



**Irongate Industrial Plan Change –
Soils Quality and Impact Assessment**

prepared for

Hastings District Council

**prepared by
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This report was commissioned by MWH New Zealand Limited (“MWH”) on behalf of the Hastings District Council. The brief for this technical supporting report on land use was supplied by Tim Grace and Rebecca Williams of MWH and specified the report to:

- 1 Describe the soils located over the area to be rezoned for industrial purposes and provide an assessment of the relative productive potential of these soils for horticultural, agricultural and viticulture uses.
- 2 Assess the potential for effects on the sustainability of the life supporting capacity of the wider Heretaunga Plains soil resource that may be associated with the proposed rezoning of the land.
- 3 Assess the potential for effects on the adjoining Plains zone land use that could be attributed to the proposed rezoning of the land..

The proposed rezoning of the land concerned is to be staged and the land within the area proposed for rezoning has been classified for further evaluation purposes as Stage 1, Stage 2 and areas subject to further consideration.

This report will consider separately each of the indicative stages of the proposed plan change.

PRESENT LAND USES WITHIN THE AREA

Stage 1

The estimated total area is 48.1 ha. Of this area, it is estimated that approximately 29 ha, or just over half of the area is on properties where the predominant activity is already light industrial, or fill rather than horticulture, agriculture or viticulture.

Of the remainder, it is estimated that approximately 4 ha on the Irongate Holdings Ltd property is planted in apples and plums. The remainder, estimated to be just under 16 ha is in low quality pasture, suitable only for late autumn, winter, and spring grazing because the pasture dries off rapidly once late spring and summer arrives.

Stage 2

Total area estimated to be 41.7 ha.

Most of the Stage 2 area is at present being used for agriculture, cropping or mixed pipfruit and stonefruit orcharding. However, several of the smaller areas to the north of Irongate Road which were in orchard have become 'lifestyle' blocks, with evidence of the orchards which were there having been chopped down. Estimated area of these blocks is 9 ha.

The majority of the Thomas Graeme Heard property and adjacent property remains in productive orchard, approximately 6.5 ha.

The better quality soils on the Campbell and Rasmussen property adjacent to the proposed new motorway extension are being cropped. This area is estimated to be about 6 ha.

An estimated 3.5 ha at the southern end of Stage 2 is occupied by Tumu Timbers and used as a storage area associated with their timber processing operations.

The balance, predominantly the lighter, more drought prone soils adjacent to Stage 1 south of Irongate Road, approximately 12 ha are in pasture of similar quality to the pasture in the adjacent Stage 1 area..

Areas Subject to Further Consideration

- 1 Area (a) - North End – West of Maraekakaho Road – Lot 2, DP12192, estimated area 4 ha. This area is largely a 'lifestyle' block with dwelling, pasture in the upper terrace, and the lower area used for storing saw logs.
- 2 Area (b) - North End – East of Maraekakaho Road. Estimated area approximately 10.2 ha, half of which is already in light industrial use.

It is estimated that an area of some 5 ha is currently retained in pasture, although it is understood that a resource consent has been approved for the establishment of a stock sales yard in this area. It is low lying, with presence of rushes, a plant usually found in soils with high water tables or poor drainage, indicating that part of this area may be wet.

The eastern side of this land butts up against a terrace of higher land, which is already bounded by a Casuarina shelterbelt beyond which are productive orchards. This terrace and shelterbelt forms a natural boundary between the areas being considered for industrial use and the productive Plains zone soils.

- 3 Area (c) - Southern End – West side of Maraekakaho Road – Lot 2, DP367052, estimated area 6.3 ha.

At present, this area which was in stonefruit is a cultivated paddock.

SOIL TYPES

There are four soil types situated within the area to be rezoned for industrial purposes. The table below shows the estimated areas of these soil types by rezoning stage.

Rezoning Stage	Soil Type			
	Omahu	Omaranui	Pakowhai	Irongate
Stage 1	37.14 ha	2.93 ha	-	8.03 ha
Stage 2	17.10 ha	11.20 ha	8.30 ha	5.10 ha
West of Maraekakaho Rd, North End	-	1.52 ha	-	2.48 ha
West of Maraekakaho Road, South End	-	4.41 ha	-	1.89 ha
East of Maraekakaho Road	7.76 ha	0.94 ha	-	1.50 ha
Total	62.00ha	21.00 ha	8.30 ha	19.00 ha
Estimated Total areas of soil type in Hawke's Bay	1302.47 ha	2616.12 ha	2619.30 ha	1436.9 ha
% of total area being considered for rezoning	4.76 %	0.80 %	0.32%	1.32 %

These areas of the soil types for land being considered for rezoning have been estimated from the property areas matched with the property boundaries on the soil map of the Heretaunga Plains (1997), Plan No 2683, Sheet Number 4.

Total areas of soil types were sourced from Hawke's Bay Regional Council.

DESCRIPTION OF SOIL TYPES AND THEIR USES

Sourced from Soils of the Heretaunga Plains, a Guide to their Management, by E Griffiths.

Soil Type 1 and Type 1a Omahu

- Sand, or loamy fine sand 0-15 cm depth on stony gravels.
- Good natural drainage.

- Very low water holding capacity.
- Very prone to wind erosion when cultivated.
- Incapable of growing anything over the summer without irrigation.

The two major high value uses of this soil are wine grapes on the area known as the Gimblet Gravels , where it is the most important soil for wine grape production with 679 ha planted on this soil type in 2003, and industrial use along the Omahu Road corridor, and adjacent to Flaxmere. Areas of this soil not used for these purposes is largely in pasture for winter grazing, plus a small area in pip and stone fruit.

Pipfruit quality, particularly fruit colour can be good on this soil, but yields are generally low because of poor tree growth, and variable tree canopy size due to variable top soil depth and poor soil moisture holding capacity.

The Omahu soils in the area proposed to be rezoned have not been planted in wine grapes, suggesting this area to be much less favourable for wine grape production due to a higher level of soil variability and less suitable microclimate than the Gimblett Gravels area where most of the wine grapes planted on this soil are located.

Soil Type 4g and 4s Oamaranui

- 30 to 40 cm of sandy loam/loamy fine sand on stones.
- Good natural drainage.
- Moderate to good water holding capacity.
- Prone to wind erosion if cultivated under dry conditions.

This soil is more versatile with deeper topsoil and suited to a wider range of crops than the Omahu soils.

Soil Type 17 Pakowhai

- 30 to 45 cm sandy loam/silt loam on a slowly permeable layer.
- Imperfect drainage, but easily drained.
- Moderate to good water holding capacity.

This is a very good soil for general cropping and horticultural use and is one of the more productive soils on the Heretaunga Plains.

In regard to the area proposed to be rezoned this soil is only found in the Stage 2 area adjacent to the western boundary where the proposed Southern Expressway Extension will effectively

isolate the small area of this soil situated within the plan change area from the larger more useable areas to the west of the proposed Southern Expressway Extension.

Soil Type 21 Irongate

- Shallow, sandy/silt deposits over stones adjacent to the Irongate stream, 30 to 60 cm deep over stones.
- Poorly drained – requires drainage.
- Moderate to good water holding capacity.
- High susceptibility to wind erosion when dry.

Although of reasonable soil quality and suitable for cropping and horticulture areas of this soil type are often small surrounded by adjacent poorer soils such as Omahu, which makes them difficult to use to their full potential. This is the case in the area proposed to be rezoned for industrial purposes.

POTENTIAL EFFECTS OF THE PROPOSED REZONING TO INDUSTRIAL USE ON THE LIFE SUPPORTING CAPACITY OF THE HERETAUNGA PLAINS SOILS RESOURCE.

The potential effects associated with the proposed rezoning of the land concerned for industrial use will be relatively minor on the soils resource for the reasons outlined below.

A significant proportion of the area in question is already in industrial use, rather than agriculture, horticulture or viticultural use.

56% of the area and 77% of the Stage 1 area is estimated to be Omahu soil type, a soil type only well suited to viticulture or non-agriculture and horticultural uses. The area is outside of the prized Gimblett Gravels zone, and has inferior microclimate and more variable soils making it of lesser value for viticulture. Only 4.3% of total Hawke's Bay Omahu soils resource is contained within the total area being considered for rezoning.

Pockets of other soils found in the area proposed to be rezoned are relatively small, and represent between 0.32% and 1.32% of the total resource of these soil types in Hawke's Bay.

The highest quality and most versatile soil involved is the Pakowhai soil located adjacent to the proposed Southern Expressway Extension. Only 8.3 ha representing 0.32% of the total soils resource for this soil type is being lost from the Heretaunga plains soil resource. In addition, once the Southern Expressway Extension is built in 2011 this portion of the

Pakowhai soil will no longer be contiguous with the larger, more workable areas of this soil located to the west of the proposed Southern Expressway Extension.

The potential for effects on the continued use of the adjoining Plains zone land for horticulture, agriculture and viticulture activities as a result of allowing the use of the land concerned for industrial purposes is outlined below.

There is considerably lower effect on the continued use of adjacent rural land from industrial zoned land than for land rezoned for residential use.

Apart from a small area along the southwestern boundary, there will be significant natural barriers between the area being rezoned and the adjacent Plains zone land. To the northeast is the Irongate Stream, the proposed Southern Expressway Extension to the west, and on the eastern side there is the natural boundary of a terrace on which Casuarina shelterbelts are planted to shelter the adjacent orchard properties.

As the soils within the area proposed to be rezoned are light and sandy wind blown dust could cause problems to adjacent fruit crops at times when the new industrial sites are under development. This will be an effect of a temporary nature and short duration and is expected to be managed in accordance with normal best industry practice.

Availability of, and access to, irrigation water sources could be affected through the need to make provision for new water supplies to the future industrial uses. However, the proposed new industrial area is to be serviced by a reticulated water supply, that is planned to be sourced from the existing Wilson Road bore field in Flaxmere. As such, there is limited potential for water resource allocation conflicts to arise in the future.

Future industrial users could seek to establish their own bores in the area if they have heavy water use activities. However, this is expected to be unlikely, as the Hasting District Council intends to limit the volume of wastewater that can be discharged to the reticulated system to be provided to the new industrial area, as this system will not be designed to accommodate trade waste flows.

It is possible that current spraying activities could be restricted in the future due to concerns raised by future industrial operations in relation to spray drift. The natural barriers that will exist between the different land uses and the likely requirement for shelter plantings to be established along boundaries with Plains zone land means that the potential for such effects will be limited.

Overall, given the nature of Plains zone land use adjacent to the area proposed to be rezoned, and the natural barriers that will exist between the different land uses, the potential for reverse sensitivity type effects on existing productive uses are likely to be minimal.

MITIGATION MEASURES THAT COULD BE USED TO MANAGE POTENTIAL EFFECTS ON EXISTING PRODUCTIVE ACTIVITIES

Dust	Management of dust generation associated with earthworks and construction through normal best practice such as damping down the surface of wind erodable sites with water.
Wind	Provision of shelter plantings on zone boundaries.
Security	Security fencing could be used to separate rural zone land from the industrial land. It is probable that industrial tenants will want this anyway.
Water supply	Should not be a issue as the proposed new industrial area is to be serviced with a reticulated water supply.
Spray drift issues	Provision of shelter plantings on zone boundaries.
Industrial air emissions	Will continue to be controlled by the existing provisions contained in the Regional Resource Management Plan.

SUMMARY

The proposed rezoning of the land concerned for industrial purposes will only have minor impacts on the life supporting capacity of the wider Heretaunga Plains soil resource.

Development of the Stage 1 area and the area subject to further consideration to the east of Maraekakaho Road (referred to as Area (b)) will have the least impact, as a significant portion of these areas are already being used for non-horticulture or agriculture or viticultural purposes.

Stage 2 contains small areas of higher quality soils, but as these soils will be separated from the larger areas of similar soils to the west by the proposed Southern Expressway Extension, it

would now appear to be impractical and an inefficient use of resources to exclude them from future industrial development.

The areas subject to further consideration to the west of Maraekakaho Road have moderate quality soils, but due to their small areas, are not considered to be of high value for horticulture, agriculture or viticulture.

The impact of the proposed rezoning for industrial purposes on adjacent Plains zone land use activities is likely to be no more than minor, and there are proven mitigation measures that could be used in the future to manage any potential for such effects.

ILLUSTRATIONS



Figure 1: Land cultivated cropping on Pakowhai soils immediately adjacent to the proposed new road.



Figure 2 Pasture beginning to dry off in patches on the Omahu soils.



Figure 3 Apple trees growing poorly on Omahu soil type.



Figure 4
Apple trees growing better further down the row of those in Figure 3.

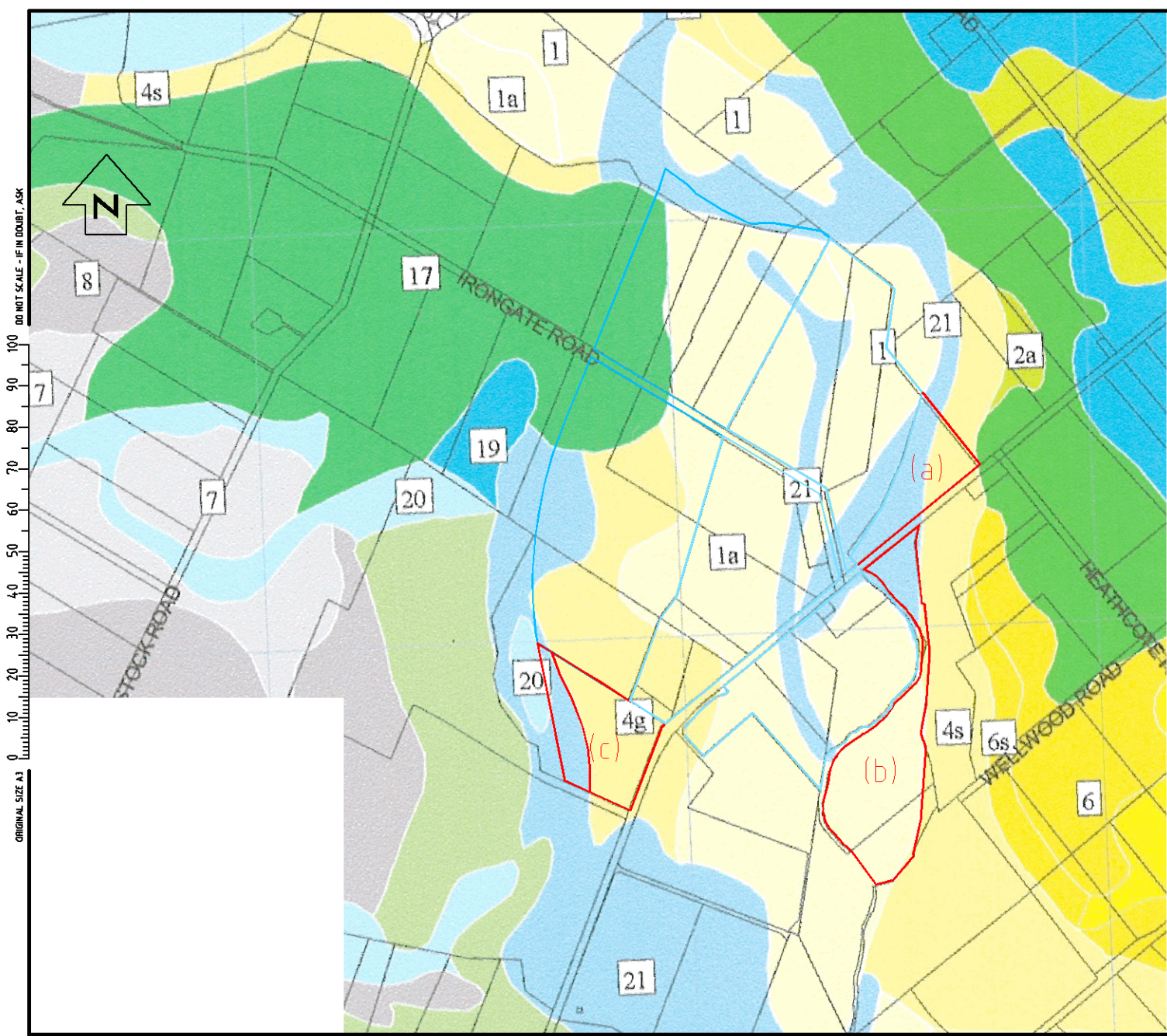


Figure 5 One of the lifestyle blocks in Stage 2 north of Irongate Road from which apple trees have been removed.



Figure 6 Area under consideration east of Maraekakaho Road showing Casuarina shelter belt on the eastern boundary.

ORIGINAL SIZE A3
DO NOT SCALE - IF IN DOUBT, ASK



LEGEND

- SOIL TYPE 1 & 1a OMAHU
AREA = 62 ha approx.
- SOIL TYPE 4g & 4s OMARANUI
AREA = 21 ha approx.
- SOIL TYPE 17 PAKOWHAI
AREA = 8.3 ha approx.
- SOIL TYPE 21 IRONGATE
AREA = 19 ha approx.

- STAGE 1
- STAGE 2
- AREAS SUBJECT TO FURTHER CONSIDERATION

NOT FOR CONSTRUCTION

REV	REVISIONS	APP	DATE
A	FINAL REVISED - JUNE 2009	TG	06/09

SCALES (A3) Not to Scale		
DESIGNED	NAME	DATE
DESIGN CHECK		
DRAWN	PAC	06/09
DRAWING CHECK		
APPROVED	TG	06/09



HASTINGS DISTRICT COUNCIL
IRONGATE INDUSTRIAL PLAN CHANGE

SOIL MAP

State Stamp PRELIMINARY		
Date Stamp 16/06/2009		
Drawing No. Z1462302	Sheet No. C03	Rev. A