The proposal may provide for the re-establishment of permanently flowing water between the mouth of the stream and the continuous flowing section of the stream, thereby improving ecological conditions.

Ecological effects of the proposed gravel extraction are discussed in the report by Boffa Miskell (Appendix 4). This report states that vegetation in the valley floor is ephemeral, as the stream is not contained within a channel but is highly mobile. This has the effect of uprooting any vegetation during flood events. This periodic destruction has favoured regeneration by gorse. There are no areas of native vegetation affected by this proposal.

Any vegetation in the area to be excavated will be removed prior to excavation and spread out in the excavation area but not within the flood plain, as described in the gravel extraction methodology in Appendix 3.

Mitigation measures to control any sediment generated by the excavation activities within working areas are specified in section 4 of the report by Environmental Management Associated Limited and Tonkin & Taylor (Appendix 3).

15.3.5.6 *The extent to which any cut or fill can be restored or treated to resemble natural landforms. Council will seek to avoid the creation of unnatural scar faces.*

Following excavation, a new stream bed will be created. It is proposed that the stream profile will replicate natural stream patterns with a series of pools and riffles with a range of differing substrates to replicate natural variability. This is detailed further in the report by Environmental Management Associates Limited and Tonkin and Taylor (Appendix 3). It is recognised that over time this stream profile will be modified by natural events and will therefore eventually differ from that created at the completion of the proposed works.

15.3.5.7 *The extent to which any earthworks may impact on prominent or visually sensitive situations, including the coastal marine area, ridgelines, cliffs, escarpments and waterbodies.*

The earthworks will not be undertaken within the Coastal Marine Area or prominent or visually sensitive situations.

15.3.5.8 *The necessity for carrying out the works.*

The proposed works will allow gravel to be sourced on site for use as roading and drainage aggregate for Project West Wind, thereby reducing the number of truck movements associated with the construction works.

15.3.5.9 *Whether the earthworks proposed increase or decrease flood hazards.* Refer to section 4.2 of the report by Environmental Management Associated Limited and Tonkin & Taylor (Appendix 3) for a description of the mitigation actions proposed

to ensure that the potential adverse effects of flood events are no more than minor. The mitigation measures include moving excavation machinery outside of the flood plain when not in use, storing fuel and lubricants outside the flood plain, and locating stockpiles outside the flood plain.

15.3.5.10 *Where the activity is within a Maori precinct, the outcome of consultation with tangata whenua and other Maori.*

Although the site is not within a Maori precinct, Meridian has consulted with iwi regarding the proposed gravel extraction. Written approvals of iwi are attached in Appendix 6.

15.3.5.11 *The effects on any waterbody or coastal marine area arising from the contaminants associated with earthworks.*

Refer to section 4.2 of the report by Environmental Management Associated Limited and Tonkin and Taylor (Appendix 3). As explained above, machinery, fuel and lubricants will all be stored outside of the flood plain.

Rural Area Rule 15.4.1

15.4.1.2 *Whether the extent to which the amenities and the quality of the rural environment can be maintained or enhanced. The potential impacts of noise, dust, glare, vibration, fumes, smoke, electromagnetic effects, odour, other discharges or pollutants or the excavation or deposition of earth are assessed to avoid, remedy or mitigate adverse effects. Particular consideration will be given to maintaining a quiet night-time rural environment.*

The methodology outlined in this application will ensure that the potential effects of this temporary activity will be no more than minor. The proposed gravel processing works will be confined to the area identified as the laydown area during the Project West Wind construction works. Once the gravel extraction works have been completed, the area will be reinstated for use as the laydown area. Water from the screening process will be discharged to a series of settlement ponds, thereby ensuring that no sediment will be discharged to the Stream.

15.4.1.4 *Whether the site of the proposed activity is appropriately located having regard to the scale of the building development proposed and the intensity of the activity. Council will generally look to encourage the dispersal of non-rural activities in the Rural Area and discourage their concentration in any particular location. Council will also consider the extent to which any non-rural activity, building or structure may hinder farming activities.*

The gravel crushing activity will be located on the area proposed to be the laydown area on the western side of the Oteranga Valley, immediately adjacent to the gravel extraction works. This is a logical co-location of the activities associated with the gravel extraction and the potential effects in one area, prior to the movement of the gravel by truck to where it is required on the site. The work will be undertaken on an area that has been identified as a laydown area for Project West Wind and it not specifically used for farming activities at present. The proposed gravel crushing works will therefore have no effect on farming activities in the vicinity.

15.4.1.7 *Whether access to and from the site can be achieved without adversely affecting the safe and efficient operation of the road network and pedestrian safety.*

As stated above, the sourcing of aggregates for Project West Wind on-site will reduce the numbers of heavy truck movements on local roads. The gravel extraction

and crushing activities will not generate any additional traffic movements outside the site.

15.4.1.8 The extent to which the landscape amenities and ecological values will be maintained and enhanced. Existing vegetation on the site should be retained where possible.

Ecological effects of the proposal are addressed in the report by Boffa Miskell (Appendix 4 and section 6 of this AEE). The landscape effects of the proposal are assessed in section 6 of this AEE.

15.4.1.12 Whether alternative sites for the activity, including sites in the urban area, and alternative methods for undertaking the activity, have been considered, and impact of the alternatives on the environment.

Extensive geotechnical investigations across the site established that Oteranga Stream is the only on-site option that will provide the quality and quantity of aggregate required for road construction. The only alternative method of providing the aggregates required for the construction is by bringing the aggregates in from off-site.

4.3.1 Objectives and Policies

The following objectives and policies are relevant to this application.

Rural Area Objective 14.2.5

To maintain and enhance natural features (including landscapes and ecosystems) that contribute to Wellington's natural environment.

Policy 14.2.5.2

Ensure that any approved earthworks are designed and engineered to reflect natural landforms.

Rural Area Objective 14.2.6

To maintain and enhance the quality of the coastal environment within and adjoining the Rural Area.

Policy 14.6.2.1

Maintain the public's ability to use and enjoy the coastal environment by requiring that public access to and along the coastal marine area is maintained, and enhanced where appropriate and practicable.

Policy 14.2.6.2

Enhance the natural values of the rural coastal environment by requiring developers to consider the ecological values that are present, or that could be enhanced, on the site.

Policy 14.2.6.3

Ensure that any developments near the coastal marine area are designed to maintain and enhance the character of the coastal environment.

Rural Area Objective 14.2.11

To facilitate and enable the exercise of tino rangatiratanga and kaitiakitanga by Wellington's tangata whenua and other Maori.

Policy 14.2.11.1

Identify, define and protect sites and precincts of significance to tangata whenua and other Maori using methods acceptable to tangata whenua and other Maori.

The relevant objectives recognise that the proposed gravel extraction and associated processing works may be appropriate in the Rural Area, provided that natural features, indigenous habitats and ecosystems and the coastal environment are maintained and enhanced.

It is considered that the potential adverse effects of the proposed gravel extraction will be no more than minor. The proposed works will allow a reduction of truck movements on Wellington roads during construction. The methodology proposed for the gravel extraction works will ensure that there will be minimal potential for sediment discharge to adversely affect the existing stream and coastal environment. Ecological studies of the area have found that there is no aquatic habitat, or visible populations of indigenous freshwater fauna that will be affected by this proposal. Terrestrial vegetation present on the valley floor is ephemeral. There are no areas of native vegetation that will be affected by the proposal.

Furthermore, the remediation works proposed following the gravel extraction have been designed to encourage the Oteranga Stream to flow permanently or nearly permanently, with the associated potential benefits to the stream ecology.

The Plan also requires the consideration of public access to the coastal environment and Conservation Sites. Public access to Oteranga Bay is already restricted, as described in the Assessment of Effects report below, and this proposal will restrict access to the marginal strip along the Oteranga Stream only for the relatively short six month construction period. In addition, the downstream section of the works will be undertaken first, limiting the period that the proposed works will affect access to the marginal strip within the Transpower land. It is considered, therefore, that there will be minimal effects on the limited public access to this area.

For these reasons, it is considered that the proposal is consistent with the objectives and policies of the Plan.

5 Wellington Regional Plan Assessment

5.1 Summary of Consents Required from Wellington Regional Council

Regional Freshwater Plan

- Discharge to water during stream diversion [Discretionary – Rule 5]
- Permanent and temporary diversion of stream [Discretionary – Rule 16]
- Gravel extraction [Discretionary – Rule 49]
- Stream bed realignment [Discretionary – Rule 49]
- Reclamation of stream bed [Discretionary – Rule 49]

5.2 Regional Plan Rules

5.2.1 Regional Freshwater Plan – Works in the Bed of a Stream

Rule 5 *All remaining discharges to fresh water*

As the works proposed will be unable to meet the conditions for Permitted Activity discharges of water, this aspect of the application would be deemed a Discretionary Activity under Rule 5.

Rule 16 *Taking, use, damming or diversion of water, or the transfer to another site of any water permit to take or use water.*

The temporary diversion of water associated with the gravel extraction and the permanent diversion of water following the stream enhancement works will require consent as a Discretionary Activity under Rule 16.

The taking of water for gravel washing will be a Permitted Activity under Rule 7. This rule provides for the taking or use of less than 20,000 litres of water per day, provided that the water is taken at a rate of no more than 2.5l per sec, fish are prevented from entering the reticulation system and that there is no more than one abstraction point in a particular certificate of title. The proposed water take will be within these thresholds.

Rule 49 *All remaining uses of river and lake beds*

All remaining uses of river beds which are not specifically provided for in Rules 22 to 48; and which cannot meet the requirements of Rules 22 to 48 and which are not a non-complying or prohibited activity in Rules 50 and 51 are deemed a Discretionary Activity. The works in the bed of the Oteranga Stream, including the extraction of gravel and the stream bed realignment and reclamation would be deemed a Discretionary Activity.

5.2.2 Regional Air Quality Management Plan – Discharge of Contaminants to Air

Rule 10 *Mineral extraction, and the sorting and storage of powdered or bulk products*

The discharge of contaminants into air associated with the sorting, storage and conveying of aggregates and/or the quarrying of minerals and the size reduction and screening of minerals is a permitted activity under Rule 10, provided any discharge shall not result in dust, odour, gas or vapour which is noxious, dangerous, offensive or objectionable at or beyond the boundary of the property.

The potential effects of dust emissions resulting from the gravel screening and crushing process are addressed in section 6.8 of this AEE. The mitigation measures proposed will ensure that dust levels will not be noxious, dangerous, offensive or objectionable at or beyond the boundaries of the site and the permitted activity condition will therefore be met. Furthermore, Meridian has obtained the written approvals of all property owners adjacent to the gravel crushing area.

5.3 Objectives and Policies

The relevant objectives under the Regional Freshwater Plan are listed as follows:

5. Water Quality and Discharges to Fresh Water

- 5.1.1 The quality of fresh water meets the range of uses and values for which it is required while the life supporting capacity of water and aquatic ecosystems is safeguarded.
- 5.1.2 The quality of fresh water has the potential to meet the reasonably foreseeable needs of future generations.
- 5.1.3 The quality of water is, as far as practicable, consistent with the values of the tangata whenua.

6. Water Quantity and the Taking, Use, Damming or Diversion of Fresh Water

- 6.1.1 People and communities are able to take, use, dam, or divert surface water, and take and use ground water, while ensuring that the flows in rivers, and water levels in lakes and wetlands, are sufficient to maintain the natural and amenity values of water bodies.
- 6.1.3 Water abstracted from rivers, streams, lakes and aquifers is used efficiently and water conservation is promoted.
- 6.1.4 The flows in rivers and water levels in lakes and wetlands are, as far as practicable, consistent with the values of the tangata whenua.

7. Use of the Beds of Rivers and Lakes and Development on the Floodplain

- 7.1.1 Appropriate uses of the beds of rivers and lakes are allowed while avoiding, remedying, or mitigating any adverse effects.
- 7.1.2 The risk of flooding or erosion is not increased by locating structures or carrying out activities in the beds of rivers and lakes or on the floodplain.
- 7.1.4 The uses of river and lake beds are, as far as practicable, consistent with the values of the tangata whenua.

The relevant objectives recognise that appropriate activities such as those proposed may occur in the bed of a river, provided that the potential adverse effects are avoided, remedied or mitigated. The Plan also requires that the proposal is consistent with the values of tangata whenua.

The mitigation works proposed during the 5-8 month gravel extraction period will ensure that there is minimal potential for sediment discharge to adversely affect the

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existing stream and coastal environment. Furthermore, the remediation works proposed following the gravel extraction have been designed to encourage the Oteranga Stream to flow permanently, with the associated benefits to the stream ecology. Iwi have been consulted on the proposed gravel extraction works and have not raised any concerns. For these reasons, it is considered that the proposal is consistent with the objectives and policies of the Plan.

6 Assessment of Effects

The following actual and potential effects have been identified:

6.1 Positive Effects

The proposed gravel extraction will have the following positive effects:

- Aggregate required for the construction of Project West Wind can be sourced on-site, thereby minimising the numbers of heavy truck movements on local roads (including Makara and Karori roads).
- The excavation will provide for the attempted re-construction of a permanently flowing stream that is currently unable to flow for most of the year due to the build up of gravels.
- A permanent or nearly permanent flowing Oteranga Stream may be reinstated in which case it will allow for improvements in the aquatic habitat and the ability of migratory fish species to move between the ocean and upper reaches of the watercourse for spawning.

6.2 Siltation Effects

Methods of ensuring that any potential siltation effects on the Oteranga Stream are minimised are detailed in the report prepared by Tonkin & Taylor and Environmental Management Associates Limited, attached to this application (Appendix 3).

In summary, the effects of any silt discharge arising from the gravel extraction will be minor because the works will be undertaken out of flowing water, with the use of safeguards to control any sediment generated by the excavation activities within working areas. Specifically, bunds will be constructed at the downstream and upstream limits of the works. In some sections of the stream a lateral bund may also be required to maintain the stream within the existing channel. Sediment settlement ponds will be used to minimise the discharge of sediment into the active channel. Excavation will be undertaken in 100 to 250m sections, starting at the down stream limit of the works. Stockpiles of material will be located outside the 100 year flood plain.

Less than 10% of the total aggregate to be processed will require wet screening. Water from the wet screening process will be discharged to a series of settlement ponds. After the final stage of this settlement process the water will be either discharged to ground through a soak pit or decanted off and recycled. This process is described further in section 3.4 of the Tonkin & Taylor report.

6.3 Ecological Effects

(from Oteranga Stream Gravel Extraction Report by Boffa Miskell Limited)

The Ecology Assessment states that any potential adverse effects of the proposal to extract gravel are assessed to be less than minor. The historic build-up of gravel and resultant ephemeral surface conditions in the lower portions of Oteranga Stream has significantly reduced the area of available aquatic habitat and adversely affected the ability of migratory fish species to move between the ocean and the upper reaches of

this watercourse for spawning. Surveys have proven there is no flora or fauna of special note, or even persistent populations of aquatic flora or fauna in the area of the proposed activity. The proposed gravel extraction may have significant positive long-term effects on the ecology of the Oteranga Stream and its tributaries

The vegetation in the floor of the valley between the sea and confluence of Oteranga Stream and Black Gully Stream is dominated by gorse. The age and structure of the gorse and other vegetation is variable and influenced by flood flows in the river. With the build up of gravel in Oteranga stream there is no defined flow path for major flood events. In major flood events the vegetation in the flood path is uprooted. The gravel exposed during these events is then re-vegetated, predominately by gorse.

Further up the catchment and elsewhere on Terawhiti Station gorse has acted as a nursery cover, aiding the reversion back to native species. This reversion is not happening in the Oteranga Valley floor due to the disturbance caused by flood events. The proposed extraction of gravel will modify the vegetation pattern in the valley floor, as the area of vegetation impacted by flood events will be reduced. As a result, the gorse outside the new flood plain area will be able to mature and set up the conditions that allow for the natural -establishment of native species.

The timing and methods for extraction are described in a separate report by Henry Hudson (Environmental Management Associates Limited) and Ed Breese (Tonkin and Taylor). It is considered that the methodology as outlined in this report is appropriate and will adequately manage any small risk of sediment discharged to the coast. In addition, the methodology gives adequate consideration to channel restoration, such that the desired environmental outcomes are considered likely to be achieved.

A number of possible consent conditions are suggested which would ensure that any potential effects during construction are minimised, and also ensure that the final stream form will provide an appropriate diversity of aquatic habitat to justify this approach.

6.4 Coastal Processes

The removal of gravel from a river system theoretically has the potential to reduce the sediment supply to the coastal environment and as a result have an effect on coastal processes. This impact on coastal processes could lead to increased coastal erosion. It is considered that the extraction of gravel from Oteranga Stream would have a minimal effect on coastal processes for the following reasons:

- The stream is a relatively small contributor to the coastal sediment budget, specifically there is no delta development.
- Although it is proposed that a large amount of the gravel would be removed, this gravel is not freely available for deposition in the coastal environment.
- As material will not be removed from the beach front itself, the reservoir of material available for coastal processes will not change.
- The cliffs along the side of the bay probably contribute material to the beach in coastal storm conditions; with wave action pushing material up onto the beach where it is deposited.
- Oteranga Stream will still deliver sediment to Oteranga Bay in response to flood events.
- The main control for wave erosion is the off-shore reefs.

- Oteranga Bay is a high energy beach and the small contribution of sediment from the river system is insignificant compared to the volume of material moved in a major storm event.

6.5 Public Access

The existing Transpower infrastructure currently restricts public access in this area, which means that visitor numbers to Oteranga Bay are low. At present, access to the marginal strips along the beach and within the Transpower land is either:

- From the sea by boat; or
- By four wheel drive vehicles or foot around the coast from Owhiro Bay. This access is open during low tide only and, due to topography, vehicular access is not possible past Oteranga Bay. Legal access around the coast from Owhiro Bay extends along the unformed legal road only as far as the privately owned property (CT WN19C/820) in the vicinity of the Waiariki Stream mouth. This means that those travelling along the coast as far as Oteranga Bay can only do so by crossing privately owned land; or
- Through Terawhiti Station, at the discretion of the landowners.

Access is further restricted by the legislation associated with the undersea cabling, which restricts fishing in the vicinity of the cables and the anchoring of boats.¹

Due to Occupational Health and Safety requirements there will be limited provision for public access to the section of the marginal strip identified for the duration of the work associated with the gravel extraction. It is estimated that work will be completed within six months, including the stream bed remediation. However, the downstream section of the works will be undertaken first, reducing the period that the proposed works will affect access to the marginal strip within the Transpower land.

Given the limited public access to Oteranga Bay and the low public use, it is considered that the effects of this restriction of access to the marginal strip for the duration of the work proposed will be minimal. In addition, there are other alternative venues in the Wellington Region for any potential recreational activities that are undertaken in this area.

6.6 Visual Effects

It is considered that the long-term visual effects of the proposed works will be positive due to the formation of a pool/riffle sequence and potentially a continuously or near continuously wetted channel. In summary, aside from the period of actual works, the visual effects will be positive, regardless of whether a permanently flowing stream is established.

6.7 Noise Effects

There will be some noise associated with the extraction, transportation and processing of the gravels in the Oteranga Stream valley. To minimise the potential for nuisance noise emissions vehicles and machinery will be kept in a good state of

¹ Due to the Cable Protection Zone, fishing and anchoring is prohibited in Oteranga Bay, with the exception of crayfishing, taking of paua and kina and the use of set nets within 200m of MLWS.

repair and operated with the necessary noise emission controls in place. The noise emissions will comply with New Zealand Standard NZS 6803:1999 *Acoustic Construction Noise*.

The isolated location of the gravel extraction and processing area will assist with reducing the likely adverse effect of noise on any dwellings. The nearest dwellings are over 4.5 km to east of the site and are buffered by the 400m high ridge which separates Oteranga Stream valley from the South Makara valley.

6.8 Dust

The excavation, transporting and processing of gravel has the potential to generate fugitive dust emissions. Vehicle speeds will be limited to 30km/h on site to minimise fugitive dust emissions. Mist sprays will be used on processing equipment to dampen down gravel to avoid the generation of dust. The impact of any fugitive dust emissions will be limited to Oteranga Stream valley due to the topography of the site and prevailing winds. Any fugitive dust emissions are of a temporary nature and will have negligible impact on the environment in the valley.

6.9 Conclusion

The proposed mitigation works are considered to adequately address the potential and actual adverse effects of the proposed activity. This assessment of effects has shown that, given the methodology outlined, the potential adverse effects will be no more than minor. The extraction of gravel from the stream bed will have positive effects on local roads in terms of reducing traffic volumes associated with the construction works for the wind farm.

At the conclusion of the gravel extraction works stream bed remediation will be undertaken. This may result in a stream that will be continuously flowing, thereby having significant potential positive effects on the ecology of the Oteranga Stream and its tributaries.

7 Consultation

In preparing this application, Meridian Energy has consulted with the Wellington Tenth Trust, Ngati Toa, Transpower, Terawhiti Farming Company and the Department of Conservation. Written approvals of these organisations are contained in Appendix 6.

It is proposed that a condition be imposed requiring that:

The consent holder shall implement an Accidental Discovery Protocol in the event of the discovery of any cultural or archaeological material.

An Accidental Discovery Protocol has been prepared for the overall Project West Wind site development, as agreed between Meridian, Ngati Toa and the Tenth Trust. This Protocol is attached as Appendix 5.

No other parties are considered adversely affected by the proposal. The proposed gravel extraction works will be for a temporary period and the methodology proposed

by Tonkin & Taylor and Environmental Management Associates Limited will ensure that the potential adverse effects are no more than minor. Public access to the Department of Conservation marginal strip is already restricted, given the constraints on legal access by land or sea. Public use of this land is therefore low.

8 Draft Conditions

The following Regional Council consent conditions are suggested to ensure that any potential adverse effects are avoided, remedied or mitigated:

General conditions

- (1) The location, design, implementation and operation of the proposed stream works shall be in general accordance with the following documents, unless any modifications are required to comply with any of the conditions of this consent:
 - a) consent application and its associated plans and documents lodged with the Wellington Regional Council on [insert lodgement date here].

Pre-construction administration conditions

- (2) The Manager, Consents Management, Wellington Regional Council, shall be given a minimum of 48 hours notice in writing, prior to works commencing in each location (including any maintenance works).
- (3) The consent holder shall pass a copy of this consent, including any relevant site plans and attachments, to the contractor undertaking the works authorised by this consent, prior to the works commencing.

General construction conditions

- (4) The consent holder will not conduct any works in the wetted channel of the Oteranga Stream during the upstream migration period (15 August to 30 November inclusive), with the exception of works to commission each section of realigned stream channel.
- (5) The consent holder shall ensure that:
 - a) all contaminant storage or re-fuelling areas are bunded or contained in such a manner so as to prevent the discharge of contaminants;
 - b) all machinery is thoroughly cleaned of unwanted vegetation (e.g. weeds), seeds or contaminants prior to entering the site;
 - c) all machinery is regularly maintained in such a manner so as to minimise the potential for leakage of contaminants; and
 - d) no machinery is cleaned, stored or refuelled within 20 metres of any ephemeral or permanent watercourse.
- (6) The consent holder shall take all practicable steps to minimise sedimentation and disturbance of the stream during the construction and implementation of the works, including:

- a) completing all works in the minimum time practicable;
 - b) minimising the area of disturbance at all times;
 - c) avoiding placement of excavated material in the wetted channel;
 - d) separating construction activities from the wetted channel;
 - e) following Wellington Regional Council's Erosion and Sediment Control Guidelines for the Wellington Region dated September 2002 for diversion works
 - f) minimising time spent by machinery in the wetted channel, including the number of vehicle crossings; and
 - g) immediately removing any excess material from the bed and banks of the stream on completion of the works.
- (7) The consent holder shall ensure that the constructed stream bed includes natural-like meanders, an undulating bed profile, varying widths, and sufficient variation of substrate size (from gravel to boulders) to provide a diversity of habitats. Over the length of the realigned stream (from lagoon to confluence), the consent holder will ensure no less than 10 pool, run, and riffle sequences are created.
- (8) The consent holder shall ensure that fish passage is maintained at all times during and on completion of the construction works along the stretches of stream affected by the exercise of this consent. Any fish stranded or trapped by the construction works as authorised by this consent shall be immediately relocated upstream to clear water.
- (9) The emission of noise from the extraction, transport and processing of gravel shall comply with the New Zealand Standard NZS 6803:1999 *Acoustic Construction Noise*. The noise limits shall be those set out in Table 2 of NZS 6803 for works of "long term" duration. (Based upon WCC consent condition 12 for West Wind)

9 Conclusion

This application has shown that the proposed gravel extraction will have minimal adverse effects on the Oteranga Stream. In particular, the work will be undertaken in accordance with the methodology outlined in this Assessment of Effects report, which will ensure that the potential adverse effects during the gravel extraction works will be no more than minor. Furthermore, the proposed works will allow a reduction of truck movements on Karori and Makara roads during construction, in accordance with consent condition 77 of the Project West Wind resource consent. In addition, the proposal will potentially provide significant positive effects in terms of revitalising the stream bed and on the ecology of the stream.

This assessment of effects has shown that the proposed gravel extraction will be consistent with the objectives, policies and assessment criteria of the Wellington District Plan and the purpose of the Resource Management Act 1991. It is therefore considered that consent can be granted for this proposal.

**Appendix 1
Certificates of Title**

Appendix 2 Proposed location of gravel extraction

APPENDIX 3
Description of gravel extraction
**Environmental Management Associates Limited/
Tonkin & Taylor**

**APPENDIX 4
Ecology Report
Boffa Miskell**

APPENDIX 5 Accidental Discovery Protocol

ACCIDENTAL DISCOVERY PROTOCOL

If any archaeological site(s) are uncovered during physical works, the Meridian Project Manager will require the contractor to adopt the following protocol.

Evidence of archaeological sites can include oven stones, charcoal, shell middens, ditches, banks, pits, and old building foundations, artefacts of Maori and European origin or human burials.

1. Work shall cease immediately at that place.
2. The contractor must shut down all machinery, secure the site and advise the Meridian Project Manager.
3. The Meridian Project Manager shall advise the Project Archaeologist, representatives of Wellington Tenth Trust, Te Rūnanga o Toa Rangatira, Wellington City Council, Wellington Regional Council and the New Zealand Historic Places Trust (see below for contact details).
4. If skeletal remains are uncovered, the Meridian Project Manager will also advise the Police.
5. Wellington Tenth Trust, Te Rūnanga o Toa Rangatira or their representatives will contact other iwi groups (where necessary) and will organise a site inspection by the appropriate tangata whenua advisors.
6. If as a result of this initial investigation there is a need for an appropriate ceremony the Iwi Authority representatives will arrange for that process at Meridian's expense.
7. Materials discovered will be removed by the Iwi responsible for the tikanga appropriate to their removal and preservation, or re-interment.
8. Works affecting the archaeological site shall not resume until the NZ Historic Places Trust, the Police (if skeletal remains are involved) and Iwi Authority representatives have each given the appropriate approval for work to continue.

Meridian will allow the iwi authority representative(s) and the archaeologist(s) access to the site to carry out the responsibilities of this protocol. Meridian is responsible for on site safety and may from time to time need to restrict access to ensure the safety of the Iwi Authority representative(s) and archaeologists.

Contact details are:

<u>Wellington Tenth Trust</u> P O Box 536 Wellington Liz Mellish Phone: 04 473 2502 Cell: 027 4403989	<u>Te Rūnanga o Toa Rangatira</u> P O Box 50079 Porirua Graeme Hastilow Phone: 04 237 6763 Cell: 027 4572001
<u>NZ Historic Places Trust</u> PO Box 19 173 Wellington Emma Brooks Phone: 04 802 0003 Cell: 027 2937163	<u>Wellington City Council</u> P O Box 2199 Wellington Scott Cantley Phone: 04 801 3422 After Hours: 04 499 4444

<u>Wellington Regional Council</u> P O Box 11646 Wellington Tracey Grant Phone: 04 384 5708 After Hours: 0800 496 734	<u>Project Archaeologist</u> 99 Sefton St Wadestown Wellington Dr. Bruce McFadgen Phone: 04 473 6206
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Training Procedures for All Contractors

All people (main contractor's staff, sub-contractors, Meridian staff and consultants, Council staff) working on the site will be required to go through a site induction process, which will include training on the accidental discovery of cultural or archaeological sites or material. The section of the West Wind Site Induction Training document on accidental discovery is attached to this Protocol.

Extract from West Wind Site Induction Training Document

Accidental Site Discovery Protocol

Definition:

Archaeological Site – one associated with human activity that occurred before 1900 or may through investigation provide evidence relating to the history of New Zealand.

Preserving Archaeological Sites

It is an aim to preserve known and unknown archaeological sites from damage or loss. All excavation operators shall report potential archaeological sites.

Things to Look For

1. Items of cultural significance such as relics such as machinery, and stone retaining walls.
2. Evidence of pre-1900 structures or remains such as rectangular pits (1-2m square) and mine tailings.
3. Bones.
4. Marine shell deposits.

What to Do if You Discover Something Unusual

1. Stop work immediately.
2. Don't move machinery – leave it where it is to minimise damage to the discovery site.
3. Advise the Meridian Project Manager.
4. Leave the site undisturbed until advised otherwise by the Meridian Project Manager.

APPENDIX 6 Written Approvals