

Schedule 2 Wetland Boundary Review

2018

Charlotte Phelps

Contents

Introduction.....	2
BULP050 Oweka	3
HAAP012 Turnbull Waiatoto.....	9
HARP021 Lake Ianthe	12
HOC004 Candlelight Pakihi	17
HOKP009 and HOKP064 Totara Lagoon.....	22
HOKP018 Whiley Creek	26
HOKP079 Cropp Road, Kowhitirangi.....	29
HOKP086 Ross	34
HOKP099 Little Houhou Creek (Allan Lowe).....	38
HOKP099 Little Houhou Creek (Douglas Chinn)	45
HOKP119 Lake Mudgie.....	52
KAGP008 Lake Kini	57
MAI003 Fletcher Creek.....	64
PUNP001 Barrytown Flats, Maher Swamp.....	69

Introduction

The purpose of this project was to review specific areas of Schedule 2 wetlands where a submitter on Proposed Plan Change 1 to the Regional Land and Water Plan (pPC1) had requested to have part of the wetland designation removed from areas on their land that are not wetland, through the pPC1 process.

The Hearing Panel requested that I undertake the site visits and assessments of certain Schedule 2 wetland boundaries. I hold a Bachelor of Science in Biological Sciences and Geography with an endorsement in Environmental Sciences (University of Canterbury). In conjunction with this, I have completed the Level 4 Plant Identification course through the Nelson Marlborough Institute of Technology. Relevant employment experience includes biodiversity monitoring with the Department of Conservation, vegetation auditing with Canterbury University and conducting ecological assessments while employed by VCS Environmental.

In carrying out this task, the Resource Management Act 1991 definition of a wetland was applied:

“Wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.”

The following Report states the presence, extent and depth of water at each wetland designation. Furthermore, the presence of plants and animals adapted to wet conditions and the firmness of the ground was also recorded along with recommended boundary adjustments.

Note that the following wetland designations were not assessed:

MAI004 Giles Creek was not assessed as the submitter did not see it as necessary.

BRUP003 Lake Poerua was not assessed as planner Alyce Melrose confirmed that the landowner was not seeking a boundary adjustment.

FOUP014 Okari Lagoon was not assessed as there has been a change in landowner and approval for a site visit was not granted. The new landowner of FOUP014 Okari Lagoon is Jennifer Lake, based in the United States. Warren Stratford, the former landowner, informed me of this, saying he had not been part of the property for over a year. Several attempts were made to contact Ms Lake however these were unsuccessful, therefore no site visit occurred.

BULP050 Oweka

Date of Visit: 5 September 2018

Wetland: BULP050 Oweka

Location: Inangahua

Total Rainfall Seven Days Prior to Visit: 36.5mm

Owner: Matthew O'Regan

Summary:

During the hearing, Mr O'Regan questioned the Environment Court process and requested that the designation be removed from another area aside from the already proposed three areas to be removed from the south eastern boundary.

I met with Mr O'Regan on site and we discussed the history of the whole designated area. He stated that the area has been drained, it was logged in the 1950's and is comprised mainly of regenerating podocarp vegetation. A site visit onto the designated site has not occurred during the Plan Change 1 process.

From my site visit, I can confirm that the area has been extensively drained – there is a drain running along the eastern side of the designation. The ground was solid underfoot and I did not observe any pooling of water or any communities of species that would give me reason to consider the area as a wetland.

Vegetation consisted of, but was not limited to: regenerating Kahikatea, Rimu, Pepperwood, Five Finger, Lancewood, flax and gorse. Pell Creek runs north up the western side of the designation. I observed evidence of pig rooting around the site and saw a female goat with two kids. Access to areas of the designation was limited due to the density of gorse present, which indicates the ground is dry and unlikely to support a community of wetland species.

Based on my site visit, I suggest removing the entire designation of wetland BULP050 Oweka as I do not consider it to be representative of a wetland.

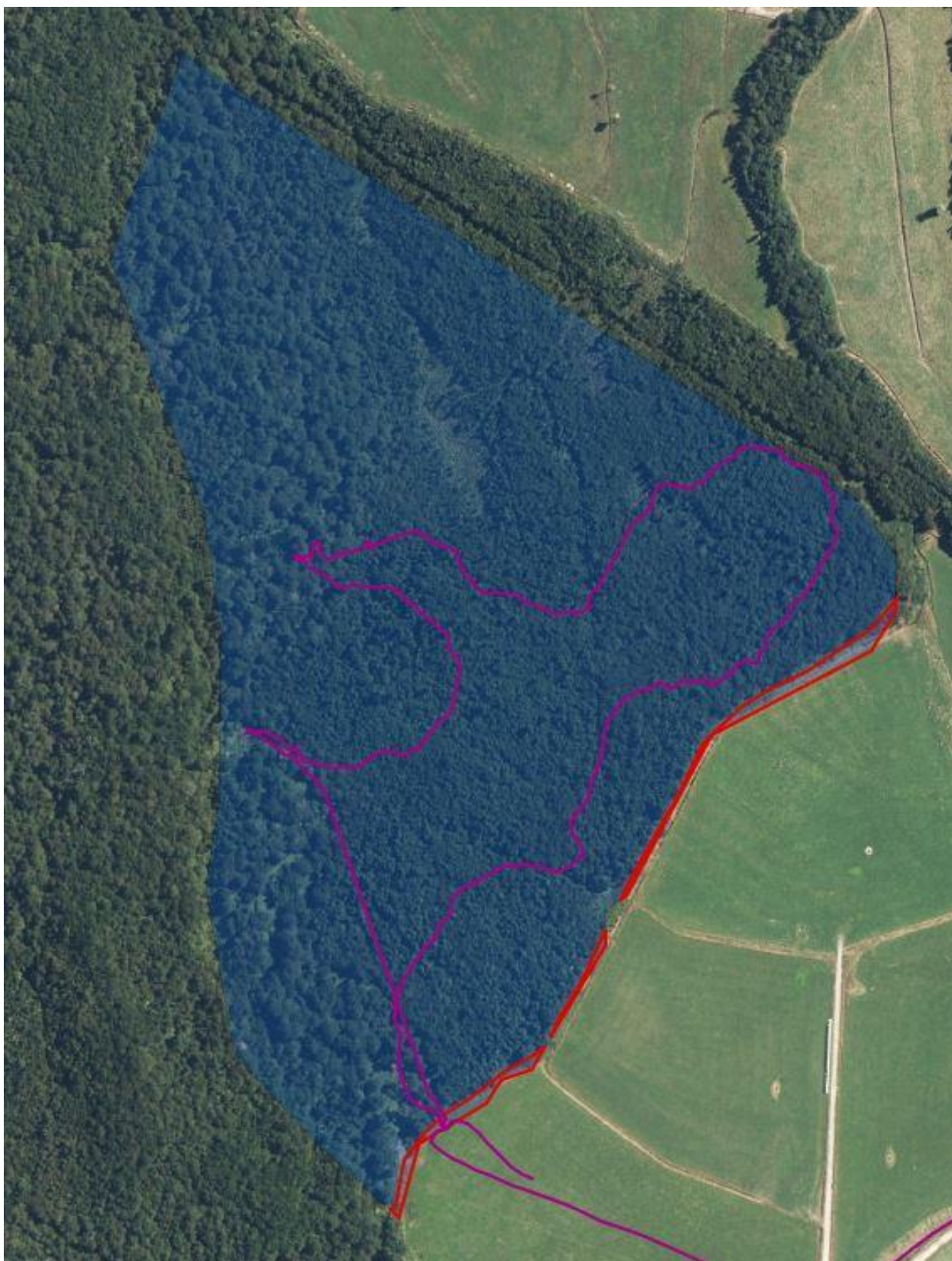


Figure 1 Area Assessed. Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 2 Figure 2 Recommended Adjustments



Figure 3 Photo representative of the designation



Figure 4 Evidence of pig rooting



Figure 5 Gorse within the designation



Figure 6 Grass within the designation



Figure 7 Pell Creek

HAAP012 Turnbull Waiatoto

Date of Visit: 11 September 2018

Wetland: HAAP012 Turnbull Waiatoto

Location: Haast

Total Rainfall Seven Days Prior to Visit: 1mm

Owner: Gerald Essenburg

Summary:

Mr Essenburg made a submission on pPC1, however he was unable to give planning staff more information about the wetland as he was based in Kaikoura (now based in Balclutha), and was unable to get to the wetland as it was not long after the Kaikoura earthquakes. No areas are proposed to be removed from Mr Essenburg's property through the Plan Change 1 process.

South Turnbull Road runs down the eastern side of the designation, with a drain running parallel between the designation and South Turnbull Road. There had been little rainfall during the week prior to the assessment, however the area was permanently wet indicating poor drainage and the ground was soft underfoot. There was no water flow through the wetland. The wetland was flat overall, however the ground was very uneven, with a number of large dips. I anticipate that during periods of high rainfall the area will retain a large amount of pooled water.

Indicative communities of wetland species observed included, but were not limited to, tangle fern, wire rush, Sphagnum Moss, bog pine, inaka and ghania. Around the western periphery of the pakihi the wetland begins to merge into forest. This area was very soft underfoot, at one point I sunk knee deep into the ground. Vegetation in this area consisted of Totara, Kahikatea, wire rush and Sphagnum Moss.

Overall, the area is made up of a community of wetland species, is poorly drained and I would class this area as predominantly pakihi (a type of wetland). It would be my recommendation for the designation to remain and for no adjustments to be made.



Figure 8 HAAP012 Area Assessed

Key: Designated Wetland – Blue, GPS track of this site visit - Purple



Figure 9 Photo representative of the area



Figure 10 Looking east towards South Turnbull Road



Figure 11 Drain running along South Turnbull Road

HARP021 Lake lanthe

Date Assessed: 20 August 2018

Wetland: HARP021 Lake lanthe

Location: Lake lanthe

Total Rainfall Seven Days Prior to Visit: 25.5mm (15.5mm on day of visit)

Owner: Andrew and Jackie Campbell (Bonar Farms Ltd)

Summary:

In March 2013, the Council's Wetland Coordinator undertook a site visit to the Campbell's property and concluded that the Department of Conservation (DOC) Ecologist would need to undertake a site visit. However, Mr and Mrs Campbell were not comfortable allowing the DOC Ecologist onto their property. Consequently, only a very small area of the designated wetland was able to be assessed and recommended to be removed. The Campbell's submission requested another opinion of the area. At the hearing they indicated that an area on the landward side of the drain near the lake is, in their view, not wetland.

I walked around the area that Mr and Mrs Campbell had said was not wetland, and where they had begun development of the land prior to the Plan Change 1 process. At the time of the visit, there was relatively heavy rainfall (15.5mm total), as well as a substantial amount of rain during the days leading up to the site visit (25.5mm total). The ground that I covered was hard underfoot, and there was no permanent pooling of water observed. Due to the current and previous day's rainfall, there was surface water up to approximately 5cm deep.

In terms of vegetation and wetland values in the designation, I did not observe communities of flora or fauna that would lead me to believe the area assessed is wetland or has wetland values. The area has been previously developed and was made up of grass, gorse, blackberry and Manuka. There is a stand of trees in the centre of the area assessed, which the submitter advised was predominantly Kahikatea and ferns. I did not access this area, however from conversations with Mr and Mrs Campbell, I am led to believe that this area does have wetland values and should remain as part of the scheduled wetland designation, which Mr and Mrs Campbell are in agreeance with.

We headed down the cattle race on the southern boundary of the wetland (the race is proposed to have the designation removed from it) to assess the area northward. Mr Campbell requested for the wetland boundary to be moved approximately 50m northward from the race for the purpose of potential future development. The ground was, again, hard underfoot, there was no permanent surface water observed and vegetation consisted of gorse, Manuka and some Kahikatea.

Based on my site visit I recommend removing part of the designation as shown on the attached map. This is due to the land being previously modified, the ground being solid underfoot, no permanent surface water observed and the vegetation in the area not being typical of that of a wetland.



Figure 12 HARP021 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple

Please note, there was a technical issue with the tracker and the straight purple lines north of the drain line are not part of the track.

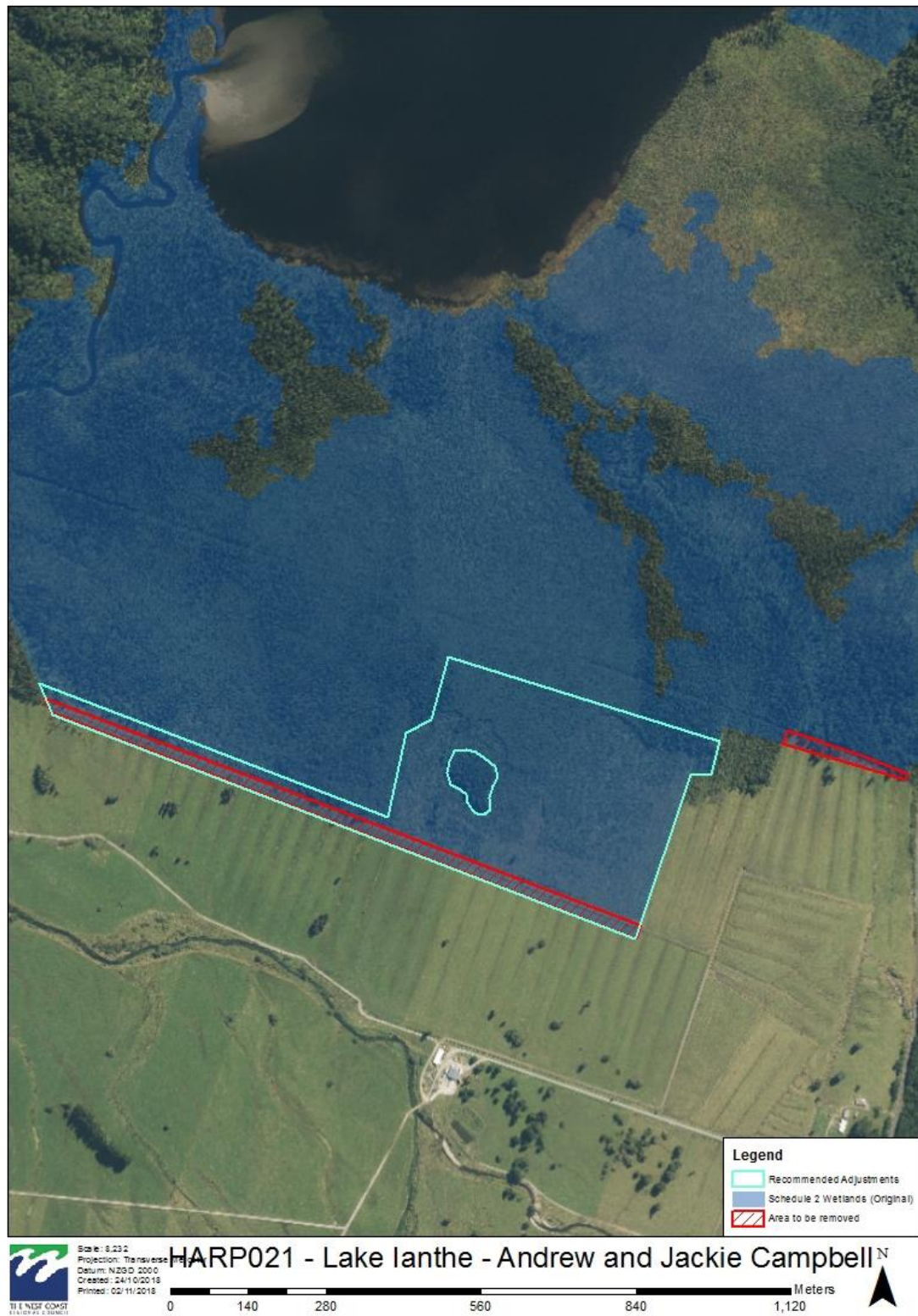


Figure 13 Recommended Adjustments



Figure 14 Area within the designation recommended to be removed



Figure 15 Area within the designation recommended to be removed



Figure 16 Area within the proposed 50m buffer from the race



Figure 17 Area within the proposed 50m buffer from the race

HOCP004 Candlelight Pakihi

Date Assessed: 17 August 2018

Wetland: HOCP004 Candlelight Pakihi

Location: Stillwater

Total Rainfall Seven Days Prior to Visit: 25.5mm

Owner: Gordon and Dianne Bradley

Summary:

During the hearing Mr and Mrs Bradley requested that some areas within the designation be removed. They consider them to not be wetland as they were highly developed prior to the wetland designation coming into effect. Mr and Mrs Bradley intend to further develop the paddocks and control invasion from exotic vegetation such as gorse.

The entirety of the area that I looked at was not wetland. The land was as Mr and Mrs Bradley described it - highly modified and the vegetation consisted of gorse, rushes and grass. The ground was gravelly, dry and there was no indication of wetland communities within the area in question.

Based on the site visit, I would recommend removing the entirety of the wetland designation that the submitter requested. This would leave smaller areas of designated wetland remaining which surround the proposed area to be removed (I did not visit these areas as they have not been requested to be removed).



Figure 18 Area Assessed Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 19 Recommended Adjustments – light blue



Figure 20 Area within the designation recommended to be removed



Figure 21 Area within the designation recommended to be removed



Figure 22 Photo showing modification

HOKP009 and HOKP064 Totara Lagoon

Date Assessed: 14 August 2018

Wetland: HOKP009 and HOKP064 Totara Lagoon

Location: Ross

Total Rainfall Seven Days Prior to Visit: 67.5mm

Owner: Arthur Thompson

Summary:

Multiple site visits have occurred to this wetland by the Council Planner and DOC Ecologist. This led to areas being proposed to be removed. The Wetland Coordinator attempted to facilitate the Nature Heritage Fund in purchasing the remaining wetland, however this did not occur during that funding round.

Mr Thompson is seeking the land to be purchased by DOC. During my visit Mr Thompson informed me that the initial plan of mining areas, if they were to have the wetland designation removed, is no longer relevant and he wants the land to be purchased as he does not want to be paying rates on land that he cannot utilise or sell.

Based on my site visit, I support removing the areas recommended by Proposed Plan Change 1 as they are comprised predominantly of gorse and are not wetland.

No additional areas are recommended to be removed. Both Stenhouse and Woolhouse Creeks run through the wetland, running east to west. From what I observed, I would recommend retaining the remaining designation as wetland as it includes communities of wetland vegetation such as Cabbage trees, flax and Kahikatea. We were unable to go to these areas for further assessment as the submitter advised it would be unsafe, as these areas are very wet.

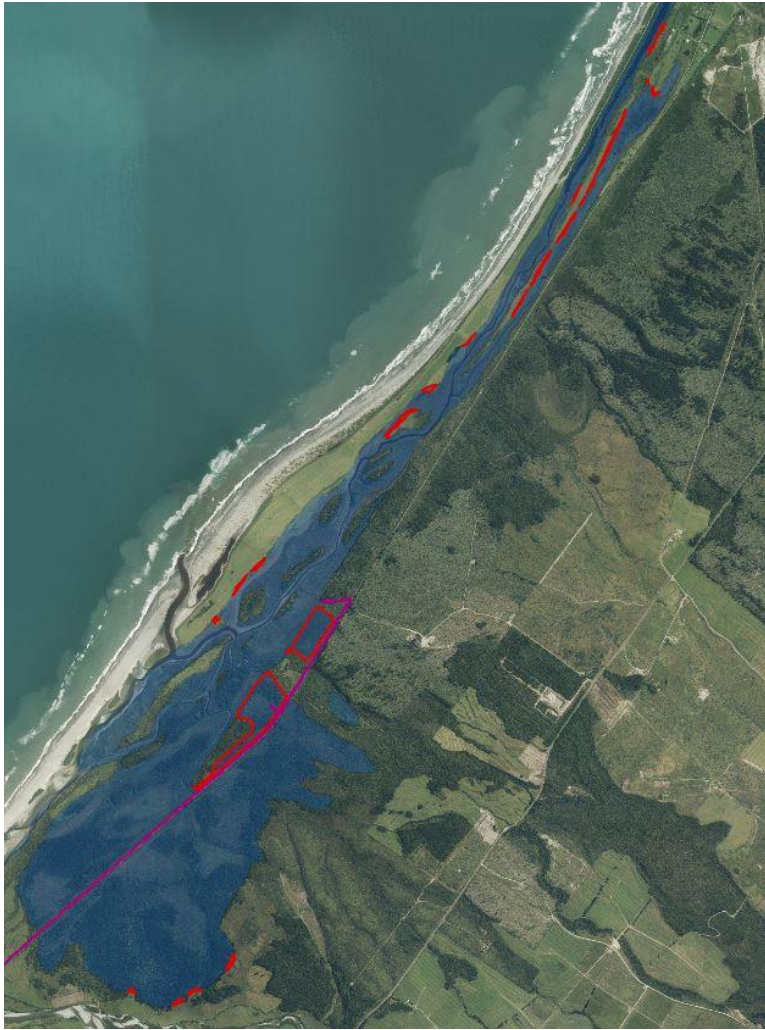


Figure 23 HOKP009 and HOKP084 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit - Purple



Figure 24 Looking into one of the areas proposed to be removed



Figure 25 At the northern end of the designation near Stenhouse Creek



Figure 26 At the northern end of the designation near Stenhouse Creek

HOKP018 Whiley Creek

Date Assessed: 30 July 2018

Wetland: HOKP018 Whiley Creek

Location: Hokitika

Total Rainfall Seven Days Prior to Visit: 106.1mm

Owner: Arthur Provis (Assessment done with his son, Graham Provis)

Summary:

During the hearing, Mr Graham Provis, on behalf of his father Arthur, requested that some areas within the designation be removed.

A small portion of the designation was accessed. In the areas assessed, the ground was soft underfoot and there was permanently pooled surface water to a depth of approximately 30cm. Walking through the designation I observed a community of wetland species typical of a pakihi wetland. These species included, but were not limited to, tangle fern, Sphagnum moss, Manuka, wire rush and Juncus. Drains are running north to south through the northern half of the wetland. Although I did not walk out to the area further north towards the boundary, it looked to be similar to what was observed in the area we accessed on foot, and I would anticipate the nature of that area to also be pakihi.

The area outlined in red on the map (proposed to be removed in Plan Change 1) was not accessible due to the density of gorse surrounding it, which indicates this area is dry and does not have wetland values.

Based on my site visit, I support removing the area recommended in the proposed Plan Change 1, and retaining the remainder of the designation as I consider the remaining area to be wetland.



Figure 27 HOKP018 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 28 Looking at the area outlined in red



Figure 29 Looking north on the property



Figure 30 Surface Water

HOKP079 Cropp Road, Kowhitirangi

Date of Visit: 26 July 2018

Wetland: HOKP079 Cropp Road, Kowhitirangi

Location: Kowhitirangi

Total Rainfall Seven Days Prior to Visit: 69mm

Owner: Colin and Juliette Henry

Summary:

In October 2013, the Wetland Coordinator undertook a site visit to Mr and Mrs Henry's property to review the area. It was concluded that a small area is not wetland, but the remaining area is. DOC attempted to get the Nature Heritage Fund to purchase the area as DOC considered it has significant wetland values. However, the area was not purchased. In Mr and Mrs Henry's submission, they requested that the area is either purchased or the entire designation is removed.

The area outlined in red in Figure 1 was not accessible due to the density of gorse surrounding it. This is an indication that the area is predominantly dry and is not wetland, so I would support removing this area from the designation as proposed in Plan Change 1.

Walking in and around other areas of the designation, the ground was soft underfoot, it was permanently wet and pooled water was at a depth of approximately 20cm. There are two drains running through the designation, with poor natural drainage. Communities of wetland species seen include Sphagnum Moss, Manuka and Juncus. I would class this area as pakihi (a type of wetland). Further around the designation the area represented more of a swamp (another type of wetland) and vegetation in that area included species such as flax, swamp coprosma, swamp kiokio, Totara and Kahikatea.

Based on the site visit, I support removing the area outlined in red on the following map as proposed in Plan Change 1, and retaining the remainder of the designation as I consider it to be wetland. Due to time constraints and limited resources, a more thorough assessment was unable to be undertaken. If the submitter seeks removal of further specific areas of designation, they may wish to commission their own specialist to complete this work.



Figure 31 HOKP079 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit - Purple



Figure 32 Looking into the area outlined in red suggested to be removed



Figure 33 Within the designation



Figure 34 Surface water within the designation



Figure 35 On the edge of the wetland looking into the designation

HOKP086 Ross

Date Assessed: 06 September 2018

Wetland: HOKP086 Ross

Location: Ross

Total Rainfall Seven Days Prior to Visit: 5mm

Owner: Kauri Limited

Summary:

The submitter supports the removal of part of HOKP086 Ross as proposed in Plan Change 1, however they further propose that this does not fully cover the previously modified areas.

I observed on the site visit that the area has been extensively drained, with a drain running around the edge of the designation. Vegetation included, but was not limited to, Kahikatea, flax, Cabbage trees, gorse, grass and blackberry. Both Tui and Kereru were observed within the area. The ground was hard underfoot and I did not observe any pooling of water within the designation aside from minor areas near the proposed area to be removed. Access within the wetland was limited due to the density of vegetation such as flax and gorse.

Commenting on the area I did access, I would not class the area to be wetland or to hold wetland values and recommend that the entire designation be removed.



Figure 36 HOKP086 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 37 Recommended Adjustments



Figure 38 Looking into the designation from the south east corner



Figure 39 Looking into the designation from the south east point proposed to be removed



Figure 40 Drain on the edge of the south side of designation

HOKP099 Little Houhou Creek (Allan Lowe)

Date of Visit: 30 July 2018

Wetland: HOKP009 Little Houhou Creek

Location: Hokitika

Total Rainfall Seven Days Prior to Visit: 106.1mm

Owner: Allan Lowe

Summary:

In May 2013, the Wetland Coordinator undertook a site visit to Mr Lowe's property and concluded that a large part of the area was wetland, however a boundary adjustment needed to occur to remove the designation from the area of land that he had previously cleared. A DOC Ecologist applied to the Nature Heritage Fund (NHF) to purchase the wetland on this property and the neighbouring properties. However the purchase did not occur.

Mr Lowe obtained a Schedule 3 Ecological Assessment of this area on the 2nd July 2013 from Boffa Miskell. The report was prepared by Scott Hooson, Senior Ecologist, and reviewed by Diane Robertson Senior Principal Ecologist. Staff recently reviewed this Report in more detail and found that on Page 8, section 5.2 Wetland boundaries, it states "...it is recommended that the boundary of the wetland is amended to exclude the building site and vehicle accessway." Staff presume that this was not included in Plan Change 1 as the DOC Ecologist was in the process of applying to the NHF to purchase the area.

During the submission period Mr Lowe requested that the wetland designation be removed from the previously cleared area as he considers it to not be wetland and wants to further develop it into a site for a residential dwelling.

From my observations on the site visit, I do not consider the vehicle accessway, and the immediate land either side of the accessway that are currently designated, to be wetland. The area was hard under foot, there was no pooling of water and vegetation consisted of plants such as wineberry, marble leaf and whiteywood which are not typically found as part of a wetland community. The building site contains weeds such as gorse and blackberry and some regenerating wetland species, and has permanent surface water.

Towards the rear part of the designation on Mr Lowe's property, the land is very soft underfoot and there is permanent surface water present, as well as a community of wetland species such as swamp kiekie and Kahikatea.

Based on my site visit and the Schedule 3 Ecological Assessment from 2013, I suggest the area in and around the building site (as shown in Figure 42) and the driveway, including a buffer along either side of the driveway, be removed from the designation as I do not consider them to have characteristics of a wetland.



Figure 41 HOKP099 (Lowe) Area Assessed

Key: Designated Wetland – Blue, GPS track of this site visit – Purple

Note: The red area recommended to be removed as part of Plan Change 1 is on the neighbouring property and not part of Mr Lowe's property.



Figure 42 Recommended Adjustments

Please note the area to be removed in red is on a different property to Mr Lowe's.



Figure 43 Looking into the house site



Figure 44 Looking towards the back of the designation behind the house site



Figure 45 Pooling within the designation



Figure 46 Water within the designation



Figure 47 Looking into the wetland from the west side



Figure 48 House Site

HOKP099 Little Houhou Creek (Douglas Chinn)

Date of Visit: 01 August 2018

Wetland: HOKP099 Little Houhou Creek

Location: Hokitika

Total Rainfall Seven Days Prior to Visit: 145.5mm

Owner: Douglas Chinn

Summary:

The proposed Plan Change 1 (pPC1) recommended to remove three small areas from the south-west corner of the wetland. During the submission period, Mr Chinn requested the boundary of the wetland to have additional adjustments made, and for a further area around the pond to be removed. A general visual observation of the designation reveals the dominant vegetation to be common to wetlands, including species such as flax, Kahikatea, Rimu, Cabbage trees and Manuka.

I walked around the entire edge of the designation where Mr Chinn is seeking the boundary adjustment, and on the true left side (wetland side) of the drain adjoining the south-west corner of the wetland, these areas have no wetland values. Mr Chinn requests the adjustment so he can clean out the drain, which requires cleaning approximately every twenty years. Adjusting the boundary on the wetland side of the drain will not have an effect on the wetland, therefore I recommend the boundary be adjusted to move inwards three metres from where it currently is.

The second designation area the submitter has requested to remove is a wider area in and around a manmade pond (created by the submitter). The pond is approximately 1.3 metres deep and is near the edge of the designation. Removing the wider area in and around the pond, in my opinion, will not have an adverse effect on the greater wetland. I walked to the pond and around a portion of it. From what I saw, the vegetation was a combination of planted exotic trees such as Banksia and Oak and native trees such as Kowhai and Totara. The ground was relatively firm underfoot and I did not observe any surface water.

The areas outlined in red on the map below that are already proposed to be removed in PC1 have been developed and do not have wetland values. The ground in these areas is firm and comprises of grass, gorse and blackberry.

Based on my site visit I recommend removing the additional requested area in and around the manmade pond so it is not part of the designation.



Figure 49 HOKP099 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 50 Recommended Adjustments



Figure 51 Looking into the western end of the designation showing the drain



Figure 52 Looking into the designation from the adjacent side of the drain



Figure 53 At the corner of the eastern end of the designation



Figure 54 Bridge that crosses over the creek that leads to the man-made pond and planted exotic vegetation



Figure 55 Grassed area is one of the areas identified in red recommended to be removed in Plan Change 1



Figure 56 Area near the man made pond

HOKP119 Lake Mudgie

Date of Visit: 01 August 2018

Wetland: HOKP119 Lake Mudgie

Location: Hokitika

Total Rainfall Seven Days Prior to Visit: 145.5mm

Owner: Kawhaka Station Limited (Cornelius (Kees) Van Beek)

Summary:

In December 2012, the Wetland Coordinator met with Mr van Beek to view the area of Schedule 2 wetland on his property, and concluded that the area is wetland. Mr van Beek's further submission requested that the Schedule 2 wetland designation be removed from this area. At the hearing, Mr van Beek provided an aerial photo and ground photos of the site, showing areas that he considers are not wetland as they are drier.

I walked around a large area of the wetland. At the time of the visit the ground was generally very soft underfoot and at times I walked through patches of water that were over 50cm deep.

Whiskey Creek runs along the northern end of the property east to west, and feeds into the swamp. I did not go to the western boundary, however I was advised by the submitter that it is very wet. There are two drains towards the southern end of the property going east to west. One area requested to be removed is at the southern extent of the designation and this was partially accessed. Access to this area was limited due to the density of gorse and other vegetation surrounding it such as Manuka and Kamahi. From the observations I was able to identify this area as being different to the other ground cover in the designation. Here, the area had been previously developed, the ground was firm underfoot and there was no pooling of water.

Based on my site visit I recommend removing the designation at the south-west extent shown in Figure 56 as the land there has been previously modified, I did not observe a community of wetland species there, and the ground was hard underfoot.

I would class the balance of the designation to be wetland as the ground was very soft underfoot, there was a large amount of surface water present and vegetation was made up of a community of wetland species such as moss, juncus and tangle fern.

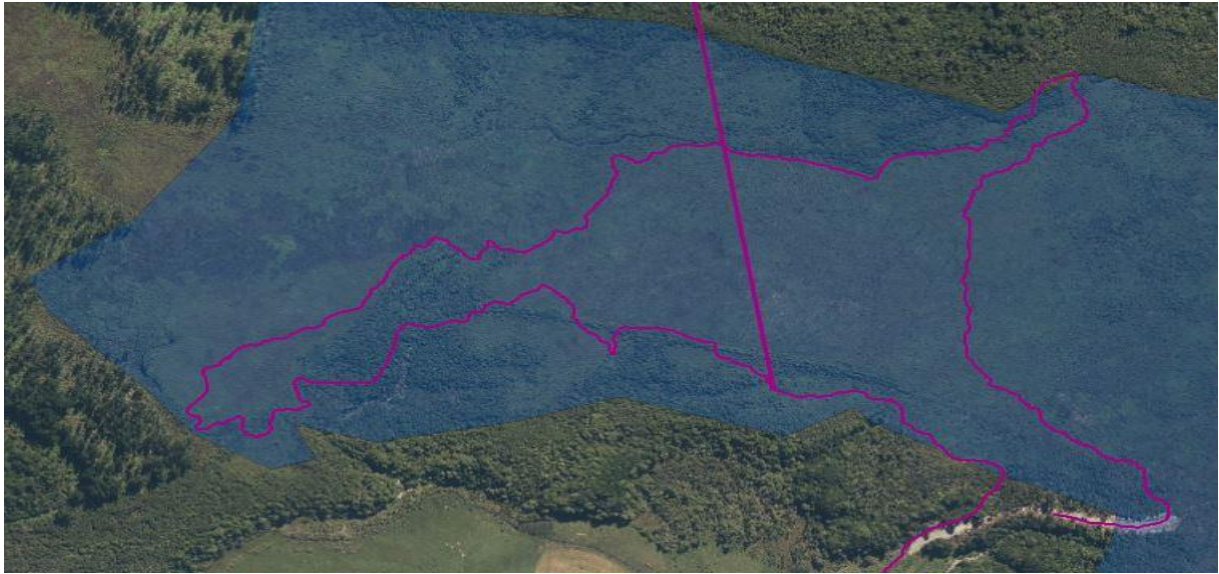


Figure 57 HOKP119 Area Assessed

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit - Purple

Please note that the GPS's tracker tracked a straight line through the designation as seen in Figure 1, this was not assessed.



Figure 58 Recommended Adjustments



Figure 59 At the south east end of the designation



Figure 60 Looking into the designation



Figure 61 Surface water within the designation



Figure 62 Small channel within the designation



Figure 63 Looking to the area recommended to be removed

KAGP008 Lake Kini

Date of Visit: 18 and 24th September 2019

Wetland: KAGP008 Lake Kini

Location: Bruce Bay

Total Rainfall Seven Days Prior to Visit: 186mm

Owner: Te Rūnanga o Makaawhio

Summary:

The Royal Forest and Bird Protection Society of New Zealand (Forest and Bird) submitted against removing the wetland designation for cultural and spiritual reasons, as sought by Te Rūnanga o Makaawhio. It was noted that Forest and Bird requested being present at the site visit, however when contacting Nicky Snoyink (representative for Forest and Bird), a site visit was unable to be coordinated. I was advised by Ms Snoyink to undertake the site visit without Forest and Bird present as long as there was an ecologist present.

I met with Paul Wilson of Te Rūnanga o Makaawhio as the Rūnanga representative at the Hearing, Tim Rochford, was unavailable, (he is based in Wellington). The area is important for mahinga kai and there are potentially some canoes buried in a part of the designation that Te Rūnanga o Makaawhio would want rights to if ever discovered.

The designation is large in size, only a small portion was assessed. Access was limited in some areas of both the northern and southern designations due to pooling of water and drains running around the edge. At the first few areas accessed in the northern designation, the ground was soft underfoot and dominated by moss. The area was poorly drained with a significant amount of surface water and pooling of water over 30cm. Vegetation was that typical of a wetland and included, but was not limited to, Bryophytes, Kahikatea, tangle fern and Rimu.

The south-western corner of the northern designation that was assessed was different. This area was hard underfoot and well drained. There were patches of pooled water, however these were low. Unlike the other area assessed, the ground here was not a mossfield. This area had vegetation such as Miro, Kahikatea, Lancewood, Matai, Rimu and Totara. There were deer droppings found in several locations in this area.

I would not consider this specific area to be wetland, however to what extent the surrounding area is the same is unknown, as only a small portion was assessed. I would recommend more extensive work be carried out within this designation to determine overall wetland values.

At the northern end of the southern designation shown in Figure 63, the ground was hard underfoot with vegetation being a mixture of Totara, Supplejack, Rimu and Miro. Further away from the road boundary the vegetation changed slightly and included Sphagnum Moss and filmy ferns.

At the eastern end of the most southern designation there is an area that has been developed into pasture which was hard underfoot and comprised of grass and gorse. The remaining area

of the southern designation was made up of a community of wetland species including watercress, swamp fern, Cabbage trees, moss and reeds. This area was soft underfoot with pooling of water exceeding 30cm in depth.

Looking at whether the remaining southern designation areas hold characteristics of those associated with a wetland, I recommend retaining the designation aside from what has been identified in Figure 64 as the vegetation types and ground conditions indicate that the remaining areas are also likely to be wetland.



Figure 64 Area Assessed – Northern

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple
Please note, there was a technical issue with the tracker and the straight purple lines are not part of the track.



Figure 65 Area Assessed - Southern

Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red, GPS track of this site visit – Purple



Figure 66 Recommended Adjustments



Figures 67 and 68 Pooled water within the northern designation



Figure 69 Ground within the northern designation



Figure 70 Pooled water within the northern designation



Figure 71 Drain around the northern designation



Figure 72 Ground within the area recommended to be removed at the Northern designation



Figure 73 Photo showing watercress within the Southern designation



Figure 74 Developed land within the southern designation

MAI003 Fletcher Creek

Date Assessed: 04 September 2018

Wetland: MAI003 Fletcher Creek

Location: Reefton

Total Rainfall Seven Days Prior to Visit: 36.5mm

Owner: Birchfield Coal Mines Limited (Site visit attended by Luke McNeish on behalf of the owner)

Summary:

The submitter requested some additional areas to be removed from the Fletcher Creek designation due to previous modification and development. These areas include Perseverance Road and previous tracking and logging roads. Due to the enormity of the area, the assessment was limited to areas in and immediately around Perseverance Road.

The wetland characteristics of the Fletcher Creek designation have been previously assessed by Boffa Miskell for an application by the submitter to DOC for access to the area. In August 2018, the consultant for the submitter advised that the conclusion from this assessment was that there are substantial areas that are not wetland, however due to the size and extent of the current area, an accurate determination of the boundary is not possible without extensive field work that will cost in excess of \$50,000. A copy of this report was requested from Phil McKinnel on 05/11/2018 to gain more of an understanding of the area however at the date of this report being finalised the report had not been received.

Based on my site visit I recommend removing the entirety of Perseverance Road from the designation along with a buffer on both sides of the road as shown in Figure 75. From my observations along Perseverance Road, the ground was hard underfoot, there was no pooling of water and the vegetation consisted of, but was not limited to, Pepperwood, Lancewood and Beech trees, which are not indicative wetland species.

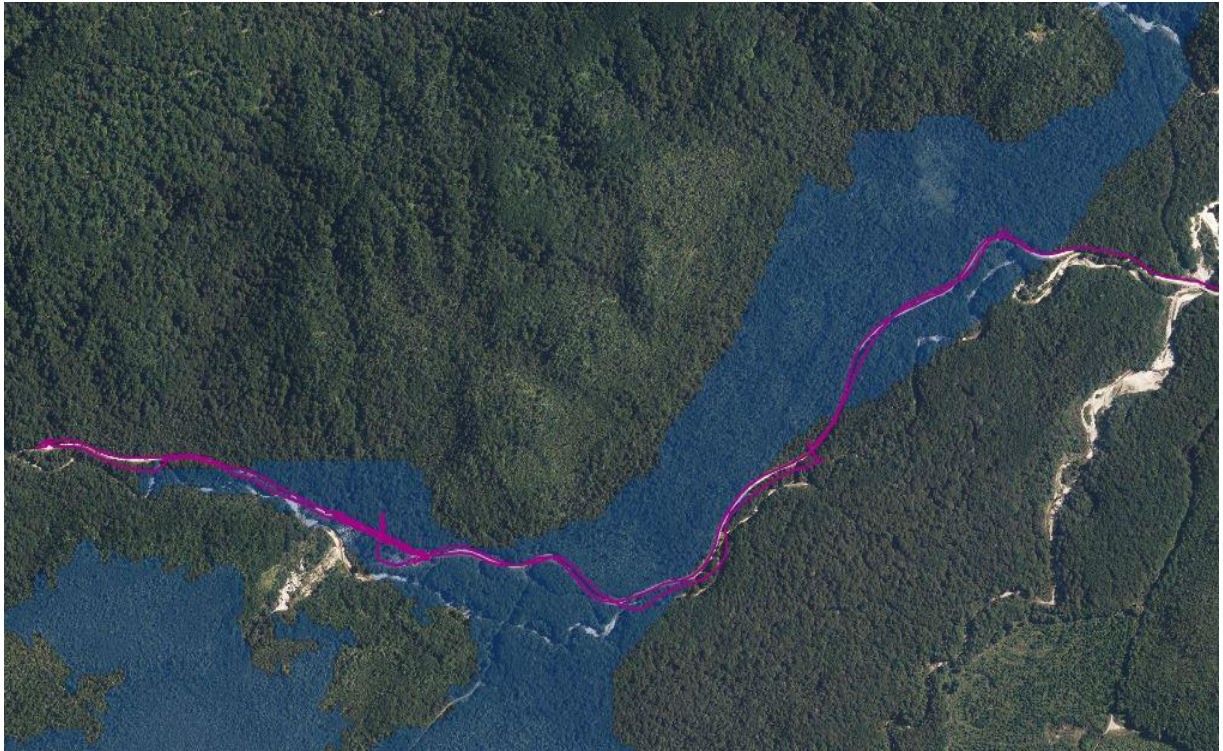


Figure 75 MAI003 Area Assessed

Key: Designated Wetland – Blue, GPS track of this site visit – Purple

Note that areas proposed to be removed through Plan Change 1 are in other parts of the Fletcher Creek wetland, and are not shown on this map.

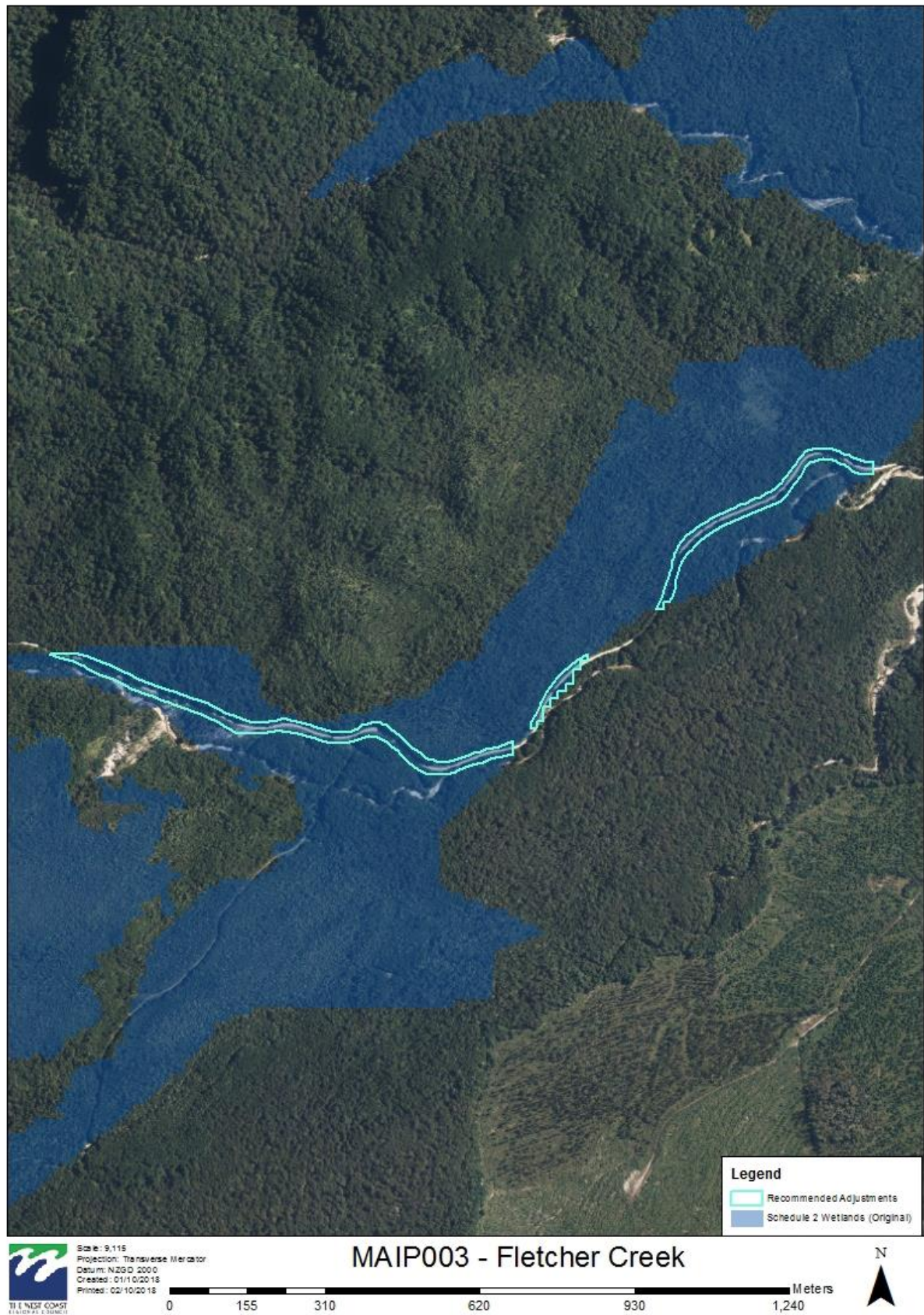


Figure 76 Recommended Adjustments



Figure 77 Photo taken within the designation



Figure 78 Perseverance Road



Figure 79 Photo taken within the designation



Figure 80 Modified area within the designation

PUNP001 Barrytown Flats, Maher Swamp

Date of Visit: 25 July 2018

Wetland: PUNP001 Barrytown Flats, Maher Swamp

Location: Barrytown

Total Rainfall Seven Days Prior to Visit: 55.5mm

Owner: George and Caryl Coates

Summary:

At the hearing, Mr and Mrs Coates did not appear to request for the boundary of the wetland on their land to be adjusted, however the Hearing Panel requested clarification by a site visit.

I assessed a large majority of the designation. At the time of the site visit the ground was boggy, however not particularly soft underfoot and I would consider that this is due to recent rain. I did find small areas of pooled water up to approximately 20cm deep, however I concluded that this is also a result of the recent rainfall and not permanent due to the ground condition being reasonably firm.

There is a drain and a small creek running through the property towards the adjacent Department of Conservation land to the West. The submitter stated that the small creek does not permanently flow as it tends to dry up in the summer time.

The areas outlined in red in Figure 72 which are proposed to be removed in Plan Change 1 have been developed, are in pasture and do not have wetland values. The remaining areas of the designation also did not make up a community of wetland species. In the remaining areas, the vegetation observed included, but was not limited to, marble leaf, pigeon wood, wineberry, Kahikatea and Lancewood.

Based on the site visit I recommend removing the entire wetland designation on the Nikau Deer Farms Ltd property (including the red areas identified in Plan Change 1). This is because I did not observe a community of wetland flora and fauna, the ground was mostly solid underfoot and there were no permanent water tables seen.



Figure 81 PUNP001 Area Assessed Key: Designated Wetland – Blue, Changes recommended in Plan Change 1 – Red. Due to losing satellite coverage a GPS track of the area walked is not able to be provided. The boundary fence running from east to west at the top of the map, then southward, was followed.



Figure 82 Recommended Adjustments



Figure 83 Looking towards one of the developed areas identified to be removed



Figure 84 Within the designation



Figure 85 Creek running through the designation towards the adjoining DOC land



Figure 86 Photo representative of the designation



Figure 87 Surface water within the designation