

22 July 2024

S B Civil Ltd

C/ - Williamson Water and Land Advisory Ltd

By email

**Attention** Laila Alkamil

Dear Laila,

## **1618 Ararimu Road, Papakura: information request regarding ecological effects**

We refer to the Section 92 letters dated 6 December 2023 and 21 December 2023 from Marian Whitehead, Senior Planner at Auckland Council regarding Council's further information request for the development at 1618 Ararimu Road, Papakura as a managed fill operation, with associated enabling works.

You have asked us to provide a response to items 58-65, and 68(b) of the s92 request.

The queries regarding ecological matters are presented below in italics, with Council's request number, followed by our reply.

### **Request 58**

*In Section 3.3 of the EclA, the ecologist indicates that the MfE Pasture Exclusion Assessment Methodology was applied to potential wetlands on the site. Page 9 of this protocol (MfE, 2022) states the following "The purpose of the NPS-FM pasture exclusion clause is to support the continuing use of pasture for grazing purposes. The exclusion is not targeted at pasture being converted for urban development or for other land uses". Therefore, our interpretation is that areas that exhibit wetland characteristics, where land use will not remain grazed pasture, should be assessed following the method set out in the 2022 Wetland Delineation Protocol. In addition, areas that are subject to recent disturbance (including grazing) should be assessed, not only in terms of the vegetation modules of the protocol, but also in terms of hydric soil and hydrology.*

*Please advise the area and extent of wetlands on the site without the application of the Pasture Exclusion methodology. If necessary, please also revisit the calculation of offset targets.*

### **Our reply**

The assessment of wetland areas on the site was undertaken using a combination of the Wetland Delineation Protocols, the Pasture Exclusion Methodology, and assessment of the local topography, soils and hydrology.

Wetlands W4, W5, W6, W7, and W8 passed the Rapid Test for vegetation. The dominant plant species in these wetlands are all Obligate (OBL) or Facultative Wetland (FACW) species, including *Glyceria maxima*, *Glyceria declinata*, *Juncus* species, *Ranunculus flammula*, *Paspalum distichum*, *Salix cinerea* and *Carex secta*. These wetlands have formed in the bottoms of narrow gullies and/ or stream channels, some of which widen slightly to create small basins (e.g. Wetland W5). They are delineated by the surrounding landform i.e. the banks of the gullies and/

or stream channels that they lie within. The gully sides and stream banks are steep and, therefore, free-draining and very unlikely to support the hydrology required to form hydric soils and wet-adapted vegetation communities.

Wetlands W1, W2, and W3 passed the Dominance Test for vegetation. The dominant species in these wetlands are Facultative Wetland (FACW) or Facultative (FAC) species, and they have a Prevalence Score of less than 3.0. These three wetlands are the remaining patches of a larger area of wetland that historically covered much of the area along the true right bank of Stream P1 (according to historic aerial photographs).

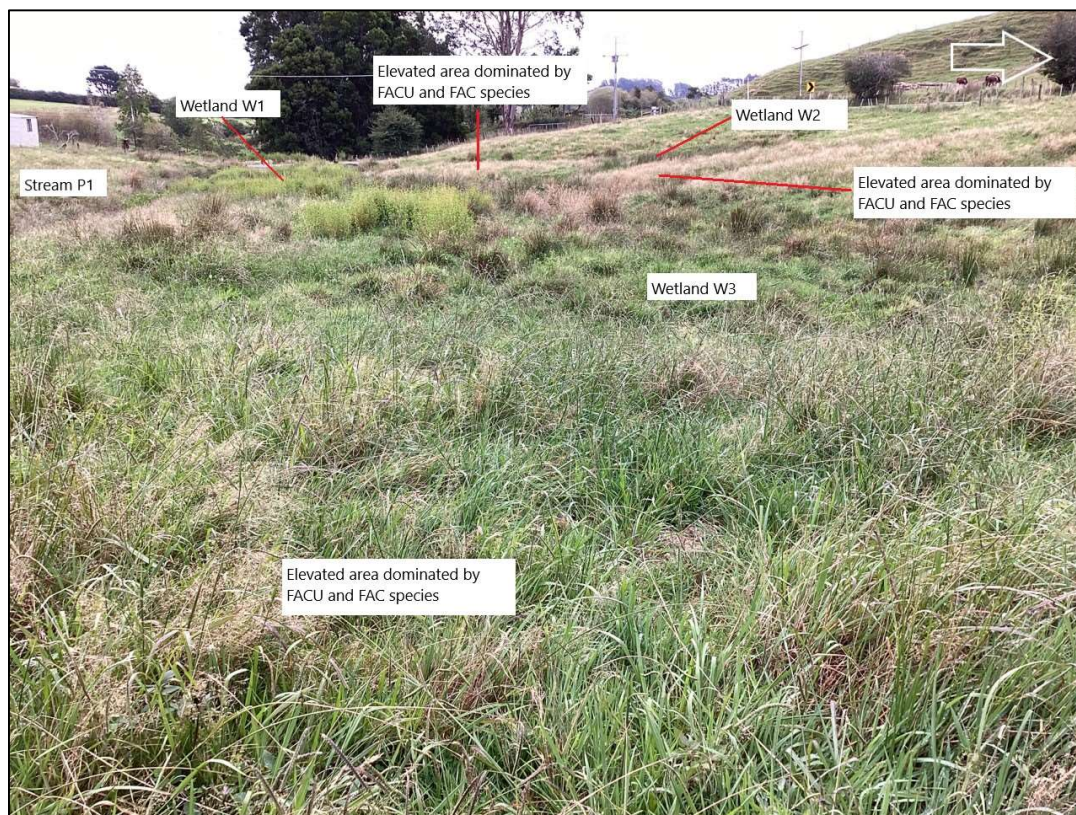
Areas immediately around these wetlands were not classified as natural inland wetlands for the following reasons, in addition to passing the Pasture Exclusion Test:

- These areas were assessed on site as being dominated by Facultative and Facultative Upland species, including *Paspalum dilatatum* (FACU) with a percentage cover of over 50 %, *Holcus lanatus* (FAC), *Plantago lanceolata* (FACU), *Trifolium repens* (FACU), and *Lotus pedunculatus* (FAC) (**Plate 1**). There were also occasional examples of *Juncus sarophorus* (FACW) but this species covered no more than 10 % of the area outside of the delineated wetlands. These areas did not pass the Dominance Test for vegetation and have a Prevalence Score of over 3.0.
- Topography – the areas around the delineated wetlands are elevated above the height of the wetlands, probably as a result of the build of material excavated from the many drainage ditches in this area (**Plate 2** and **Plate 3**). The elevated areas were dry underfoot compared to the areas delineated as wetland.
- Highly disturbed nature of the soil profile – soil cores taken from the areas delineated as wetlands show a wide variety of soil profiles across this small area, indicating a high level of disturbance and variety in local hydrology (**Plates 4-6**).

**Figure 1** illustrates the location of wetlands, soil cores, and photo points.



**Plate 1:** Photo point 6, view south-west. Elevated area dominated by FACU and FAC species, with *Paspalum dilatatum* (FACU) being the most dominant with over 50 % coverage. *Juncus* species are occasional, making up less than 10 % of the plant coverage. *Persicaria hydropiper* lines the bank of Stream P1.



**Plate 2:** Photo point 7, view west. The slight changes in topography and have resulted in differences in vegetation type. Wet-adapted vegetation is growing in the depressions, whereas the elevated areas support dryland species.



**Plate 3:** Photo point 7, view north-north-east. The slight changes in topography and have resulted in differences in vegetation type.



**Plate 4:** Soil core SC1 from Wetland W1. A disturbed soil profile, ranging from dry in the top 150 mm to wet at 500 mm, with a mix of low and dark chromas. Very minimal mottling at 400-500mm. Hydric properties uncertain.



**Plate 5:** Soil core SC2 from Wetland W2. A wet, low chroma soil profile, with mottling between 300-500 mm. A hydric soil.



**Plate 6:** Soil core SC3 from Wetland W3. A saturated soil profile, with an organic element and an egg y smell. A hydric soil.

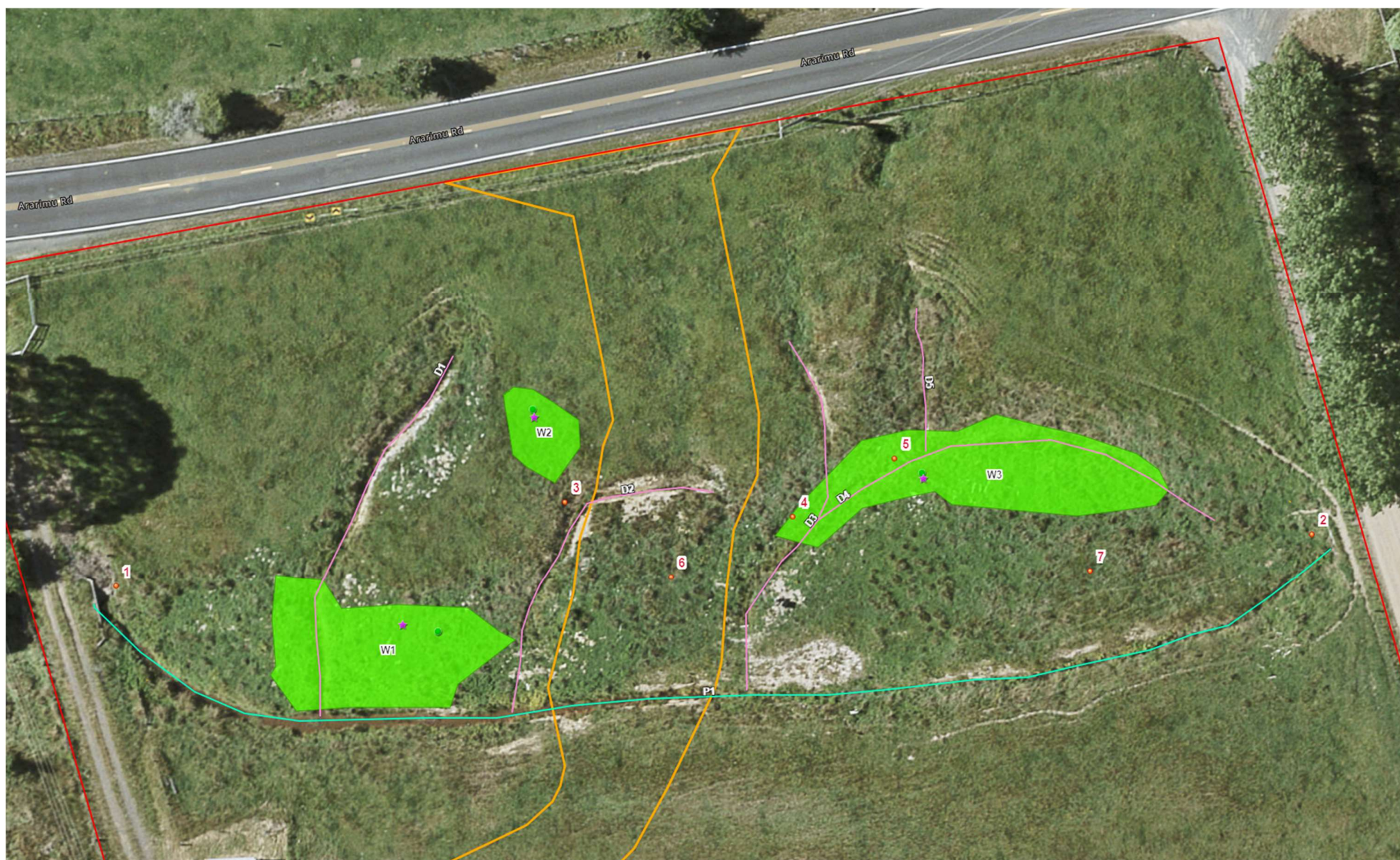
Stream P2 at the centre of the site is lined with a narrow band of vegetation that includes a mix of wet-adapted vegetation such as *Persicaria hydropiper* (FACW) and *Juncus* species (FACW), and dryland species including *Paspalum dilatatum* (FACU), *Holcus lanatus* (FAC), *Rubus fruticosus* (FAC), and *Ligustrum sinense* (FACU). The stream has been recently widened and deepened to increase flood capacity, and the excavated material has been deposited along the stream banks. The disturbed nature of the stream banks, the mix of species from FACW to FACU, and the narrow width of this vegetation resulted in the categorisation of this area as riparian margin rather than as wetland (**Plate 7 and Plate 8**).



**Plate 7:** View south along Stream P2. The stream has been recently excavated to a uniform width and depth to increase capacity. The banks are generally steep and support only a narrow band of vegetation before pasture grasses dominate.



**Plate 8:** View north along Stream P2. The stream banks support pasture grasses, *Rubus fruticosus* agg., *Persicaria hydropiper*, *Ligustrum sinense* and occasional *Juncus effusus*.



**Figure 1:** Map to show the location of wetlands (green polygons), soil cores (purple stars), and photo points (red dots and numbers). Permanent streams (turquoise line), drains (pink lines), wetland plot location (green dots) and the proposed boundary of the new accessway (orange lines) are also shown.

## Request 59

An area with a relatively high density of *Juncus* species was observed to the west of Wetland 5 (shown in the image below with yellow arrows). Please advise if this area meets the definition of a natural inland wetland and provide the data used for this assessment. If necessary, please also revisit the calculation of offset targets.



### Our reply

The above photograph is not up to date as it pre-dates the construction of the vehicle hard-standing area that has been in existence for at least 18 months.

The photograph shows a line of vegetation along Stream I1.

A vegetation plot assessed at the upstream end of Stream I1 shows that the vegetation here passed the Pasture Exclusion Test, and is therefore not a natural inland wetland. On completion of the fill, this area will be returned to grazing pasture, therefore use of the Pasture Exclusion Test is valid in this case.

In addition, the vegetation in this plot does not pass the Dominance Test for vegetation (**Plate 9**), as the dominant species are *Agrostis capillaris* (FACU) 45%, *Paspalum dilatatum* (FACU) 10 %, *Ranunculus repens* (FAC) 10 %, and *Juncus effusus* (FACW) 10 %, and the Prevalence Score is over 3.0 (score = 3.3). The data from this wetland plot is presented in **Figure 2**.

Photographs of the banks of Stream I1 show that this mix of species is similar as that described above, all along its length, and that the density of *Juncus* species is not as high as it appears in the above photograph (**Plates 10 to 13**). This area does not meet the criteria for a natural inland wetland.



**Plate 9:** Wetland plot WP4 in which the vegetation passes the Pasture Exclusion Test (over 50 % pasture species), does not pass the Dominance Test (over 50 % of the dominant species are FACU or FAC), and has a Prevalence Score of 3.3.



**Plate 10:** View down Stream I1 from the location of wetland plot WP4 showing a similar suite of plant species as that recorded in the plot.



**Plate 11:** View across Stream I1 from photo point 65, showing the narrow, patchy line of *Juncus* species amongst grasses.



**Plate 12:** View upstream from the lower end of Stream I1 and at the edge of Wetland W5.



**Plate 13:** Close up view of the bank vegetation of Stream I1 in its middle reach, which includes *Paspalum dilatatum*, *Ligustrum sinense*, *Lotus pedunculatus*, *Plantago lanceolata*, and *Agrostis capillaris*.

Site	Ararimu Road cleanfill		
Date & Recorders	Emily Roper 22/2/2023		Not wetland
Common name	Species (hydrotype)	group score	WP4
Paspalum	<i>Paspalum dilatatum</i> FACU	4	10%
Soft rush	<i>Juncus effusus</i> FACW	2	10%
creeping buttercup	<i>Ranunculus repens</i> FAC	3	10%
Yorkshire fog	<i>Holcus lanatus</i> FAC	3	5%
Lotus	<i>Lotus pedunculatus</i> FAC	3	5%
Creeping bent	<i>Agrostis stolonifera</i> FACW	2	5%
Jointed rush	<i>Juncus articulatus</i> FACW	2	
Water pepper	<i>Persicaria hydropiper</i> FACW	2	1%
Perennial rye grass	<i>Lolium perenne</i> FACU	4	
Slender clubrush	<i>Isolepis cernua</i> OBL	1	
Toad rush	<i>Juncus bufonius</i> FACW	2	
Blue sweet grass	<i>Glyceria declinata</i> OBL	1	
Clubrush	<i>Isolepis prolifera</i> OBL	1	
Oval sedge	<i>Carex ovalis</i> FACW	2	
Water forget-me-not	<i>Myosotis laxa</i> OBL	1	
Loosetrife	<i>Lythrum hyssopifolia</i> FACW	2	
sweet vernal	<i>Anthoxanthum odoratum</i> FACU	4	
rush	<i>Juncus saraphorus</i> FACW	2	
Browntop	<i>Agrostis capillaris</i> FACU	4	45%
Gypsywort	<i>Lycopus europaeus</i> OBL	1	
Sharp-fruited rush	<i>Juncus acuminatus</i> OBL	1	5%
Spearwort	<i>Ranunculus flammula</i> FACW	2	
Narrow-leaved plantain	<i>Plantago lanceolata</i> FACU	4	2%
Selfheal	<i>Prunella vulgaris</i> FACU	4	1%
Hawkbit	<i>Leontodon saxatilis</i> FAC	3	1%
	<i>Trifolium repens</i> FACU	4	
Bare ground/standing water			
			100%
			67%
Prevalence Index (Hydrophytic vegetation $\leq 3$ )			3.3
Excluded as NPSFM wetland (>50% pasture in improved pasture?)			Yes
Dominance Test score (>50%) for OBL, FACW, or FAC			No
Prevalance Index ( $\leq 3.0$ )			No
All or most dominants FAC?			
Hydric soils present	M = mottling; G = gleyed; W = wet		
Wetland hydrology present			
NPSFM wetland (Yes or No)			No

Figure 2: Wetland plot data from WP4.

## Request 60

Please advise how the hydrological drivers will be returned and maintained where historical wetlands are to be re-established to meet offsetting targets.

### Our reply

The historical wetland at the northern end of the site will be restored by removing material that has been deposited following drain excavation, and blocking the existing drainage channels, so as to the lower the ground level to that of the existing depressions where wetland vegetation persists. The area will then receive and retain surface and ground water draining downslope from the north, thus increasing water levels and creating conditions suitable for wet-adapted vegetation.

The historical wetland in the centre of the site, around Stream P2, will be restored by removing material from the stream banks that has been deposited following stream widening and deepening, to create a wider, flatter floodplain area along the length of the stream. These areas will receive and retain water draining downslope towards the stream, as well as from flooding of the stream during high rainfall events.

#### Request 61

*Given the soil composition and volume of water in the stand of pine trees, the removal of the trees may significantly change the site's groundwater and/ or stormwater characteristics, and there may be a hydrological driver that would have supported a wetland in this area in the past, noting that there are no wetland indicators visible at present as pines absorb large amounts of resulting in significant changes.  
Please advise if consideration has been given to the possible existence of historical wetlands within the pine plantation area.*

#### Our reply

The area beneath the stand of pine trees, at the time of our site visit, supported ephemeral watercourses/ overland flow paths. There were no vegetation or fauna indicators for the existence of a natural inland wetland.

Prior to clearance of the original forest in this area, the gully would have supported mixed podocarp/ broadleaved forest, possibly including trees such as kahikatea and pukatea along the gully bottom, two tree species that are adapted to wet soils. An intermittent or ephemeral stream is likely to have flowed at the bottom of the gully (an ephemeral stream flowed beneath the pines), but wetland is less likely to have formed.

It is immaterial to this consent application whether there has been a natural inland wetland in this area in the past or not.

#### Request 62

*Please review and update the AEE and EcIA to provide an assessment of the proposal in relation to Chapter E15 Vegetation Management and Biodiversity of the AUP(OP), particularly rules E15.4.1 (A10, A17) and (A18).*

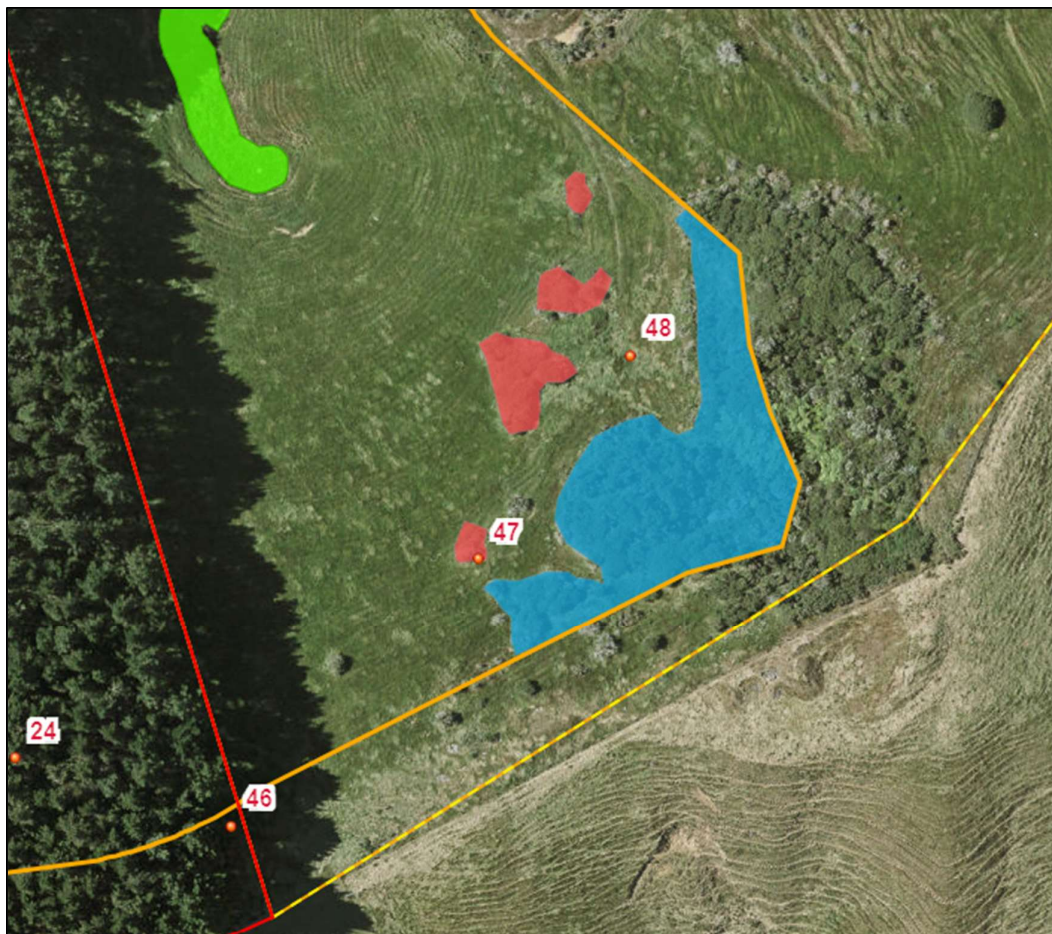
#### Our reply

Chapter E15 Vegetation Management and Biodiversity relates to the protection/ maintenance/ enhancement of indigenous vegetation and vegetation in sensitive environments including riparian margins and wetlands. Assessment against the relevant rules follows:

Rule number	Rule	Activity status	Comment
<i>All zones outside the RUB</i>			
E15.4.1 (A10)	Vegetation alteration or removal, including cumulative removal on a site over a 10-year period, of greater than 250 m <sup>2</sup> of indigenous vegetation that: <ul style="list-style-type: none"> <li>(a) Is contiguous vegetation on a site or sites existing on 20 September 2013; and</li> <li>(b) Is outside the rural urban boundary</li> </ul>	Restricted Discretionary	Vegetation is proposed to be removed to allow for earthworks and development for the re-location and upgrade to the access track, and for the area proposed for managed fill.  Vegetation that will be removed:  <u>Pine trees</u> (not indigenous) within the managed fill area. Already cleared (March-April 2024) under authority of a harvesting permit.  <u>Mixed exotic-native scrub</u> (partially indigenous) comprising <i>Berberis glaucocarpa</i> , <i>Ulex europeaus</i> , <i>Sphaeropteris medullaris</i> , <i>Kunzea ericoides</i> ,

Rule number	Rule	Activity status	Comment
			<p><i>Leptospermum scoparium</i>. 1,996 m<sup>2</sup> to be cleared – approximately half the area of an isolated patch of scrub in the south west corner of the proposed managed fill area (<b>Figure 3</b> below). The area to be cleared is primarily comprised of exotic <i>B. glaucocarpa</i> and <i>U. europeus</i> (<b>Plates 14 and 15</b>).</p> <p><u>Exotic scrub</u> (not indigenous) comprising patches of <i>B. glaucocarpa</i> amongst pasture grasses – 401 m<sup>2</sup> in total.</p>
<i>Riparian areas (as described below)</i>			
E15.4.1 (A17)	Vegetation alteration or removal within 10 m of rural streams in the Rural – Rural Production Zone and Rural – Mixed Rural Zone	Restricted Discretionary	<p>Vegetation will be removed within 10 m of Stream P1 for the development of the new access track, and for the excavation of material for wetland re-creation – approximately 930 m<sup>2</sup> of exotic pasture species.</p> <p>Vegetation will be removed within 10 m of the downstream section of Stream P2 for the earthworks required for development of the new access track – approximately 60 m<sup>2</sup> of exotic pasture species.</p> <p>Vegetation will be removed within 10 m of the central section of Stream P2 during the excavation required for wetland re-creation – approximately 2,300 m<sup>2</sup> of exotic pasture and other herbaceous species, a small number of the common native rush <i>Juncus sarophorus</i>, and 4-5 exotic willow trees (<i>Salix</i> sp.).</p> <p>Vegetation will be removed within 10 m of Stream I1 within the managed fill footprint – approximately 800 m<sup>2</sup> of exotic pasture species.</p> <p>The vegetation proposed for clearance is predominantly exotic and of very low ecological value. The areas that are to be cleared are all to be re-planted with native riparian/ wetland species, to a minimum width of 10 m on both banks of the streams, under the mitigation and offsetting proposals.</p>
E15.4.1 (A18)	Vegetation alteration or removal within 20 m of a natural wetland, in the bed of a river or stream (permanent or intermittent), or lake	Restricted Discretionary	<p>Vegetation will be removed within 20 m of natural inland wetlands. Vegetation will be removed for the development of the new access track – approximately 680 m<sup>2</sup> of exotic pasture species within 20 m of Wetlands W1, W2, and W3 (this figure does not include the area overlapping with the 10 m setback from Stream P1, which is accounted for above), and approximately 130 m<sup>2</sup> of exotic pasture species within 20 m of Wetland W4.</p> <p>Vegetation will be removed for wetland re-creation around Stream P2 – approximately 550 m<sup>2</sup> of exotic pasture species within 20 m of Wetland W6.</p> <p>Vegetation will be removed within the footprint of the managed fill – approximately 215 m<sup>2</sup> of exotic pasture species within 20 m of Wetland W5, and approximately 9,150 m<sup>2</sup> of exotic pasture species within 20 m of Wetland W7.</p>

Rule number	Rule	Activity status	Comment
			<p>Approximately 400 m<sup>2</sup> of pine plantation was removed under permit within 20 m of Wetland W6 in March-April 2024.</p> <p>The vegetation proposed for removal has very low ecological value. Extensive native planting is proposed within 10 m setbacks of streams and wetlands on the site, as part of mitigation and offset proposals.</p> <p>There is little or no vegetation growing on the beds of Stream P1 or P2. Example photographs are shown in <b>Plates 16 and 17</b>. Earthworks required to re-create wetland will not involve changes to the stream beds or removal of vegetation.</p>



**Figure 3:** Approximately 1,996 m<sup>2</sup> of mixed exotic native scrub is proposed for clearance (blue polygon). The scrub forms an isolated patch at the head of a shallow gully amongst surrounding pasture. Small patches (401 m<sup>2</sup> in total) of *Berberis glaucocarpa* will also be cleared (red polygons). Photo points are numbered and marked by a red dot. The proposed managed fill boundary is marked with an orange line and the site boundary with a red line (main site) and an orange-yellow dashed line (additional site). The green polygon marks the southern end of Wetland W7.



**Figure 14:** Mixed exotic-native scrub – approximately half of the patch is proposed for clearance (photo point 47).



**Figure 15:** Mixed exotic-native scrub – the area to be cleared comprises mostly *Berberis glaucocarpa* and *Ulex europaeus* (photo point 48).



**Plate 16:** Central section of Stream P2 showing minimal vegetation growing on the bed of the stream.



**Plate 17:** Stream P1 with minimal vegetation growing on the stream bed.

*In addition:*

*62(a) Please assess and update the offset calculations accordingly and please show the 10 m and 20 m (as required under the NES-F) wide wetland setbacks from wetlands on the plans and assess and include calculations for vegetation removal within the setback, and/or advise why this has not been considered.*

### **Our reply**

The vegetation proposed for removal comprises exotic pasture and other exotic herbaceous species, along with a small number of common native rush plants (*Juncus sarophorus*), which has very limited ecological value. There is no requirement to mitigate or offset the loss of this vegetation.

The mitigation and offset package for the proposed managed fill facility includes extensive planting along streams and around wetlands, thus replacing, and significantly enhancing, the quality and extent of native vegetation within 10 m of streams and wetlands.

10 m setbacks from streams and 20 m setbacks from wetlands have been added to the plans in the EclA, for reference.

Setbacks of 20 m from wetlands are referenced in Rule E15.4.1 (A18) in the AUP, not in the NES-F.

### **Request 63**

*In regard to bats, acoustic bat surveys have not been carried out to inform the effects assessment and long tailed bats have been recorded < 5 km from the site. The magnitude of effect on bats is considered very high, therefore an acoustic survey after the consent is granted is not considered adequate.*

- (a) Please carry out an acoustic bat survey(s) and provide an accurate assessment of effects and mitigation options in regards to bats. This should include the production of a bat management plan (BMP).*
- (b) Please provide further details of the proposed artificial bat roost boxes, such as the number of boxes proposed, proposed locations, maintenance and monitoring and contingency if they don't work (this could form part of the EMOMP).*
- (c) Please advise if artificial light will be used at night (dusk to dawn). If so, please provide commentary on this plan and further assessment of the effects of lighting (artificial light at night) on fauna, particularly on bats.*

### **Our reply**

Since submitting the Ecological Effects Assessment as part of the consent application, the pine trees in which bats were considered to be potentially inhabiting (either temporarily or permanently) have been harvested, under the authority of a harvesting permit. Other than the pine trees, there is no other area of the site that provides potential roosting habitat for bats.

The proximity of bat records to the site suggest that the site is likely to be traversed by bats, at least on occasion, as they move between roosting and foraging sites. The site may, on occasion, provide some foraging habitat, as the streams and wetlands on the site will provide a source of flying insects which bats predate.

The proposed works will be taking place during daylight hours, and once operational, the proposed managed fill facility will be open during daylight hours. The facility will not be lit at night. Night time use of the site by bats for foraging or transiting across will therefore not be disturbed by the proposed development.

We no longer consider there to be any potential adverse effects on bats as a result of the proposed development. No mitigation options are required.

## Request 64

*Please provide an Ecological Mitigation and Offsetting Management Plan that includes details of the proposed wetland and stream margin restoration planting.*

### Advice note

*Procedures for dealing with pest animals and pest plants should form part of the EMOMP. The height of the proposed plantings may require consideration and further assessment due to the proximity of the overline designation (8512) due to the concerns raised by Transpower.*

### **Our reply**

An Ecological Mitigation and Offsetting Management Plan will be provided. Management of pest animals and pest plants will be included within this plan.

Planting is not proposed beneath, or close to, the National Grid Yard.

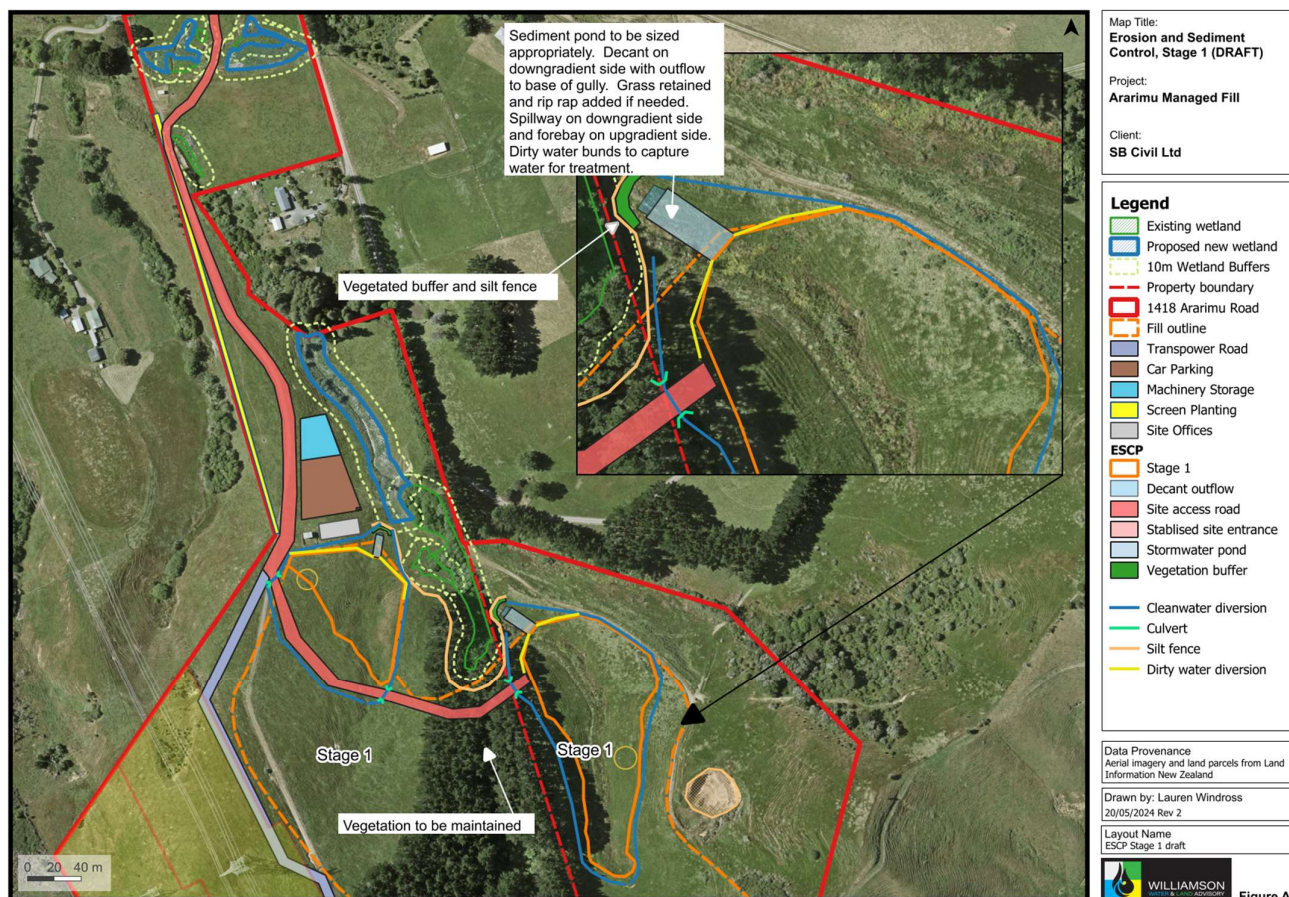
## Request 65

*Please provide Erosion and Sediment Control Plan(s) (ESCP) that include details that show the relationship with streams and wetlands including any protection mechanisms. This is vital in understanding how the streams and wetlands and associated riparian/ wetland vegetation will be protected during works.*

### **Our reply**

An updated ESCP has been provided – a copy of the plan is provided below. This shows the measures proposed and the relationship with streams and wetlands, which are:

- Two stormwater detention ponds are proposed, one to be sited at the northern end (downstream end) of the Stage 1a fill area, and one to be sited at the northern end of the Stage 1b fill area. The ponds will be constructed in accordance with GD05 “*Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*”.
- The sediment ponds will be sized appropriately, with a decant overflow of the down-gradient side with an outflow to the base of the gully.
- Riprap will be added at the pond outflow, to reduce flow velocity, and prevent erosion at the outflow and further downstream, and thus inputs of sediment into the stream (central reach of Stream P2 – Stage 1a) and wetland (Wetland W6 – Stage 1b).
- Clean water will be diverted from the top of each filling stage, around the fill areas, and directed to pass through silt fences before entering the downstream environment. Some of the clean water will be directed to the under-fill drainage system in the centre of each gully, ensuring it is directed under the fill rather than through it.
- Dirty water from the fill surface will be collected and diverted into the stormwater detention ponds for treatment.
- A silt fence will be installed along the length of the northern edge of the fill areas, outside of the 10 m setback from the wetlands, to capture any remaining sediment that may be present in surface water flow.
- A vegetated buffer will be planted downstream of the stormwater detention ponds, to provide further filtering of sediment.
- The wetlands will be planted with a 10 m buffer of native vegetation, which will, in time, provide permanent filtering of sediments from surface water runoff.



## Request 68

The Water Management Plan outlines that changes to wetland hydrology will be no more than minor and acknowledges that the proposed managed fill will be of a lower permeability than natural ground. The proposed managed fill will change the permeability and therefore the curve number across an area of approximately 100,000 m<sup>2</sup>, for which the effects have not been quantified (e.g. by TP108 analysis). 'Flood Modelling Results' plans have been provided but not discussed within the reports.

- ...
- Please provide comment from an ecologist on how the proposed increases/ decreases in run-off volume, flow rates, and velocity to the existing/ remaining wetlands will not have detrimental effects across a range of storm events (e.g. SMAF equivalent channel forming flow, 2-year, 10-year, 100-year). This should include a comparison of the equivalent events with and without the managed fill on the 95<sup>th</sup> percentile storm events as well as the larger, less frequent events.

## Our reply

The project hydrologist has provided further assessment in response to Request 68(a). This data shows that the post-development peak runoff rates are expected to increase slightly, for 95<sup>th</sup> percentile storm events, 2-year ARI storm events, and 10-year ARI storm events.

Increases in surface runoff as a result of reduced infiltration into groundwater will result in a greater volume of water entering the streams and wetlands via surface water runoff, and at a faster rate. This has the potential to cause erosion and inputs of sediment into the receiving environment.

The project hydrologist has assessed these changes to be relatively minor. The erosion and sediment controls proposed will ensure surface water running off the fill surface will be treated via sediment ponds, removing sediment as well as slowing water velocity. Rock riprap placed at the outlets of the sediment ponds and other outlets (e.g. clean water diversions) will ensure higher velocity water is slowed down before it enters the downstream wetlands and streams.

The volume of water entering the downstream system will remain the same, as no water is being diverted out of the catchment. Thus, downstream wetlands and streams will continue to receive the same volume of water as they do currently, and there is no risk of reduced water levels and associated adverse effects on stream and wetland habitat and function.

We trust that this provides the information that Council has requested.



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**Emily Roper**

Senior Ecologist

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## Memo

To:	Laila Alkamil, Williamson Water and Land Advisory Ltd	Job No:	2307.100
From:	Emily Roper, RMA Ecology Ltd	Date:	3 July 2025
cc:	Graham Ussher, RMA Ecology Ltd		
Subject:	Ararimu Road culverts – Request for Further Information		

Dear Laila,

As part of an application for consent for the development and operation of a managed fill facility by SB Civil at a property on Ararimu Road, Papakura, Legal description Lot 2 DP 77813, Lot 1 DP 166299 – in part, and Lot 8 DP 369781 (the 'site'), two new culverts are proposed to facilitate the upgrade of the access track.

Auckland Council's ecologist, Antoinette Bootsma, has submitted a Request for Further Information (by email, sent 23 May 2025) regarding the location and dimensions of the two new culverts, and for a revised ecological assessment of the culverts. Ms Bootsma's request follows in italics, with our corresponding responses below:

*In summary, before I am able to do my assessment, please may you provide updated drawings that show the following:*

- A cross section of the proposed culverts showing the riprap relative to low flow water levels in order to review how this will affect fish passage.*
- Cross section of the culvert showing the extent of the bed and banks, indicating adherence to the standards in NES-F reg 70(2).*
- Long sections of the culverts, clearly showing the length of the pipe, wing walls and riprap so that each component can be identified.*
- Please overlay the proposed culverts on the plan of identified freshwater features, including clearly marked setbacks.*

### Our reply

Revised plans will be provided by the project engineer from Civix.

The culvert plan has been amended by the project's engineers to ensure that there will be no construction or development within either Wetland W1 or Wetland W4.

The plans by Civix also confirm:

1. The two culverts plus wingwalls will cover a combined length of 29.6 m which is just under the permitted combined length for the site of 30 m.
2. Each culvert will have 5 m of riprap at each end to prevent scour.
3. The riprap and culverts will be designed to allow for fish passage.

- Please confirm how the proposed offset plan will be affected by the proposed riprap and update calculations as required.

### Our reply

Culvert SW-1-1 on Stream P1 will result in a total length of 29.3 m of stream disturbance. Compared to the original culvert design this represents an additional 4.9 m of stream disturbance.

Culvert SW-1-2 on Stream P2 will result in a total length of 20.34 m of stream disturbance. Compared to the original culvert design this represents an additional 5.44 m of stream disturbance.

The proposed offset plan has been amended slightly to take into account those areas previously identified for mitigation or offset planting that will now be within the footprint of the culverts (**Figure 1**).

The footprint of culvert SW-1-1 will encroach into areas previously identified for stream offset planting and wetland re-creation and wetland buffer planting. The footprint of culvert SW-1-2 will encroach into the area previously identified for wetland and stream buffer planting. To ensure sufficient area for these plantings are maintained, additional areas for planting and wetland re-creation have been identified – see **Table 1** and **Figure 1** below.

Although an additional 10.34 m of stream bed will be disturbed, the ecological value of Streams P1 and P2 has been rated as low and the level of adverse effect following proposed mitigation is considered to be very low. There will be no loss of stream extent, and minimal loss of stream value. Fish passage will be maintained, and in the case of Stream P2, restored, and extensive planting around both streams will increase the ecological value of the streams beyond their current value. As such, additional mitigation or offsetting measures are not required. The full revised effects assessment is presented below in reply to the final request.

**Table 1:** Areas of planting within culvert footprints and additional replacement areas identified

	Approximate area of planting within culvert footprint	Approximate area identified for additional wetland re-creation/ planting
<b>Culvert SW-1-1</b>		
	15 m <sup>2</sup> of re-created wetland HW1	40 m <sup>2</sup> around Drain D3
	20 m <sup>2</sup> of re-created wetland HW1 buffer	60 m <sup>2</sup>
	20 m <sup>2</sup> of Stream P1 terrestrial buffer	40 m <sup>2</sup>
<b>Culvert SW-1-2</b>		
	14 m <sup>2</sup> of Stream P2 terrestrial buffer	40 m <sup>2</sup>

As the areas available as replacement planting areas are further from the target streams or wetlands, larger areas than those being lost have been identified for added value. Whilst only ca. 15 m<sup>2</sup> of re-created wetland HW1 is within the culvert footprint, 40 m<sup>2</sup> has been identified as replacement wetland creation area to ensure there is sufficient suitable land. Wetland re-creation will take place in an area previously identified for wetland buffer planting; thus, a larger area has been identified for buffer planting than will actually be lost to culvert construction.

- Please further update E15 calculations as relevant.

### Our reply

The only change to the E15 calculations is for Stream P2 at the location of the proposed new culvert SW-1-2. Between 30 m<sup>2</sup> and 50 m<sup>2</sup> of vegetation will be removed within 10 m of the stream to allow for construction of riprap at both ends of the culvert. The vegetation to be removed is predominantly exotic pasture species; one exotic willow tree may also need to be removed. At the eastern end of the culvert, the removed vegetation will be replaced by planted native riparian species. Planting will not be carried out at the western end as there is no available space before the stream crosses into the neighbouring property.

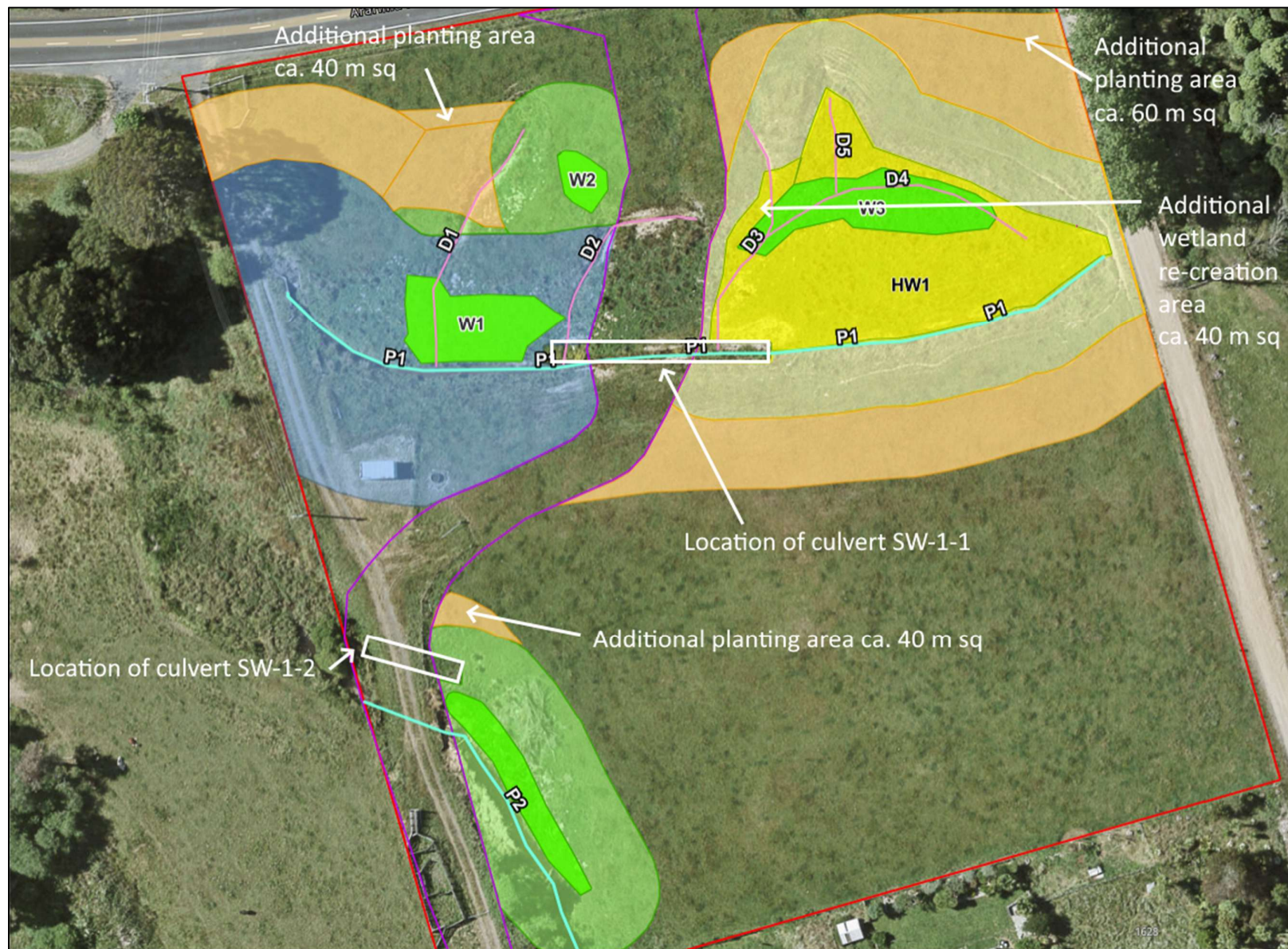
- Table 7 of the EcIA (dated XX notes that only 24.4m of the bed of stream P1 will be disturbed and 14.9m of the bed of stream P2 for culvert installation. However, if the riprap needs to be 12m on either side, these values are

*not correct and that over 43.3m of the bed of stream P1 will be disturbed, including W1. Please update the effects assessment to include the riprap on each side of the proposed culverts.*

**Our reply**

The dimensions of the culverts have been amended as detailed in the revised plans from Civix.

An updated version of Table 7 of the EcIA is provided below in **Table 2**.



**Figure 1:** Location of culverts in relation to wetlands and planting areas (approximate – please see plans from Civix for accurate design drawings). Additional areas identified for planting to replace those areas within the culvert footprints are labelled. Note that this map is representative and not scale.

**Table 2.** Revised assessment of significance of ecological effects using the EIANZ matrix method<sup>1</sup>, **prior** to the application of mitigation actions, **and after** mitigation is applied.

Prior to mitigation				After mitigation	
Factor	Value of resource <sup>a</sup>	Magnitude of effect <sup>b</sup>	Level of effect <sup>c</sup>	Mitigation that will be applied	Magnitude of effect <sup>b</sup> Level of effect <sup>c</sup>
Stream P1 – culvert installation (culvert SW-1-1 in plan set from Civix): Culvert + wingwalls (19.3 m) Riprap (5 m at each end)	Low	Moderate (29.3 m of stream bed disturbance)	Low	<b>Avoid</b> Fish salvage prior to works commencing Erosion and Sediment Controls <b>Minimise</b> Ensure fish passage (embedment of culvert, natural bed materials and/ or baffles within culvert and through riprap) <b>Remedy</b> Riparian planting along remaining lengths of the stream (as part of overall mitigation and offset package) Additional area of ca. 40 m <sup>2</sup> identified for wetland re-creation Additional area of ca. 60 m <sup>2</sup> of terrestrial wetland/ stream buffer planting	Low      Very low
Stream P2 – culvert installation (culvert SW-1-2 in plan set from Civix): Culvert + wingwalls (10.34 m) Riprap (5 m at each end)	Low	Moderate (20.34 m of stream bed disturbance)	Low	<b>Avoid</b> Fish salvage prior to works commencing Erosion and Sediment Controls <b>Minimise</b> Ensure fish passage (embedment of culvert, natural bed materials and/ or baffles within culvert and through riprap). <b>Remedy</b> Riparian planting along the remaining lengths of stream as part of overall mitigation package	Low      Very low

<sup>1</sup> As contained within the EIANZ EciA guidelines: Roper-Lindsay, J, Fuller SA, Hooson, S, Sanders, MD, Ussher, GT (2018) *Ecological impact assessment. EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems*. 2nd edition  
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Prior to mitigation				After mitigation		
Factor	Value of resource <sup>a</sup>	Magnitude of effect <sup>b</sup>	Level of effect <sup>c</sup>	Mitigation that will be applied	Magnitude of effect <sup>b</sup>	Level of effect <sup>c</sup>
				Additional area of ca. 40 m <sup>2</sup> of terrestrial stream buffer planting		
Stream P1 – removal of existing culvert	Low	Positive	Net gain	<p><b>Avoid</b></p> <p>Fish salvage prior to works commencing</p> <p>Erosion and Sediment Controls</p> <p><b>Remedy</b></p> <p>Restoration of natural stream bed and banks</p> <p>Riparian planting within the site along the remaining length of the stream as part of overall mitigation and offset package</p>	Positive	Net gain
Stream P2 – removal of existing culvert, which is perched at the downstream end, inhibiting fish passage	Low	Positive	Net gain	<p><b>Avoid</b></p> <p>Fish salvage prior to works commencing</p> <p>Erosion and Sediment Controls</p> <p><b>Remedy</b></p> <p>Replacement culvert will be designed to ensure fish passage</p> <p>Restoration of natural stream bed and banks in locations not affected by the replacement culvert and riprap</p> <p>Riparian planting within the site to a width of 10 m on both banks along the remaining length of the stream, with an additional area of ca. 40 m<sup>2</sup></p>	Positive	Net gain
Wetland W4 – culvert installation within 10 m of wetland (culvert SW-1-2)	Moderate	Moderate	Moderate	<p><b>Avoid</b></p> <p>Erosion and Sediment Control.</p> <p>Fence, or otherwise mark, wetland off from works area to prevent entry to wetland e.g., silt fence.</p> <p><b>Minimise</b></p> <p>Diversion of stream via wetland to maintain hydrological regime during works.</p> <p><b>Remedy</b></p>	Low	Low

Prior to mitigation				After mitigation	
Factor	Value of resource <sup>a</sup>	Magnitude of effect <sup>b</sup>	Level of effect <sup>c</sup>	Mitigation that will be applied	Magnitude of effect <sup>b</sup> Level of effect <sup>c</sup>
				10 m buffer of native planting around wetland.  In the case of accidental damage to wetland, native plants will also be planted within the wetland on completion of works.	

<sup>a</sup> EIANZ matrix tables 5 and 6.

<sup>b</sup> EIANZ matrix table 8; measured in the context of the catchment (streams) or District (terrestrial values).

<sup>c</sup> EIANZ matrix table 10.

With respect to the values assigned to Streams P1 and P2:

The value of Stream P1 is assessed as being low as it is in overall poor condition, with poor riparian diversity, very limited shade, and poor bed characteristics and in-stream habitat (from the EclA<sup>2</sup>). Its SEV score is 0.338.

Whilst Stream P2 has been assessed as being in overall moderate condition in the EclA, with moderate riparian diversity, in-stream habitat and bed characteristics, and good levels of shade, its SEV score of 0.366 is low and only marginally higher than that of Stream P1. For this revised effects assessment, the value of Stream P2 continues to be rated as low, as the reach which will be affected by the culvert has limited shade, limited hydrological variety and the existing culvert is perched at the downstream end, and is, therefore, likely to be a barrier to fish passage.

The revised effects assessment indicates that, provided the proposed mitigation measures are implemented, the overall effect of the installation of the culverts is very low. As such, as the level of effect is less than minor and there are no residual effects, no further mitigation or offsetting is required.

We trust that this provides the information required.

If you have any further questions, please contact Emily Roper at [emily.roper@rmaecology.co.nz](mailto:emily.roper@rmaecology.co.nz) or 020 4099 3934.

Yours sincerely,



Emily Roper

Senior Ecologist<sup>3</sup>

3-Jul-25

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<sup>2</sup> RMA Ecology Ltd. July 2024. *Ararimu Road managed fill, Papakura, Auckland: Ecological Effects Assessment*. Report prepared for SAL Land Ltd. 59 pages + Appendices.

<sup>3</sup> This report has been prepared for the benefit of our Client with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement. Any use or reliance by a third party is at that party's own risk. Where information has been supplied by the Client or obtained from other external sources, it has been assumed that it is accurate, without independent verification, unless otherwise indicated. No liability or responsibility is accepted by RMA Ecology Limited for any errors or omissions to the extent that they arise from inaccurate information provided by the Client or any external source.