



Proposed changes to the Hauraki District Plan

Notes:

Appendix 1 contains the proposed changes to Section 5.17 (Martha Mineral Zone) and 8.3 (Amenity Matters [specifically Noise]).

Words underlined in the following District Plan Sections are the proposed additions to the current operative Hauraki District Plan text

And

Words ~~struck through~~ are those proposed to be removed from the current operative Hauraki District Plan text.

5.17 MARTHA MINERAL ZONE

5.17.1 ZONE PURPOSE

- (1) The Martha Mine sits within Pukewa, which was a prominent maunga located in the centre of what is now Waihi. Pukewa maunga was a site of occupation for a number of mana whenua, and contained pa, kainga urupa and wahi tapu. Pukewa maunga remains a site of cultural significance to mana whenua. Surface and underground mining were first undertaken in and around Pukewa maunga in the late 1800's, and mining in the area now includes the Martha Mine, and modern underground mining.
- (2) The Martha Mineral Zone covers an area of approximately 480 hectares. Around 100 hectares of the zone is centred around the Martha Mine (an open pit) and associated Surface Facilities Area and is situated generally within the Waihi urban area (in this location the Martha Mineral Zone is bordered by the Low Density Residential, Residential, Town Centre, Reserve (Active) and Reserve (Passive) Zones), and it is this part of the zone that sits within Pukewa maunga. The remainder of the Martha Mineral Zone covers land located to the east of Waihi, which is occupied by a processing plant and waste disposal areas. This part of the Martha Mineral Zone is largely bordered by Rural zoned land. The two areas of the Martha Mineral Zone are connected by a conveyor that crosses under State Highway 25, with the conveyor route also zoned Martha Mineral Zone.
- (3) The Martha Mine has been operating as an open pit gold and silver mine in Waihi since 1988.
- (4) Initially the Martha Mine ~~The original mine operated~~ s subject to the terms and conditions of Mining Licence 32 2388, issued under the Mining Act 1971, and various water rights granted under the Water and Soil Conservation Act 1967. Resource consents to extend the Martha Mine were granted under the Resource Management Act 1991 in June 1999 (Extended Martha Mine Area (Land Use Consent 97/98-105)). The operation of the Martha Mine, and the related processing plant and waste disposal areas, are currently authorised by Rules 5.17.4.1(P1) and (P2) of this District Plan, and its future operation and rehabilitation is also subject to resource consents granted for Project Martha in 2018 (which, in part, authorise the remediation of the instability of the north wall of the Martha Mine and access to the remaining consented ore reserve in the mine). ~~The mining licence was granted in 1987. The licence covers an area of approximately 400 hectares, comprising two main elements: an open pit and the processing and waste disposal area, linked by conveyor. The open pit is situated generally within the urban confines of Waihi township.~~
- (5) The extent of the Martha Mineral Zone within the Waihi urban area includes the land covered by the legacy Mining Licence and Extended Martha Mine Area, an area subject to hazards from old (pre 1952) underground workings, and land to the north, west, east and south-west of the Martha Mine (encompassing land in the area around Moresby Avenue, Martha Street, Haszard Street, Miners Place and Cambridge Road), which was more recently included in the Martha Mineral Zone to provide the opportunity for the potential expansion of the Martha Mine (and associated access to the mineral resources in this area) to be considered (i.e. removing the prohibited activity status which applied to surface mining on these properties when they were subject to urban zoning). ~~Operative First Review Hauraki District Plan recognised that an extension to the then existing Martha Mine was likely within the planning period of that District Plan. The area subject to the Mining Licence was zoned "Martha Mineral Zone", while~~

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~~the area in which an application to extend the Martha Mine was likely, retained the existing zoning, but was provided with an overlay of the “Extended Martha Mineral Area” (EMMA) within which resource consent applications to extend the Martha Mine could be considered. Resource consents to extend the Martha Mine were subsequently granted by both Hauraki District Council and the Waikato Regional Council and confirmed by the Environment Court in June 1999. Effect has been, and is being, given to those consents. In 2006, the “Stability Cutback” on the southern side of the pit was undertaken to enable compliance with the conditions of the Mining Licence that require that the pit faces be left in a stable and safe condition. The relocation of the Pumphouse was a consequential action of that work.~~

- (6) The purpose of the Martha Mineral Zone is to provide for the utilisation of the mineral resources within the zone, and to facilitate the progressive rehabilitation of natural and physical resources affected by mining activities. The policies and assessment criteria for the zone are split into two parts:
- (a) Those that apply to any mining, processing or tailings storage activities across the entire Martha Mineral Zone; and
 - (b) Those that apply exclusively to the consideration of the potential expansion of the Martha Mine, given its unique location within Waihi.
- (7) The provisions that relate to the potential expansion of Martha Mine are concerned with ensuring that the actual and potential effects of its expansion on the environment are appropriately managed, including the potential effects of mitigation and rehabilitation measures (including temporary measures). It is also intended that any potential expansion of mining activities at the Martha Mine be undertaken in a way which recognises the cultural and whakapapa relationships of mana whenua with Pukewa maunga. In this regard, the specific policies in this chapter are intended to provide more specific direction regarding the relationship between mining activities at the Martha Mine and the associations of mana whenua with Pukewa maunga relative to what is contained in Section 6 of the District Plan. While it is recognised that the physical associations of mana whenua with those parts of Pukewa maunga that have been mined cannot be restored or rehabilitated, the policies identify that, as part of any proposal for the potential expansion of the Martha Mine, there will be a need to identify and implement measures to rehabilitate and / or enhance the wairua or mauri of Pukewa maunga. Any rehabilitation and / or enhancement measures will need to be supported by a Cultural Balance Plan for Pukewa maunga.
- (8) The provisions of the Martha Mineral Zone enable the continuation of mining activities and mining operations in the areas consented as part of Mining Licence 32 2388 and Extended Martha Mine Area (Land Use Consent 97/98-105) as permitted activities, subject to the relevant conditions that apply under Rules 5.17.4.1(P1) and (P2) – recognising that access to the remaining consented ore reserve in the Martha Mine is also authorised via the resource consent for Project Martha (LUSE-202.2018.0857.001). The conditions that apply under Rules 5.17.4.1(P1) and (P2), along with the various management plans they require, are considered effective methods to manage the existing authorised activities occurring within the Martha Mine.
- (9) Any proposal for the expansion of surface mining, underground mining or mining operations in the Martha Mineral Zone is provided for as a discretionary activity under Rule 5.17.4.4(D2). In this regard, it is appropriate that the design, operation and remediation of any new mining proposal be appropriately assessed in respect of its actual and potential effects on the environment, particularly any actual or potential effects on the amenity and character of Waihi.

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Consideration also needs to be given to how any potential effects associated with the rehabilitation of mined areas (e.g., pit lakes, recreation reserves and heritage items) will be managed. It is appropriate that this District Plan develops on the provisions of the previous First Review District Plan by recognising and providing for the Martha mining project as currently consented to and the results of the risk analysis. Therefore this District Plan contains a zone – the Martha Mineral Zone, the boundary of which generally equates to the June 1999 boundary of the consented project (EMMA). Within the consented project area of this zone, surface mining and ancillary activities are Permitted Activities, subject to meeting the relevant conditions set out in the Mining Licence and land use consent (refer to Rules P1 and P2). The conditions of Land Use Resource Consent 97/98-105, in conjunction with the conditions of the Mining Licence, the various Management Plans required under these documents and the Memorandum of Understanding entered into with Hauraki District Council are considered to be effective methods to manage the activities within the Martha Mine. In areas no longer required for rehabilitation of the Martha Mine, EMMA has been replaced with an appropriate zoning.

- (10) A discretionary activity classification for the expansion of the Martha Mine is also considered appropriate in order to enable full consideration of the potential effects on the relationships of mana whenua with Pukewa maunga, and what (if any) measures and mechanisms are available to provide for the rehabilitation and / or enhancement of its wairua or mauri. Any rehabilitation and / or enhancement measures will need to be supported by a Cultural Balance Plan for Pukewa maunga.
- (11) The A risk analysis of the historic underground workings by GNS Science (Report 2006/235) has been completed and has identified historic underground working areas having low, medium and high hazards for land use activities. The majority of these historic underground working areas are within land owned by the mine owner Newmont Waihi Gold (NWG). The historic underground working areas that have been identified as having low, medium and high hazard have mostly been incorporated into the Martha Mineral Zone. Recent geotechnical information and analysis has identified that there are areas of instability at the eastern end of the Martha Mine and that re-contouring of the land will be the best manner in which to reduce the possibility of earth movements arising from historic underground workings. Any future resource consent applications to undertake an expansion of surface mining or underground mining in these areas in the Martha Mineral Zone is also For those parts of the Martha Mineral Zone which now extend over the hazard zones that lie outside of the consented project area, the provisions of the extended Martha Mineral Zone have provided for mining as a discretionary activity (refer to Rule 5.17.4.4(D2)).

5.17.2 OBJECTIVES AND POLICIES

(1) OBJECTIVE 1

To provide for the utilisation of the mineral resource, and the rehabilitation of natural and physical resources affected by mining activities, in a sustainable manner.

(a) Policies – Entire Martha Mineral Zone

Objective 1 will be achieved by the implementation of the following policies:

- (i) Recognise the development of the mine and its processing areas, its ongoing rehabilitation and its longer term likely uses.

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- (ii) Provide for the social, economic and cultural well-being of the people of the District and for their health and safety.
- (iii) Ensure that the amenity values and urban function of Waihi and the wider community are protected.
- (iv) Recognise that the risks associated with the historic underground working areas require a mixture of approaches to avoid, remedy or mitigate those hazards and provide for appropriate longer term land use activities.

(b) **Policies – Potential Expansion of the Martha Mine***

Objective 1 will be achieved by the implementation of the following policies:

- (i) Ensure measures are implemented that provide for the wairua or mauri of Pukewa maunga to be rehabilitated and / or enhanced in order to give effect to the relationship of mana whenua with Pukewa maunga.
- (ii) Ensure measures are implemented to manage the risk to ground stability in adjacent zones to not exceed acceptable levels.
- (iii) Ensure that the actual and potential adverse visual effects of any expansion of the Martha Mine are avoided or mitigated, including through the use of topography, screens, retaining representative features of the PYE Factory and landscaping in key locations.
- (iv) Ensure the character and amenity of the urban area of Waihi is maintained or enhanced during the operation, and at the completion, of mining activities, including through an appropriate interface of the Martha Mine with adjacent residential, commercial and open space areas.
- (v) Ensure that pedestrian access around the perimeter of the Martha Mine is maintained.
- (vi) Ensure the rehabilitation of natural and physical resources during, and following the completion of, mining activities.
- (vii) Ensure the natural character of the margins of waterbodies is maintained or enhanced.
- (viii) Ensure activities are managed to maintain the safe and efficient operation of the transport network.

NOTE *

Potential expansion of the Martha Mine means any proposal to increase the dimensions of the existing pit, as well as any associated mining beyond that authorised by P1 and P2, and LUSE-202.2018.0857.001.

(c) **Reasons**

- (i) The land within the Martha Mineral Zone is an economically and environmentally significant development within the District. Activities within the zone operate under It is subject to permitted activity rules, a Mining Licence issued under the former

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~~Mining Act 1974~~ and resource consents granted under the Resource Management Act 1991. In addition, ~~the Martha Mine Project was recognised at a policy level in the First Review of the Hauraki District Plan through the provision of objectives and policies and the “Extended Martha Mineral Area” applying to urban zones around Martha Mine.~~ Given the significance of the activity to the District these circumstances, specific recognition of and provision for the activity is necessary in this District Plan. The special purpose zone for the Martha Mine is also included in recognition of the value of the Martha mineral resource and decisions previously already made to develop that resource.

- (ii) The presence of further economically recoverable mineral resources in the underlying area means the District Plan needs to provide for the possibility of further mining activities in the Martha Mineral Zone. However, it is recognised that new mining activities, including any expansion of the Martha Mine, have the potential to cause adverse effects on the wider environment and the amenity of Waihi – while such activity is occurring, and if subsequent and interim rehabilitation is not appropriately managed. While there might be measures available to avoid, remedy or mitigate the potential effects of new mining or expansion on the environment and community, this should be assessed through a resource consent application process.
- (iii) Pukewa maunga is a taonga and area of cultural significance to mana whenua. Any resource consent application for the expansion of the Martha Mine will require engagement with mana whenua to consider whether appropriate measures can be implemented to ensure the rehabilitation and / or enhancement of the wairua or mauri of Pukewa maunga into the future so as to provide for cultural and whakapapa associations of mana whenua.
- (iv) Hazard zones associated with historic underground workings have been identified since the First Review of the Hauraki District Plan. The risks to land use activities arising from the hazards associated with the historic underground workings need to be managed in a variety of ways in order that those risks can be addressed and suitable longer term land uses established.

5.17.3 ENVIRONMENTAL RESULTS

- (1) To provide for the social and economic well-being of the residents of Waihi and the wider District as a consequence of the utilisation of the Martha mineral resource in the Martha Mineral Zone in a manner that promotes the sustainable management of natural and physical resources.
- (2) To ensure that the rehabilitation of the area, during and once mining is completed, is such that the long term uses of the area within this zone provide an appropriate and sustainable environment for Waihi.
- (3) To ensure the residential amenity values and urban character of Waihi is afforded appropriate protection.
- (4) To ensure and the natural environment are is afforded appropriate protection.

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- (5) The wairua or mauri of Pukewa maunga is rehabilitated and / or enhanced in a manner that reflects its significance to mana whenua and is supported by a Cultural Balance Plan for Pukewa maunga.

5.17.4 ACTIVITY STATUS

Activities and their *accessory uses*, and *buildings* (unless otherwise stated) are *Permitted*, *Controlled*, *Restricted Discretionary*, *Discretionary*, *Non Complying* or *Prohibited* according to the Activity Status Table below:

5.17.4.1 PERMITTED ACTIVITIES

Those activities listed below are a *Permitted Activity* unless otherwise specified* and subject to compliance with the:

- *Zone Development Standards* specified in Rule 5.17.5;
- Activity Specific Standards specified in Rule 5.17.6;
- Conservation and Heritage provisions in Section 6.0;
- Specific and District Wide provisions in Section 7.0; and
- District Wide Performance Standards in Section 8.0**.

P1*	ANY ACTIVITY CONDUCTED IN ACCORDANCE WITH THE RELEVANT TERMS AND <i>CONDITIONS</i> OF, AND WITHIN THE AREA COVERED BY MINING LICENCE 32 2388 AFTER ITS EXPIRY DATE OF 16 JULY 2017
P2*	ANY ACTIVITY CONDUCTED IN ACCORDANCE WITH THE RELEVANT TERMS AND <i>CONDITIONS</i> OF, AND WITHIN THE AREA COVERED BY LAND USE RESOURCE CONSENT 97/98-105 AFTER ITS EXPIRY DATE OF 18 OCTOBER 2019
P3	ANY OF THE FOLLOWING RECREATION ACTIVITIES: (a) PEDESTRIAN WALKWAYS, CYCLEWAYS AND JOGGING TRACKS (INCLUDING BRIDGES); AND (b) PLANTED AREAS AND STANDS OF TREES; AND (c) ASSOCIATED MAINTENANCE ACTIVITIES
P4	<i>PASSIVE RECREATION ACTIVITIES</i> LOCATED OUTSIDE THE “MEDIUM” AND “HIGH” UNDERGROUND WORKINGS HAZARD (SHAFTS AND STOPES) ZONES AS SHOWN ON FIGURE 5 OF THE “WAIHI SUBSIDENCE REPORT, GNS SCIENCE CONSULTANCY REPORT 2006/235, OCTOBER 2008” INCLUDED IN SECTION 5.17.8
P5	<i>PROSPECTING AND EXPLORATION</i>
P6	<i>FARMING AND ASSOCIATED ACCESSORY BUILDINGS</i>
P7	<i>TEMPORARY USES AND BUILDINGS</i> MEETING PART (a) AND (c) OF THE DEFINITION
P8	<i>TEMPORARY USES AND BUILDINGS</i> MEETING PART (b) AND (d) OF THE DEFINITION LOCATED OUTSIDE THE “MEDIUM” AND “HIGH” UNDERGROUND WORKINGS HAZARD (SHAFTS AND STOPES) ZONES AS SHOWN ON FIGURE 5 OF THE “WAIHI SUBSIDENCE REPORT, GNS SCIENCE CONSULTANCY REPORT 2006/235, OCTOBER 2008” INCLUDED IN SECTION 5.17.8.
P9	<i>DEMOLITION AND REMOVAL OF BUILDINGS</i>

NOTE*

~~Until Rules P1 and P2 come into effect after the dates specified, any activity conducted within the areas of the zone covered by, and within the terms and conditions of Mining Licence 32 2388 and/or Land Use Resource Consent 97/98 — 105 is not subject to the provisions of the Martha Mineral Zone.~~

NOTE *

~~Activities conducted under Once Rules P1 and P2 are come into effect after the dates specified, any activity conducted within the areas of the zone covered by, and within the terms and conditions of Mining Licence 32 2388 and/or Land Use Resource Consent 97/98 — 105 is not subject to the provisions of sections 8.2.5, 8.3.1 and 8.3.2.~~

5.17.4.2 CONTROLLED ACTIVITIES

Those activities listed below are a *Controlled Activity* unless otherwise specified and subject to compliance with the:

- *Zone Development Standards* specified in Rule 5.17.5;
- Activity Specific Standards specified in Rule 5.17.6;
- Conservation and Heritage provisions in Section 6.0;
- Specific and District Wide provisions in Section 7.0; and
- District Wide Performance Standards in Section 8.0.

Conditions may be imposed in relation to the matters over which control has been reserved, as specified below.

THERE ARE NO <i>CONTROLLED ACTIVITIES</i>

5.17.4.3 RESTRICTED DISCRETIONARY ACTIVITIES

Those activities listed below are a *Restricted Discretionary Activity* subject to compliance with the:

- Conservation and Heritage provisions in Section 6.0;
- Specific and District Wide provisions in Section 7.0; and
- District Wide Performance Standards in Section 8.0.

The matters over which the *Council* has restricted its discretion are specified for each *Restricted Discretionary Activity* listed below.

RD1 *PERMITTED ACTIVITIES P3 & P4 THAT DO NOT MEET THE ZONE DEVELOPMENT STANDARDS IN RULE 5.17.5 FOR A PERMITTED ACTIVITY AND DO NOT EXCEED THE ZONE DEVELOPMENT STANDARDS IN RULE 5.17.5 FOR A RESTRICTED DISCRETIONARY ACTIVITY.*

Matters over which the *Council* has restricted its discretion are:

The *Council* will restrict the exercise of its discretion to the ability of the activity or development to achieve the particular environmental result of the *Zone Development Standards* in Rule 5.17.5 for which compliance is not met and the following relevant assessment criteria:

(1) *Height and Daylighting*

- (a)** The extent that topographical and *site* conditions (including easements) restrict the area or shape of the *site* that is suitable and available for building.
- (b)** The desirability of maintaining consistency in design and appearance with existing *buildings* on the *site*.
- (c)** The need to preserve existing trees, vegetation or important physical characteristics of 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 or loss of visual *amenity*.
- (e)** Whether the property adjoining the *site* is sufficiently higher and therefore the adjoining property will not be detrimentally affected.
- (f)** Where the standard(s) is/are not met due to penetration by a dormer window, gable or similar roof feature, whether that will have a minor effect on the *amenities* of the neighbouring site.
- (g)** The extent to which it is necessary to minimise the physical disturbance to the landscape and the landforms.
- (h)** The degree to which *amenity* value and privacy of adjoining properties is affected by matters such as shading and loss of daylight.
- (i)** The extent to which the *building* visually intrudes on any significant ridgeline or skyline or significant landscape and what measures are proposed to reduce the visual effects of that intrusion.
- (j)** Whether the *building* will detract from any view or vista, which contributes to the aesthetic coherence of a locality, and if it does, what measures can and will be taken to reduce the detraction to an acceptable level or remove it

	completely.
(2)	Yards
(a)	The extent that topographical and <i>site</i> conditions restrict the area or shape of the <i>site</i> that is available and suitable for building.
(b)	The degree to which the functioning of the <i>site</i> and/or the activity can be improved by not meeting the standard.
(c)	Whether there is a need to preserve existing trees, vegetation or important physical characteristics of the <i>site</i> .
(d)	The extent to which the provision of daylight and sunlight into the neighbouring properties and the visual and aural privacy of neighbouring sites will be affected.
(e)	The extent to which the safe and efficient functioning of the street or <i>road</i> will be significantly compromised.
(f)	Whether the detrimental effects of building in the <i>yard</i> can be reduced or avoided.
(g)	Whether the <i>yard</i> functions (including separation, <i>landscaping</i> and service provision) will be provided on the <i>site</i> by other means, or are they unnecessary.
(3)	Zone coverage
(a)	The degree to which negative effects, in terms of changing the character or visual <i>amenity</i> of the area, can be mitigated or removed through the use of such techniques as <i>landscaping</i> , building design, exterior finish, set back from boundaries or reduced <i>height</i> .
(b)	The extent to which open space within the <i>site</i> and/or in the near vicinity can reduce the impact of the <i>building(s)</i> in terms of character or visual <i>amenity</i> .
RD 2	ANY OF THE RECREATION ACTIVITIES LISTED IN <i>PERMITTED ACTIVITY P4</i> THAT ARE LOCATED IN EITHER THE "HIGH" OR "MEDIUM" UNDERGROUND WORKINGS HAZARD (SHAFTS AND STOPES) ZONES SHOWN ON FIGURE 5 OF THE "WAIHI SUBSIDENCE REPORT, GNS SCIENCE CONSULTANCY REPORT 2006/235, OCTOBER 2008" INCLUDED IN SECTION 5.17.8.
	Matters over which the Council has restricted its discretion are:
(1)	The matters specified for Rule 5.17.4.3 - RD1.
(2)	Whether the recreation activity is compatible with either the ongoing <i>mining</i> activities or proposed rehabilitation.
(3)	Whether adequate investigations have been undertaken and/or whether the design of the recreation activity incorporates sufficient safety provisions to ensure that any risks arising from the hazard are reduced to an acceptable level.

5.17.4.4 DISCRETIONARY ACTIVITIES

Those activities listed below are a *Discretionary Activity* and shall be assessed against the relevant criteria in Rule 5.17.7.

Note: The Conservation and Heritage provisions in Section 6.0 and the Specific and District Wide provisions in Section 7.0 also apply and may alter the *Discretionary Activity* status for the activities specified below or require additional resource consents.

D1	<i>PERMITTED ACTIVITIES P3 & P4 THAT EXCEED THE ZONE DEVELOPMENT STANDARDS IN RULE 5.17.5 FOR A RESTRICTED DISCRETIONARY ACTIVITY.</i>
D2	<i>UNDERGROUND AND SURFACE MINING AND MINING OPERATIONS NOT OTHERWISE PROVIDED FOR AS A PERMITTED ACTIVITY.</i>

5.17.4.5 NON COMPLYING ACTIVITIES

Those activities listed below are a *Non Complying Activity*.

NC1	<i>ANY ACTIVITY NOT PROVIDED AS A PERMITTED, CONTROLLED, RESTRICTED DISCRETIONARY OR DISCRETIONARY ACTIVITY.</i>
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5.17.4.6 PROHIBITED ACTIVITIES

Those activities listed below are a *Prohibited Activity*.

THERE ARE NO <i>PROHIBITED ACTIVITIES</i>

5.17.5 ZONE DEVELOPMENT STANDARDS

- (1) The *Zone Development Standards* for *Permitted Activities* P1 and P2 ~~carried out in the Martha Mineral Zone will be~~ are the *conditions* applying to Mining Licence 32 2388 and/or Land Use Resource Consent 97/98-105 as at the date of their respective expiries.
- (2) The following *Zone Development Standards* shall apply to *Permitted Activities* P3 and P4 and *Restricted Discretionary Activities* RD1 and RD2 and shall be used as a guide in assessing any *Discretionary* or *Non Complying Activities*.

Development Standard *	Parameter		Environmental Result
	Permitted and Controlled	Restricted Discretionary	
Maximum Height	4.0 metres	6.0 metres	To ensure that the <i>height of buildings</i> is compatible with the activities permitted in the <i>zone</i> as well as the landscape, <i>amenity</i> and character of both the <i>zone</i> that the <i>building</i> is located in and any adjoining <i>zone</i> .
<i>Daylight Control</i> (refer to definition for explanatory diagram)	No <i>building</i> shall project above 2.0 metres in <i>height</i> at the <i>zone</i> boundaries and not project above a 45° plane into the <i>zone</i> up to the maximum <i>height</i> .	No Restriction	To ensure no <i>building</i> unreasonably overshadows any neighbouring property, thereby restricting daylight and ventilation between <i>buildings</i> .

Development Standard *	Parameter		Environmental Result
	Permitted and Controlled	Restricted Discretionary	
Minimum Yards	<i>Front Yard</i> : 5.0 metres at the <i>zone</i> boundary, except public toilets which may be sited up to the <i>road</i> boundary where this coincides with the <i>zone</i> boundary.	<i>Front Yard</i> : 5.0 metres, at the <i>zone</i> boundary, except public toilets which may be sited up to the <i>road</i> boundary where this coincides with the <i>zone</i> boundary.	To allow flexibility in <i>site</i> layout while still maintaining the <i>amenities</i> of the <i>zone</i> and adjoining residential or reserve sites.
	<i>Other Yards</i> : 3.0 metres at <i>sensitive zone</i> boundaries, otherwise nil.	<i>Other Yards</i> : Nil	
<i>Zone Coverage</i>	Total <i>building</i> coverage shall not exceed 1% or 250m ² <i>gross floor area</i> , whichever is the greater.	Total <i>building</i> coverage shall not exceed 2% or 400m ² <i>gross floor area</i> , whichever is the greater	To prevent large <i>buildings</i> detracting from the open space and <i>amenity</i> character of the <i>zone</i> .

*These *Zone Development Standards* shall not apply to “*Temporary Uses and Buildings*” covered by clause (b) of the definition in Section 4 for “*Temporary Uses and Buildings*” and to “*Prospecting*” and “*Exploration*”.

5.17.6 ACTIVITY SPECIFIC STANDARDS

- (1) There are no Activity Specific Standards for this *zone*.

5.17.7 ASSESSMENT CRITERIA FOR DISCRETIONARY ACTIVITIES

When assessing any application for a *Discretionary Activity*, *Council* shall have regard to the relevant *development standards*, environmental results and assessment criteria for *Permitted* and *Restricted Discretionary Activities* in Rules 5.17.4 to 5.17.6, and the relevant assessment criteria below, and any other matters it considers appropriate.

5.17.7.1 GENERAL ASSESSMENT CRITERIA

- (1) With respect to the *zone development standards*, *Council* will have regard to them for assessment purposes, in particular where either the activity or the adverse effects of the activity are in close proximity to the boundary between the Martha Mineral Zone and any other adjoining or adjacent *zone* boundary. However, *Council* recognises that because of the nature of the *mining* activities and the existing permitted activity mining licence and/or resource consent *conditions*, the *zone development standards* may not always be relevant or appropriate.
- (2) Whether *landscaping* can avoid, remedy or mitigate the temporary and longer-term adverse effects of *mining operations* and *mining*. In particular, whether the *landscaping* provides an appropriate visual interface and/or buffer ~~buffer~~ with respect to:
- screening unsightly and disturbed areas from ~~other~~ land beyond the Martha Mineral Zone
 - providing a visually attractive outlook without blocking intermediate and distant views

- (c) softening, articulating or modulating any hard or bleak surfaces.
- (3) Whether adequate public safety measures (eg fencing and bunds) have been provided, particularly with respect to any open pit.
- (4) Whether the methods proposed to avoid, remedy or mitigate the adverse effects of the activities are practical and effective.
- (5) Whether the proposed rehabilitation of the *site* and adjacent areas during and following the cessation of *mining* activities (including open pit, conveyor, waste disposal areas and surface infrastructure such as *roads*, plant and equipment) will be is undertaken in a comprehensive manner and results in a landscape, features and facilities that are appropriate within the context of the *environment* they are located within.

With respect to proposed post-*mining* landscapes and features (lakes, reserves, recreation areas), their appropriateness within the *environment* they are located in, will be considered in relation to such matters as:

- (a) The visual appearance, amenity, character and functioning of rehabilitated areas.
- (b) Public access and safety (including Crime Prevention Through Environmental Design and Universal Design (i.e. accessibility by all people) where applicable).
- (c) Structural engineering and environmental integrity.
- (d) The provision of *community* and/or recreational facilities, and the integration of historic heritage.

5.17.7.2 ASSESSMENT CRITERIA – POTENTIAL EXPANSION OF THE MARTHA MINE

In addition to the general assessment criteria set out in Section 5.17.7.1 above, Council shall also have regard to the following assessment criteria when considering any resource consent application for *surface mining* and *mining operations* which seek to expand the Martha Mine in accordance with Rule 5.17.4.4(D2):

- (1) The scope of measures that are proposed to provide for the rehabilitation and / or enhancement of the wairua or mauri of Pukewa maunga in a Cultural Balance Plan, and the views of mana whenua as to the appropriateness of these measures in order to give effect to their relationship with the maunga.
- (2) Whether any expansion of the Martha Mine integrates with, and creates an interface which maintains or enhances the quality and character of adjacent residential, commercial and open space areas of Waihi during and at the completion of *mining* activities (including through maintaining street grid alignments, retention and / or adaptive reuse of heritage items and their settings, retaining representative heritage features of the PYE factory and creation of destination experiences).
- (3) The timing and sequencing of any proposed (including temporary) mitigation or rehabilitation measures, and the manner in which they are integrated with the rehabilitation of natural and physical resources affected by already authorised mining activities in the zone.
- (4) The scope of measures that are proposed to avoid or mitigate any adverse landscape, urban design and visual effects, and whether such measures will suitably protect the amenity of neighbouring land and the streetscapes of Waihi.

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- (5)** Whether any expansion of the Martha Mine maintains the continuity, functioning and quality of pedestrian access around the perimeter of the pit, and the degree to which provision is made for a range of recreation and destination experiences (e.g. lookouts, access to heritage artefacts or access to a future pit lake).
- (6)** The consideration of Crime Prevention Through Environmental Design and Universal Design (i.e. accessibility by all people) in the design of any mitigation or rehabilitation measures that are proposed, including for any road realignments and closures.
- (7)** Whether the natural character of the margins of waterbodies are maintained or enhanced.
- (8)** Whether the hours of construction and operation are appropriate having regard to those persons likely to be affected by *mining* and *mining operations*.
- (9)** Whether construction and operational noise, and construction and operational vibration, controls are proposed in order to suitably protect the amenity of Waihi and the wider community.
- (10)** Whether adequate measures, controls or strategies are in place with respect to the provision of social infrastructure and services to the community during the operation and future closure of the Martha Mine, including consideration of other permitted or consented *mining* and *mining operations* in Waihi;
- (11)** Whether suitable controls are proposed to manage any actual or potential adverse effects occurring concurrently with other permitted or consented *mining* and *mining operations* in Waihi.
- (12)** Whether adequate measures are proposed to manage the risk of any ground instability adjacent to the Martha Mine to not exceed acceptable levels.
- (13)** Whether any expansion of the Martha Mine will require the realignment or closure of any public road.
- (14)** Whether suitable controls are proposed to avoid, remedy or mitigate the adverse effects of activities on the safe and efficient operation of the road network.
- (15)** Whether any expansion of the Martha Mine will ensure that road safety, access, sightlines and parking standards are provided.
- (16)** Whether adequate measures are proposed to mitigate the effects of fume and flyrock having regard to those persons likely to be affected by mining and mining operations.

5.17.8 DIAGRAM OF HISTORIC UNDERGROUND WORKINGS RISK ANALYSIS

Figure 5 of the Waihi Subsidence Report, GNS Science Consultancy Report 2006/235, October 2008



Figure 5: Aerial photo of Waihi showing collapse areas, the open pit and probabilistic hazard zones – circles around shafts, elongated areas above lodes (from the August 2002 GNS Report). The Edward South hazard zones were changed in the 2003 GNS report and 'Martha' stopes have been added - this report.

8.3 AMENITY MATTERS

8.3.1 NOISE

8.3.1.1 DISCUSSION, PURPOSE AND REASONS

- (1) Noise pollution now forms a major source of intrusion into the environment. As the demand for urban development continues and we have less space to call our own, it is likely that noise pollution will continue to be a matter requiring management.
- (2) The Resource Management Act 1991 has recognised the important role that the control of noise has in terms of giving effect to the purpose of the Act, particularly as it relates to protecting amenity values. Section 31(1)(d) of the Act gives Council the function of controlling the emission of noise and the mitigation of the effects of noise. This function is supported by other provisions in the Act relating to the general duty to avoid unreasonable noise, enforcement penalties and other actions available to Council.
- (3) Reaction to noise varies considerably, not only between individuals but also between communities. The standards set out in this section reflect the need for some flexibility while providing a standard which developers can design to and which the community can be confident will provide a recognised element of protection. The basis for these controls comes from social and acoustical research undertaken locally, nationally and internationally.
- (4) Due to their national, regional and district importance, the efficient functioning of existing regionally significant road and potential rail networks through the District needs to be protected from noise sensitive activities establishing in close proximity to them and potentially restricting their operation due to reverse sensitivity effects. Where regionally significant transport routes already have noise sensitive activities established alongside them, there is limited ability through the District Plan to address that issue. However, the opportunity to avoid reverse sensitivity effects can be taken where new noise sensitive activities seek to establish. This is addressed through the relevant zone development standards.
- (5) In the Industrial Zone, it is recognised that noise levels are likely to be higher as a result of the type of activities permitted in the zone. There is other legislation that protects workers within the zone and hence there are no District Plan standards within the zone.
- (6) The noise requirements in this standard do not over-ride the "excessive noise" provisions in Sections 326 - 328 of the Resource Management Act 1991.

8.3.1.2 ENVIRONMENTAL RESULTS

- (1) To protect the character and amenity values of areas (particularly residential and reserve) and public health from the effects of excessive environmental noise.
- (2) To allow some noise sources generated as an ancillary part of normal permitted activities in a zone (eg lawn mowing, wood cutting (for domestic use on site) in a residential area) to be exempt from these performance standards.

- (3) To recognise the community expectation that maximum noise levels will continue to decline as developments in the design of machinery, buildings and acoustic materials enable the effects of noise to be reduced.

8.3.1.3 STANDARDS

(1) LEVELS

Noise shall not exceed the levels set out below when measured in accordance with the provisions of New Zealand Standard (NZS) 6801:2008 Acoustics – Measurement of Environmental Sound and assessed in accordance with the provisions of NZS 6802:2008 Acoustics – Environmental Noise:

(a) Between Sites Within Zones

Zone	Standard	<i>L</i>_{Aeq(15 min)}	<i>L</i>_A<i>F</i>_{max}
<ul style="list-style-type: none"> ▪ Residential ▪ Low Density Residential ▪ Rural ▪ Coastal ▪ Karangahake Gorge 	All activities in each of the Residential and Low Density Residential Zones shall be conducted to ensure that the following noise levels shall not be exceeded within any other site contained within that <i>zone</i> .		
	All activities in the Rural, Coastal and Karangahake Gorge Zones shall be conducted to ensure that the following noise levels shall not be exceeded within the <i>notional boundary</i> of any <i>residential property</i> within that <i>zone</i> .		
	On all days 7.00am - 10.00pm	50dB	NA
	On all nights 10.00pm – 7.00am	40dB	65dB
<ul style="list-style-type: none"> ▪ Town Centre ▪ Township ▪ Marae Development 	All activities in these <i>zones</i> shall be conducted to ensure that the following noise levels shall not be exceeded within any other site contained within that <i>zone</i> .		
	On all days 7.00am - 10.00pm	55dB	NA
	On all nights 10.00pm - 7.00am	40dB	65dB
<ul style="list-style-type: none"> ▪ Industrial & Reserve (Active) 	On all days, at all times.	No restrictions	
<ul style="list-style-type: none"> ▪ Reserve (Passive) ▪ Conservation 	All activities in each of these <i>zones</i> shall be conducted to ensure that the following noise levels shall not be		

Zone	Standard	<i>L</i> _{Aeq} (15 min)	<i>L</i> _{AFmax}
(Wetland) ▪ Paeroa Flood Ponding	exceeded within any other site contained within that <i>zone</i>		
	On all days, at all times	55dB	NA
▪ Conservation (Indigenous Forest)	All activities within this <i>zone</i> shall be conducted to ensure that noise from the <i>site</i> shall not exceed the following noise levels measured within the <i>notional boundary</i> of: Any <i>building</i> used for residential activities (eg dwellings, huts, lodges); or camping facilities used by the public (where this is in a defined location specifically identified as a camping area).		
	On all days 7.00am – 10.00pm	50dB	NA
	On all nights 10.00pm – 7.00am	40dB	65dB

(b) Between Zones

Zone	Standard	<i>L</i> _{Aeq} (15 mins)	<i>L</i> _{AFmax}
▪ Township ▪ Marae Development ▪ Reserve (Passive) ▪ Conservation (Indigenous Forest)	All activities on any <i>site</i> within these <i>zones</i> shall be conducted to ensure that noise from the <i>site</i> as measured within the <i>zone</i> boundary of a Residential, Low Density Residential and Marae Development Zone or within the <i>notional boundary</i> within the Rural, Coastal, or Karangahake Gorge Zone, shall not exceed the following noise levels:		
	On all days 7.00am - 10.00pm	50dB	NA
	On all nights 10.00pm - 7.00am	40dB	65dB
▪ Reserve (Active)	All activities on any individual reserve shall be conducted to ensure that noise from the reserve as measured within: i) the <i>zone</i> boundary of a Residential and Low Density Residential Zone; ii) the <i>notional boundary</i> within the		

Zone	Standard	<i>L_{Aeq}</i> (15 mins)	<i>L_{AFmax}</i>
	Rural, Coastal, and Karangahake Gorge Zone; iii) the <i>notional boundary</i> of: any <i>building</i> used for residential activities (eg dwellings, huts, lodges); or camping facilities used by the public (where this is in a defined location specifically identified as a camping area) in the Conservation (Indigenous Forest) Zone, shall not exceed the following noise levels:		
	Sunday to Thursday: 7.00am - 10.30pm	50dB	NA
	Friday & Saturday: 7.00am - 12.00pm (midnight)	50dB	NA
	At all other times	45dB	65dB
<ul style="list-style-type: none"> ▪ Industrial ▪ Town Centre 	All activities on any <i>site</i> within these <i>zones</i> shall be conducted to ensure that noise from the <i>site</i> as measured within the <i>zone</i> boundary of a Residential, Low Density Residential and Marae Development Zone or within the <i>notional boundary</i> within the Rural, Coastal, or Karangahake Zone, shall not exceed the following noise levels:		
	Monday – Saturday 7.00am - 10.00pm	50dB	NA
	Sunday and Public Holidays 7.00am - 10.00pm	45dB	NA
	On all nights 10.00pm – 7.00am	40dB	65dB
<ul style="list-style-type: none"> ▪ Industrial 	All activities on any <i>site</i> within this <i>zone</i> shall be conducted to ensure that noise from the <i>site</i> as measured within the <i>zone</i> boundary of a Reserve (Active) or Town Centre Zone, shall not exceed the following noise levels:		
	On all days. 7.00am - 10.00pm	55dB	NA

Zone	Standard	<i>L_{Aeq}</i> (15 mins)	<i>L_{AFmax}</i>
	All activities on any <i>site</i> within this zone shall be conducted to ensure that noise from the <i>site</i> as measured within the <i>notional boundary</i> within a Reserve (Active) or Town Centre Zone shall not exceed the following noise levels:		
	On all nights 10.00pm - 7.00am	45dB	65dB
▪ Industrial	All activities on any <i>site</i> within this zone shall be conducted to ensure that noise from the <i>site</i> as measured within the zone boundary of the Reserve (Passive) Zone shall not exceed the following noise levels:		
	On all days, at all times	55dB	NA
▪ <u>Martha Mineral</u>	<u>All activities on any <i>site</i> within this zone shall be conducted to ensure that noise from the <i>site</i> as measured within the zone boundary of a Residential or Low Density Residential Zone, or within the <i>notional boundary</i> within the Rural Zone, shall not exceed the following noise levels:</u>		
	<u>Monday to Saturday</u> <u>7.00am – 10.00pm</u>	<u>50dB</u>	<u>NA</u>
	<u>Sundays and Public Holidays</u>	<u>45dB</u>	<u>NA</u>
	<u>10:00pm – 7:00am, all other days</u>	<u>40dB</u>	<u>70dB</u>
▪ <u>Martha Mineral</u>	<u>All activities on any <i>site</i> within this zone shall be conducted to ensure that noise from the <i>site</i> as measured within the zone boundary of a Town Centre, Reserve (Active) or Reserve (Passive) Zone shall not exceed the following noise levels:</u>		
	<u>On all days</u> <u>7.00am – 10.00pm</u>	<u>55dB</u>	<u>NA</u>
	<u>On all nights</u> <u>9.00pm - 7.00am</u>	<u>45dB</u>	<u>75dB</u>

(c) **Temporary Military Training Activities**

Zone	Standard	L_{Aeq} (15 mins)	L_{A95}	L_{AFmax}
<ul style="list-style-type: none"> ▪ In all zones 	Noise, measured at the <i>notional boundary</i> of any residential property shall not exceed the following limits:			
	Any Day			
	12.00 (midnight) - 6.30 am	40dB	N/A	65dB
	6.30am - 7.30 am	60dB	45dB	70dB
	7.30am - 6.00 pm	75dB	60dB	90dB
	6.00 pm – 10.00 pm	70dB	55dB	85dB
	10.00 pm – 12.00 (midnight)	40dB	N/A	65dB
	Noise, measured at the <i>notional boundary</i> of any residential property, resulting from the use of explosives shall not exceed 122 L_{Cpeak} during daylight hours. The use of explosives is not provided for during night-time hours.			

(d) Exemptions

- (i) In all zones, Rule 8.3.1.3(1) shall not apply with respect to normal domestic activities and *accessory uses* thereto (eg lawn mowing, chainsawing undertaken at reasonable times and in domestic circumstances).
- (ii) In the Rural, Coastal and Karangahake Gorge Zones, Rule 8.3.1.3(1) shall not apply to normal rural activities that follow accepted rural management practices (eg orchard spraying, cowshed operations, haymaking, crop harvesting, land cultivation, aerial topdressing).
- (iii) In the Reserve (Active), Coastal, Karangahake Gorge and Rural Zones Rule 8.3.1.3(1) shall not apply to:
 - (1) permitted outdoor recreational activities; or
 - (2) temporary events that do not involve *motor sports*, firearms or amplified sound systems.
- (iv) In all zones, noise from fire appliance sirens and call out sirens for volunteer brigades shall not be subject to these noise standards, subject to the *best practicable option* always being adopted to minimise noise levels.

(e) Location of Noise Measurement Requirements

- (i) Noise levels are to be measured as specified in the above standards.
- (ii) For the purpose of this standard the following definitions in Section 4 shall apply:
 - (1) *Residential Property*;
 - (2) *Site*;
 - (3) *Notional Boundary*.

(2) VIBRATION

Refer to Performance Standard 8.3.2 - Vibration in the Ground.

(3) CONSTRUCTION NOISE

Construction noise emanating from a *site*, where construction activity is of limited duration and where the construction activity is not part of the ongoing land use activity, shall meet the maximum noise standards set out in the tables below for the various *zones*, and shall be managed, measured and assessed in accordance with New Zealand Standard 6803:1999 Acoustics – Construction Noise.

(a) Maximum noise standards for construction noise received in the following *zones* are set out in the table below:

- (i) Rural Zone;
- (ii) Residential Zone;
- (iii) Low Density Residential Zone;
- (iv) Marae Development Zone;
- (v) Coastal Zone;
- (vi) Karangahake Gorge Zone;
- (vii) Conservation (Indigenous Forest) Zone;
- (viii) Conservation (Wetland) Zone;
- (ix) Reserve (Passive) Zone;
- (x) Reserve (Active) Zone.

Time of Week	Time Period	Typical Duration (dB)		Short Term Duration (dB)		Long Term Duration (dB)	
		<i>L</i> _{Aeq}	<i>L</i> _{Amax}	<i>L</i> _{Aeq}	<i>L</i> _{Amax}	<i>L</i> _{Aeq}	<i>L</i> _{Amax}
Weekdays	0630 - 0730	60	75	65	80	55	75
	0730 - 1800	75	90	80	95	70	85
	1800 - 2000	70	85	75	90	65	80
	2000 - 0630	45	75	45	75	45	75
Saturdays	0630 - 0730	45	75	45	75	45	75
	0730 - 1800	75	90	80	95	70	85
	1800 - 2000	45	75	45	75	45	75
	2000 - 0630	45	75	45	75	45	75
Sundays and Public	0630 – 0730	45	75	45	75	45	75
	0730 – 1800	55	80	55	85	55	85

Holidays	1800 – 2000	45	75	45	75	45	75
	2000 – 0630	45	75	45	75	45	75

Note: NZS6803:1999 defines “Typical Duration” as meaning construction work at any one location for more than 14 calendar days but less than 20 weeks. Short-term and long-term durations are less than and greater than this period respectively.

(b) Maximum noise standards for construction noise received in the following *zones* are set out in the table below:

- (i) Town Centre Zone;
- (ii) Township Zone;
- (iii) Flood Ponding Zone;
- (iv) Industrial Zone.

Time Period	Duration of Work		
	Typical Duration	Short Term Duration	Long Term Duration
	L_{Aeq} (dB)	L_{Aeq} (dB)	L_{Aeq} (dB)
0730 – 1800	75	80	70
1800 – 0730	80	85	75

Note: NZS6803:1999 defines “Typical Duration” as meaning construction work at any one location for more than 14 calendar days but less than 20 weeks. Short-term and long-term durations are less than and greater than this period respectively.

(4) OTHER CONTROLS ON NOISE NUISANCE

Notwithstanding compliance with the above standards any activity must also comply with the provisions of the Resource Management Act 1991 and the Health Act 1956.

8.3.1.4 RESTRICTED DISCRETIONARY ACTIVITY MATTERS

(1) The *Council* will restrict the exercise of its discretion to the ability of the activity or development to achieve the particular environmental result in Section 8.3.1.2 of the Standards in Rule 8.3.1.3 for which compliance is not met and the following relevant matters:

- (a) Whether the noise is intermittent, seasonal or of a short-term or temporary nature.
- (b) The times of day of the activity and the possibility of night-time activities.
- (c) Whether the activity has an effect on the existing background noise level.
- (d) Whether the noise adversely affects the health of the community or *amenity values* of the area.

- (e) Whether the *best practicable option* has been adopted to control the noise.

Note: The "*Excessive noise*" provisions of the Resource Management Act 1991 (Sections 326-328) apply in addition to the performance standards above.

8.3.2 VIBRATION IN THE GROUND

8.3.2.1 DISCUSSION, PURPOSE AND REASONS

(1) INTRODUCTION

- (a) Ground vibration from land use activities can range in effect from structural damage to buildings (relatively extreme level of vibration) to disturbance of sleep and reduction of amenity as a result of people being able to perceive vibration. It is considered that ground vibration standards should be set in terms of human perception rather than in relation to the structural implications for buildings, thus ensuring that the amenity values of any area are not unreasonably compromised.
- (b) Measurement of vibration is taken in the ground rather than in affected buildings, as buildings respond differently and thus the vibration response in the building may amplify ground vibration. It is beyond the scope of this standard to define that response.

(2) TYPES OF GROUND VIBRATION

- (a) Ground vibration may be continuous or transient, with transient vibration being either impulsive or intermittent vibration.
- (b) Continuous vibration is vibration that remains uninterrupted over a given time period, typically a period of several minutes or more (eg vibration generated by construction equipment such as impact and vibratory rollers).
- (c) Impulsive vibration is a short duration isolated event, that involves the rapid build up of vibration then decay, that may comprise a single pulse or a number of pulses (eg vibration generated by blasting).
- (d) Intermittent vibration is a string of vibration incidents, each of short duration and separated by intervals of a much lower vibration magnitude (eg vibration generated by pile driving and traffic).
- (e) Acceptable levels for continuous vibration are considerably less than those for transient vibration.

(3) CONTINUOUS VIBRATION

- (a) In setting standards for ground vibration, it is accepted that a certain amount of continuous background vibration occurs as a result of existing activities (eg industry, traffic). Accordingly, continuous vibration levels are set in relation to background or ambient levels ($V_{\text{background}}$). The ground vibration levels from a particular activity will have to exceed the background level by a generally perceptible amount (deemed to be 0.5mm/s) not to meet this standard. It will be up to persons who wish to undertake any particular activity to demonstrate to Council's satisfaction that the standard is being met. This will include providing the Council with information regarding background vibration levels.

- (b) Continuous ground vibration levels are measured in terms of the 99 percentile value. This means that for one per cent of any nominal 60 minute period, $V_{background}$ plus 0.5mm/s could be exceeded.
- (c) Ground vibration levels are set in terms of $V_{background}$. Hence it is not necessary to:
 - (i) provide different standards for day and night occurrences; and/or
 - (ii) provide different standards for different zones.

(4) TRANSIENT VIBRATION

- (a) Isolated vibration events that occur infrequently and/or irregularly, eg only a few times a day, present special concerns to residents and accordingly must also be addressed and managed. This will be done by setting an appropriate standard for transient vibration, to ensure that amenity values are maintained at a reasonable level. Any transient vibration in excess of the standards set may be considered through the resource consent process and the standards set out in this rule will be used as a guideline in setting conditions.
- (b) Vibrations from blasting are impulsive, of short duration and superimposed on background vibration levels.
- (c) Human response to transient vibration can be wide ranging, with the same event being imperceptible to some persons, while causing nuisance to others.
- (d) The standards set to control transient vibration are based on international standards, and monitoring and experience, developed to protect and preserve amenity values.
- (e) In considering transient vibration from the perspective of human perception the following levels have been adopted:

Transient Vibration Level	
less than 0.5mm/s	imperceptible (threshold of perception)
0.5mm/s – 2.0mm/s	slightly perceptible (barely noticeable)
greater than 2.0mm/s	distinctly perceptible (noticeable)

- (f) Transient vibration levels in excess of 5mm/s have the potential to compromise amenity values.
- (g) As the vibrations are of relatively short duration where V_{max} is controlled to avoid nuisance the statistical analysis to obtain 99 percentile vibration levels is of little meaning, as the results depend on the length of vibration record. Accordingly, when monitoring vibrations, the control will be in terms of V_{max} .
- (h) Blasting events should be designed in such a way as to comply with the standards set. However, the Council recognises that the prediction of the maximum ground vibration experienced from any particular blast event is dependent upon distance from source, ground conditions, and design of the blasting pattern. A complex relationship exists between these factors and therefore occasional exceedances of V_{max} may occur.

(5) VIBRATION FROM HEAVY VEHICLES

- (a) Ground vibration generated by heavy traffic on roads is a difficult matter to manage. Where a road surface is not in sufficiently smooth condition, vibration from heavy trucks measured at the road boundary may well exceed the V_{max} level set. To enforce compliance may require road closure, which is not a practical option. Immediate upgrading of the road surface is also not a solution.
- (b) As ground vibration normally dissipates relatively quickly with distance it is proposed that V_{max} levels arising from vehicle induced vibration be measured inside the property at the front yard boundary within any lot. Thus in the Residential Zone, a V_{max} will still apply and this is appropriate as it will discourage heavy vehicles from using residential streets.
- (c) However, in the Town Centre and Industrial Zones no front yards are required and buildings may be erected on the road boundary. As the state highway is routed through the town centres of Paeroa, Waihi and Ngatea (and several townships as well), it is considered impractical to set a V_{max} in these areas.

8.3.2.2 ENVIRONMENTAL RESULTS

- (1) To ensure that vibration levels generated by land use activities do not adversely affect the amenity values enjoyed by other land users.

8.3.2.3 STANDARDS**(1) CONTINUOUS VIBRATION**

The 99 percentile ground vibration levels (V_{max}) resulting from any land use activity ($V_{activity}$) shall not exceed the background vibration level ($V_{background}$) by more than 0.5mm/second.

(2) TRANSIENT VIBRATION

- (a) The maximum limits and parameters for ground vibration exposure resulting from activities other than those using explosives or similar impulsive and energetic material are:

Parameter	Standard
Monday to Saturday 0700 – 1800	5mm/second peak amplitude (V_{max})
All other times and on Sundays and public holidays	1mm/second peak amplitude (V_{max})

- (b) The maximum limits and parameters for ground vibration and overpressure exposure resulting from activities using explosives or similar impulsive and energetic materials are:

Parameter	Standard
(1) Blast Event ¹ Duration as defined by the delay timing (ie the difference in time between the first and last charge detonation)	1 second
(2) Number of Blast Events ¹ per <i>holding</i> , or, for <i>exploration</i> activities, per <i>exploration</i> or <i>mining</i> permit area	3 per day, separated by an interval of not less than 10 minutes between blast events ¹ , and no more than 21 within a calendar year
(3) Overpressure (P_{max})	120dB
(4) Peak Amplitude (V_{max})	5.0 mm/second
(5) Time of Day	0700 – 1800
(6) Days	Monday to Saturday (excluding public holidays)

¹For the purpose of the above standard a 'blast event' means an individual or number of linked individual blasts of not more than the total duration period specified in (1) above.

(3) MEASUREMENT OF OVERPRESSURE, AND OF CONTINUOUS AND TRANSIENT GROUND VIBRATION

- (a) All measurements shall be taken at or within the boundary of any *allotment* not owned by the agency responsible for creating the vibration.
- (b) For the Rural, Coastal and Karangahake Gorge Zones only, measurements shall be taken within the *notional boundary*.
- (c) Vibration measurements are to be taken in the ground not within *buildings*.

(4) VIBRATION FROM HEAVY VEHICLES ON PUBLIC ROADS

Within the Residential Zone only, the 99 percentile ground vibration levels (V_{max}) resulting from *heavy vehicles* ($V_{activity}$) shall not exceed the background vibration level ($V_{background}$) by more than 0.5 mm/sec, when measured at the *front yard* boundary within any residential *lot*.

8.3.2.4 EXPLANATION OF STANDARDS

- (1) Ground vibration levels referred to in this Standard for $V_{Activity}$ and $V_{Background}$ are 99 percentile values of instantaneous Peak Particle Velocities calculated from the vector sum of the three orthogonal components of vibration occurring within the frequency range of 2Hz - 200Hz.

- (2) The velocities must refer to a specific time, ie:
- $$V_{(t)} \text{ TOTAL} = (V_{(t)} \text{ Radial}^2 + V_{(t)} \text{ Transverse}^2 + V_{(t)} \text{ Vertical}^2)^{1/2}$$
- The 99 percentile of a set of vibration events is the vibration value which is exceeded by 1 per cent of the events recorded over the period of time measured.
- (3) The V_{\max} level referred to in this Standard is the maximum value of instantaneous peak Particle Velocities calculated from the vector sum of the three orthogonal components of vibration occurring within the frequency range of 2Hz – 200Hz ($V_{\max} = V_{\text{activity}} + V_{\text{background}}$).
- (4) Measurement periods to establish background ground vibration levels ($V_{\text{background}}$) shall, as a minimum, consist of a continuous interval which is of at least 60 minutes duration during a typical day. It is not feasible to measure V_{activity} directly. It is determined by comparing $V_{\text{background}}$ with $V_{\text{background}}$ plus V_{activity} . Consequently, where V_{activity} is being considered, the measurement period selected to determine combined ground vibration levels ($V_{\text{background}} + V_{\text{activity}}$) will relate directly to the period during which the activity is occurring.
- (5) The discrete sampling interval employed during each measuring period shall be selected to avoid distortion or bias to recorded vibration values due to activities not directly associated with the activity under consideration. (Normally the discrete sampling interval will be 1 second). The resulting combined vibration levels ($V_{\text{background}} + V_{\text{activity}}$) shall then be statistically analysed and compared with $V_{\text{background}}$ to determine compliance with the standard.
- (6) The vibration frequency band width which is to be monitored is nominally 2Hz - 200Hz but this may be varied by *Council* (particularly at the low frequency end of the range) on a case by case basis to reflect the capability of commercially available vibration monitoring systems.
- (7) For resource consents, transient ground vibration is typically set in terms of a 95 percentile, and may include a maximum limit. The percentile limit will generally be applied to the design of each and every blast so that induced disturbances will not exceed the 95 percentile limit on more than 5 per cent of occasions (and will never exceed the maximum limit where set). The 95 percentile limit has little meaning for the activities that are permitted under the transient ground vibration limits set in this standard as the derivation of the relationship between explosive charge, distance and ground response required to undertake such a design can only be achieved through a series of trial blasts. Accordingly, it is the V_{\max} level as referred to and defined in this standard that is the performance standard for transient ground vibration.

8.3.2.5 RESTRICTED DISCRETIONARY ACTIVITY MATTERS

- (1) The *Council* will restrict the exercise of its discretion to the ability of the activity or development to achieve the particular environmental result in Section 8.3.2.2 of the Standards in Rule 8.3.2.3 for which compliance is not met and the following relevant matters:
- (a) Whether the vibration adversely affects the *amenity values* of the area, especially residential *amenity values*, taking into account (but not limited to) the following factors:
- (i) the total project duration
 - (ii) the duration of each blast
 - (iii) the time at which blasting occurs
 - (iv) the number of blasts per day

- (v) the amount by which the standard has been exceeded
- (vi) the cumulative impact where more than one of the standards are exceeded.
- (b) Whether the vibration is intermittent or of a temporary nature.
- (c) Whether the vibration specific to the activity has an effect above the existing background level.
- (d) Whether the best practicable option has been adopted to control vibration.
- (e) Where one or more of the standards in 8.3.2.3 is exceeded, the *Council* will assess the need to reduce any of the other standards to ensure an appropriate level of vibration effect to maintain the *amenity values* of the locality.

Note: The “*Excessive Noise*” provisions of the Resource Management Act 1991 (Sections 326 – 328) apply in addition to the Standards above.