

DDPR_feedback_0146s	
Name	Gavin and Mandy Wills
Organisation	
Email	
Response Date	Aug 30 22
Notes	
Q1	Select the chapter you want to provide feedback on
Q2	In general, to what extent do you support the contents of this chapter?
Q3	Objective/Policy/Rule/Standard reference:
Q4	Feedback/Comments
Q5	Objective/Policy/Rule/Standard reference:
Q6	Feedback/Comments
Q7	Objective/Policy/Rule/Standard reference:
Q8	Feedback/Comments
Q9	Objective/Policy/Rule/Standard reference:
Q10	Feedback/Comments
Q11	supporting documents?
	0
Q12	If you need more space, or have any other general comments, please leave them here

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## Mark Smith

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**From:** Gavin Wills [REDACTED]  
**Sent:** Tuesday, 30 August 2022 6:30 PM  
**To:** Plan Review  
**Cc:** [REDACTED]  
**Subject:** [REDACTED]  
**Attachments:** HelenJackemail.JPG; FloodAssess\_AmendedMappingOmarama\_22206.pdf; Ahuriri Heights subdivision May 1986.pdf; LiquefactionAhuririHts GWills.docx



**External Email** Be careful with links and attachments. Think before clicking – do I know this person and does this person's request make sense?

Hi,

We wish to submit to The Waitaki Council Draft District Plan on behalf of LOTS 1 to 9 DP 19887 but not Lot 8.

We live at 33 Ahuriri Heights, Omarama on LOT 1 of DP 19887 & with a share in LOT 7, the access road.

The Draft Plan proposes that the Ahuriri Heights subdivision, located in part on the locally named Lizard Hill, be rezoned from Rural Lifestyle (aka Rural Residential) to General Rural.

Advice from the WDC Planning Group was that this proposed rezoning was based on two arguments :

1. ECan's Natural Hazard mapping suggested that our Subdivision was prone to both flooding and possible liquefaction.
2. A desire to keep future Omarama development east of SH8 and within the Prohibition Road triangle.

At the suggestion of your Planning Group we have done considerable work with ECan on both Flooding and Liquefaction Hazards. As a result they have redrawn their boundaries for flooding in our area and are considering our arguments to remove the Liquefaction Hazard assessment. Attached please find:

- Map of Ahuriri Heights Subdivision
- ECan's amended Flood mapping for the area - a letter addressed to myself from Chris Fauth and copied to WDC, dated 22 August 2022
- My report on the Liquefaction hazard for the area
- Ecan's recent email from Helen Jack - a response to the above Liquefaction report.

By redrawing the boundaries for Flooding, ECan has removed our Subdivision from their Natural Hazards Flood zone map. Following Helen Jack's above response and with some additional work, I believe ECan may also modify the Liquefaction Hazard in the area. This would ensure that our Subdivision is not mapped as prone to either Flooding or Liquefaction and removes the argument outlined in 1. above.

Concerning argument 2. above - Subdivided in 1986 into 1 hectare lots, Lots 1 to 7 effectively became the oldest established rural-residential subdivision in the area.

1. The first houses were built on these Lots in the 1980's. A plan change to General Rural will hardly make the existing development disappear nor is it fair on landowners to restrict possible development so long after the fact.
2. None of the Lots meet General Rural rule requirements including minimum size. Unreasonable burdens could be put on the existing homeowners. For example one owner may decide to run a pig farm as his right

under General Rural while his retired neighbor who was living in relative peace and quiet less than 50m away can't build a garage near his own boundary fence as would be permitted under Rural Lifestyle.

3. We would expect a downward valuation of our properties with a zoning of General Rural.

Please note that Lot 8 is on the south side of Lizard Hill. It is undeveloped and is not supported in this submission. We submit that this cold south facing Lot 8 which is prone to flooding and liquefaction, has difficult access and overlooks the sewage farms, should remain undeveloped as a natural backdrop to the north of Omarama town.

Going forward we respectfully request that the following be zoned Rural Lifestyle and **not** General Rural in the proposed District Plan.

- all of the Ahuriri Heights Subdivision excluding Lot 8, **or**
- at the least, Lots 1 to 7,

We also support the related submissions of Neville & Michelle Kitchen, Bill and Penny Ellis and Murray Stuart about the proposed Zoning for Ahuriri Heights.

We would appreciate acknowledgement of receipt of this email.

Yours faithfully

Gavin and Mandy Wills

33 Ahuriri Heights,  
P O Box 120,  
Omarama,  
New Zealand, 9448.

mobile [REDACTED]



# **Liquefaction Hazard Assessment of Ahuriri Heights including the Front Paddock Terrace by Gavin Wills, Omarama**

## **Introduction**

The Waitaki District Draft Plan proposes that the Ahuriri Heights subdivision is rezoned from Rural Lifestyle (aka Rural Residential) to General Rural. The planners advised that this was due to Ecan's Natural Hazards assessment which suggests the subdivision and adjacent terrace is prone to flooding and to the effects of liquefaction. (Review of the Canterbury part of the Waitaki District Plan flood hazard mapping – June 2020 Report No. R20/26)

Following discussions with Ecan and a visit from Senior Scientist Chris Fauth the previous floodplain map for the area has been amended and the active flooding designation removed. ( See PDF attached - FloodAssess\_AmendedMappingOmarama\_22206 - a letter from Chris Fauth to Gavin Wills cc to planning at WDC )

However Ecan has not yet modified their Liquefaction Hazard assessment for this area and indeed may prefer not to.

The landowners of the Ahuriri subdivision believe there is sufficient evidence to remove the liquefaction hazard assessment for the Front Paddock Terrace. This evidence is being discussed with experts from Ecan and GNS and may take some time to resolve. This report outlines the reasons why liquefaction is unlikely to occur on the Front Paddock Terrace.

We believe that now is the time to conclude such an investigation before individual landowners are required to unnecessarily carry out expensive investigations or build complex foundations to consented buildings. We note that previous reports on liquefaction in the area have been desktop investigations and may be based on incorrect and/or incomplete geological evidence.

The landowners in the subdivision believe that, based on clear evidence, Ecan's liquefaction assessment should be modified. This report, written by Gavin Wills owner of Lot 1 of the Ahuriri Subdivision, assembles the evidence to show why the area should not be zoned as containing a possible liquefaction hazard.

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## Location

The Location of **Lots 1-9 DP 19887** known as the Ahuriri Heights subdivision can be found on *Fig 1. and Fig 2*. It lies 0.5 kms South of the junction of the Twizel – Omarama Road (SH8) with Prohibition Rd and is 1.5 kms NE of the town of Omarama.



*Fig 1. The location of Ahuriri Heights*

Lots 1 to 6 are approximately 1-hectare blocks on the NE side of a low hill locally known as Lizard Hill. Lot 7 is the jointly owned access road and Lot 9 is one block of 23 hectares on the terrace NE of the hillside lots. The terrace is locally known as the Front Paddock Terrace and is at the centre of this report.

Lizard Hill, rises from the edge of the Airfield Terrace crosses SH8 and runs for 0.5 kms NW to the Omarama Stream. The hill has exposed bedrock outcrops of weakly metamorphosed undifferentiated “greywacke” from the Permian period. Approximately half to two thirds of each 1-hectare block is on the slopes of Lizard Hill with the remainder on the Terrace below. The highest point in the subdivision is a trig station 441m ASL on Lizard Hill. The lowest point within the subdivision is approximately 415m ASL. *See Fig 2 and Photo 1.*





*Fig 2. The 6 Lots of Ahuriri Heights subdivision with Lot 9 on the Front Paddock Terrace NE of the prominent gravel access road and W of SH8*

There are seven residential buildings within the subdivision, four located on Lizard Hill and three on the plain with more in the planning stages. There are numerous outbuildings. The first house was built on the subdivision in the mid 1980's.

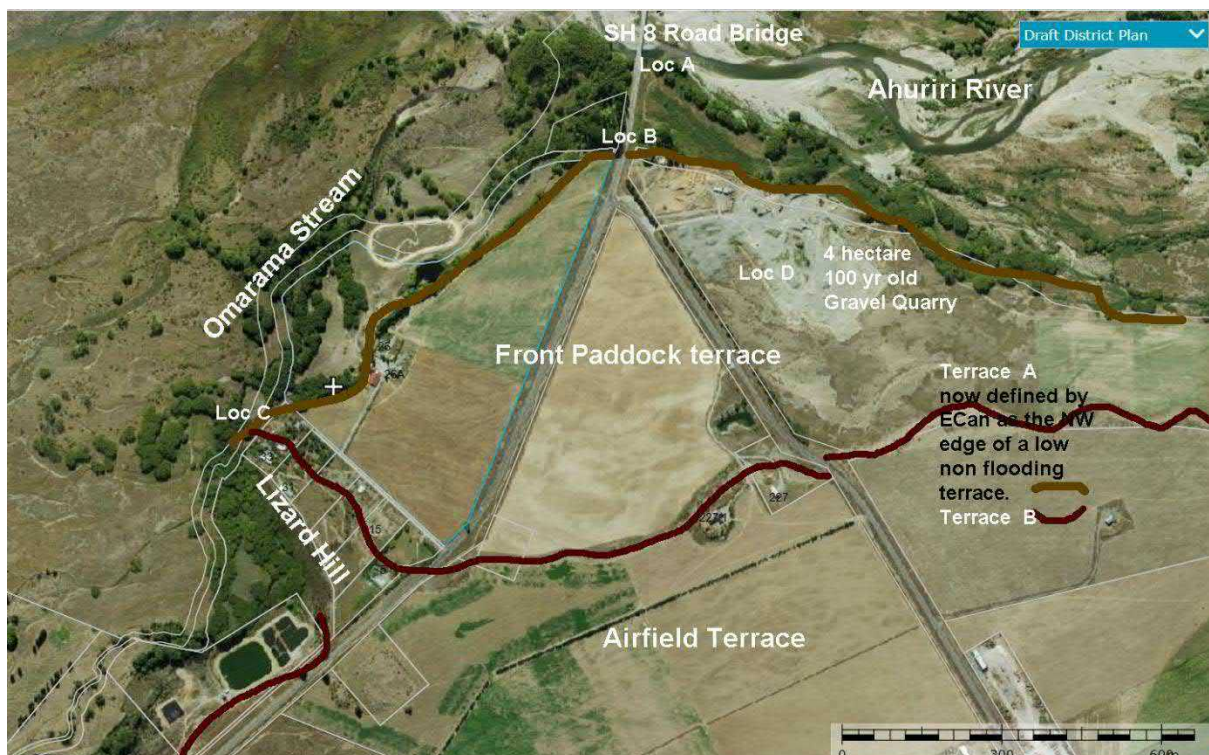


*Photo 1. The low hill, locally known as Lizard Hill on which the Ahuriri Heights subdivision is located, rises about 40 m above the surrounding plain locally known as the Front Paddock Terrace. View from SH8 looking SW across the Front Paddock Terrace shows the typically stony nature of the Terrace.*

From Lizard Hill the Front Paddock Terrace crosses SH8 and Prohibition Road as it ranges eastwards to the Ahuriri River. The draft District Plan proposes that the zoning of the Terrace west of the highway is changed from Rural Residential to General Rural due to its possible liquefaction and flooding hazards.

Ecan's Natural Hazard maps showed all of the Front Paddock Terrace as prone to flooding and possible liquefaction. On 22 August 2022 following a site visit Ecan modified their Natural Hazard mapping and removed it from their flood Hazard map.

The terrace is vertically separated from the current flood plains of the Omarama Stream and the Ahuriri Rivers by a terrace edge ranging in height from 1.5 to 3 m. The Front Paddock terrace edge is marked on *Fig 3* as *Terrace A* and is visible in *Photo 2*. The northern line, Terrace A, closely follows the terrace edge mapped by Chris Fauth on 21<sup>st</sup> of August 2022.



*Fig 3. The Omarama Stream and Ahuriri River floodplains shown relative to the SH8 road bridge, Lizard Hill and the Front Paddock terrace plus locations of interest.*

In *Fig 3*. Terrace A marks the lower edges of the Front Paddock terrace and Terrace B, the lower edges of the higher Airfield terrace. The higher Airfield terrace has been used, perhaps erroneously, as the boundary for Ecan's Natural Hazard mapping for both flooding and liquefaction.

Apart from the buildings mentioned on the Ahuriri Heights subdivision there are two residential houses on the Front Paddock Terrace, two small farms, outbuildings, a pump station and a large old but active, gravel quarry.

## Liquefaction

It is widely accepted that liquefaction can occur when and if all three of the following substratum criteria are met:

1. the area is subjected to moderate to severe shaking by an earthquake
2. the substrata are saturated with water
3. layers or lenses of silt and/or sand are present in the substrata

These three points are discussed with respect to the Front Paddock Terrace.

1. there is no doubt that the area will experience moderate to severe shaking by an earthquake at some time in the unforeseeable future.
2. The water table below the Front Paddock Terrace is generally between two and 3 m deep and has therefore been mapped as an area prone to possible liquefaction without further investigation into the nature of the gravel deposits.

Liquefaction hazard mapping of the gravel deposits in the Omarama area has generally indicated a very low hazard where the water table is below 5 m. Where the water table is higher liquefaction is considered possible if layers or lenses of sand and/or silt were to be found within the gravels. Due to the time and cost involved little effort has been made within the mapping process to determine the actual structure of these gravel deposits. It is left to the landowners and developers to carry out these determinations at a cost of between 10 and \$20,000 per investigation.

3. ECan have recently determined by inspection (Chris Faust, 21 August 2022) that the Front Paddock Terrace is not prone to flooding by the Omarama stream or the Ahuriri River. This means it is not part of the current, active floodplains. It is in fact a terrace shaped by the Ahuriri River during its continuing historic down-cutting of older outwash plains that were built up during the last glaciation. The gravels of the Front Paddock Terrace therefore are not recent deposits but were probably laid down by the ancient Ahuriri River during the last period of Pleistocene glacial advance between 20 to 30,000 years ago. In fact because they are lower than the gravel deposits of the higher Airfield Terrace the time of deposition of the Front Paddock Terrace gravels would be prior to the airfield terrace and therefore probably be towards the older end of the indicated age range.

The Front Paddock Terrace deposits although formed in the late Pleistocene were shaped into a terrace at a much later date by the down cutting of the Ahuriri River. This is likely to have occurred prior to the Ostler fault movement near the Clay Cliffs which appears to have

driven the Ahuriri River northwards to its current location. Prior to the Ostler fault movement, the Ahuriri River would have flowed more directly from the mouth of the upper Ahuriri Valley towards Omarama before swinging around Lizard Hill and gradually carving out the Front Paddock Terrace. *See photo 2*

This suggests therefore that the Front Paddock Terrace was shaped by the ancient Ahuriri River from 3 to 10,000 years ago from gravels that were laid down more than 20,000 years ago.



*Photo 2 Front Paddock Terrace - SH8 junction with Prohibition Road and Lizard Hill with the Omarama stream at peak flow during the flood on 6 August 2022. The NW Terrace edge is marked by the willow trees and water race passing by the red roofed shed. The Ostler Fault scarp can be seen in the distance squeezing the Ahuriri river northwards against the Cloud Hills at the Clay Cliffs. The swales in the foreground were probably formed 5 to 10,000 years ago by the ancient Ahuriri River when it cut and shaped the Terrace.*

To determine whether the relatively older gravels of Front Paddock Terrace may be prone to liquefaction the composition of the gravels needs to be investigated in sufficient detail to exclude the possibility that they contain significant lenses or layers of sand and/or silt.

The coarse gravels of the Front Paddock Terrace are observed to be free draining. Surface flooding is rare and water rapidly dissipates. There are no springs on the Front Paddock terrace and the water table typically ranges from 1.5 m to 4 m below the surface. Above the water table the substratum is generally dry and friable except following heavy rain or snow.

There are some remnant loess deposits on Lizard Hill and associated with the higher Airfield Terrace but none on the main Terrace.

In spite of repeated ploughing and rolling by farming the stony nature of the Front Paddock Terrace can be seen in Photos 2 and 3. There are no visible deposits of sand or silt.



*Photo 3 – the stony nature of Front Paddock terrace which is typical across the entire surface of the Terrace*

Over the years local landowners on Front Paddock terrace have ploughed the surface, dug numerous ditches and holes to install septic tank systems, water bores and for consent purposes, laid cables and pipes, erected fences and quarried for gravel. The sub strata have always afforded difficult and stony digging and only coarse river gravels were ever dug up. No surface sand or silt deposits have ever been found. Reference to the local farmer's and farm contractors will confirm this.

Boreholes driven for water on the terrace have typically found the water table at 2.5 to 4m

The gravel quarry within the Front Paddock Terrace (fig 3Loc D) has been in operation mainly for road building purposes for over 100 years and now covers an area of about 4 hectares. It provides extensive and significant profiles through the gravel deposits. The quarry manager recently said that much as they would like to find a sandy layer to mine, they have never dug out anything except course gravels with large rounded rocks up to 100mm. He said the water table is normally about 3 m below the surface.



*Photos 4,5,6 Gravel Quarry Fig 3 Loc D Note unusually high water table taken after recent flooding. Apparent layering indicates various water levels between 19 July and 23 August, 2022 and are not layers of sand! Only course river gravels are found throughout the quarry.*

About 400 m south of the quarry is an open water bore dug for irrigation purposes. Here the water table is normally about 3 m below the surface. See photo 7



*Photo 7 water bore 400m South of the gravel Quarry. The water table is high due to recent flooding but is normally at about 3 m.*

In general layers and lenses of silt or sand within an outwash plane are evidence of slow-moving water, ponds or lakes. The fact that no silt or sand deposits have been found beneath the Front Paddock terrace is not surprising considering how and where the Terrace gravel deposits were laid down on the Pleistocene glacial out wash plain. Then as now, the Ahuriri River was squeezed through the relative narrows formed between Mount St Cuthbert and the ridge south off Mount Buscott. This is an area where the water was, and still is, fast moving and carrying gravel and large stones, especially during floods. It is not an area where one would expect to find evidence of ponds and lakes or their associated deposits of silt and sand.

## Conclusions and Recommendations

1. Lots 1-7 within the Ahuriri Subdivision each has a minor part of its land on the Front Paddock Terrace, which has been assessed as possibly prone to liquefaction but Lot 9 is entirely on the Terrace
2. Under the present liquefaction hazard mapping process it is up to the landowners to demonstrate that their lot is not prone to liquefaction. The expected cost for this via a private geotechnic investigation is \$10,000-\$20,000 per consent.
3. There are no visible layers or lenses of silt and/or sand anywhere on the surface of the Front Paddock Terrace, neither is there evidence of such layers within the underlying substrata.
4. The gravels of the Front Paddock Terrace are at least 20,000 years old and were laid down by fast flowing water in an area where lakes and ponds were very unlikely.
5. In spite of a water table being higher than 5 m, liquefaction anywhere on the Front Paddock Terrace is unlikely as there are no layers or lenses of silt or sand within the gravels. Therefore, a critical criterion for liquefaction occurrence is absent.
6. It's recommended that one of the following occurs:
  - a. the Waitaki District Council planning group adopts this report and removes the requirements for liquefaction investigations for the Front Paddock Terrace or
  - b. Ecan further modifies its Natural Hazard maps of the area by removing the liquification hazard or
  - c. Further work is carried out in conjunction with the respective landowners, Ecan and GNS geologist to ground-truth the conclusions reached in this report.



26 August 2022

Gavin Wills  
Ahuriri Heights  
**Omarama**

Dear Gavin

**Flood Hazard Assessment  
Amendment to Environment Canterbury Flood Area Mapping Ahuriri Heights, Omarama**

This letter is to amend a section of flood mapping created as part of Environment Canterbury Report R20/26 – Review of the Canterbury part of the Waitaki District Plan flood hazard mapping – June 2020. This amendment came of the result of a request from members of the public who live in this area and a site visit made on 23 August 2022.

The small area of mapping in question is at the north-eastern edge of Omarama Township at Ahuriri Heights. The current District Plan maps that were used as a base layer for revising the mapping in the Environment Canterbury Report are Map 7 and Map 40.

The area in question falls onto the join/edge of the zoomed-in Map 40 and is also part of the zoomed-out Map 7. As described in the Environment Canterbury report the review of the flood mapping was carried out remotely and at a small scale using predominantly topographical information and other tools like google street view, aerial photography, historic flood photographs etc. Not every site was specifically visited and ground-truthed. In the case of this area the combination of the area involved being on the edge of the Omarama township District Council base map used and the high-level topographic information meant that higher ground in this area was simply not recognised at the time of report writing and the mapping was inaccurate.

The site visit made in August 2022, and attached flood extent line for this area, provides a much more detailed and clearer picture of potentially floodable land.

**The attached August 2022 mapping is a ground-truthed amendment to the mapping that properly identifies higher and lower areas and gives a much more realistic picture of the potential for flooding. It is my view that this revision should supersede the mapping provided in Report R20/26 for this area (only the area shown) for any application for which the mapping may be applied by Environment Canterbury or Waitaki District Council.**

**All other comments from the 2020 Environment Canterbury report around purpose and possible applications of the mapping etc still apply.**

**Key Ref:** 22206  
**Contact:** Chris Fauth

**When using the flood information provided in this letter it is important the following points are understood:**

- The information provided is the best information Environment Canterbury has at this time. The District Council or local residents may have further information about flooding at the property.
- Environment Canterbury's understanding of flooding at the property may change in the future as further investigations are carried out and new information becomes available.
- It is assumed that flood protection works will be maintained to at least their current standard in the future.
- Flooding can occur in smaller floods if stopbanks are breached at lower than design flows. A breach can occur through lateral or internal erosion of the stopbank. The location of a stopbank breach or overtopping may affect flood depths at the property.
- Flood flow paths and depths can be affected by changes on the floodplain such as:
  - Altering swales, roads or irrigation features
  - Property development including buildings, fencing and hedges
  - Blockages in culverts, drains and bridges
  - Seasonal vegetation growth
  - Antecedent soil moisture conditions

**The prediction of flood depths requires many assumptions and is not an exact science.**

I hope this information is of assistance. Please do not hesitate to contact me if you require any clarification.

Yours sincerely




**Chris Fauth**  
Senior Scientist (Natural Hazards)

cc: service@waitaki.govt.nz (Planning manager)  
Waitaki District Council

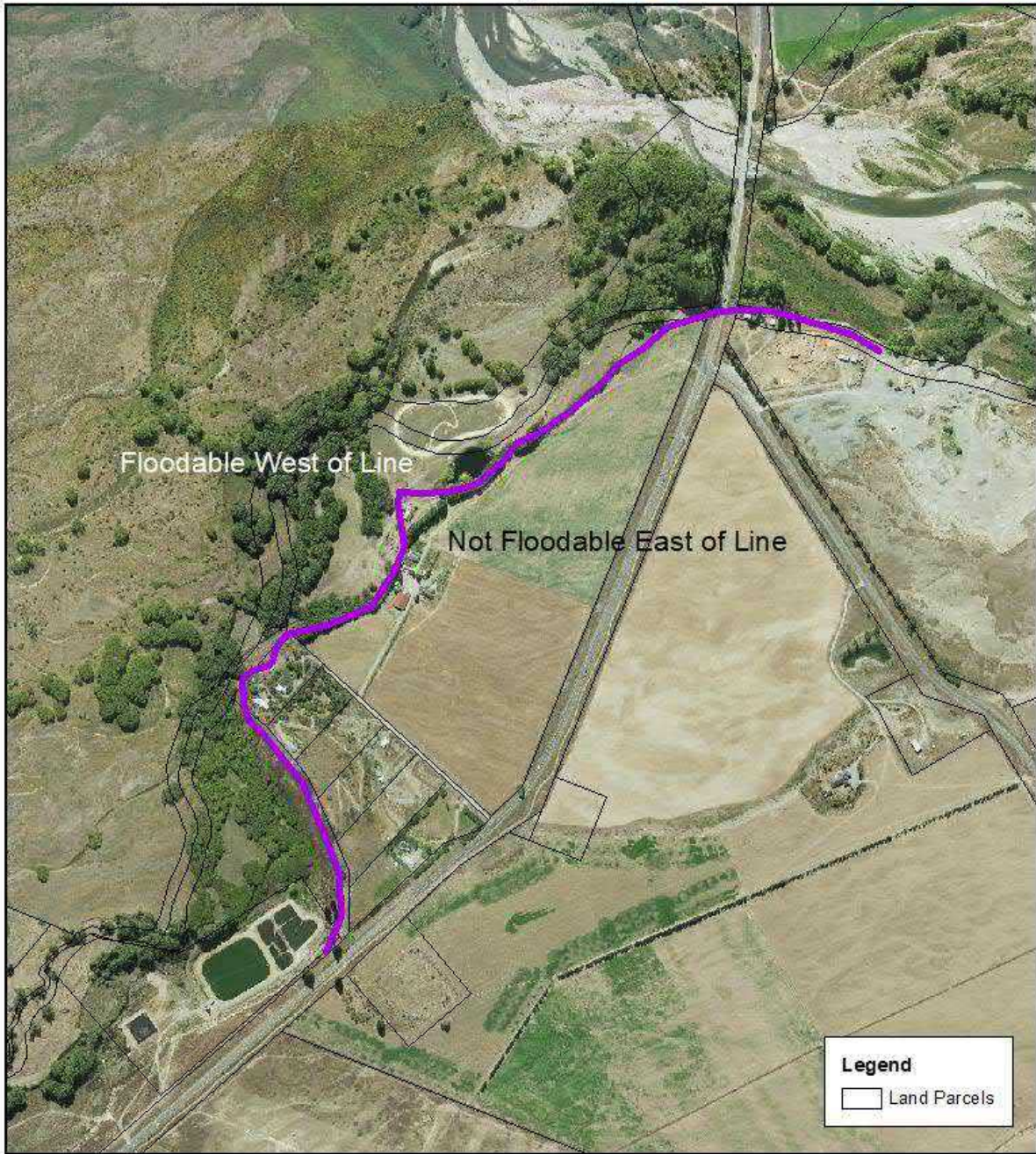
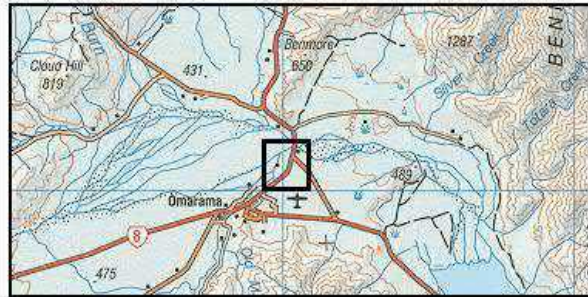
**Attachments:**

- Revised Ahuriri Heights floodable area extent (August 2022) on Aerial photograph
- Revised Ahuriri Heights floodable area extent (August 2022) on Topographic map
- Revised Ahuriri Heights floodable area extent (August 2022) on basic map
- Map 40 Proposed and Current flood mapping from Report R20/26 – June 2020
- Map 7 Proposed and Current flood mapping from Report R20/26 – June 2020
- Current Waitaki District Plan Map 40
- Current Waitaki District Plan Map 7

Ahuriri Heights/Lizard Hill Area - East Omarama Township - August 2022 Revision

 Floodable Area Extent Line


0 50 100 200 300 400 Meters




Floodable West of Line

Not Floodable East of Line

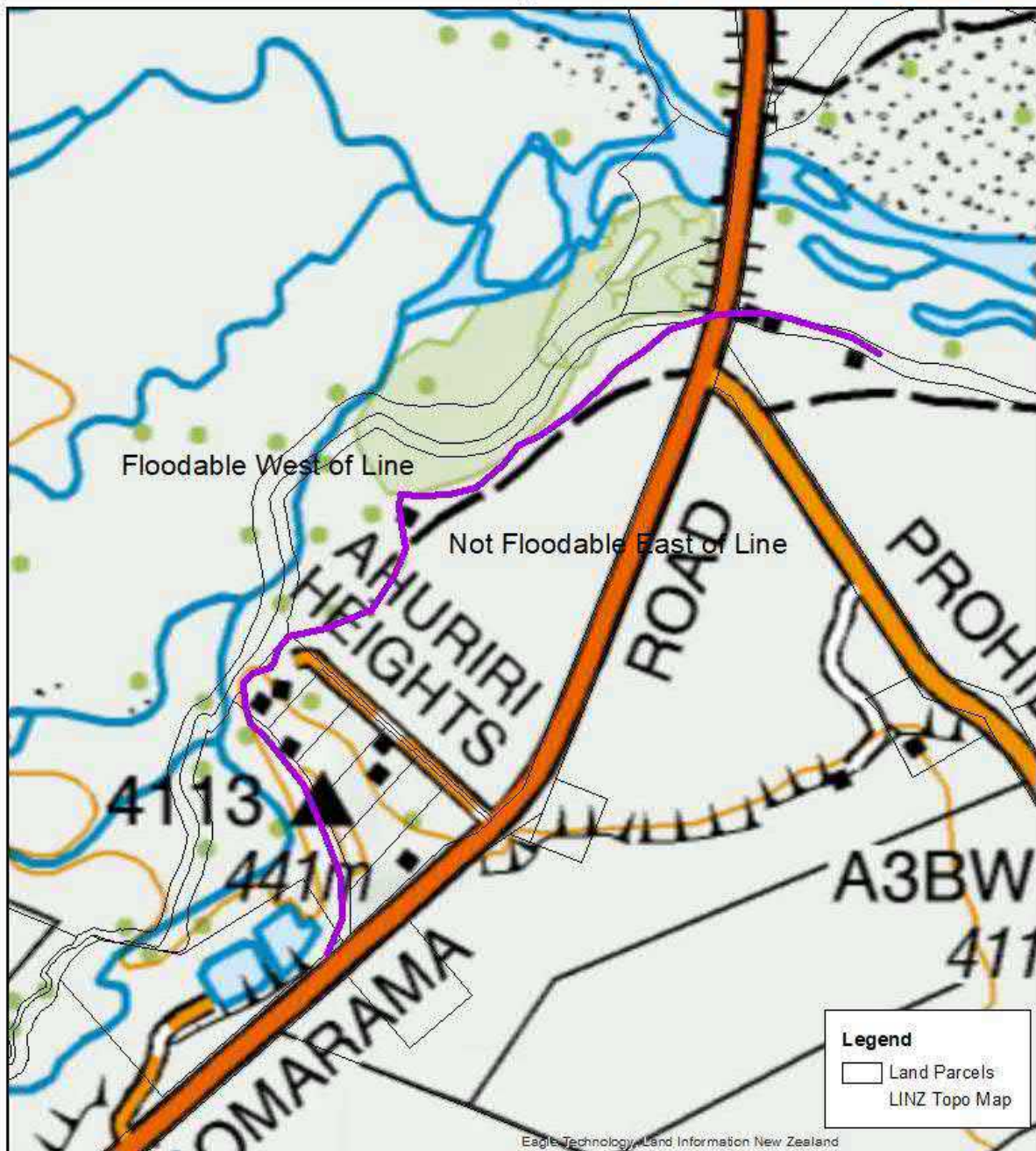
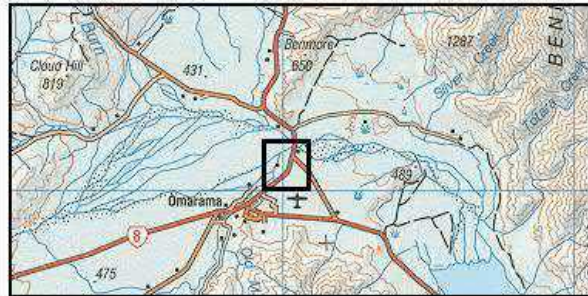
**Legend**

 Land Parcels


Ahuriri Heights/Lizard Hill Area - East Omarama Township - August 2022 Revision

 Floodable Area Extent Line

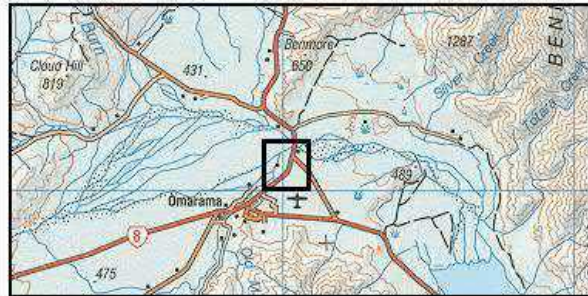
0 50 100 200 300 400 Meters



Ahuriri Heights/Lizard Hill Area - East Omarama Township - August 2022 Revision

 Floodable Area Extent Line



0 50 100 200 300 400 Meters

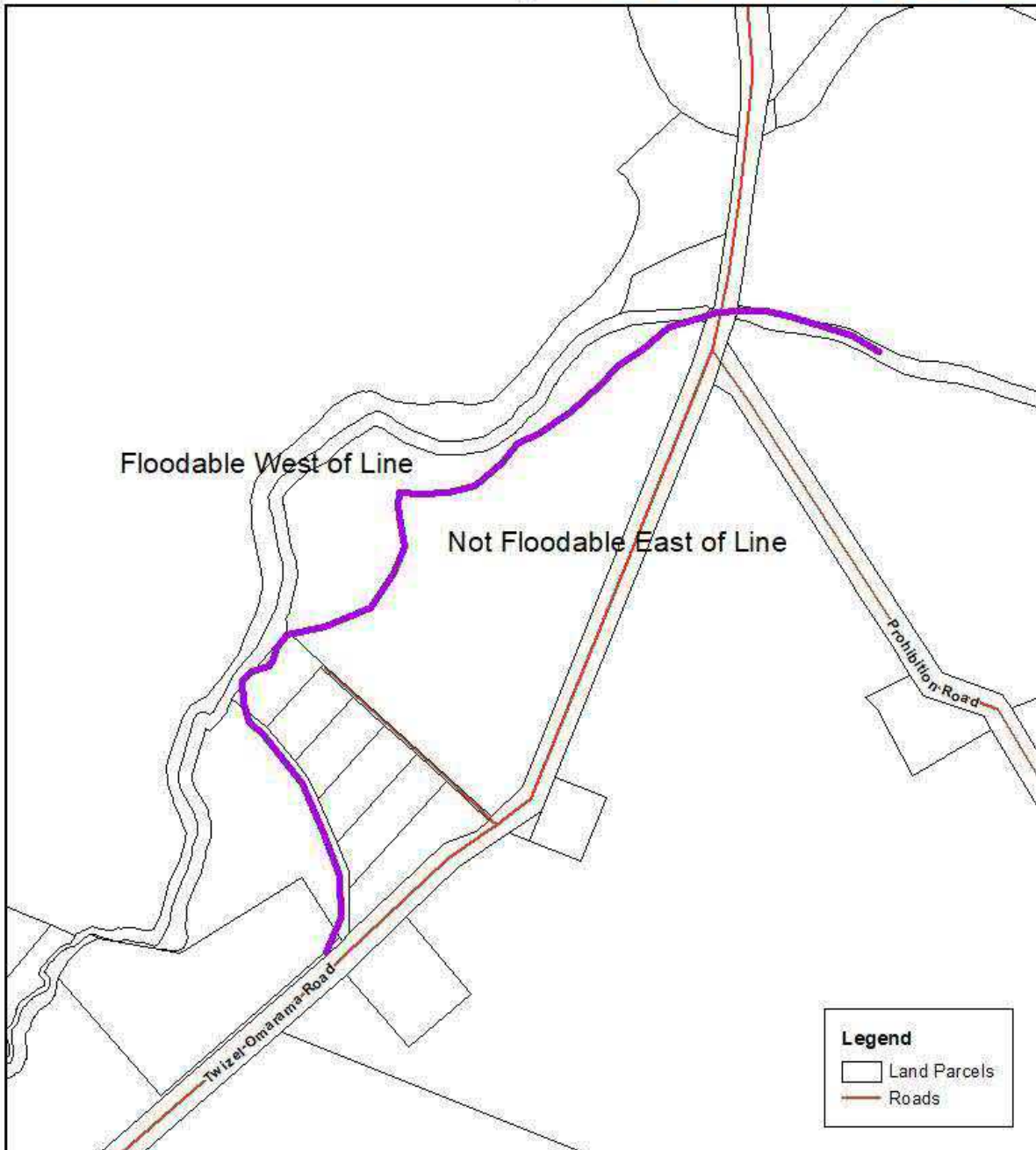


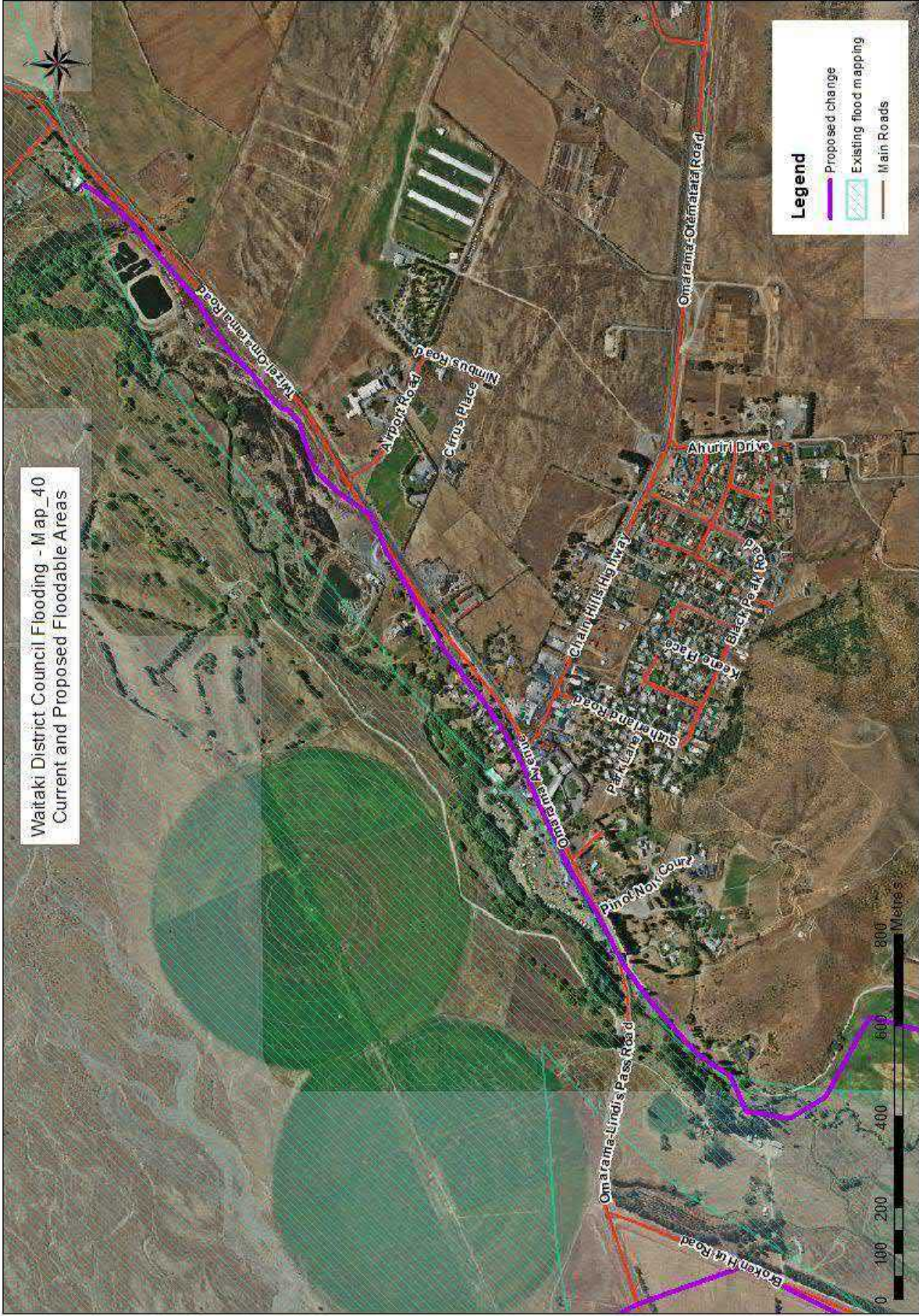
Floodable West of Line

Not Floodable East of Line

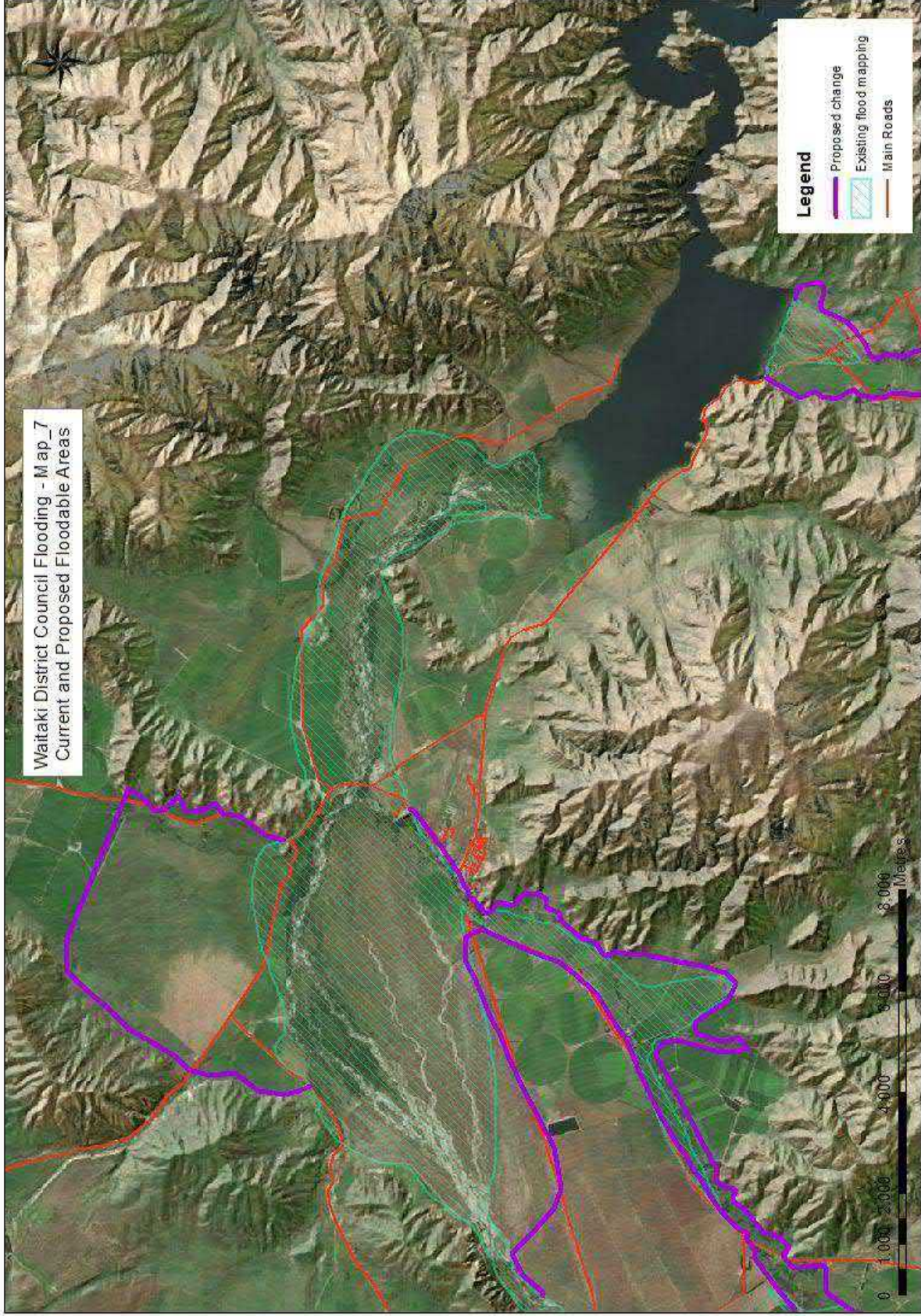
**Legend**

-  Land Parcels
-  Roads





Waitaki District Council Flooding - Map 7  
Current and Proposed Floodable Areas



7 40

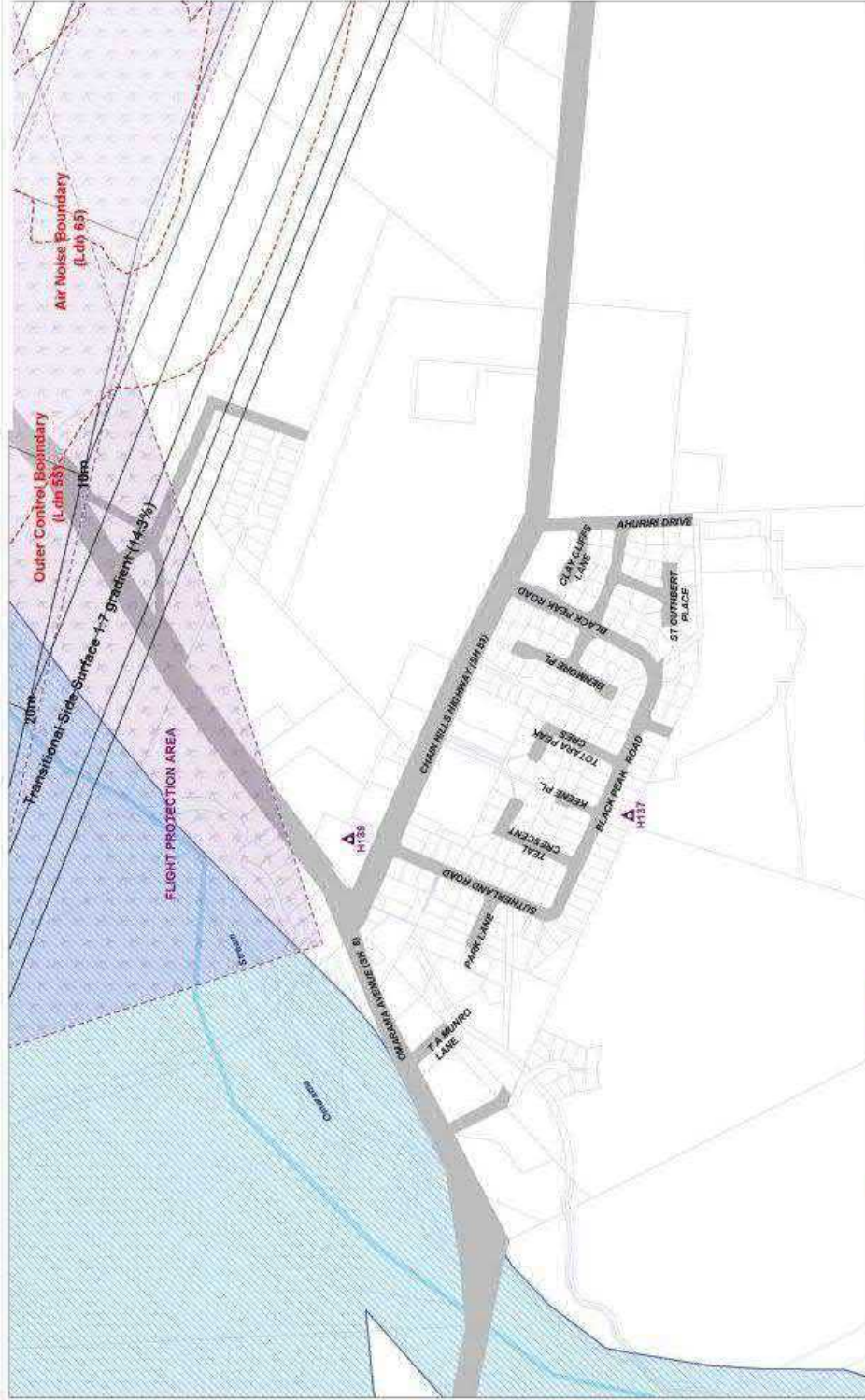
40

OMARAMA - Ahuriri



**Waitaki**

DISTRICT COUNCIL  
TE KAUNIHERA A ROHE O WAITAKI



**Notation**

- Heritage Item
- Archaeological Item
- Sites of Natural Significance
- Areas of Flooding Risk
- High Class Soils

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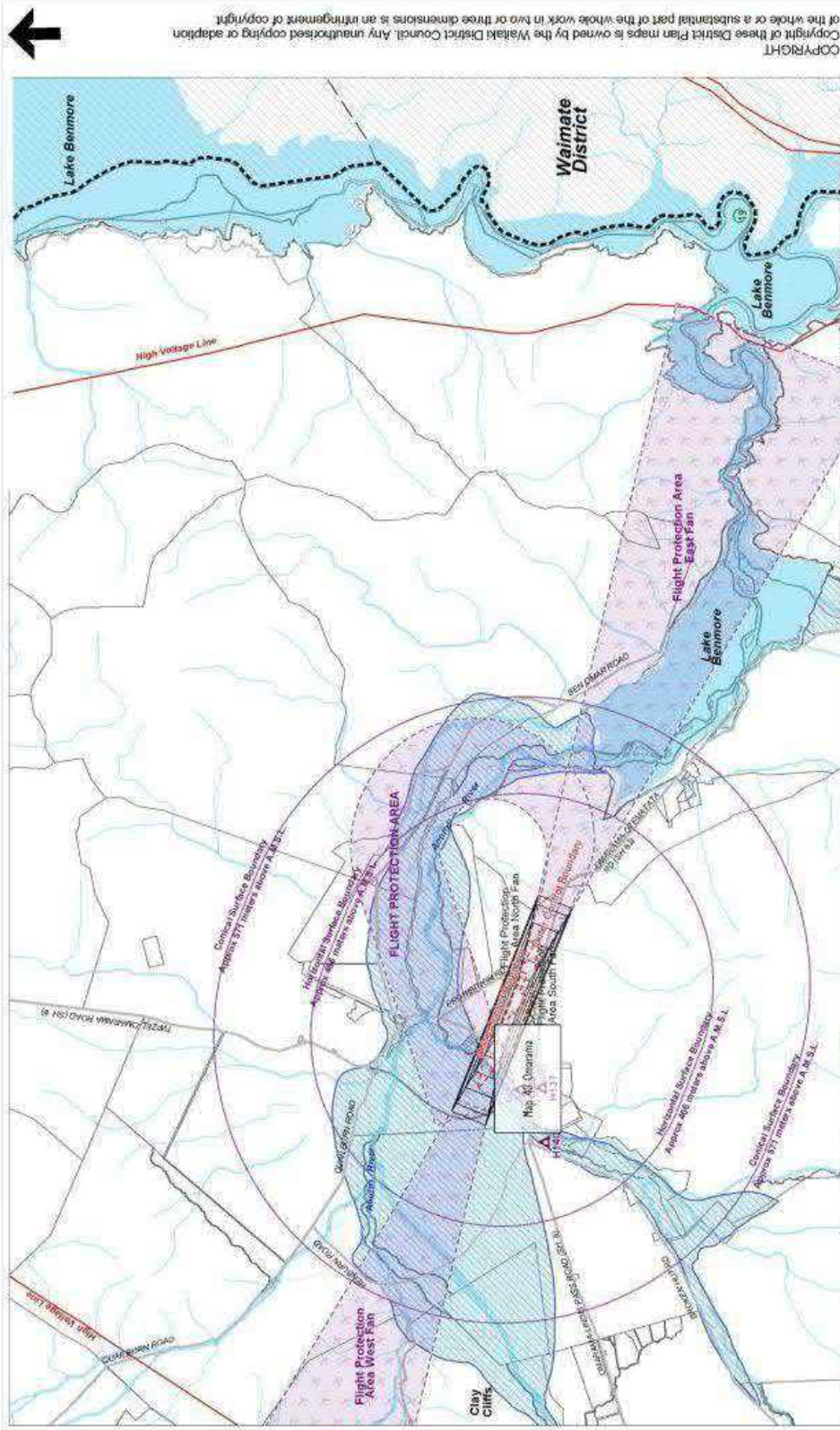


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8	9
10	

# 7 BENMORE - Ahuriri



**Waitaki**  
DISTRICT COUNCIL  
TE KAUNIHERA A ROHE O IWAITAKI



**Notation**

- Heritage Item
- Archaeological Item
- Sites of Natural Significance
- Areas of Flooding Risk
- High Class Soils

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Liquefaction in Omarama area External Inbox x



**Gavin Wills**  
Hi Helen, Chris Fauth forwarded me a summary of your comments about liquefaction in the Omarama area, in particular the terrace we call Front Paddock Terrace a

09:57 (11 hours ago) ☆

**Helen Jack**

to me ▾

13:40 (7 hours ago) ☆ ↶ ⋮

Hi there Gavin

Thanks for sending that through. Waitaki District Council would need to make the decision whether or not to exclude the Front Paddock terrace from their liquefaction overlay, and this decision would need to be based on a geotechnical report from a suitably qualified and experienced geotechnical engineer or engineering geologist. If such a report confirms that the terrace either (a) is older than latest Pleistocene (i.e. older than ~15,000 years) or (b) does not contain silt or sand lenses then we would be happy to support your request to Waitaki District Council to have the terrace removed from the overlay. There are a number of consultancies you could engage for such an investigation – it may be worth discussing this with Waitaki District Council as they may have a list of preferred or approved engineers.

**From:** Gavin Wills  
**Sent:** Monday, 29 August 2022 9:57 AM  
**To:** Helen Jack <Helen.Jack@ecan.govt.nz>  
**Subject:** Liquefaction in Omarama area

You don't often get email from [gwills@glideomarama.com](mailto:gwills@glideomarama.com). [Learn why this is important](#)

**Helen Jack**

to me ▾

14:29 (6 hours ago) ☆ ↶ ⋮

Hi again Gavin

Sorry, I managed to press send on that before I had signed off. I will also discuss this with Waitaki District Council to determine the best way forward from here.

Regards

New Message

New Message

DDPR_feedback_0182s		
	Name	Gavin and Mandy Wills
	Organisation	
	Email	
	Response Date	Aug 05 22
	Notes	See also DDPR_feedback_0146, row 150 of this sheet
Q1	Select the chapter you want to provide feedback on	
Q2	In general, to what extent do you support the contents of this chapter?	
Q3	Objective/Policy/Rule/Standard reference:	
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Q9	Objective/Policy/Rule/Standard reference:	
Q10	Feedback/Comments	
Q11	supporting documents?	
	0	
Q12	If you need more space, or have any other general comments, please leave them here	

## Mark Smith

---

**From:** Gavin Wills [REDACTED]  
**Sent:** Friday, 5 August 2022 9:40 AM  
**To:** Plan Review  
**Cc:** [REDACTED]  
**Subject:** Re: Proposed Zoning of the Ahuriri Heights sub division, Omarama for the new WD Plan.



**External Email** Be careful with links and attachments. Think before clicking – do I know this person and does this person's request make sense?

Hi Rachel,

Thanks for your email.

I will email Chris Fauth of Ecan with our observations on the Ecan natural Hazards report regarding the Ahuriri Heights subdivision and copy your plan review committee.

For your information our observations to date clearly show that the Ahuriri Heights subdivision:

1. is well above the Omarama Stream's floodplain.
2. is not prone to either flooding or liquefaction.
3. is not consistently zoned within the proposed District Plan when compared to the existing land north of SH8, between the sewage ponds and the Omarama campground. This land is zoned mostly General Residential and Rural Lifestyle, yet it is within the Omarama Stream's floodplain as highlighted in Ecan's Natural Hazards map and demonstrably prone to flooding.

This is an important conversation for the landowners within the Ahuriri Heights subdivision. Thank you for your involvement and understanding.

your faithfully

Gavin

On Mon, 1 Aug 2022 at 12:57, Plan Review <[planreview@waitaki.govt.nz](mailto:planreview@waitaki.govt.nz)> wrote:

Hi Gavin,

You would be best to speak with ECan about the natural hazards and any reports underpinning the mapping. I've been given the name Chris Fauth to pass on to you - [chris.fauth@ecan.govt.nz](mailto:chris.fauth@ecan.govt.nz)

Would you still like a call back as well?

Kind regards,

**Rachael Bason**  
Resource Management Planner – Policy

Email: [rbason@waitaki.govt.nz](mailto:rbason@waitaki.govt.nz)

Web: [www.waitaki.govt.nz](http://www.waitaki.govt.nz)

Tel: +64 3 433 0300

Waitaki District Council  
20 Thames Street  
Private Bag 50058  
Oamaru  
Waitaki District  
Otago 9444  
New Zealand



**Waitaki**

DISTRICT COUNCIL

TE KAUNIHERA A ROHE O WAITAKI

*Growing strong communities.*



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**From:** Gavin Wills <[REDACTED]>

**Sent:** Friday, 29 July 2022 10:07 am

**To:** Plan Review <[planreview@waitaki.govt.nz](mailto:planreview@waitaki.govt.nz)>

**Cc:** [REDACTED]

mandy@GlideOmarama.com

**Subject:** Re: Proposed Zoning of the Ahuriri Heights sub division, Omarama for the new WD Plan.



**External Email** Be careful with links and attachments. Think before clicking – do I know this person and does this person's request make sense?

Hi,

Further to my recent email about proposed changes to the zoning of Ahuriri Heights at Omarama it appears that the basis for the change is ECan's Natural Hazard mapping of the local area; in particular their conclusions about flooding and liquefaction. Please can you provide a copy of ECan's report on the matter or advise me how and where I might obtain a copy of this report.

Also the affected landowners of the subdivision all support my concerns expressed in the earlier email and are copied above.

Many thanks,

Gavin

On Tue, 26 Jul 2022 at 10:06, Gavin Wills <[REDACTED]> wrote:

Hi,

My wife and I own and live at 33 Ahuriri Heights, Omarama. The current draft District Plan has Ahuriri Hts zoned as Rural. We think that it should be zoned as Rural Lifestyle.

The Ahuriri Heights subdivision was created in the mid 1980's and effectively became the area's first "rural subdivision" like block to be developed. It appears that the proposal to rezone the subdivision as General Rural instead of Rural Lifestyle is based on ECan's natural hazard mapping which suggests the subdivision is prone to both flooding and to liquefaction. We suggest that Ecan's mapping in this area must be incorrect or has been incorrectly transcribed and carried out without ground investigation. (draft District Plan Mapping - Natural Hazards)

- 1. Flooding:** Most of the subdivision is on a rocky hill which rises approximately 50m above the surrounding plain and peaks at 441m asl. This topography is shown on LINZ topo 1:50,000. Clearly the hill cannot flood! The gravel plain below the hill and within the subdivision is a terrace 2m above the Omarama Stream and Ahuriri River flood plains. They did not flood in the recent catastrophic flood event at Omarama (a 100 + year event) even though the Omarama stream was about 500m wide at this point. The rocky hill is in itself a barrier to flooding from the Omarama Stream.
- 2. Liquefaction:** The subdivision has also been mapped as prone to liquefaction in the case of earthquakes, yet the surface substratum does not meet either of the two criteria required for liquefaction to occur with shaking. These criteria are 1) a saturated substratum and 2) a substratum consisting of sand and/or silt.

The surface substratum on the hill consists of bedrock with occasional pockets of loess. The hill slopes to the north at 10 to 15 degrees and the bedrock dips beneath the adjacent plain of post glacial river gravels. The gravels typically consist of coarse poorly sorted sand, pebbles, cobbles and boulders over 100mm. This kind of material is not considered to be a risk for earthquake liquefaction even when saturated, and near the hill they are probably quite shallow. (See Christchurch Liquefaction information and ["Planning and engineering guidance for potentially liquefaction-prone land"](#) published by NZ Govt, MBI and Environment, in 2017 ).

There are no springs within the subdivision even when the water table is high. The water table on the flats within the subdivision is typically 2 to 3 m deep. The coarse gravels are very free draining.

The subdivision is on a hill which dips below free draining course, unsaturated gravels. Therefore it is neither flood prone or prone to liquefaction. We respectfully submit that in the proposed District Plan, the subdivision should be zoned as Rural Lifestyle not General Rural in line with its previous Rural Residential zoning.

We look forward to comments from the planning committee.

yours faithfully,

--

Gavin Wills  
33 Ahuriri Heights,

P O Box 120,

Omarama,

New Zealand, 9448.

ph [REDACTED]  
mobile [REDACTED]

[www.GlideOmarama.com](http://www.GlideOmarama.com)

--

Gavin Wills  
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Omarama,

New Zealand, 9448.

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mobile [REDACTED]

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DDPR_feedback_0195s		
	Name	Gavin and Mandy Wills
	Organisation	
	Email	
	Response Date	Jul 26 22
	Notes	See also rows 150 and 186, DDPR_feedback_0046 and DDPR_feedback_0182
Q1	Select the chapter you want to provide feedback on	
Q2	In general, to what extent do you support the contents of this chapter?	
Q3	Objective/Policy/Rule/Standard reference:	
Q4	Feedback/Comments	
Q5	Objective/Policy/Rule/Standard reference:	
Q6	Feedback/Comments	
Q7	Objective/Policy/Rule/Standard reference:	
Q8	Feedback/Comments	
Q9	Objective/Policy/Rule/Standard reference:	
Q10	Feedback/Comments	
Q11	supporting documents?	
	0	
Q12	If you need more space, or have any other general comments, please leave them here	

## Mark Smith

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**From:** Gavin Wills <[REDACTED]>  
**Sent:** Tuesday, 26 July 2022 10:07 AM  
**To:** Plan Review  
**Subject:** Proposed Zoning of the Ahuriri Heights sub division, Omarama for the new WD Plan.



**External Email** Be careful with links and attachments. Think before clicking – do I know this person and does this person's request make sense?

Hi,

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We look forward to comments from the planning committee.

yours faithfully,

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