

3. ENVIRONMENTAL SETTING

3.1 OVERVIEW

This section outlines the key characteristics of the existing environment for the BPCP and the surrounding Buller Plateaux area, thereby establishing the current physical, cultural, socio-economic, and legal environment for assessing the BPCP's effects and guiding decision-making.¹⁵

As previously noted, Bathurst has engaged an extensive team of independent experts to prepare technical reports for the BPCP to understand the Project's existing environment better. Baseline environment reporting has been ongoing for a number of years, and the findings of these reports are largely embedded in the technical assessments attached as **Part B**. The following sections summarise the existing physical, environmental and legal values described in these technical reports. For a more detailed description of the existing environment, refer to the corresponding technical report(s) provided as **Part B** to these application documents.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Project Location

The BPCP is located on the Buller Plateaux, approximately 15 kms northeast of Westport on the West Coast of the South Island of New Zealand as shown below in **Figures 3-1** and **3-2**.

The Buller Plateaux, comprising the Stockton Plateau and the Denniston Plateau, is a distinctive and, in places, highly modified landscape that remains valued, having been shaped by both historic and contemporary mining activity. Extensive conservation lands surround it, and it retains high physical, ecological, perceptual, and associative values (including historic and recreational values) linked to its mining heritage.

¹⁵ As required by Schedule 5, clauses 5(b) and 5(d) of the FTAA.

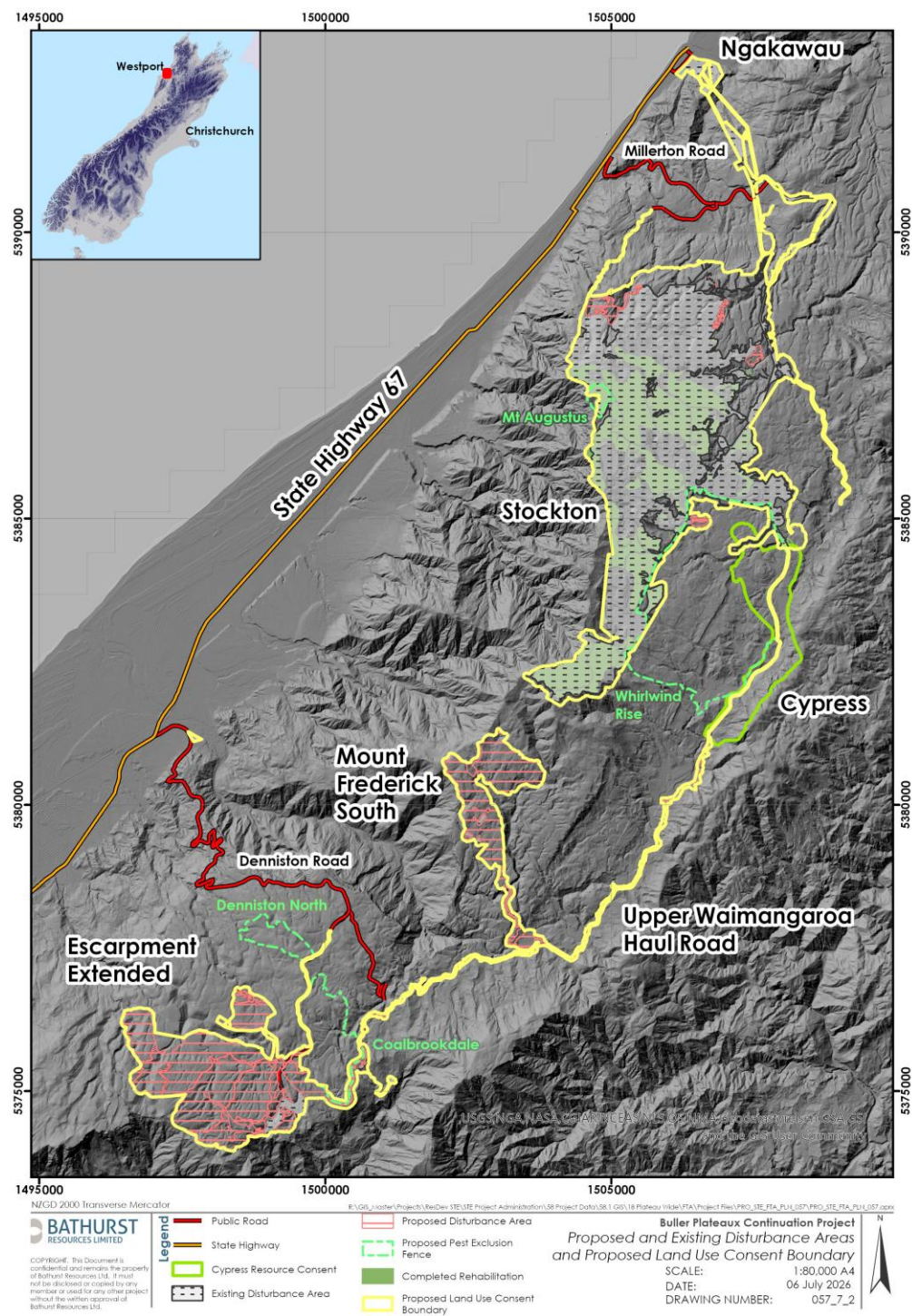


Figure 3-2: Proposed Disturbance Areas and Proposed Land Use Consent Boundary

3.2.1.1 Stockton Sub-Area

The Stockton Sub-Area is located approximately 35 km northeast of Westport within the Stockton Plateau (refer to **Figure 3-2**). The Stockton Plateau is characterised by coal mining activities ranging from initial, historic underground mining to currently approved large-scale open-cast mining and associated rehabilitation. The Stockton Mine is currently New Zealand's largest coal mine.

The Stockton Sub-Area comprises the existing and proposed mining operations at Stockton, along with associated coal handling and processing infrastructure, including the CHPP, the aerial ropeway, and the Ngākawau Rail Loadout facilities.

The majority of the Stockton Sub-Area is neither pristine nor untouched; rather, it is already impacted, and its landscapes are shaped by lawfully undertaken historic and ongoing mining activity that is part of the existing legal environment, including areas rehabilitated over time. Rehabilitation at Stockton Mine has been undertaken progressively over several decades, with a strong emphasis on early landform stabilisation and integration with surrounding plateau landscapes. As of May 2026, approximately 511 ha of land at Stockton Mine has been progressively rehabilitated toward the approved final landform and post-mining land use. These areas have been completed and jointly signed off by the WCRC and BDC, demonstrating compliance with the agreed rehabilitation.

3.2.1.2 Escarpment Extended Sub-Area

The ESE Sub-Area is located at the southern end of the Denniston Plateau, approximately 13km northeast of Westport and includes the existing authorised Escarpment mine (refer to **Figure 3-2**).

The Denniston Plateau exhibits a mixture of intact natural landforms, regenerating vegetation, historic underground and recent opencast mining, mining relics, and popular recreational destinations.

The ESE Sub-Area lies predominantly within the headwaters of the Whareatea River catchment, with a smaller part of the south-eastern area draining toward Cascade Creek.

The ESE Sub-Area is characterised by the physical features of the Denniston Plateau, including evidence of historic mining activities, the presence of transmission powerlines and the existing Escarpment mine, and associated modifications to the landscape and vegetation.

Beyond the immediate ESE Sub-Area, it forms part of a much larger landscape characterised by extensive indigenous forest, wetland complexes, escarpments and deeply incised river systems. These adjacent landscapes retain a high degree of naturalness at a regional scale

and provide important ecological, hydrological and landscape connectivity, forming the broader context within which the ESE Sub-Area sits and within which proposed landscape-scale rehabilitation and compensation measures will be considered.

3.2.1.3 Mount Frederick South Sub-Area

65 The MFS Sub-Area is located approximately 35 km northeast of Westport, in the
Waimangaroa River catchment. It occupies the southern half of the Stockton Plateau on the
southern flank of Mt Frederick and is bounded by the ridgeline south of Mt Frederick to the
west and the Waimangaroa River Gorge to the south. The area forms part of a plateau
landscape characterised by exposed sandstone surfaces, wetlands, regenerating
70 vegetation, and indigenous forest associated with the southern Stockton Plateau.

The MFS Sub-Area is situated within a historic underground mining area dating back to the
late 1800s, approximately 1 km southwest of the Mount Frederick mining area at Stockton
Mine. The area includes evidence of past underground mining activity and associated
modifications to the landform and vegetation but remains within the broader landscape
75 character of the southern Stockton Plateau. MFS is proposed as an open-cast mine, mining
through old underground workings and into unmined areas to the northwest.

3.2.1.4 UWHR Sub-Area

The proposed UWHR would be a private haul road within the Waimangaroa River valley
linking the ESE and MFS Sub-Areas to the existing Stockton infrastructure. The UWHR would
80 also be utilised for intermittent transport of equipment and supplies between the operating
hubs at Stockton, ESE and MFS.

The UWHR Sub-Area extends from the ESE Sub-Area to the boundary of the Stockton CML
and will utilise and upgrade sections of existing tracks, with approximately 5 km of new
greenfield haul road required to establish a continuous link.

85 Where the UWHR passes through the Cypress mining area during operations at Cypress, the
UWHR and the Cypress haul road will be the same for this section. After mining at Cypress is
complete, the final location of the Cypress haul road will be the final location of the UWHR
in this section.

3.2.2 Topography

90 The BPCP Sub-Areas are generally located in the sub-alpine environment of the elevated
Buller Plateaux. The Buller Plateaux are characterised by undulating surfaces, steep
escarpments and deeply incised gullies at elevations of ~500–1,000 m above sea level

(GHD, 2026). The Waimangaroa River cuts across the Buller Plateaux, effectively forming a gorge in between the Stockton Plateau and the Denniston Plateau to the southwest.

95 Long-term geological processes have shaped the Buller Plateaux landforms by acting on the
Brunner Coal Measures and the underlying Berlin Quartz Porphyry basement. Weathering of
sandstone-dominated units creates the characteristic sandstone pavements and benches
common to the Plateaux. At the same time, structural deformation associated with local
100 faulting contributes to variations in slope orientation and ridge-and-gully patterns. The
geology and shallow soils of the Buller Plateaux mean that water drains quickly, causing the
area to dry out rapidly during prolonged dry weather.

3.2.2.1 Stockton Plateau

The main Stockton Plateau is approximately 31.2 km² and extends around 7.6 km in length
and around 4.1 km in width between Mt Augustus, the Mt William Range and Mt Stockton.
105 The Stockton Plateau slopes 10° towards the northeast at elevations varying between 860 m
and 610 m above sea level. The wider landscape also contains distinctive geomorphic
features, including sandstone erosion pavements, exposed boulder fields, seepage zones,
flushes, and small tarn basins. These elements reflect the prevalence of exposed bedrock,
uneven surface morphology, and dynamic water movement driven by frequent rainfall
110 events, which are characteristic of high plateau and mountain environments. South of the
main Stockton Plateau, four sub-plateaux are separated by faulting and drainage incision,
which have created the valleys and gorges.

Topographically, the plateau slopes southward from a high point just south of Mount
Frederick, at approximately 1,053 m, descending to around 600 m at the Waimangaroa River
115 and Cedar Creek confluence. Across the broader Stockton Plateau, land elevations typically
range between 610 and 860 m, with Mount Frederick reaching a maximum elevation of
1,125 m.

3.2.2.2 Denniston Plateau

The Denniston Plateau covers around 17.5 km², forming a roughly circular area about 4.5 km
120 across, most of which lies between 600 and 700 m above sea level. The plateau includes a
2.8 km² up-warped part to the south, and a down-warped part covering 2.0 km² in the
northwest. These up- and down-warped areas share the plateau's relatively smooth relief
and have been tilted, respectively, up to 840 m and down to about 450 m in elevation. Most
slope angles range from 5° to 10°. Still, despite the ups and downs associated with drainage,
125 the overall plateau is effectively level across its width, with the western and eastern edges
both at around 600 m elevation. The topographic high along the southern boundary of the

Plateau corresponds with the exposure of the Escarpment Fault and forms a prominent geomorphic feature in the landscape.

130 Historic mining has locally influenced landforms, with evidence of surface cracking and ground voids associated with subsidence from former underground mining. However, these effects are relatively localised, and the overall topography remains largely representative of natural geomorphic processes rather than being dominated by legacy mining disturbances.

3.2.3 Meteorology

135 The meteorological context of the BPCP is summarised in the following sub-sections. Further detail can be found in Tonkin and Taylor’s “Air Quality Technical Assessment” report, attached in **Part B** to this application.

3.2.3.1 Wind

Table 3-1: Summary of wind characteristics

Location	Analysis
Ngākawau	> Winds are significantly influenced by channelling down the Ngakawau River valley, with a very high prevalence of winds from the east-southeast. > There is a distinct diurnal pattern to winds, with daytime winds being predominantly from the west, but sharply changing to the east-southeast following sunset. > Moderate to strong winds (winds ≥ 5 to 7 m/s) are relatively infrequent and occur from both the west and east-southeast. Winds from the east-southeast are more frequent. The wind pattern is similar for dry days with strong winds. > There is a low frequency of winds above 7 m/s and an absence of a signature of very strong winds above 10 m/s.
Stockton Plateau (including Stockton, MFS and UWHR Sub-Areas)	> Prevailing winds are from the north through west to south. > Winds from the east, northeast and southeast are very infrequent, reflecting the effect of the local high-altitude terrain. > There is a diurnal profile of winds, with daytime conditions tending to be more from the west and north, whereas nighttime and early morning winds are more variable from north through west to south.

Location	Analysis
	> Moderate to strong winds (winds ≥ 5 to 7 m/s) are relatively frequent, and mostly occur from the north to west quadrant, with higher wind speeds (>10 m/s) more common from the north. > Winds from the south and southwest are frequent but typically lower strength (<5 m/s). > The frequency of strong winds on dry days is significantly reduced, indicating that a large proportion of strong wind conditions are associated with wet weather. Furthermore, strong winds on dry days tend to occur only from the west and south.
Denniston Plateau	> Prevailing winds are from the northwest and to a lesser degree from the south-southeast. > Winds from the north through to east are very infrequent – similar to that experienced at Stockton. > Winds from the southwest are relatively infrequent. > There is a clear diurnal profile of winds, with daytime conditions being dominated by winds from the northwest, whereas nighttime and early morning winds tend more to the southeast. > Moderate to strong winds (winds ≥ 5 to 7 m/s) are relatively frequent and mostly occur from the north-northwest and to a lesser extent from the southeast. Higher wind speeds (>10 m/s) are more common from the north-northwest. > The frequency of strong winds on dry days is slightly reduced, indicating that a small proportion of strong wind conditions are associated with wet weather. The same general pattern is observed regardless of whether the weather is dry or wet.

140 3.2.3.2 Rainfall

The average annual rainfall recorded at the Stockton office from 2019 to 2023 was 6,210 mm. **Figure 3-3** shows that Stockton experiences year-round heavy rainfall, although the driest months are typically from January to March. For context, Christchurch's average annual rainfall is 618 mm, which Stockton exceeds in some months.

145 The average rainfall recorded at the Denniston Plateau from 2010 to 2023 is slightly less than that of Stockton, at 5,450 mm, reflecting similar topographical conditions on the Denniston

Plateau to those of the Stockton Plateau. The overall pattern of monthly rainfall at Denniston is shown in **Figure 3-4**, which indicates that January to March are the driest months.

150 Despite the generally high rainfall, the Buller Plateaux is known to experience dry periods over a number of weeks with little or no rainfall during the summer months. Given the topography and the shallow soils' ability to dry rapidly, there is a strong focus on dust mitigation measures under these conditions.

155 The average annual rainfall recorded at Ngākawau from 2019 to 2023 was 2,450 mm – notably less than recorded for the Stockton or Deniston Plateaux but is still relatively high compared with other regions of New Zealand. The overall pattern of monthly rainfall for Ngakawau is shown in **Figure 3-5** and is similar to that measured for Stockton, with the driest month being January.

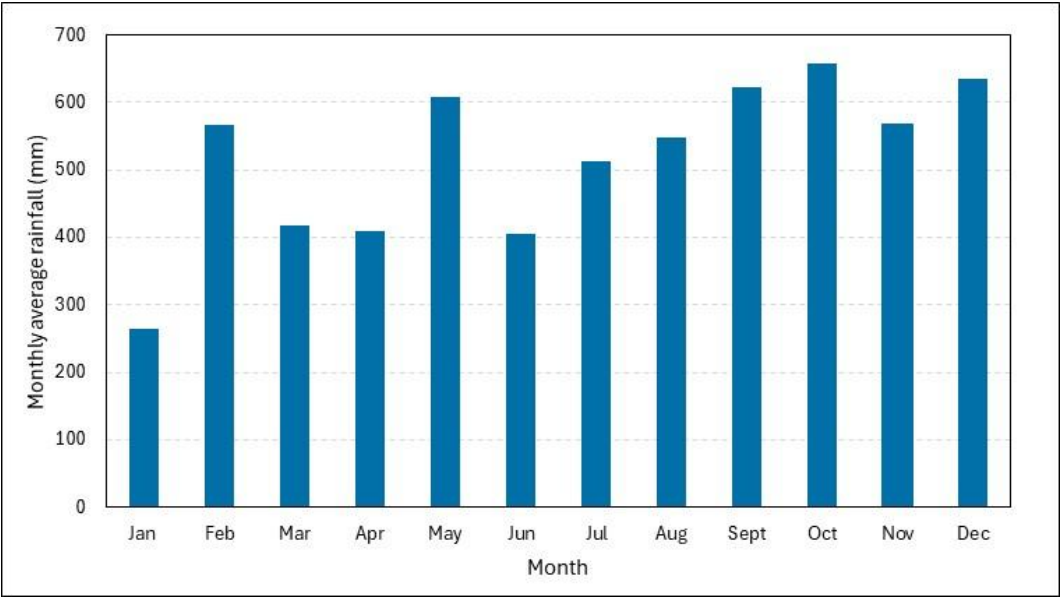


Figure 3-3: Average Monthly Rainfall Recorded from 2019 – 2024 (inclusive) at Stockton.

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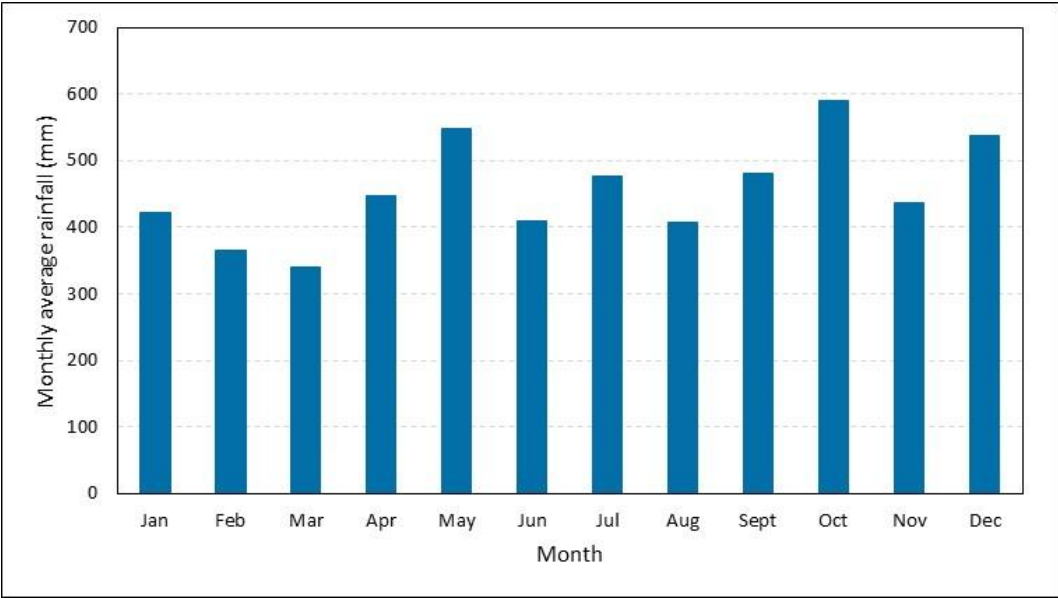


Figure 3-4: Average Monthly Rainfall Recorded from 2019 – 2024 (inclusive) at Denniston.

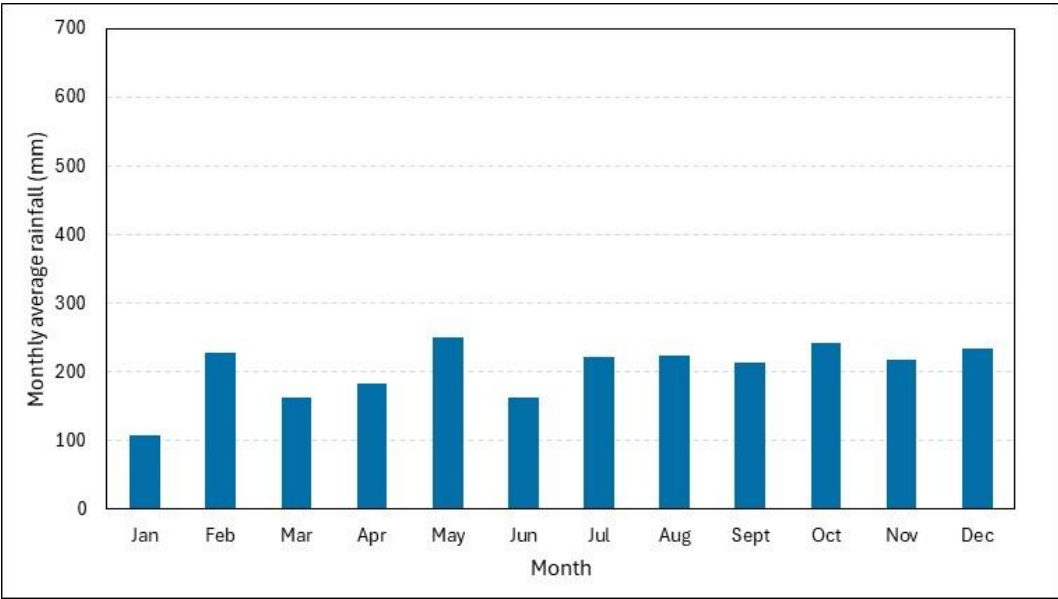


Figure 3-5: Average Monthly Rainfall Recorded from 2019 – 2024 (inclusive) at Ngākawau.

3.2.4 Geology

The Brunner Coal Measures were deposited in the Paparoa Trough, a fault-bounded basin extending more than 340 km along the West Coast, from south of the Hokitika River to northwest Nelson and east toward Murchison. Deposition began as localised subsidence coincided with a rise in base sea level during an early marine transgression. As the sea

advanced northward, the locus of sedimentation shifted accordingly. Regionally, east–west extension produced several north–south trending basins, the largest of which was the Paparoa Trough; the Buller Coalfield (including Stockton) occupies its northern sector.

175 Surfacial geology is dominated by Brunner Coal Measures, comprising fine to coarse-grained sandstone with minor carbonaceous mudstone beds and coal seams. Weathering of these sandstones yields coarse, acidic silica sands, resulting in shallow, nutrient-poor soils, stunted vegetation, and areas of exposed sandstone pavement. Geochemically, Brunner Coal Measures range from NAF to PAF, with PAF overburden typical of Stockton. Where
180 present, Kaiata Mudstone also ranges from NAF to PAF. Quaternary deposits and the Karamaea Suite granites are generally NAF. Locally exposed basement rocks and granites provide potential borrow sources for construction aggregates (Bathurst Resources, 2025).

The Brunner Coal Measures comprise a variable succession of sandstone, siltstone, and mudstone, with several coal seams, including the main Brunner coal seam, which has been
185 a major mineral resource in the region for over a century.

A summary of the geological conditions relevant to the respective Sub-Areas is provided in **Table 3-2**.

Table 3-2: Geological Conditions

Sub-Area	Geological Conditions
Stockton	The Stockton coal deposit occupies the Stockton Plateau and is bounded by distinct topographic and structural features: an irregular northern edge around the headwaters of Granity Stream, Miller Stream (above Millerton) and Sandy Stream; a western ridge line through Mt Augustus and Mt Frederick that coincides with the margin of the Brunner Coal Measures; the Mt William Fault at the toe of the William Range to the east (tracking the Waimangaroa River valley in the south and Cypress Stream in the north); and, to the south, the crest of the Waimangaroa River gorge and its Cedar Creek tributary to the Mt William Fault. Overall, the deposit is about 8 km long by 2 km wide, covering approximately 3,120 ha.
ESE	The ESE area on the Denniston Plateau is situated within the Denniston Sector of the Buller Coalfield. It is underlain by a well-defined geological sequence dominated by the upper Eocene Brunner Coal Measures. These coal-bearing sediments rest unconformably on the Berlins Quartz Porphyry basement, with carbonaceous paleosols commonly observed along the contact horizon. The nearby Escarpment Fault influences local structural conditions within the ESE, a significant normal-motion structure that defines part of the southern pit wall. Drilling confirms that this fault is associated with a 10 m-wide damage zone within the Berlins Quartz Porphyry basement, characterised by reduced rock mass

Sub-Area	Geological Conditions
	strength and local deformation fabrics, such as drag folding of the overlying Brunner Coal Measures strata. Across the broader area, bedding dips gently (typically 5–12°) toward the northeast and is further modified by small displacement normal and reverse faults, minor fold structures, and localised deformation adjacent to the Escarpment Fault trace. In terms of mineral resources, the ESE hosts regionally significant coking coal deposits within the Brunner Coal Measures. These seams have supported historic mining across the Buller Coalfield and remain an important economic resource. The coal measures in the ESE area exhibit predictable lateral variation consistent with regional depositional patterns, and their presence underpins the project area's resource potential. These historic workings are recognised as a feature of the existing environment that may influence local rock mass conditions. The rock mass directly above these remnants is likely to have relaxed over time, and geotechnical assessments have adopted a disturbed zone of approximately 10 m above worked coal to reflect reduced strength conditions.
MFS	The MFS Sub-Area sits within the Buller Coalfield and is underlain by a well-documented geological sequence that reflects long-term tectonic, depositional, and erosional processes. The geology is broadly consistent with that of the wider Stockton Plateau, though with local complexities arising from faulting, altered basement rocks, and historic underground mining. The MFS Sub-Area is primarily underlain by the Eocene Brunner Coal Measures, which form the main geological and mining unit of interest. Key characteristics include: > Thick, massive quartz sandstones form a hard sandstone caprock or pavement that is widely exposed across the site. > Interbedded sandstone, siltstone, mudstone, and thin coal seams beneath the caprock. > Three coal seam groups - M1, M2, M3 - with the M2 seam being the primary resource, up to 9 m thick and averaging 4 m. > Evidence of seam splitting sequences (e.g., M21, M22), indicating structural influence on coal deposition. > Brunner Coal Measures bedding generally dips 5–20°, forming a series of southwest dipping slopes.

Sub-Area	Geological Conditions
UWHR	The haul road south of the Cypress pit limit transitions through three geological zones. The road alignment in the southern portion of the UWHR is entirely composed of the Brunner Coal Measures, which provide a good, solid road base and produce material with suitable properties for use as bulk fill (notwithstanding its AMD potential). The central part of the road alignment is a mixture of Kaiata Mudstones and Brunner Coal Measures. Road cuttings through the Kaiata Mudstones are likely to provide suitable road foundations (not base course or running courses); however, the fine, friable nature of the material, once disturbed, will make it unsuitable for use as construction bulk fill below the road layers. The northern portion of the road alignment is established in colluvium and landslide materials of variable thickness overlying a Kaiata Mudstone basement. The colluvium will present challenges for establishing stable cuts and will not provide a suitable bulk-fill material. The road alignment traverses historical underground workings in places. Collapsed workings near the surface are evident as surface cracking in the existing 4WD track above the Ironbridge mine. This will require specific consideration in the road's design and construction.

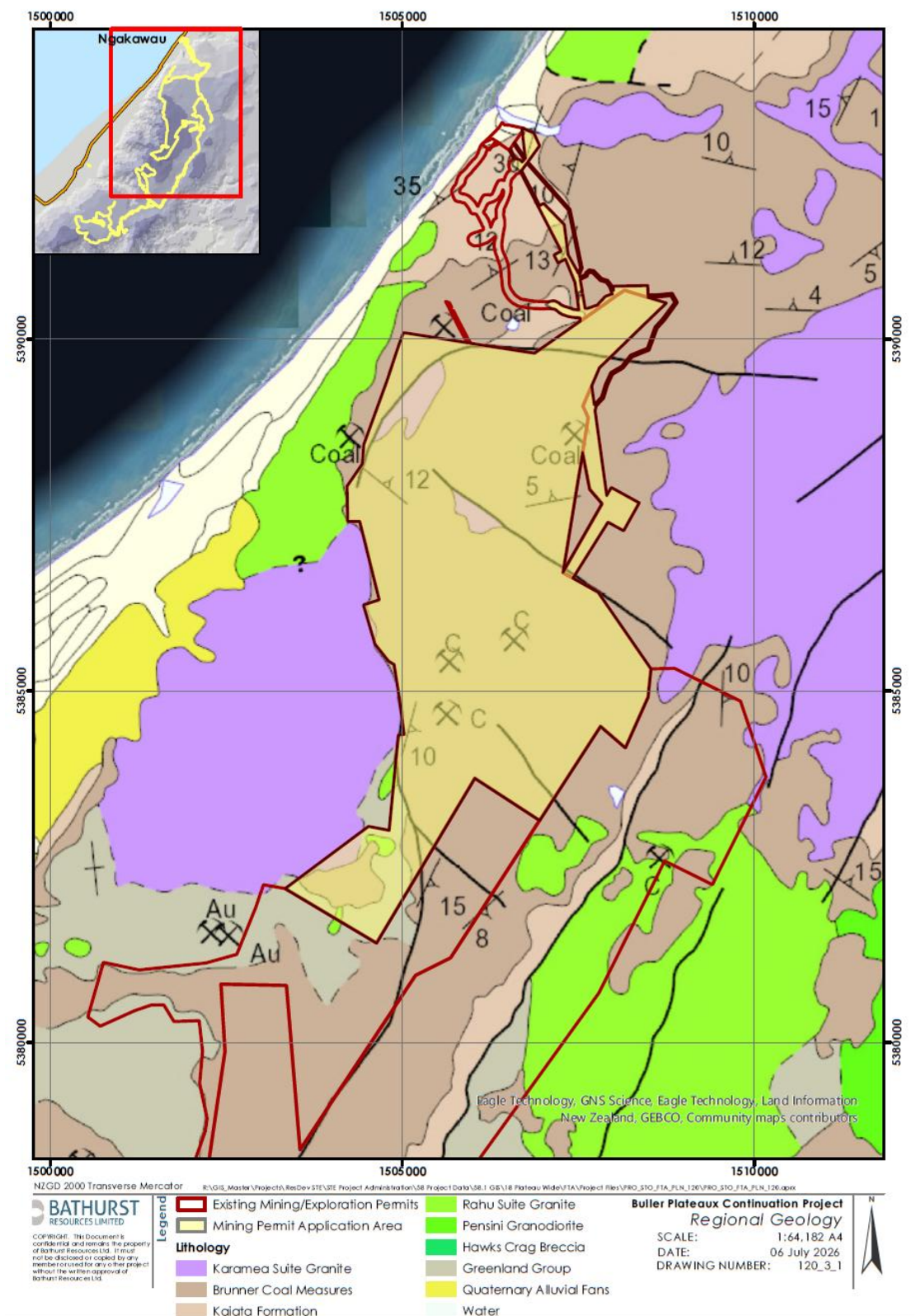


Figure 3-6: Stockton Geology

195 **3.2.5 Hydrology and Hydrogeology**

3.2.5.1 Hydrology

200 The hydrological environment of the Project area has been characterised based on the Hydrological Assessment for the BPCP prepared by Mine Waste Management Limited (MWM, 2026c). The Project is located within the upper catchments of several West Coast river systems, where hydrology is strongly influenced by high annual rainfall, steep terrain, and short, responsive headwater streams.

205 Rainfall across the Project area is high and spatially variable due to elevation and orographic effects, with mean annual rainfall exceeding 5,000 mm across much of the Buller Plateaux. Rainfall is distributed relatively evenly but with frequent heavy downpours. The plateaux are dissected by numerous small streams and tributaries that ultimately feed into larger river systems, including the Waimangaroa River and Ngākawau River, which flow westward out into the Tasman Sea. Catchment boundaries and drainage networks have been delineated using a 1 m resolution LiDAR-derived digital terrain model, with refinement where required to account for existing and proposed mine infrastructure.

210 A description of the surface water catchments intersecting with the respective Sub-Areas is provided in **Table 3-3** and illustrated in **Figures 3-8** and **3-9**.

Table 3-3: Surface water catchments

Sub-Area	Surface water catchments
Stockton	The four main surface water catchments at Stockton are the Millerton waterways, the Mangatini Stream catchment, the St Patrick Stream catchment, and the upper Waimangaroa River catchment. Within these catchments is a network of natural and modified waterways draining the Stockton Plateau. These waterways play a critical role in the site's hydrology and environmental management. These waterways drain a high-rainfall catchment and flow through a rugged, elevated landscape shaped by both natural processes and over a century of mining activity. The high rainfall on the Stockton Plateau results in frequent flood events and large variations in streamflow. Both are exacerbated by the steep topography, deeply incised waterways and sparse riparian vegetation. The waterways of the Stockton Plateau have beds composed of substrate variably composed of bedrock, chute, cobbles, boulders, and gravel. The flow regime is highly variable, a characteristic of their natural state.

Sub-Area	Surface water catchments
ESE	The main drainage feature within the ESE Sub-Area is the Whareatea River, which drains the northern part of the area. The river becomes deeply incised to the north. It receives flows from several tributaries on the Denniston Plateau before flowing northwest toward the coast and discharging to the Tasman Sea. The Whareatea catchment covers approximately 36.7 km², including the Rapid Stream sub-catchment (10.4 km²). Within and around the ESE Sub-Area, key waterways include Trent Stream, S Creek, V40 Stream, Conglomerate Stream and Rapid Stream. These are generally small, steep headwater streams that respond rapidly to rainfall, reflecting the plateau's high rainfall, shallow soils, and incised topography. The currently consented Escarpment mine footprint drains predominantly north toward the Whareatea River via headwater tributaries including Trent Stream and S Creek. Parts of the eastern and southern area drain toward Cascade Creek, while other streams such as Conglomerate Stream drain areas to the west of the consented footprint. The Cascade Creek catchment covers approximately 43.1 km², is predominantly forested, and drains southwest toward the Buller River. Hydrological behaviour across the ESE Sub-Area is influenced by steep terrain, strongly incised channels, and a high proportion of indigenous forest cover. As a result, streams are typically flashy and responsive to rainfall, while forested areas tend to support more sustained baseflows than more open or sparsely vegetated parts of the catchment.
MFS	MFS lies within the Waimangaroa River catchment. MWM, Hydrological Assessment" (May 2026c) report states that historical underground and surficial mining of limited extent is present within the catchment but is unlikely to influence the existing hydrological characteristics, given the vast majority of the catchment is undisturbed. The MFS Sub-Area encompasses two smaller watersheds that are tributaries to Deep Stream in the Waimangaroa basin. At the north end is Billo Stream and its unnamed tributary; on the southern end is an unnamed stream system that includes three primary branches. Streams in the MFS Sub-Area are primarily comprised of bedrock and bedrock-canyon valley settings, while colluvial settings are less common.
UWHR	The UWHR is adjacent to the upper Waimangaroa River, which runs between the Mt Frederick and Mt William ranges, encompassing multiple waterways from Hut Stream through to Cypress Stream, and receives drainage from multiple waterways, including: > Deep Stream, which drains the MFS Sub-Area;

Sub-Area	Surface water catchments
	> Whirlwind and Herbert Stream, draining the Stockton Sub-Area; > Cypress Stream and Byrne Creek, from the Cypress mining area; and > Downstream of the Hut Stream tributary and the confluence of Burnett Stream into the Waimangaroa River, from Coalbrookdale and Burnetts Face mining areas. The construction of the UWHR along the eastern flank of the Upper Waimangaroa corridor will intersect multiple tributaries that drain northwest from the William Range, the largest being Ernest Stream, Wilson Creek, Cedar Creek, Gomorrah Creek, and Hut Stream. As the continued operation of the UWHR (beyond the end of mine life for the Cypress Mine) will also include that section of haul road that passes through the Cypress Mine, the UWHR at that time will also include drainage toward headwater tributaries of St Patrick Stream (in the Ngākawau River catchment).

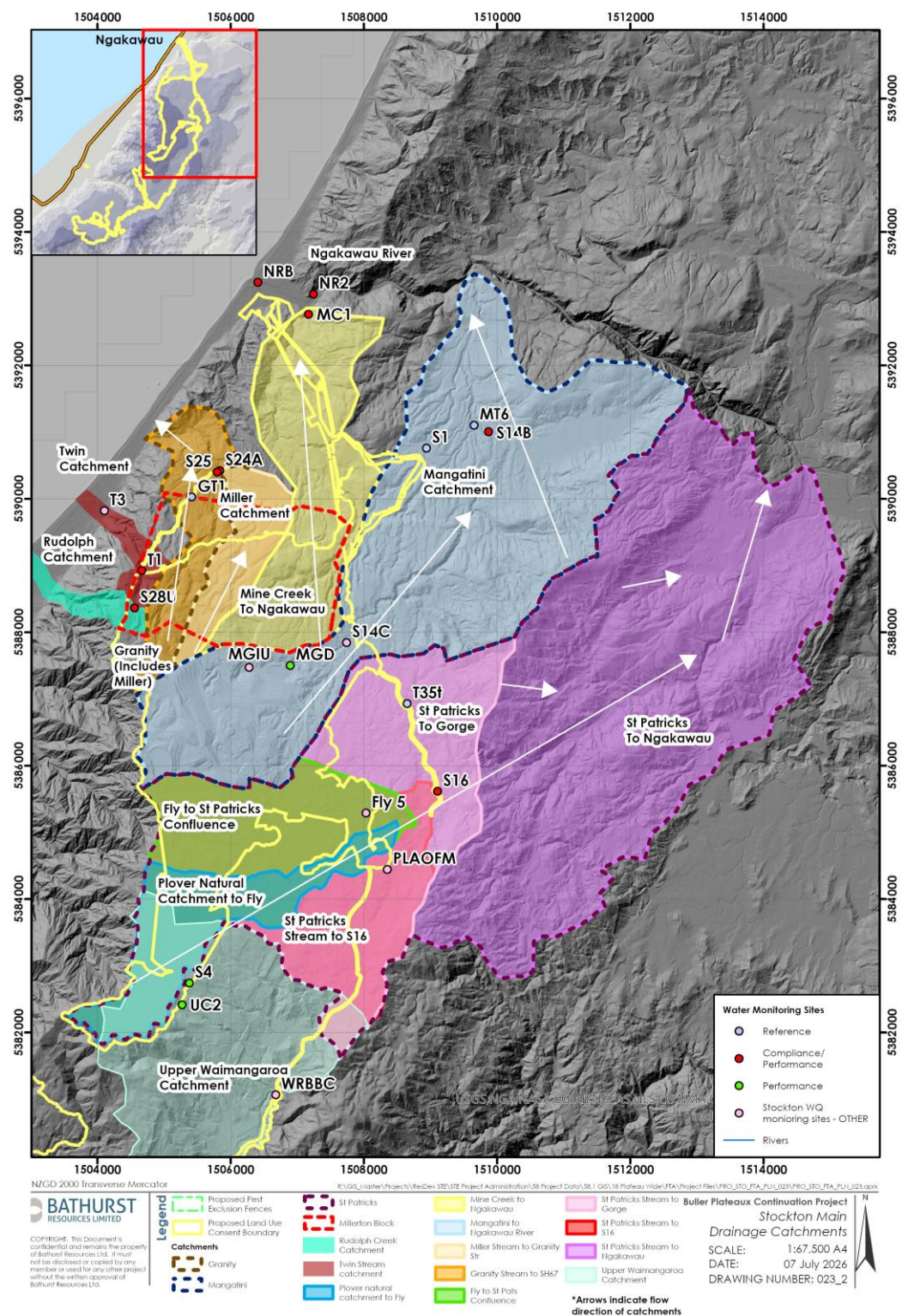


Figure 3-8: Stockton Main Drainage Catchments

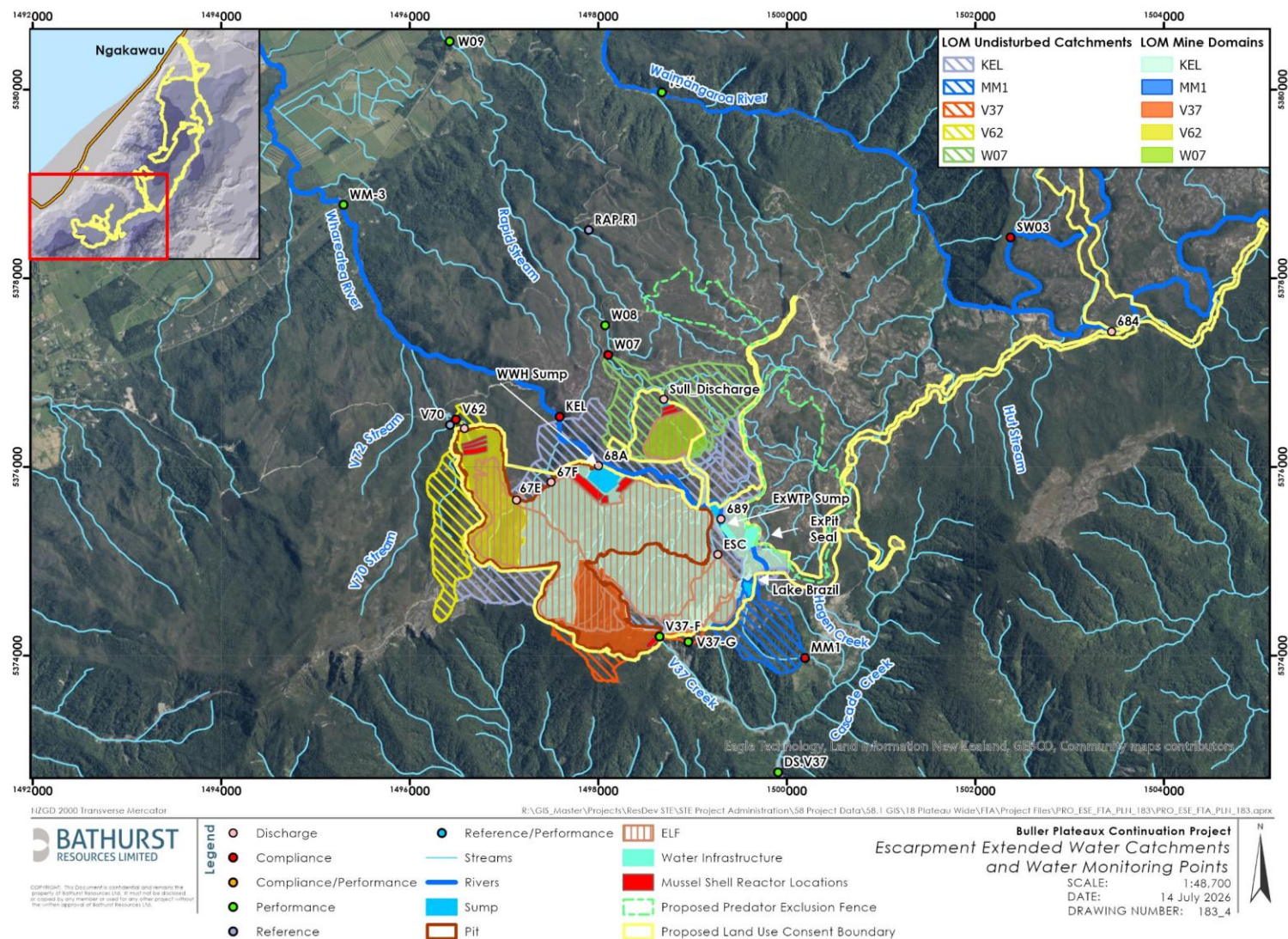


Figure 3-9: Escarpment Extended Water Catchment and Water Monitoring Points

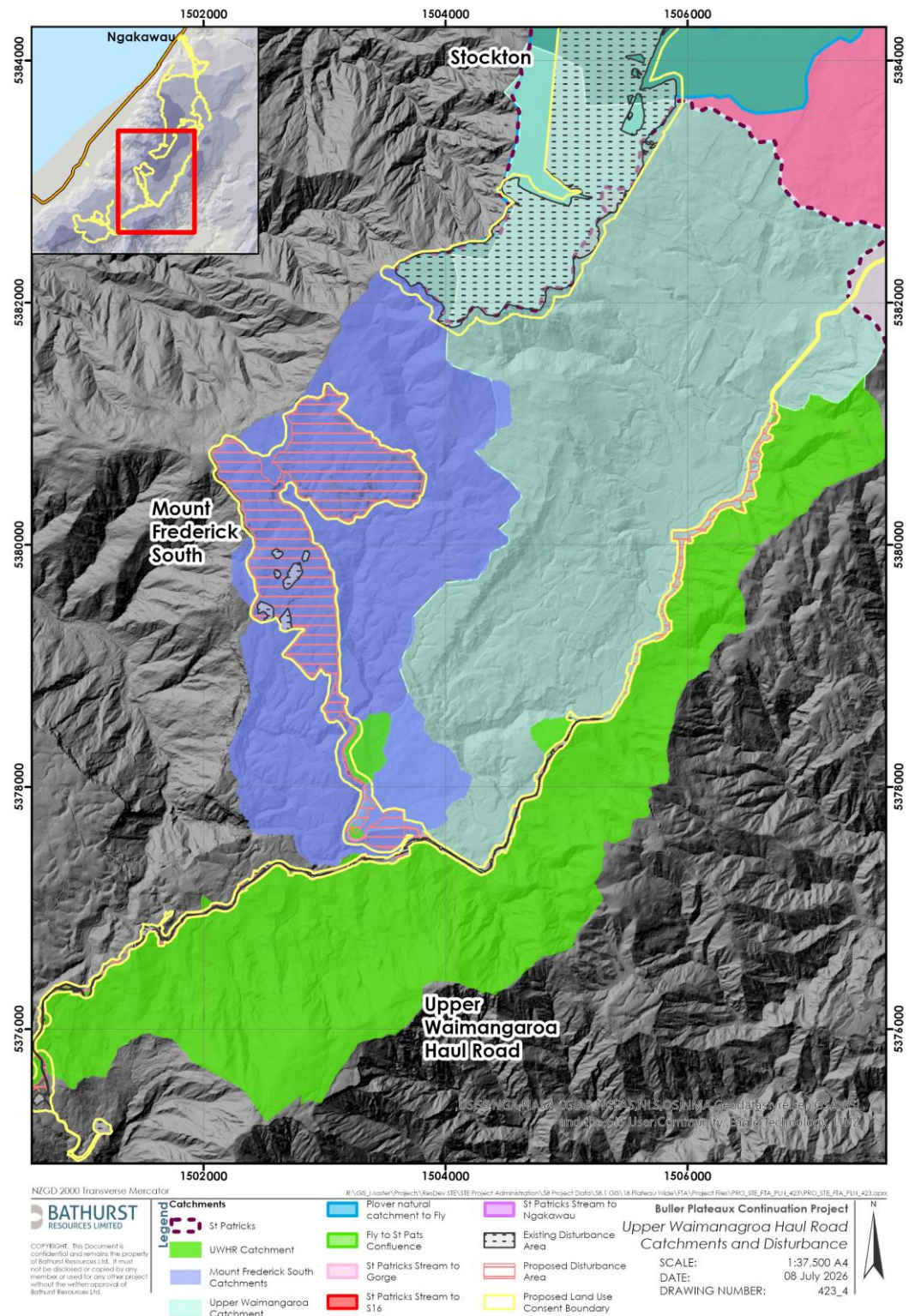


Figure 3-10: Catchments associated with the UWHR

3.2.5.2 Water quality

Many streams across the Buller Plateaux are naturally acidic, owing to abundant organic acids from peat-forming vegetation and to AMD where acid-forming strata are naturally exposed.

Plateaux streams show the following natural characteristics:

- > Naturally acidic pH, typically ranging from approximately 4.5 to 5.5, with lower values occurring under some flow conditions.
- > Very low hardness, generally <10 mg CaCO₃/L.
- > Naturally low nutrient concentrations.
- > High clarity / low turbidity (under base flow conditions).
- > Elevated dissolved organic carbon from humic and fulvic acids derived from leaf litter, causing characteristic brown water conditions - these organic compounds bind metals such as aluminium and thus influence their bioavailability.
- > Rapid changes in pH and electrical conductivity ("EC") during rainfall, with both decreasing sharply at the onset of rain and recovering as flows recede.

Where AMD from mining is superimposed on this background, conditions can be more extreme - pH values as low as ~2.5 have been recorded, with elevated dissolved metals and characteristic visual effects such as orange iron precipitates on streambeds and increased turbidity. The acidity load delivered to surface waters is highly variable because it tracks the flashy hydrology of the plateaux. **Figure 3-11** illustrates an example of AMD-affected water discharging from historic underground workings.



245 **Figure 3-11: AMD-impacted groundwater discharging from an historic underground
working into Miller Stream (source: BT Mining)**

Stockton Sub-Area

250 AMD is a long-standing and defining feature of the Stockton Plateau and reflects more than a
century of mining activity, rather than a new or Project-specific effect. Mining began in the
late 1880s, and a combination of historic underground workings, former state-owned
operations, and current open-cast mining has influenced waterways on the plateau. Today,
BT Mining actively manages and treats mine-affected water from all three eras of activity
through engineered landforms, sumps, lime dosing plants, diversion systems and
progressive rehabilitation, which together form the current AMD management framework at
255 Stockton.

Over the last two decades, treatment and rehabilitation have produced step-wise water
quality improvements in several Stockton catchments, particularly those discharging to the
Ngākawau River. This is important context for the current environment: while some reaches
remain AMD-affected, the condition of several waterways has improved measurably in
260 response to management actions first implemented by Solid Energy and continued and
expanded by BT Mining.

At a high level, the current Stockton water quality context can be understood as a spectrum
of waterways that are currently impacted, recovering, or recovered. Instream (2026) maps

265 this pattern across the Stockton catchments. It shows that recent treatment, diversion and
rehabilitation measures have shifted several reaches into a recovering or recovered state. At
the same time, other waterways remain constrained by untreated historic sources,
particularly in parts of the Millerton area.

270 In the Ngākawau catchment, the most important existing-environment story is the
improvement that has followed active treatment in the Mangatini and St Patrick catchments.
Remediation of Mangatini Stream began in the mid-2000s. It produced a marked
improvement in downstream water quality. In contrast, more recent changes to water
management in the St Patrick catchment, including treatment associated with McCabes
sump and Fly Creek, have also reduced acidity and dissolved aluminium and improved pH,
turbidity and suspended solids in downstream reaches.

275 Those improvements are reflected in the present-day condition of the Ngākawau River.
Instream (2026) records that active treatment of Mangatini and St Patrick discharges has
improved the river's suitability for aquatic life and restored migratory connectivity to the
upper catchment. In particular, the return of koaro to the upper Ngākawau is a key positive
outcome and an important indicator of the improved existing environment.

280 Mangatini Stream remains an AMD-affected waterway in its upper reaches, but treatment
and downstream dilution have substantially improved it over time. Instream (2026)
describes Mangatini as one of the clearest examples of successful remediation at Stockton,
with notable reductions in acidity and aluminium and corresponding improvements in
downstream receiving environments.

285 St Patrick Stream and its tributaries also show a pattern of progressive improvement.
Although the upper reaches remain affected in places, treatment and changes in water
management have improved conditions in the lower reaches and tributaries, and Instream
(2026) identifies this catchment as on a continuing recovery trajectory.

290 By contrast, the Millerton waterways, including Mine Creek, Miller Stream, Granity Stream,
Twins Stream and parts of Rudolph Stream, remain more heavily influenced by historic AMD
and continue to provide the clearest expression of long-term legacy effects within the
existing environment. Instream (2026) describes these waterways as generally still
impacted, notwithstanding some local improvement and the broader long-term betterment
pathway being pursued for the Stockton area.

295 Water quality in the upper Waimangaroa catchment is more variable, with some waterways
affected by historic AMD and others retaining higher ecological values. Instream (2026)
identifies impacted, recovering and recovered reaches within this catchment, reflecting a

mixed existing environment shaped by both natural plateau conditions and historic mining influences.

300 **ESE Sub-Area**

Many streams on the Denniston Plateau are naturally acidic (pH 4-6). However, some streams have been reported to have highly acidic waters (pH < 3) due to AMD inputs from historic mining activity.

305 AMD-affected waters in this area are typically characterised by low pH and elevated acidity, with associated increases in parameters such as sulfate and dissolved aluminium, iron and trace metals. However, concentrations vary between catchments and monitoring locations.

310 Established surface water monitoring sites exist downstream of the existing Escarpment mine, including monitoring site 'KEL' within the Whareatea River catchment, and monitoring site 'M-M1' within the Cascade Creek catchment. These sites provide spatial coverage of key receiving environments and support the characterisation of existing surface water quality conditions within the ESE Sub-Area.

MFS Sub-Area

315 The MFS Sub-Area has a history of mining activity, which has contributed to localised AMD in parts of its catchment. However, most of the MFS Sub-Area remains undisturbed, and existing water quality conditions are primarily influenced by natural plateau processes, including runoff that is naturally acidic and has low hardness and high dissolved organic carbon, as is characteristic of West Coast headwater streams.

320 Water quality within the MFS Sub-Area varies between tributaries, reflecting differences in catchment size, land disturbance, and hydrological connectivity to historic mine workings. Where present, AMD-affected waters are characterised by lower pH and elevated dissolved metals.

325 Established surface water monitoring sites exist in Deep Stream (SW01 and SW03) and in the Waimangaroa River (2W, a.k.a. 'Smokestack '), providing spatial coverage of key receiving environments and supporting the characterisation of existing surface water quality conditions within the MFS Sub-Area.

3.2.5.3 Hydrogeology

Stockton Plateau

Groundwater beneath the Stockton Plateau predominantly occurs in moderate- to very low-permeability consolidated sedimentary rock. This rock consists of sandstone, with varying

amounts of limestone, siltstone, shale, conglomerate and Brunner Coal Measures, and is predominantly underlain by basement rock or granite. Before mining, shallow groundwater likely flowed toward the natural topographic surface, with some discharges to surface water bodies and wetlands at natural topographic low points. Structural features such as faults, folding, fracturing and weathering also play a significant role in groundwater flow direction, especially in the deeper consolidated rock material. A basic conceptualisation of groundwater and geology at Stockton is provided in **Figure 3-12**.

Historic and current mining activities influence groundwater at Stockton. Underground mine workings and land-surface alterations from open pits and hillside cuts have resulted in localised changes in groundwater chemistry (including AMD) and groundwater flow towards dewatered areas (locations where groundwater is abstracted to keep excavations dry). When mining-related groundwater abstraction ceases, groundwater levels are expected to recover (rise) to pre-mining levels, and the groundwater flow direction is expected to return to a direction close to, though not the same as, that before opencast mining (GHD, 2026).

Groundwater quality has (in places) been heavily influenced by waste rock storage, resulting in low pH groundwater and surface water discharges from mine workings and adits, along with other contaminant sources such as coal fines. Groundwater contaminant plumes from the mining areas generally move slowly (less than 1 m/yr) because of the low permeability of the mined and surrounding rock. Outside the mine-impacted areas, groundwater is likely to remain unaltered due to the low permeability of the host rock and the limited zone of influence (in terms of drawdown) away from the active mining areas (GHD, 2025).

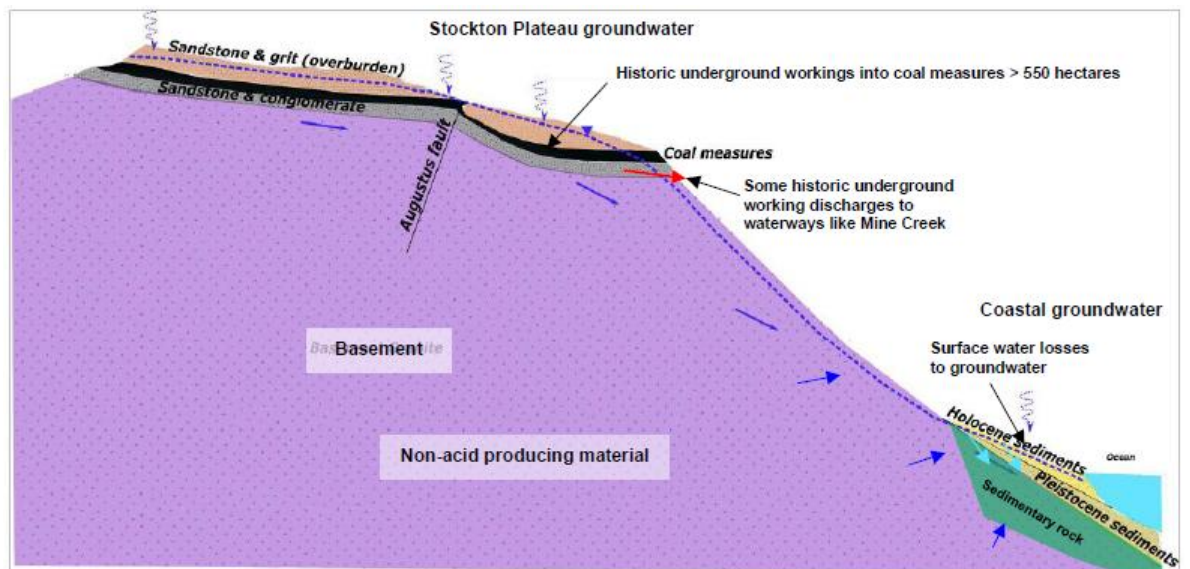


Figure 3-12: Basic conceptualisation of groundwater and geology at Stockton (GHD 2026)

Denniston Plateau

355 Groundwater on the Denniston Plateau is generally shallow and discontinuous, reflecting
the low primary permeability of the Brunner Coal Measures and the dominance of perched
water tables. These aquifers are typically thin and localised, discharging rapidly to streams
and wetlands.

360 The area's hydrogeological regime is shaped by both geological structure and legacy mining
activity. Groundwater within the Brunner Coal Measures generally follows surface
topography and is influenced by permeability contrasts between overburden materials and
the Berlins Quartz Porphyry basement. Monitoring from the existing piezometer network
shows relatively low groundwater levels across the site. It indicates that historic
underground workings and the regional dip help keep the Brunner Coal Measures well
365 drained.

In areas of past and present coal mining, exposed pyritic strata and spoil materials have
created acidic and metal-rich groundwater. This contaminated groundwater often seeps
directly into small streams, amplifying AMD effects and reducing natural buffering capacity.

3.2.6 Ecology

370 3.2.6.1 Ngākawau Ecological District

The Buller Plateaux lie just north of the township of Westport within the Ngakawau
Ecological District and North Westland Ecological Region (EcoLogical Solutions, 2026a). The
Ngakawau Ecological District is situated within the Western Nelson Ecological Province,
which is floristically the richest in New Zealand for vascular plants. The boundaries of the
375 Ngakawau Ecological District (shown in **Figure 3-13**) are defined by a line connecting Te
Kuha to Mount Rochfort, Mount William and a peak west of Mt Lyall in the south, the
Glasgow Range in the east and the Mōkihinui River in the North.

As described in EcoLogical Solutions, 2026a, the Ngakawau ED is characterised by elevated
coal plateaux, southwest- and west-trending coastal hills and low mountains up to 1,400 m
380 asl in the north and southeast. The district includes large areas of Eocene (40–50 million
years old) quartz sandstone, grit and conglomerate with Brunner coal seams forming
dissected plateaux with highly distinctive vegetation. Smaller areas also contain gneiss,
granite, greywacke, and argillite. Soils overlying granitic geologies are typically deeper and
more fertile and occur most commonly in the southeast of the district (in the headwaters of
385 the Mackley (Orikaka) River), with occasional instances elsewhere. The area experiences
mild temperatures and high rainfall, and most of the district remains in indigenous
vegetation.

390 The Ngākawau Ecological District supports a dense network of high-rainfall headwater streams that are a defining feature of the Buller Plateaux. These freshwater systems are typically naturally acidic, nutrient-poor, and characterised by steep gradients, flashy flow regimes and coarse substrates. Many headwater streams are naturally fishless due to physical migration barriers, with kōura (*Paranephrops planifrons*) as the top aquatic predator in these environments.

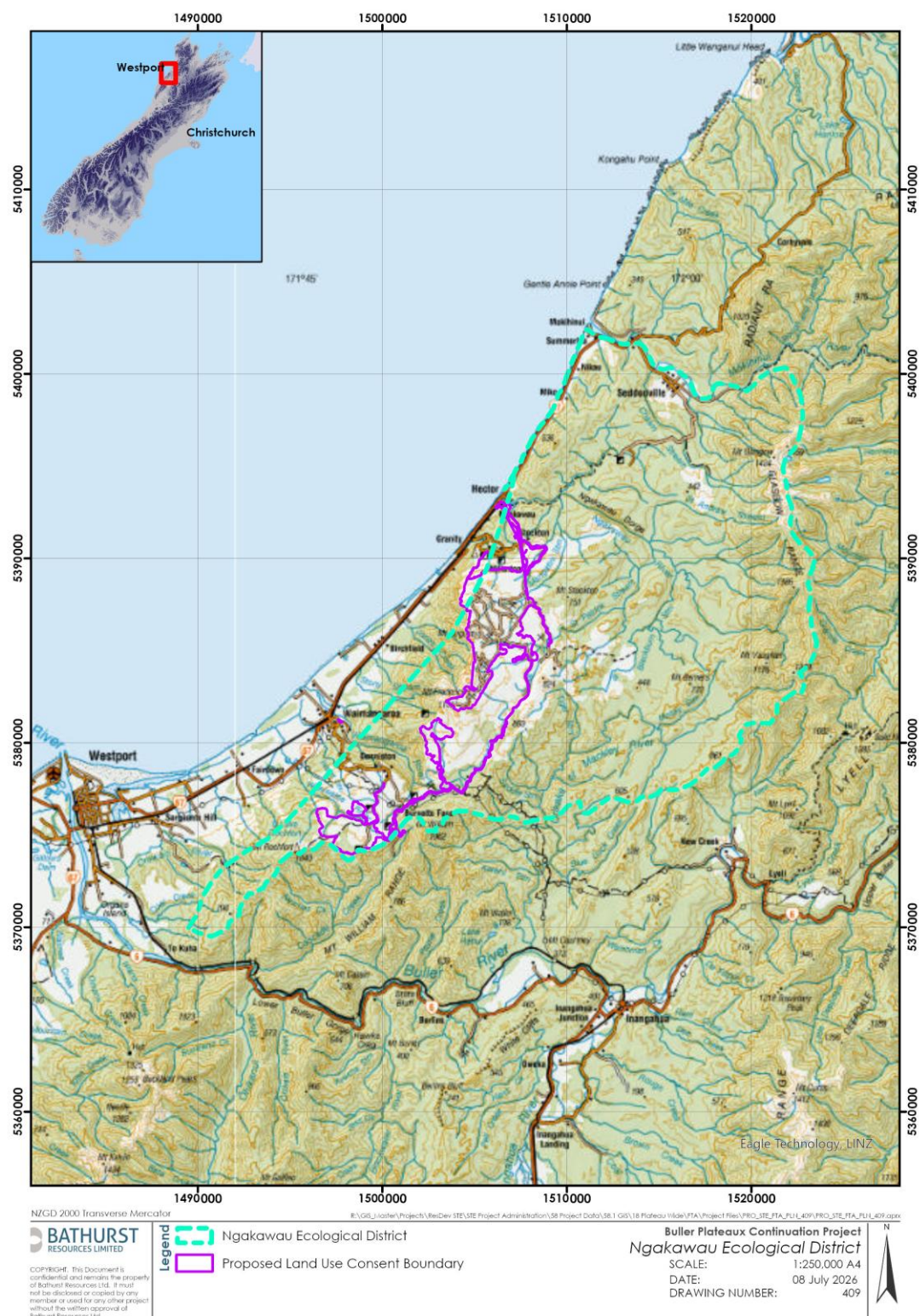
395 More than 50 ecological surveys have been conducted across various parts of the Ngākawau Ecological District, including terrestrial, wetland and freshwater ecosystems within the Upper Waimangaroa Valley and the Buller Plateaux.

400 Altitudinal sequences of lowland to subalpine vegetation occur on steep coastal hillslopes such as Mt Frederick (1,105 m asl), which overlies fertile gneiss and granite parent material, Mt Rochfort (1,040 m asl), which overlies infertile Brunner Coal Measures and Mt William (1,062m asl), which includes both granite and coal measures geology. At these locations, lowland mixed beech-kāmahi-podocarp (often rimu) forest grades into beech (including both mountain beech and silver beech) and Southern rātā forest, which becomes more stunted with increasing altitude.

405 Within the Ngākawau Ecological District, these studies have identified at least 542 species of terrestrial plant, 56 species of bird (including 28 native species), 473 species of bryophytes (345 liverworts, 123 mosses, five hornworts), 98 species of lichen, four species of lizards, more than 300 species of terrestrial invertebrates and at least 186 taxa of aquatic invertebrates, reflecting both the diversity of naturally acidic headwater streams and the broad range of freshwater habitats present across the district. The district also contains at least five naturally uncommon ecosystems, all on the Buller Plateaux, including

410 boulderfields of acidic rock, sandstone erosion pavement, tarns, seepages, flushes, and pākihi wetlands.

415 While much of the Ngākawau Ecological District retains high ecological integrity, parts of the district, particularly within some freshwater catchments, reflect the legacy of historic coal mining, including AMD from abandoned underground workings. As a result, aquatic ecological condition within the district ranges from near-pristine headwater systems to spatially discrete, highly degraded stream reaches, with clear gradients of ecological recovery evident downstream of historic disturbance sources.



3.2.6.2 Vegetation

Stockton Plateau

The vegetation of the Stockton Plateau is shaped by the acidic, infertile Brunner Coal Measures and widespread sandstone erosion pavement, producing a low-stature mosaic dominated on gentle pavements by stunted tussock–shrubland with *Chionochloa* spp., wire rush (*Empodisma minus*), tangle fern (*Gleichenia dicarpa*), *Dracophyllum* spp. and prostrate mānuka. Broad mānuka–Gahnia shrublands form extensive ecotones between open pavement and the sheltered gullies and fault scarps that carry stunted conifer–beech forest, typically Southern rātā with mountain/silver beech, pink pine, yellowsilver pine and kāmahī. Pākihi (wet heath) is most prevalent in the northern and eastern plateau, while wetter flats and slope breaks support red tussock patches and seepage/herbfield elements featuring montane–subalpine bog species such as *Astelia subulata* and *Euphrasia wettsteiniana*.

Figure 3-14 highlights the wide range of vegetation across the Stockton Plateau.

Owing to impeded drainage and the dominance of hydrophytes, large areas meet the definition of naturally occurring inland wetlands under the National Policy Statement for Freshwater Management. The flora includes coal measure and regional specialities of conservation concern - e.g., *Chionochloa juncea* (At Risk – Declining), *Dracophyllum densum* (At Risk – Declining), *Euphrasia wettsteiniana* (At Risk – Declining), and occurs alongside naturally uncommon ecosystems such as sandstone erosion pavement and seepages/flushes (both Endangered nationally). While much of the Stockton Plateau retains high ecological integrity, vegetation composition and structure vary locally in response to historic burning and mining disturbance, resulting in a mosaic of intact communities alongside mānuka-dominated seral vegetation in previously disturbed areas.

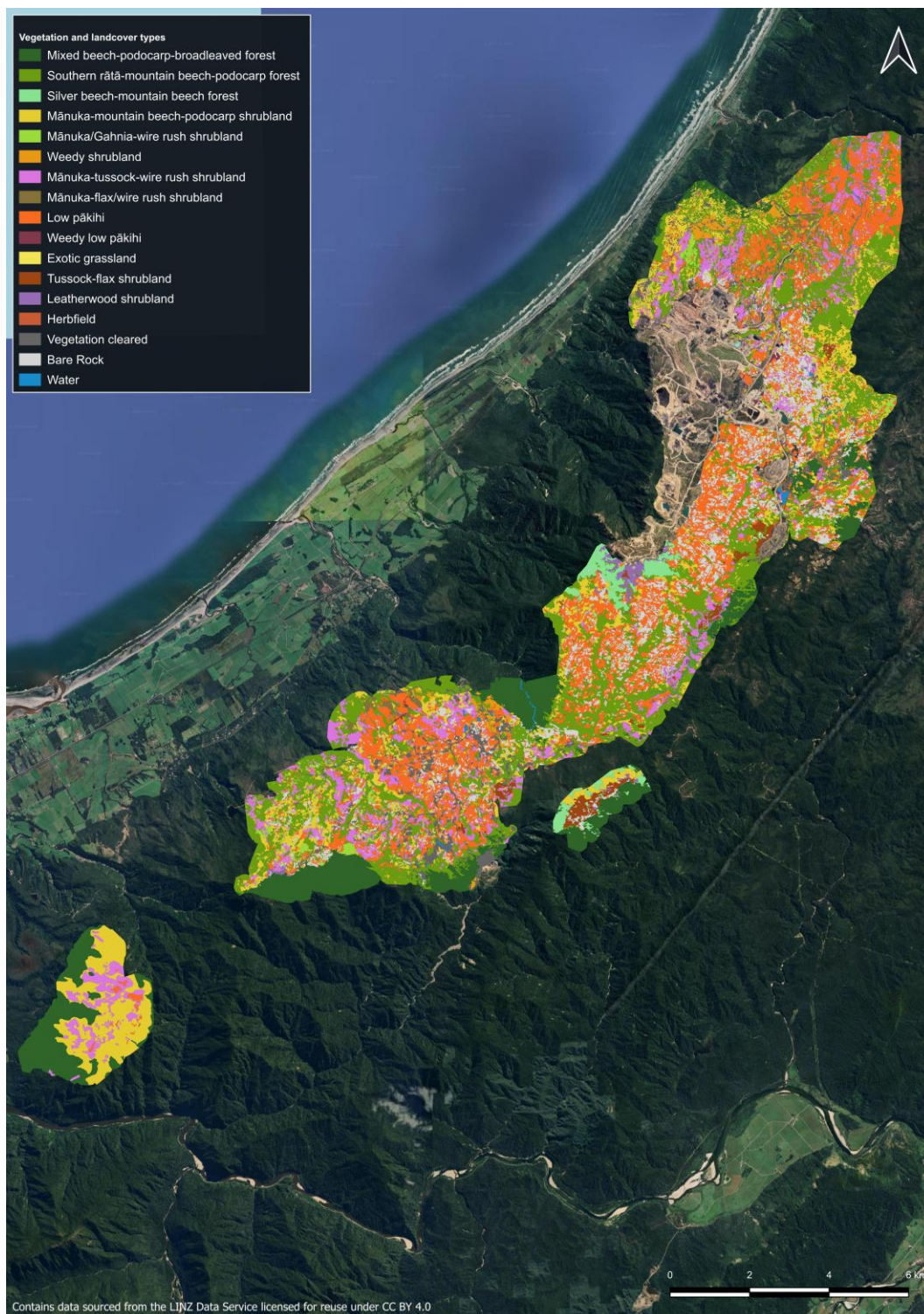
Denniston Plateau

Vegetation on the Denniston Plateau reflects strong gradients in altitude, exposure, soil depth and drainage, resulting in structurally simple communities on exposed pavements and ridges, and more complex forest communities in sheltered slopes and gullies (**Figure 3-14**).

Vegetation can generally be classified into three main types:

- > Pākihi herbfield grassland, dominated by prostrate mānuka, wire rush, turpentine scrub, coal measures tussock and *Dracophyllum politum*;
- > Scrubland vegetation, dominated by mānuka, with emergent mountain beech, celery pine, southern rātā, soft mingimingi and scattered mountain flax; and

- > Mixed beech / podocarp forest, including mountain, silver and ref beech, yellow, silver and pink pine, kaikawaka, southern rātā, kamahi, Westland quintinia and pokaka.
- > Areas on the Denniston Plateau disturbed by mining activities are dominated by gorse and exotic grasses, although early successional native shrub species are locally present depending on disturbance history and site conditions.



460

Figure 3-14: Vegetation of Buller Plateaux (Source: Ecological Solutions, Jan 2026 – Buller Vegetation Mapping)

3.2.6.3 Wetlands

The Buller Plateaux naturally supports extensive wetland formation due to its combination of exceptionally high rainfall, a shallow sandstone pavement, gleyed, poorly drained soils, and broad areas of water accumulation. Together, these factors create conditions of persistent saturation, promoting the development and maintenance of a wide range of wetland habitats across the landscape. As a result, wetlands are a natural and pervasive baseline feature of the Buller Plateaux landscape, rather than isolated or disturbance-derived ecosystems.

Stockton Sub-Area

Existing wetlands at Stockton include;

- > Mānuka-tussock-wire rush shrubland;
- > Mānuka/gahnia-wire rush shrubland;
- > Mānuka-mountain flax/wire rush shrubland;
- > Tanglefern shrubland; and
- > Pākihi. (**Figure 3-15**)

These vegetation communities meet the criteria for natural inland wetlands in the National Policy Statement for Freshwater Management (“**NPS-FM**”), reflecting persistent saturation and wetland hydrology.



Figure 3-15: Pākihi vegetation on the Stockton Plateau

485 Pākihi wetland is present along the base of the hills and north towards the Ngākawau River. The area of pākihi wetland has decreased in association with historical land disturbance, but it remains in the south-east corner of Stockton Mine and in other areas north and east of Stockton. At Millerton North, Bioresarches (2024) describe current wetland vegetation areas supporting the ecosystem, type “*Mānuka, lesser wire rush, tangle fern scrub/fernland/restiad rushland*”.

ESE Sub-Area

490 Wetlands constitute a substantial proportion of the ESE Sub-Area. Approximately 260.5 ha, representing 52% of the Disturbance Area, has been mapped as meeting the definition of natural inland wetlands under the NPSFM. An additional 18.1 ha of wetlands are located within the ecological setback. These wetland areas are distributed across gently sloping terrain, exposed plateau surfaces, ecotonal zones, and shallow depressions often associated with sandstone pavement. Collectively, they form a widespread mosaic of wetland ecosystems that are strongly characteristic of the Denniston Plateau environment.

495 A variety of indigenous vegetation communities within the ESE Sub-Area meet the NPS-FM criteria for natural inland wetlands. These include:

- > Low pākihi;
- > Mānuka–tussock–wire rush shrubland;
- 500 > Mānuka–mountain beech–podocarp shrubland;
- > Mānuka/Gahnia–wire rush shrubland;
- > Mānuka–mountain flax/wire rush shrubland;
- > Weedy low pākihi; and
- > Tussock–flax shrubland.

505 These vegetation types reflect a hydrological gradient ranging from open, waterlogged pākihi wetland systems through to mixed shrub–wetland mosaics in areas with slightly improved drainage. They represent the characteristic ecological fabric of the plateau, where persistent saturation and nutrient poor substrates have shaped a distinctive wetland flora.

MFS Sub-Area

510 Wetlands are a defining ecological feature of the MFS Sub-Area. Approximately 70% of the MFS Disturbance Area, about 123.5 ha, meets the NPS-FM definition of a *natural inland wetland*. This extensive wetland cover results from the plateau's exceptionally high rainfall, shallow and largely impervious sandstone basement, widespread gley soils, poor drainage,

515 and the presence of stunted, moisture-dependent vegetation communities characteristic of the Buller Plateaux. Together, these factors create a landscape where saturated soils, localised ponding, and peat-like substrates are common, supporting a rich mosaic of wetland types. This high wetland coverage underpins the ecological distinctiveness of the MFS Sub-Area, supporting specialised flora and hydrologically driven ecosystem processes that are characteristic of the Buller Plateaux.

520 A range of wetland vegetation communities has been identified within the MFS Sub-Area, each reflecting the site’s hydrological conditions and underlying geology.

- 525 > Low pākihi is the most extensive wetland type, covering 83.4 ha of the MFS Disturbance Area. It occurs predominantly on flatter, poorly drained ground where water persists above the sandstone substrate. Vegetation is short, around 0.27 m tall, and typically includes prostrate mānuka, wire rush, a variety of sedges, cushion plants, tangle fern, sundews, and rush species occupying the wetter hollows.
- 530 > Mānuka–tussock–wire rush shrubland: a short shrubland type (mean height ~0.83 m) occurs particularly near waterways and in areas with sustained saturation. It is dominated by mānuka, with *Dracophyllum* species, *Gahnia*, tangle fern, coal measures tussock, and dense ground layers of prostrate mānuka and wire rush.
- > Mānuka–mountain beech–podocarp shrubland: This taller wetland-ecotone vegetation type is widely distributed across transitional zones between forested areas and pākihi. It contains mānuka, mountain beech, and a suite of podocarps, with a dense understory dominated by wire rush, mountain flax, and *Gahnia*.
- 535 > Mānuka–flax / wire-rush shrubland: Present in smaller pockets (approximately 2 ha), this vegetation type resembles the above shrublands but includes a stronger component of mountain flax, contributing to a mixed wet-shrubland structure.
- > Tussock–flax shrubland: A minor but ecologically important wetland type (0.9 ha), this community is found mostly at the southern end of the disturbance area. It consists of
- 540 red tussock, mountain flax, wire rush, tangle fern, and other hygrophilous species, and qualifies as a wetland due to the persistently saturated soils and hydrological regime.
- > Low pākihi with exotic component: This lightly modified vegetation type remains part of the broader wetland complex. Although exotic species are present, the underlying hydrology and wetland character remain intact.

545 Wetland vegetation across the MFS Sub-Area supports a wide range of indigenous plants adapted to saturated and nutrient-poor environments. Low pākihi and associated shrubland wetlands host numerous sedges, rushes, cushion plants, and wetland herbs. They also sustain important “At Risk” plant species, including:

- > *Chionochloa juncea*
- > *Carex carsei*
- > *Dracophyllum densum*
- > *Schizacme helmsii*
- > *Astelia subulata*

These species reflect the ecological distinctiveness of the Buller Plateaux wetland ecosystems.

UWHR Sub-Area

Wetlands are one of the most defining and extensive ecological features of the UWHR corridor. Ecological Solutions (2026b) has identified that approximately 16.5 ha of natural inland wetlands occur directly within the UWHR Disturbance Area, representing around 37% of the total footprint, with a further 14.1 ha located within the ecological setback and therefore susceptible to indirect effects such as edge disturbance (refer to **Figure 3-16**). These wetlands are not confined to a single location but occur frequently along the entire route, reflecting the broader wetland-rich character of the Buller Plateaux.

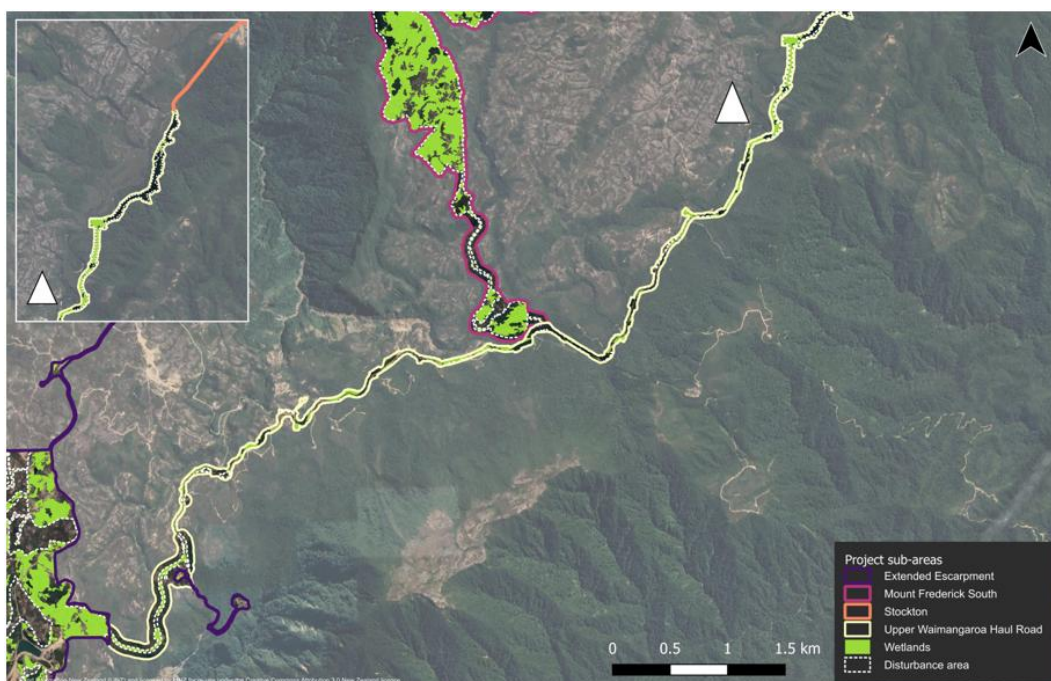


Figure 3-16: Natural Inland Wetlands within the UWHR Sub-Area (Source: Ecological Solutions (2026b))

A number of vegetation types present along the alignment meet the NPSFM definition of natural inland wetlands. These include low pākihi, mānuka–tussock–wire rush shrubland, mānuka–mountain beech–podocarp shrubland, and tussock–flax shrubland. Collectively, these vegetation communities create a heterogeneous environment ranging from open, wetland peat forming systems to shrub-dominated wetlands and wet mineral soils. Each of these types contributes to the distinctive structure, hydrology and biodiversity values of the corridor.

3.2.6.4 Terrestrial Fauna and Invertebrates

The following sections describe the existing terrestrial fauna and invertebrate environment, drawing on information presented in EcoLogical Solutions’ (2026), “Buller Plateaux Contextual Study”.

Invertebrates

The Buller Plateaux supports a diverse and predominantly indigenous invertebrate community, reflecting the variety of habitats present in the area. These communities include widespread species, species typical of the north-west South Island, and localised species adapted to alpine or wetland environments. The fine-scale mosaic of habitats contributes to the high diversity of invertebrates, with intact vegetation and complex habitat architecture supporting greater species richness.

Notable invertebrate species recorded in the Project Area include *Powelliphanta* snails, a ‘Threatened – Nationally Critical’ carnivorous land snail, which inhabits coal measures habitats, low-growing vegetation, and sandstone pavement. Other significant species include the New Zealand giant stag beetle (*Geodorcus helmsi*), forest ringlet butterfly (*Dodonidia helmsii*), white-face cave wētā (*Occultastella morgana*), widespread vagrant spiders (*Uliodon* spp.) and a new species of leaf-veined slug in the genus *Pseudaneitea*. Additionally, a previously undescribed tiger beetle species (*Neocicindela aureata* sp. nov.) was discovered at Te Kuha and Denniston, and the avatar moth (*Arctesthes avatar*) was discovered at Denniston in 2012.

Giant Land Snails - *Powelliphanta*

In New Zealand, the genus *Powelliphanta* comprises at least 20 species and 59 subspecies, representing some of the most distinctive invertebrates (EcoLogical Solutions, 2026). However, because of their restricted mobility, the conservation status of *Powelliphanta* species is a concern due to habitat loss and predation by introduced mammals and weka (EcoLogical Solutions, 2026).

600 Giant land snails (*Powelliphanta* spp.) are widespread throughout the Ngakawau Ecological District, with several populations being subspecies of *Powelliphanta lignaria*.

605 [REDACTED] *Powelliphanta lignaria johnstoni* ('Threatened – Nationally Critical') is also
a lowland species, living in acidic soils with frequent coal measure exposures. *P. l.*
johnstoni occurs [REDACTED]

[REDACTED] *Powelliphanta lignaria unicolorata*

(‘Threatened – Nationally Critical’) [REDACTED]

[REDACTED]

[REDACTED]

Lloyd's Ecological Consulting (2025) completed an assessment of the Project on *Powelliphanta patrickensis*. [REDACTED]

[REDACTED]

[REDACTED] Daytime subsurface searches record only "findable" snails and underestimate true abundance. Results from repeated destructive plot searches and capture-recapture surveys indicate that actual populations may be between three and five times higher than counts obtained from subsurface searches. Applying this adjustment to the estimated number of findable snails

Previously, the species' distribution covered at least [REDACTED]. However, approximately [REDACTED] km² has been affected by disturbance associated with recent or historic mining activity and no longer provides suitable habitat. This leaves [REDACTED] of relatively undisturbed snail habitat, of which [REDACTED]. In recent years, *Powelliphanta patrickensis* populations on the Denniston and Stockton Plateaux have declined sharply in areas outside mining disturbance. These declines correlate with increased predation by

weka (*Gallirallus australis*). The proportion of snail shells found with evidence of predation by weka increased from 6.2% of 658 shells in 2012 to 35% of 388 shells in 2024, while weka abundance increased over the same period.

640 Without additional management (e.g., exclusion fences), population models indicate that *Powelliphanta patrickensis* populations are likely to decline to around 10% of current levels within 20 years and approach extinction within 30 years. This is based on the existing environment, i.e., without the BPCP.

Lizards

645 The Ngakawau Ecological District is known to provide habitat for four species of native lizard (two geckos and two skinks) as follows:

- > Forest gecko (*Mokopirirakau granulatus*);
- > West Coast green gecko (*Naultinus tuberculatus*);
- > Newman’s speckled skink (*Oligosoma aff. newmani* ‘Buller’);
- > Northern grass skink (*Oligosoma polychroma*).

650 These species are primarily associated with low-stature shrubland, forest–shrub ecotones, and sheltered rocky habitats, all of which are well represented across the Ngākawau Ecological District.

655 West Coast green gecko and Newman’s speckled skink are listed as ‘Threatened – Nationally Vulnerable’, whilst forest gecko is regarded as ‘At Risk – Declining’. Northern grass skink is considered ‘Not Threatened’.

This four-species lizard assemblage occurs only in the Ngakawau Ecological District, and the relative abundance of forest and West Coast geckos appears to be higher than elsewhere within their range.

Avifauna

660 The Buller Plateaux support a diverse but generally low-density bird community, shaped by the area’s infertile coal-measures geology, extensive shrubland and tussock mosaics, and limited forest cover. A total of 56 bird species have been recorded across the wider Ngakawau Ecological District, including the Buller Plateaux, of which 28 are indigenous.

665 Key species include the Threatened rōroa (great spotted kiwi), South Island fernbird, New Zealand pipit, long-tailed cuckoo, and regular but low-density forest bird species concentrated in gullies. Open shrublands and pākihi support fernbird, pipit, and weka, while forested gullies host robins, tomtits, bellbirds, silvereye, and brown creeper. Shags and

other waterbirds occasionally utilise waterways and constructed wetlands. Overall, bird abundance is highest in forest habitats and lowest on exposed sandstone pavement and coal-measures shrubland, with the plateau’s proximity to more fertile surrounding forests enabling seasonal movement of several species. A list of all birds present within the Ngākawau Ecological District is provided in EcoLogical Solutions, 2026a, attached in **Part B** to this application.

3.2.6.5 Aquatic Ecology

The aquatic ecology of the Buller Plateaux reflects a combination of exceptionally high rainfall, steep topography, distinctive coal measures geology, and a long history of coal mining. Streams across both the Stockton Plateau and the Denniston Plateau are predominantly high-energy headwater systems, characterised by flashy flow regimes, low nutrient concentrations, and substrates dominated by bedrock, cobbles and coarse gravels.

A defining natural characteristic of these waterways is their naturally acidic water chemistry, with pH commonly ranging from approximately 4 to 6 in upper catchment streams. This acidity arises from the weathering of the Brunner Coal Measures and organic soils, rather than anthropogenic contamination. Aquatic communities in many upland streams are therefore inherently adapted to low pH conditions, and acidity alone is not indicative of ecological degradation.

Many headwater streams on the Buller Plateaux are naturally fishless because steep gradients, cascades, and other physical barriers prevent upstream fish migration. In these systems, kōura (*Paranephrops planifrons*) function as the top aquatic predator, forming a distinctive and regionally significant component of the freshwater ecosystem.

Where ecological degradation occurs, it is strongly associated with historic AMD from legacy underground and opencast mining, particularly on the Stockton Plateau and, more locally, within parts of the Whareatea River, Cascade Creek and upper Waimangaroa River catchments. AMD-affected reaches typically exhibit very low pH (often <4–4.5), elevated dissolved metals (notably aluminium and iron), metal precipitates on streambeds, and substantially reduced aquatic biodiversity.

The current aquatic environment therefore comprises a mosaic of:

- > Near-pristine headwater streams with high ecological value; and
- > Spatially discrete reaches degraded by historic mining, with clear downstream gradients of chemical and ecological recovery.

700 Aquatic ecological values within the Project Area are based primarily on field surveys and analyses undertaken between 2019 and 2025, supported by earlier datasets where relevant. The assessment considers aquatic habitats and communities including:

- > Periphyton and bryophytes
- > Macroinvertebrates

705 > Kōura

> Freshwater fish

Ecological values are interpreted using a framework consistent with the Ecological Impact Assessment (EcIA) Guidelines (EIANZ). Professional judgement has been applied to distinguish between:

- 710 > Natural environmental characteristics (e.g. low pH, absence of fish); and
- > Effects attributable to anthropogenic disturbance, particularly AMD.

Aquatic ecological values are described on a scale from Negligible to Very High, reflecting the condition, diversity, and ecological significance of aquatic communities present.

Effects of Acid Mine Drainage on Aquatic Ecology

715 Oxidation of pyrite-bearing Brunner Coal Measures generates sulphuric acid, mobilising metals such as iron and aluminium and resulting in low-pH water, high dissolved metal concentrations, and degraded aquatic habitat quality. Refer to **Section 3.2.5** for a more in-depth discussion of AMD-affected waterways within the BPCP.

As AMD-affected water flows downstream, acidity is progressively reduced through dilution and buffering. With increasing pH, metals precipitate sequentially:

720

- > Iron typically precipitates above pH ~3.5; and
- > Aluminium precipitates at pH ~4.9–5.0.

These precipitates cover streambeds and substrates, reducing habitat suitability for aquatic organisms even as water chemistry improves.

725 The aquatic effects of AMD, including turbidity and precipitates, are well documented globally and in New Zealand. Streams heavily contaminated by AMD usually only support extremophile bacteria and algae. In less contaminated waterways, ecological communities, especially fish and invertebrates, respond in complex ways influenced by local natural conditions, such as tolerance to low pH in Brunner Coal Measures streams (Instream, 2026).

730

- > **Biofilms and algae** - Biofilms and algae adapt to AMD gradients as sensitive species decline. Metal hydroxide precipitates, formed by pH changes, reduce species richness by blocking light and colonisation sites. Tolerant algal taxa can achieve high biomass under stable conditions, but precipitates often reduce algal growth. In AMD-affected streams, fungi and bacteria exhibit reduced diversity and biomass, though some unique extremophile communities persist, affecting organic matter breakdown rates (Instream, 2026).
- > **Invertebrates** - Invertebrate species in AMD-affected streams are generally less rich and diverse compared to unaffected streams, often dominated by tolerant taxa or severely lacking many species. This decline is primarily due to challenges in regulating ions and metals, with water chemistry playing a more significant role than habitat changes.
- > **Fish** - Fish diversity in AMD-affected streams is generally low, with fin fish typically absent at pH levels below 4.5 on the West Coast.

Ngākawau River catchment

From 2007 onwards, a sustained effort to improve water quality through active AMD treatment in the Mangatini and St Patrick catchments led to a resurgence of fish migration to the headwaters of the Ngākawau River (Instream, 2026). The next fish survey in 2011 recorded a significantly larger kōaro population dominated by young and juvenile fish <100 mm in length. Annual fish surveys since 2017 have indicated that population numbers and individual sizes are healthy and stable, with no evidence of recruitment limitation due to a chemical barrier to migration.

Millerton waterways

The Millerton waterways (Mine Creek, Miller Stream, Granity Stream, Twins Stream, Rudolph Stream) are all AMD-impacted and are accordingly fishless.

Whareatea River catchment

As described in ESNZ, 2026a, attached in **Part B** to this application, the aquatic values of the Whareatea River catchment have been defined using monitoring data. These data were collected between 2019 and 2025 from 23 stream survey sites, including 14 which are located within or adjacent to the existing Escarpment mine footprint (**Figure 3-17**). Seven sites are located in the Rapid Stream sub-catchment, which flows into the Whareatea River. Water quality in Rapid Stream is impacted by historic AMD workings. These seven sites were surveyed across 2019 and 2020 and include sites upstream and downstream of the Sullivan Mine adit.

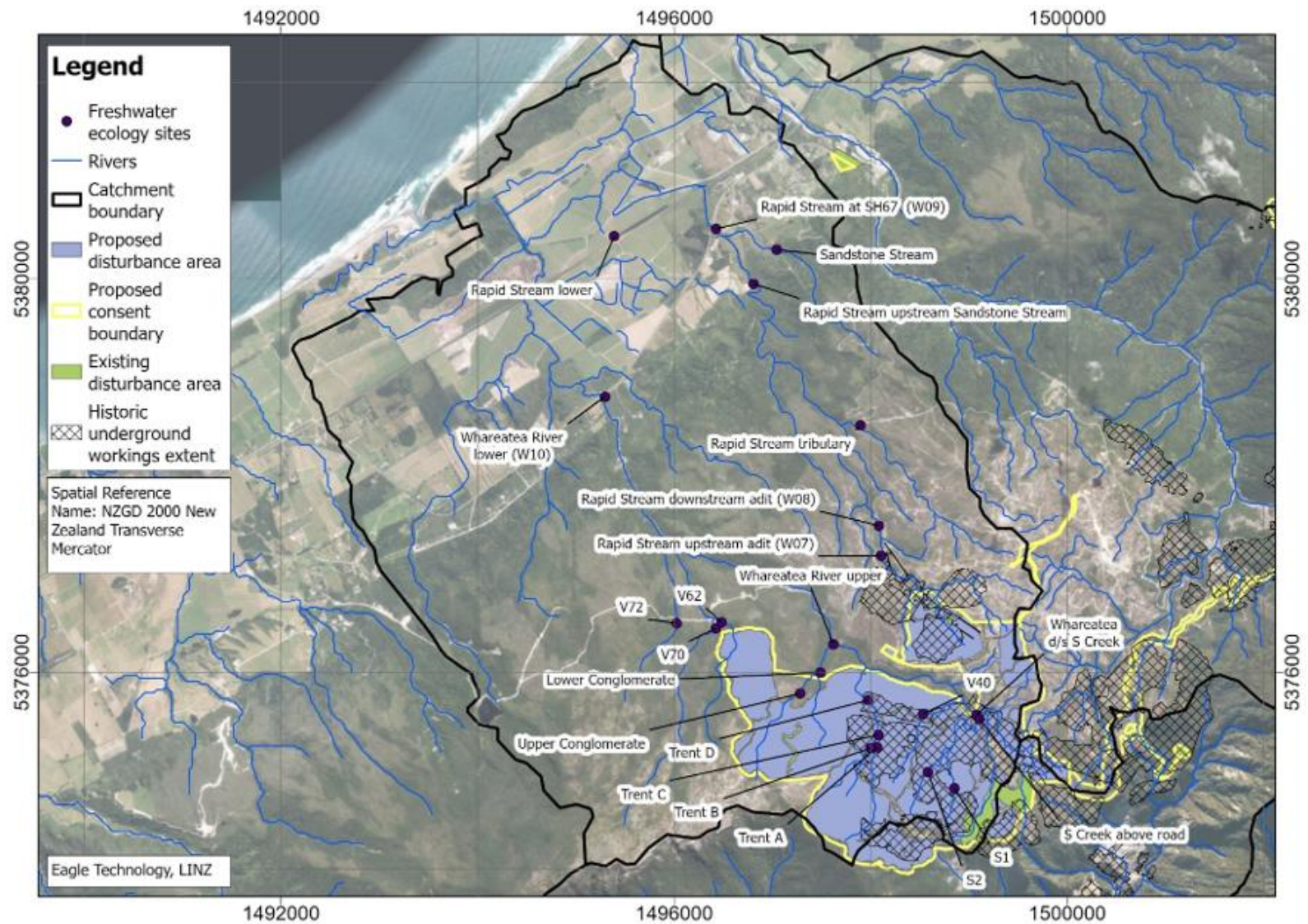


Figure 3-17: Stream and river sites in Whareatea catchment used to describe aquatic ecology (ESNZ, 2026)

A summary of findings regarding the ecological values of these rivers and streams is provided in **Table 3-4**.

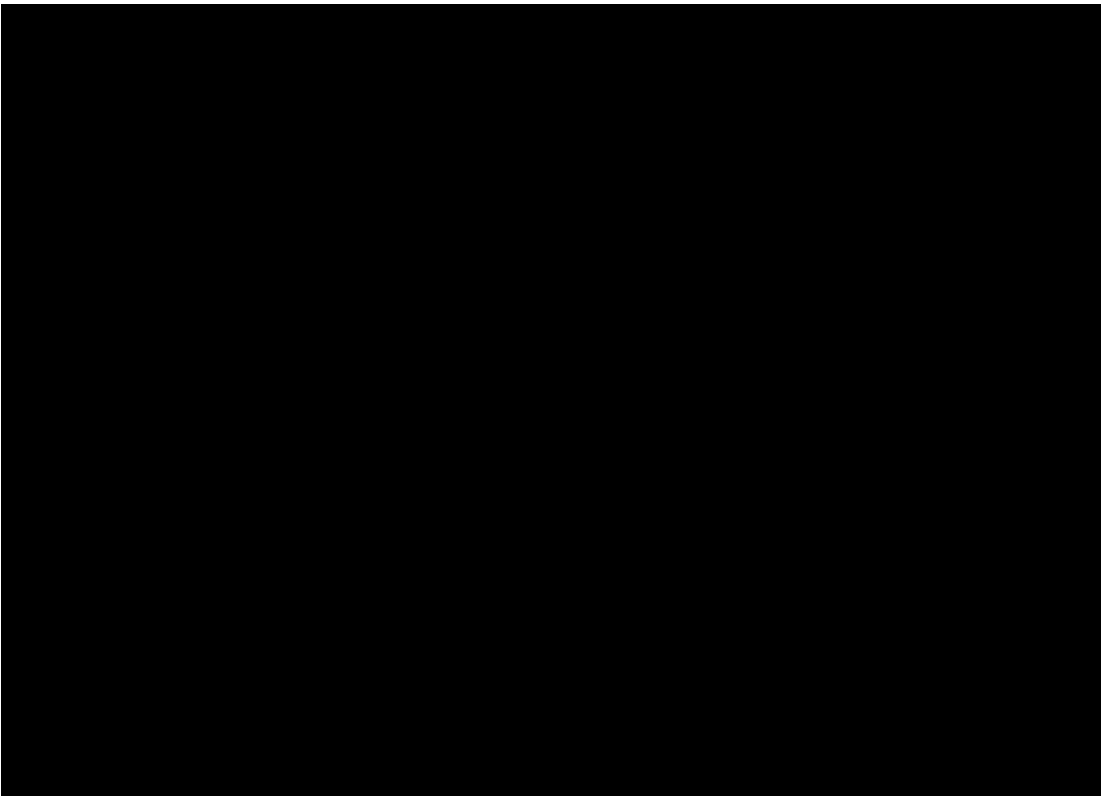
Table 3-4: Summary of aquatic ecological values of Whareatea catchment

Attribute	Description
Water quality and habitat	Streams in the Whareatea River catchment are generally naturally acidic, with upper tributaries (e.g., Trent Stream) exhibiting low pH (~4.0–5.0) and very low conductivity, reflecting the underlying geology and organic soils. Habitat quality remains high in unimpacted reaches, featuring stable boulder-cobble substrates and dense riparian cover. In parts of the mid-catchment, historical mining has locally degraded water quality; for example, Rapid Stream receives AMD (pH ~3.3 at the Sullivan mine adit) with high dissolved metals and orange iron precipitates coating the streambed. Downstream, tributary dilution and natural buffering enhance water quality. By the time the Whareatea River reaches SH67, water is near-neutral (pH ~6.4–7.1) and has low conductivity. Overall, the catchment displays diverse and high-quality, unmodified habitats, except in Rapid Stream where historic mine drainage inputs significantly affect water chemistry and stream quality.
Plants	Periphyton is generally sparse in the shaded headwater streams of the Whareatea catchment, where dense riparian cover and steep, incised channels limit light. In these upper reaches, bryophytes (mosses and liverworts) form the dominant plant community and are often abundant, especially in stable channels where bed movement is limited during floods. In contrast, bryophytes are not dominant in the AMD-impacted Rapid Stream below the historic Sullivan mine adit. Here, highly acidic conditions support acid tolerant filamentous algae, such as <i>Klebsormidium acidophilum</i>, and periphyton cover can be high (up to ~80%). Periphyton can also accumulate in the lower Whareatea River where flows are more stable and light levels higher. >

Attribute	Description
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- > [REDACTED]
- > [REDACTED]

These findings indicate that naturally acidic, shaded headwaters support diverse and sometimes rare bryophyte communities, which contribute to the high ecological value of the upper Whareatea catchment.



Fish	The upper Whareatea catchment is naturally fishless, as steep gradients and waterfalls on the Denniston Plateau act as migration barriers. [REDACTED] [REDACTED] [REDACTED]. This creates a distinctive situation where fishless headwaters occur only ~4 km from the coast, with kōura acting as the top predator. [REDACTED] [REDACTED] [REDACTED] [REDACTED]
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Waimangaroa River catchment

775 As described by NIWA in report “Assessment of Environmental Effects: Aquatic Ecology”
(March 2026), attached in **Part B** to this application, the aquatic values of the Waimangaroa
River catchment have been defined using monitoring data. The Waimangaroa River flows
down from the Buller Plateau and into the Tasman Sea. The Waimangaroa catchment is
represented by 30 waterways/waterway sites, including several tributary and mainstem sites
in the upper Waimangaroa River, seven sites in the Deep Stream sub-catchment, and one
780 site in the lower reaches of the Waimangaroa River. Numerous waterways in the upper
catchment have been surveyed for aquatic ecology (**Figure 3-18**).

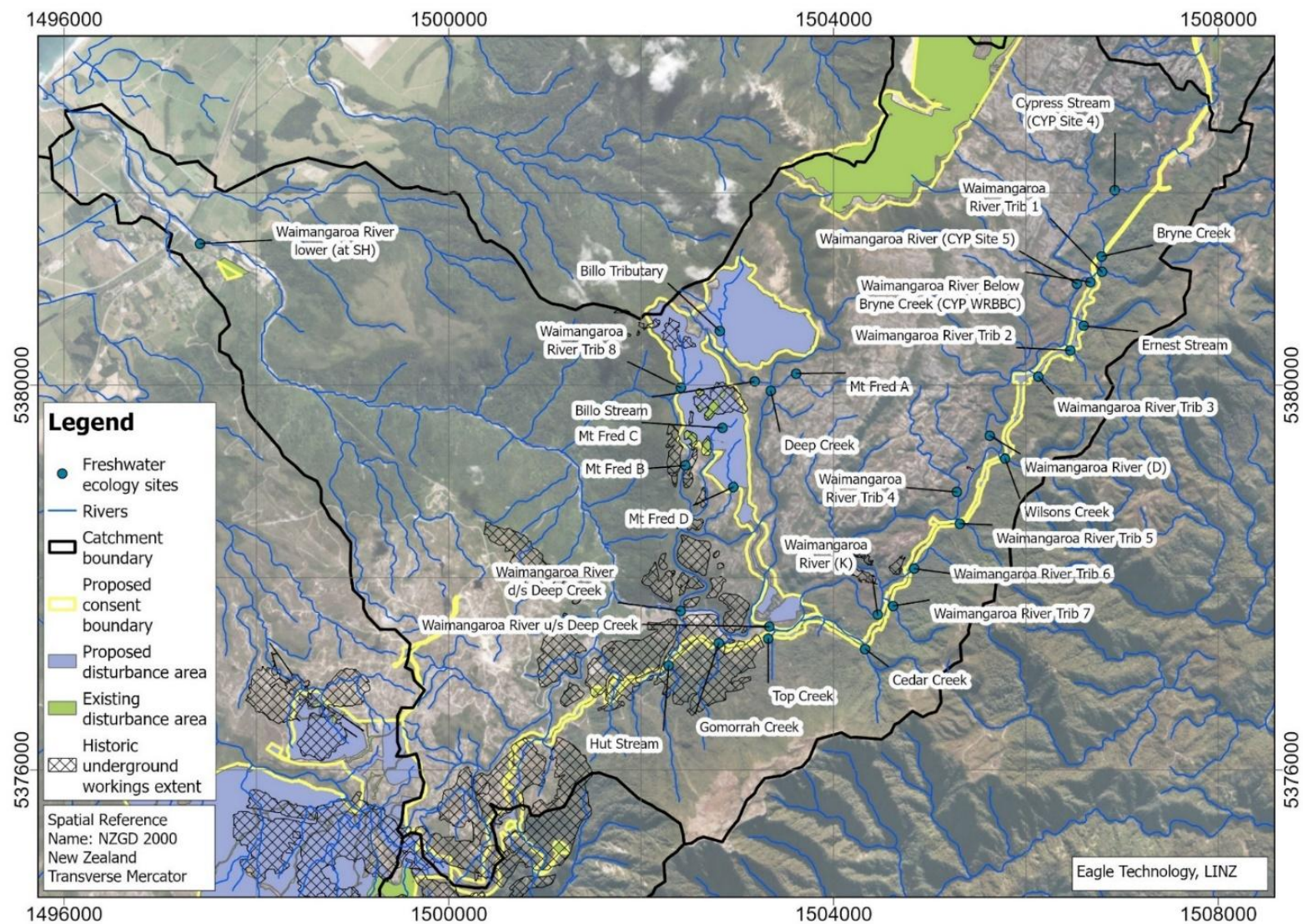


Figure 3-18: Stream and river sites in the Waimangaroa catchment used to describe aquatic ecology (ESNZ, 2026)

A summary of findings regarding the ecological values of the Waimangaroa rivers and streams is provided in **Table 3-5** below.

Table 3-5: Summary of aquatic ecological values of Waimangaroa catchment

Attribute	Description
Water quality and habitat	The streams of the Waimangaroa River Catchment range from acidic to circumneutral with low conductivity. Upper tributaries reflect different geology underlying the area with ranges of pH from 4.0 to 7.7. Western tributaries here are more acidic while eastern tributaries are near-neutral. Dissolved Al remains elevated, common in Buller Plateaux streams. Other dissolved metals do not generally breach toxicity triggers. In the lower Waimangaroa River, pH increases but still remains slightly acidic (pH ~6.2). Conductivity also remains low. Historical mine workings are present in certain areas in the catchment, but there are no present mine discharges entering the streams. Dense riparian vegetation (podocarp forest, manuka, ferns) provides substantial shading and stable woody debris inputs, yielding generally high-quality habitat with riffle–run–pool sequences at most sites. One site in the Deep Creek Catchment (Mt Fred A) is on exposed sandstone pavement with an open canopy and manuka scrub vegetation. The river mainstem receives more light from a wider width and riparian vegetation is common in these areas. The overall habitat within the catchment ranges from areas moderately impacted by historic AMD to near-pristine naturally acidic headwaters.
Plants	Periphyton is generally sparse in the Waimangaroa catchment, reflecting similarities to the Whareatea catchment. Heavy shading in headwater tributaries often contributes to minimal visible periphyton. Wider locations along the upper and lower Waimangaroa River have more periphyton cover due to differing light availability. Bryophytes dominate in upper Waimangaroa tributaries. Cover varies significantly, where high values are seen in small forested sub-catchment tributaries and lower cover is seen in less stable substrate sub-catchments with open canopies. Between 2019-2025, 86 bryophyte taxa were identified in the Waimangaroa catchment (70 liverworts, 15 mosses and 1 hornwort). [REDACTED] [REDACTED]: > [REDACTED] [REDACTED])

Attribute	Description
	> [REDACTED] [REDACTED]) > [REDACTED]. The prevalence of [REDACTED] highlights the conservation significance of these headwater ecosystems for aquatic plant diversity.
Macroinvertebrates and kōura	The macroinvertebrate communities of the Waimangaroa River catchment are diverse with unimpacted upper tributaries typically dominated by mayflies, stoneflies, and caddisflies, alongside abundant chironomid midges. In tributaries of the Deep Creek sub-catchment, which receive some historic mine drainage, the community shifts somewhat towards more dipterans (chironomids often numerically dominant), with fewer mayflies and caddisflies in proportion. Taxa richness ranges from nine (at the most impacted sites) up to 40+ species at pristine sites (Upper Deep Creek) in the catchment. Notably, four tributaries in the Mt Fred area had much lower EPT diversity (2–8 EPT taxa each) and were dominated by tolerant taxa. [REDACTED] [REDACTED] Overall, data suggest high to very high ecological value in most upper Waimangaroa streams, with isolated impacts from historical mining reducing community health/values in a few locations.
Fish	No fish populations are found in the upper Waimangaroa River catchment. Similar to Whareatea, the absence of fish is expected given the steep gradients and waterfalls that act as natural barriers. Fish communities are present in middle and lower catchments, downstream of the plateau.

Attribute	Description
	In total, eight diadromous native fish species have been recorded in the catchment's lower reaches (including larger tributaries). Whitebait species are well represented, with the three kōkopu species and kōaro present. Two bully species (redfin bully and bluegill bully) are present but confined to the lower river, as are both eel species. With the exception of shortfin eel, there is some level of conservation concern for all other native species present.

Cascade Creek catchment

790	A portion of the ESE Sub-Area drains into the Cascade Creek catchment. As described by ESNZ in the report “Assessment of Environmental Effects: Aquatic Ecology” (March 2026), attached in Part B of this application, the aquatic values of the Cascade Creek catchment have been defined using monitoring data. Cascade Creek flows into the Buller River and then into the Tasman Sea. The Cascade Creek catchment is represented by 10 sites,
795	including seven mainstem sites and three tributaries that flow into Cascade Creek, as shown in Figure 3-19.

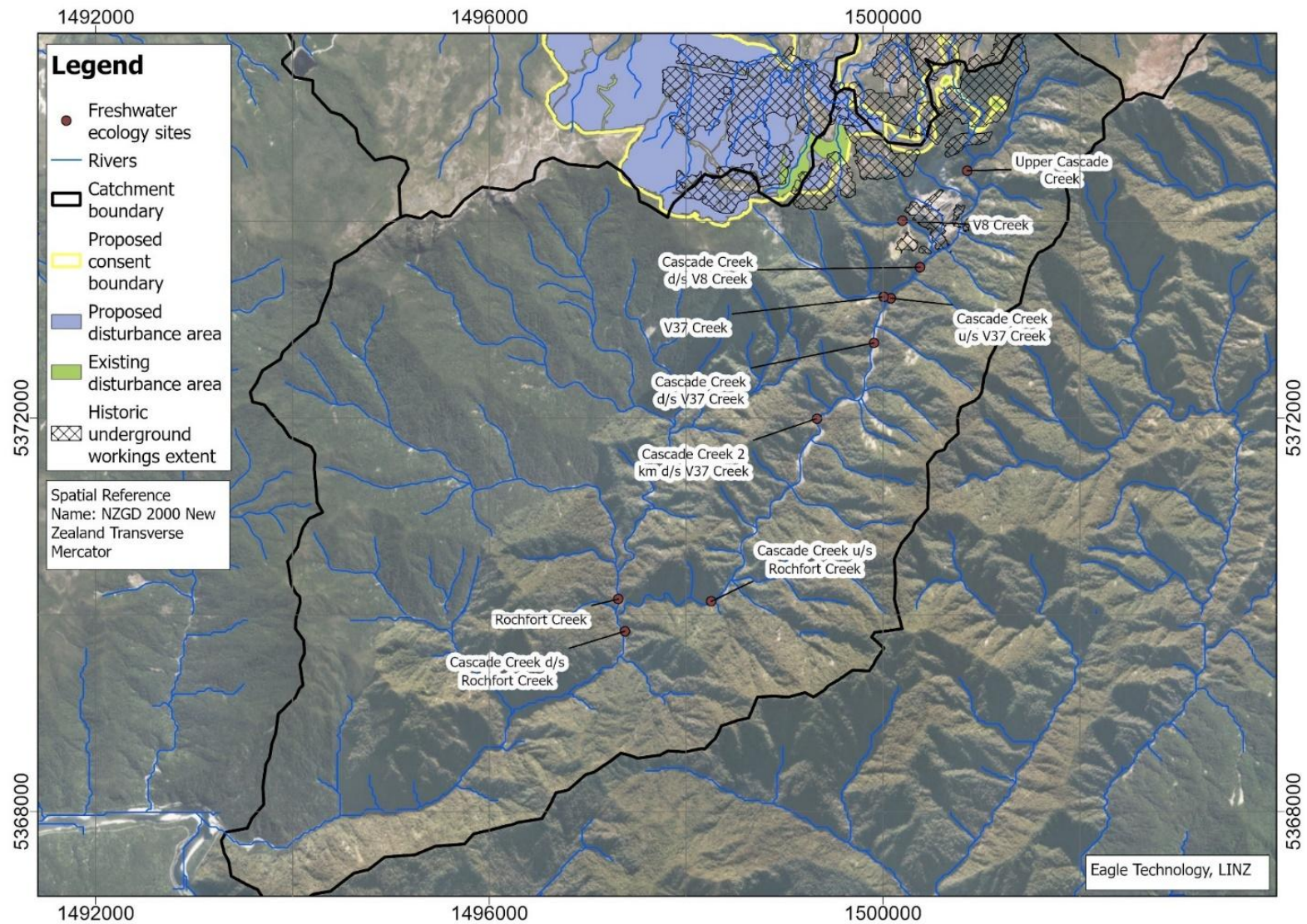


Figure 3-19: Location of sites within Cascade Creek (ESNZ, 2026)

A summary of findings regarding the ecological values of the Cascade Creek catchment is provided in **Table 3-6** below.

Table 3-6: Summary of aquatic ecological values of Cascade Creek catchment

Attribute	Description
Water Quality and Habitat	The headwaters of Cascade Creek are severely degraded by historic AMD, resulting in very low pH (~4.1) and elevated Al and iron. These conditions cause extensive metal precipitates that coat cobbles, gravels, and woody debris, leaving little suitable habitat for aquatic life. Water quality improves progressively downstream as circumneutral tributaries mix with the mainstem, increasing pH to around 7.5 by the lower reaches. Below the confluence with Rochfort Creek, an unimpacted, circumneutral tributary, dissolved metal concentrations fall to acceptable ecological levels, and metal precipitates are no longer present. In these lower, recovered reaches, Cascade Creek flows through intact forest and supports clean riffle-run habitats over gravel and cobble substrates.
Plants	Aquatic plant communities in Cascade Creek are sparse, reflecting the acidic headwaters and frequent high flows that limit plant establishment. Periphyton cover is very low, with almost no visible periphyton in the upper acidic reaches, and only patchy, low-level growth further downstream where water quality improves. Bryophytes dominate at some sites, but surveys to date have not recorded any rare or threatened bryophyte species in the catchment.
Macroinvertebrates and Kōura	Macroinvertebrate communities in Cascade Creek closely follow the water quality gradient. In the upper acidic reaches, richness is very low (3–6 taxa) and dominated by tolerant midges and oligochaete worms, reflecting severely degraded ecological conditions. As water quality improves downstream, diversity increases, with more than 20 taxa recorded above Rochfort Creek; the tributary itself supports 35 taxa, including 20 EPT species, indicating much healthier conditions. No macroinvertebrate species of conservation concern were found. Kōura are absent throughout Cascade Creek, likely due to the lethal acidity and elevated metal levels originating in the headwaters, which also prevent predatory fish from establishing in the lower creek.
Fish	Fish are restricted to the mid and lower reaches of Cascade Creek, with no fish recorded in the upper catchment above the V37 tributary due to highly acidic conditions. In 2025, two native species were found in the middle catchment: kōaro (present at all four surveyed sites) and

Attribute	Description
	the latter being Threatened – Nationally Vulnerable. eDNA sampling in 2024 also detected kōaro in V37 Stream, though neither was physically captured. As there are no physical barriers preventing movement, fish can access Cascade Creek wherever water quality improves; however, the highly acidic upper reaches remain fishless.

Deep Stream catchment

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The MFS Sub-Area primarily drains into the Deep Stream (often referred to as Deep Creek) catchment, a headwater system on the Stockton Plateau, with additional context drawn from two reference sites in the Waimangaroa River located upstream and downstream of the Deep Stream confluence. Baseline aquatic ecology information was established through aquatic ecology field surveying completed in 2024 and 2025. Together, these surveys show

810

that the aquatic environment is characterised by naturally acidic plateau streams, high rainfall, steep topography, and the absence of migratory fish due to natural physical barriers. NIWA surveyed nine sites across the MFS Sub-Area in both 2024 and 2025.

A summary of findings regarding the ecological values of the Deep Stream catchment is provided in **Table 3-7** below.

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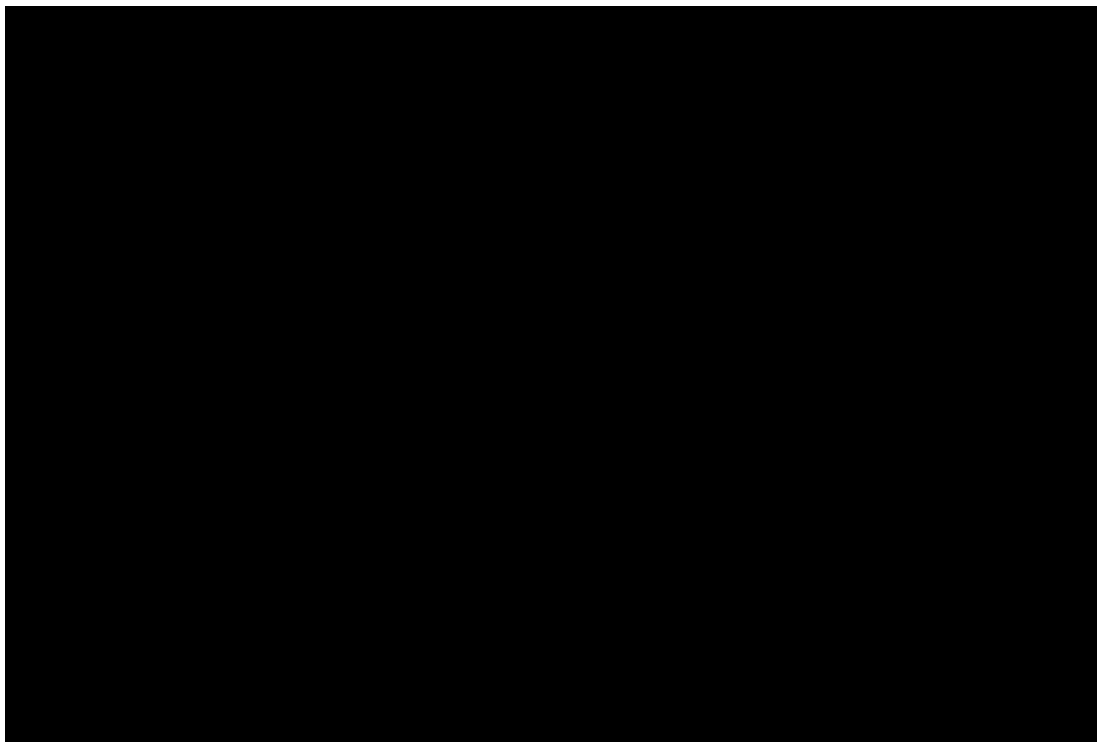
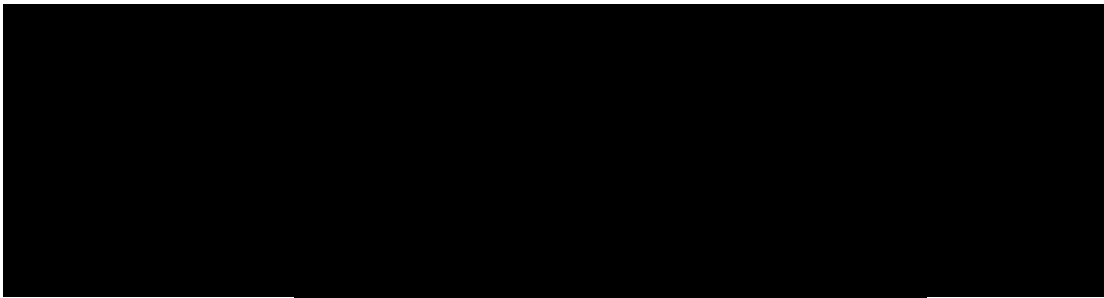
Table 3-7: Summary of aquatic ecological values of Deep Stream catchment

Attribute	Description
Water Quality and Habitat	Water quality across the catchment is naturally acidic, with measured pH typically ranging from 4.0 to 6.0, reflecting the underlying geology and the high-rainfall environment of the Buller Plateau. Conductivity remains consistently low (generally <98.2 µS/cm), indicating that these plateau systems are nutrient-poor. Dissolved metals, particularly Al, are elevated at all sites, frequently exceeding guideline triggers similar to the Whareatea River Catchment and Waimangaroa River catchment. In some locations, this is influenced by legacy underground mining discharges. The Waimangaroa River sites continue to exhibit higher metal concentrations than those of the plateau streams, including nickel exceedances at the upstream reference site.

Attribute	Description
	Spot measurements collected during the 2025 follow-up survey showed that most water quality parameters remained generally consistent with 2024, with two notable exceptions: > Upper Deep Stream recorded a decline in pH (from 6.04 to 5.1) and increases in dissolved Al, Ni, Mn and Zn, resulting in aluminium concentrations rising above the CCME (2003) 95% species protection threshold. These changes indicate a localised shift in water chemistry relative to 2024. > Waimangaroa River (upstream) showed reductions in Ca, Mg, Mn and Ni compared with 2024, suggesting an improvement in metal concentrations at this reference site.
Periphyton and Bryophytes	Periphyton biomass across the MFS waterways remains very low, consistent with the naturally acidic, low-nutrient, high-rainfall conditions of the Buller Plateau. The 2024 survey recorded chlorophylla concentrations ranging 0.1–2.8 mg/m², placing all sites within NPSFM Band A (negligible enrichment). Streambeds were dominated by bare rock, and periphyton cover was limited by low nutrient levels, high flow variability, and naturally acidic water chemistry. The January 2025 survey confirmed that periphyton remained low overall, with all chlorophyll-a values well below the Band A/B threshold of 50 mg/m², indicating continued low productivity. However, two sites exhibited notable changes: > Waimangaroa River (upstream) showed a marked increase in periphyton cover, including medium green mats (~41.8%), thick green mats (~4.2%), and short and long brown filaments (~3.5% combined). > Mt Fred C tributary recorded a substantial increase in chlorophylla to 5.37 mg/m², up from earlier values, although this remains well within Band A and reflects only a localised shift rather than systemwide enrichment. Bryophytes (mosses and liverworts) continued to form a dominant and defining component of the aquatic habitat in both survey years. In 2024, bryophyte cover ranged 9.5–77.7%, with the highest abundance recorded in Billo Stream and Billo Tributary, and all taxa with conservation status were classified as Not Threatened. Bryophytes contribute substantially to habitat complexity, providing substrate for periphyton, stabilising channel surfaces, and offering critical refuge for macroinvertebrates and kōura.

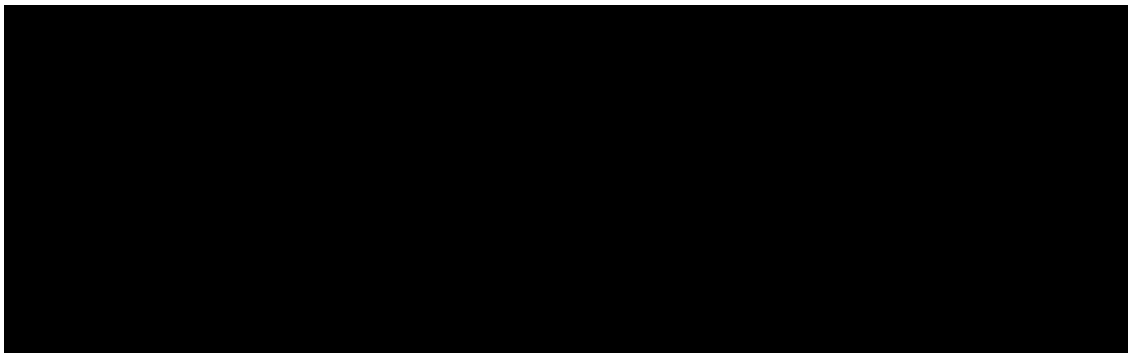
Attribute	Description
	[REDACTED] [REDACTED] [REDACTED] ■ [REDACTED] ■ [REDACTED] ■ [REDACTED] These findings highlight a stream system where overall periphyton productivity remains naturally low, while bryophyte dominated habitats provide the primary biological structure within the channel. [REDACTED] adds further ecological value to the MFS aquatic environment.

Macroinvertebrates	Macroinvertebrate communities within the MFS waterways are characteristic of naturally acidic, high rainfall, steep headwater systems, supporting a diverse assemblage of taxa adapted to low nutrient, fast flowing environments. Across the network, surveys have identified 4,648 macroinvertebrates across 54 genera, with taxa richness ranging from 15–42 per site. Communities are generally dominated by pollution-tolerant groups such as chironomids and oligochaete worms, although mayflies (e.g., <i>Deleatidium</i>), stoneflies, and caddisflies are also well represented, particularly at higher quality sites such as Upper Deep Stream. Sensitive EPT taxa (<i>Ephemeroptera</i>, <i>Plecoptera</i>, <i>Trichoptera</i>) ranged from 3–19 species, with %EPT composition ranging from 6.4–71.2%, indicating a gradient from moderate to high ecological condition across the catchment. In 2024, all sites exceeded the national bottom line for the Macroinvertebrate Community Index ($MCI \geq 90$), with Upper Deep Stream, Billo Stream, and Billo Tributary classified as “Excellent” ($MCI > 119$). Most sites also met national bottom lines for QMCI and ASPM, reflecting generally good ecological condition despite the naturally acidic setting. The January 2025 survey found that overall macroinvertebrate composition remained broadly stable, but indicator scores shifted at several sites, consistent with natural hydrological and geochemical variability in plateau headwaters.
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Fish	No fish were detected in any stream in the 2024 and 2025 surveys, consistent with long-established ecological understanding that the Denniston Plateau's steep escarpments and incised gorges prevent fish passage into headwater streams. However, an isolated eDNA detection of upland bully at one site (Mt Fred D) is considered a probable false positive due to known barriers and the species' nonmigratory nature.
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3.2.7 Landscape Values

825 Rough Milne Mitchell Landscape Architects (2026) prepared an assessment of the landscape values of the Buller Plateaux. They describe the landscapes of the Denniston and Stockton Plateaux and identify and evaluate the existing landscape values of each plateau.

3.2.7.1 Stockton Plateau

830 The assessment characterised the Stockton Plateau landscapes into Landscape Character Units (“**LCUs**”). Each landscape character unit is analysed and evaluated for its significance or value, with respect to values associated with three broad categories of landscape attributes:

- > Physical attributes:
- > Perceptual attributes; and
- 835 > Associative attributes.

840 LCUs are distinct areas within a wider landscape that share similar physical, visual, ecological, and land-use characteristics. They are used in landscape assessment to break a large or complex landscape into coherent parts, so that values, effects, and management responses can be described and assessed more accurately. LCUs help make sense of the Stockton Plateau because it is an extensive landscape with varying levels of modification, naturalness, landforms and vegetation. The Stockton Plateau is divided into three LCUs, numbered LCU 1 (1A & 1B), LCU 2 and LCU 3, as shown in **Figure 3-20**. The numbering does not indicate priority or value; it simply distinguishes different character areas across the plateau.

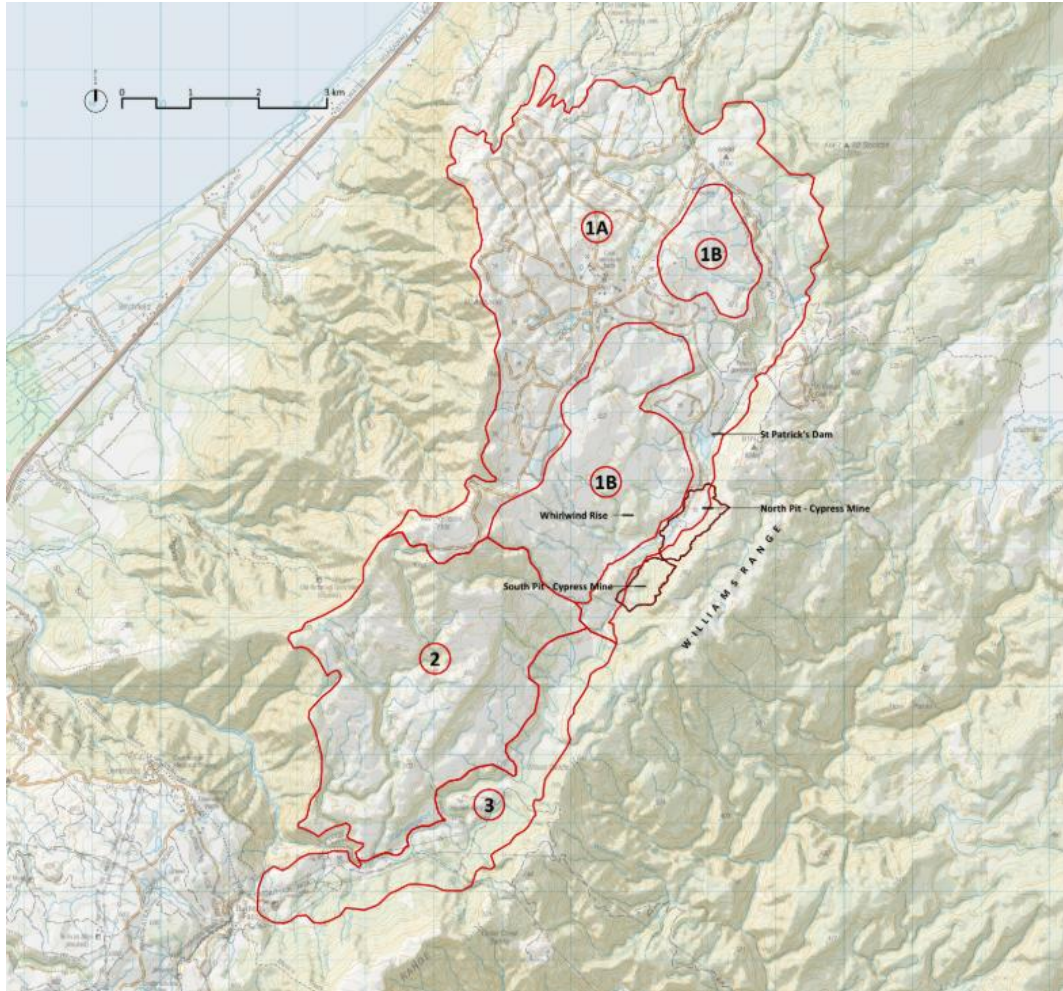


Figure 3-20: Stockton Plateau Landscape Character Units (LCUs) (Source: Rough Milne Mitchell Landscape Architects (2026)).

LCU 1 comprises the northern two-thirds of the Stockton Plateau and contains the opencast workings of the Stockton and Cypress mines. LCU 1 covers an area of approximately 3011.85 ha / 30.11 km², being 7 km long in a north-south direction. It is approximately 5.5 km across in the north, narrowing to 3 km wide at the southern end. LCU 1 generally slopes northeast from 900 m asl along the western boundary to approximately 600 m asl, except at the northeastern corner on the lower slopes of Mt Stockton and isolated high points within the central area.

LCU 1 is subdivided into two broad landscape-character sub-areas (1A and 1B), largely based on land-use modification. A small central portion of this LCU remains in a relatively undisturbed natural state with some notable features. Such features include Whirlwind Rise, the Webb Fault escarpment, areas of low-stature native forest, exposed pavement and tussock grassland dissected by deeply incised streams. A shallow tarn complex and a sandstone erosion pavement are recognised as historically rare habitats. Rehabilitated and

revegetated areas are recognisable and continuing to establish. LCU1 is showcased in **Figure 3-21** below.



Figure 3-21: LCU1B between Stockton and Cypress

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LCU 2 is contained within the southern third of the Stockton Plateau, being bounded by the Waimangaroa River Gorge to the south and the seaward mountains to the west. LCU 2 is a large, relatively undisturbed area of a gently sloping plateau. It comprises extensive areas of exposed sandstone rock pavement, deeply incised streams and a distinctive scarp named Rata Ridge. See **Figure 3-22** below.



870

Figure 3-22: LCU 2 incised creek (Deep Stream)

LCU 3 comprises the north-south trending shallow-dished valley of the Waimangaroa River, which covers 494.71 ha along the eastern edge of the Stockton Plateau. The valley is

dominated by relatively dense, mostly continuous forest cover and the Waimangaroa River. The southern part of the river valley is modified by power transmission infrastructure, Cedar Creek Road, which connects to the Denniston Plateau, as shown in **Figure 3-23**.



Figure 3-23: Cedar Creek Road within LCU 3

Physical Values

Overall, LCU 1 is dominated by an industrial character, with landscape modifications from dams, stormwater retention structures, roads, stockpiles, and power-supply infrastructure. Physical and perceptual values are generally very low, except when derived from the culture of mining, in which case they contribute to associative values.

The high physical values attributed to LCU2 relate to the unique geology and geomorphology, high quality Tertiary coal measures, legibility, and general lack of modification. Historically rare habitats include exposed sandstone erosion pavement, significant species (*Chionochoa juncea*), and a confined area of acidic boulderfield.

The physical values of LCU3 arise from its distinctive landform, natural river system, and extensive indigenous forest cover. Together, these characteristics contribute to a moderate–high level of naturalness across most of the unit.

Perceptual Values

The perceptual values of the Stockton Plateau reflect how people experience, sense, and understand the landscape, shaped by its contrasting levels of naturalness, modification, scale, and aesthetic qualities. Overall, Stockton presents a highly varied perceptual environment, ranging from a strongly industrial character in the north to more natural and coherent plateau and valley landscapes in the south and east.

In the northern and central areas (LCU 1), perceptual values are generally low, as the landscape is dominated by extensive mining infrastructure, large-scale earthworks, haul roads, stockpiles and modified landforms. These industrial elements strongly influence the

900 place's sensory experience, diminishing natural qualities and creating a landscape identity heavily tied to mining operations.

In contrast, the southern part of the plateau (LCU 2) exhibits high perceptual values, characterised by a strong sense of naturalness, coherent landform patterns, and memorable sandstone pavement landscapes. Intact vegetation, visible geomorphology, and

905 sparse human presence contribute to a clear sense of place, high aesthetic coherence, and a more immersive, natural landscape experience. The study (Rough Milne Mitchell Landscape Architects, 2021) identifies LCU 2 as having high to very high perceptual values, reflecting its distinctive character and aesthetic quality.

Along the eastern flanks (LCU 3), perceptual values are moderate to high, particularly in the

910 northern forested reaches where natural character remains strong and the Waimangaroa River valley contributes to a sense of enclosure and ecological integrity. However, these perceptual values diminish in the southern portion of LCU 3, where transmission lines, road access, and historic mining features introduce noticeable human modification and reduce aesthetic coherence.

915 **Associative Values**

The Stockton Plateau holds strong associative values arising from its long and nationally significant mining history, its connection to regional industrial heritage, and its recognisable place in the cultural identity of the Buller District.

Mining has shaped the Stockton landscape for more than a century, and this enduring

920 association remains one of the defining aspects of how the area is understood today. Across the plateau, historic workings, road networks, and legacy infrastructure reflect generations of coal extraction and contribute to a widely recognised mining heritage. These associative values are particularly evident where historic and contemporary mining overlap, such as in areas covered by existing mining licences held by BT Mining.

925 Within LCU 1, associative values stem primarily from the culture of mining and the identity formed around Stockton's operational landscape. Although its physical and perceptual values are low due to extensive modification, its long mining history continues to contribute to locally significant heritage associations.

In LCU 2, associative values are considered high, supported not only by its natural qualities

930 but by the strong sense of place linked to exploration and mining interests. The existing mining and exploration permits reflect the continued relevance of this landscape to the district's industrial legacy and help reinforce its recognised heritage associations.

935 In LCU 3, associative values relate both to the underlying mining heritage and to the presence of BT Mining’s mining permit over the valley. These values reflect the longstanding relationship between the Waimangaroa valley environments and mining activity, contributing to moderate–high associative significance across this part of the plateau.

940 The Stockton Plateau’s associative values are anchored in its historical, cultural, and industrial identity, with mining forming the core of these associations. Even where natural landscapes remain, the plateau is widely recognised, locally and regionally, as a working mining environment, and this contributes significantly to how the landscape is understood, interpreted, and valued today.

3.2.7.2 Denniston Plateau

Specific landscape values of the Denniston Plateau, relevant to the ESE Sub-Area, are provided below.

945 **Physical Values**

950 The ESE Sub-Area forms part of the broader Denniston Plateau. A defining geomorphological feature of the ESE Sub-Area landscape is its weakly dissected, near-horizontal rock surface, formed by resistant sedimentary layers of the Brunner Coal Measures. These layers overlie much older igneous and metamorphic rocks collectively referred to as the Te Waipounamu Erosion Surface, which contributes to the hard, erosion-resistant plateau form. This geological foundation has created a broad, gently undulating topography marked by low knolls, shallow basins, and expansive sections of exposed sandstone pavement.

955 The plateau is intersected by deeply incised stream systems, most prominently the Whareatea River Gorge, which forms a 2.5 km-long, 60 m-deep canyon with densely forested walls. These incised watercourses break the plateau surface into a series of subtle ridges and depressions, contributing to its overall legibility and clear visual form.

The ESE Sub-Area receives some of the highest rainfall in New Zealand, with annual precipitation ranging from 4,950 to 10,170 mm, and is also characterised by frequent snowfall, intense storms, fog, and heavy cloud cover. These climatic conditions create:

- 960
- > Persistent soil saturation
 - > Regular overland flow and stream recharge
 - > Highly dynamic surface water patterns
 - > A landscape frequently enveloped in cloud or mist, influencing visibility and vegetation growth.

- 965 The plateau contains an intricate network of streams and wetlands that contribute to its distinctive character. Hydrological features include:
- > The Whareatea River and its tributaries carve deep channels across the plateau surface.
 - > Numerous wetland basins, shallow tarns, and seepages formed by poor drainage and impermeable sandstone layers.
- 970 > Artificial reservoirs such as Lake Brazil, a 2 ha waterbody.

These water systems are central to the plateau’s natural character, creating mosaic patterns of wetland vegetation and contributing to high ecological values. Soils on the plateau are:

- > Infertile and acidic (pH 4–4.97).
- 975 > Shallow and poorly drained.
- > Derived from coal measure sandstones with low nutrient availability.

These conditions restrict vegetation height and composition, favouring stunted shrublands, wire rush, and low pākihi.

- 980 The physical environment supports a distinctive assemblage of indigenous vegetation closely tied to soil type, drainage, altitude, and exposure, as discussed in Section 3.2.6 above.

Perceptual Values

- 985 The Denniston Plateau, including the ESE Sub-Area, has long been recognised for its distinctive sense of exposure, rawness, and elemental character. The open, elevated landform, combined with frequent fog and clouds, strong winds, and sudden weather changes, creates a landscape experienced as both harsh and compelling.

This duality contributes to a highly memorable sensory environment, reinforcing perceptions of wildness, remoteness, and ruggedness that distinguish the Plateau from the more settled and vegetated coastal lowlands.

- 990 The ESE Sub-Area landscape possesses a high degree of legibility, meaning its landforms clearly express the natural processes that shaped them. The strong horizontality of the plateau surface, the abrupt escarpment edge, deeply incised river systems, and widespread sandstone pavement create a landscape that can be readily “read” in terms of structure and geomorphology.

995	In some places on the Denniston Plateau, the landscape appears natural, while in others, there is clear evidence of human endeavour and endurance in surviving an environment of extreme harshness. Despite historic and contemporary mining activities, the broader landform remains coherent and visually understandable at a landscape scale. Modified features, such as subsidence areas, reservoirs, and roading, are absorbed within the larger,
1000	highly distinctive physical framework of the plateau. The contrast between natural areas, stunted vegetation communities, exposed rock surfaces, and modified zones is readily apparent, enhancing the landscape's clarity and interpretability.
1005	The aesthetic character of the ESE Sub-Area is frequently described as austere, a term used in landscape evidence to reflect the plateau's sparse, severe, and unadorned qualities. This austere aesthetic is driven by: > The dominance of low pākihi and shrubland vegetation. > Large expanses of bare or lightly vegetated sandstone pavement. > Frequent presence of mist, cloud, and strong light contrasts. > The angular, deeply cut drainage lines that traverse the plateau.
1010	> The elevated position of the Escarpment affords expansive and sweeping views across: ○ The coastal plains and Tasman Sea ○ The Paparoa Range and Mt Rochfort to the south ○ The Waimangaroa Gorge and Mt William Range to the east ○ The broader Buller coastal environment
1015	Associative Values The Denniston Plateau has very high associative values relating to mining history and heritage. The community widely recognises this, particularly the pioneering culture and technology that remain evident today. Additionally, the plateau has very high associative values related to tourism and recreation opportunities.
1020	The ESE Sub-Area lies within one of New Zealand's most important coal-mining landscapes, with mining activity dating back to the late 19th century. Mining on the Denniston Plateau began in the 1870s, and the area developed into an extensive and complex industrial network of underground mines, rope roads, engineering structures, transport systems, worker settlements, and associated infrastructure. Many features remain visible in the
1025	landscape, forming a coherent, remarkably intact heritage landscape considered nationally significant. These features form a relatively complete coal mining landscape.

The area is also closely tied to the intergenerational identity of West Coast communities, many of whom trace their ancestry to families who lived and worked on the Denniston Plateau and surrounding settlements. These communities maintain a strong, enduring relationship with the area's mining heritage.

1030

3.3 CULTURAL, SOCIO-ECONOMIC AND AMENITY ENVIRONMENT

3.3.1 Cultural Setting

The Mangatini ki Ngākawau - Stockton Plateau is an important ancestral landscape for Poutini Ngāi Tahu – the Ngāi Tahu people of the West Coast. Records show that Te Waipounamu's West Coast was occupied as early as the 17th century, centred on the opportunities afforded by pounamu (greenstone). The West Coast provided an abundance of mahinga kai. Coastal areas provided shellfish, the rivers primarily provided eels, whitebait and fish, and the river mouths were good places for cultivation. The coastal hills and plateau areas north of the Kawatiri (Buller) River formed part of the larger network of trails, trading routes, pa and kāinga sites, mahinga kai, and other areas of cultural significance.

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Establishment of manawhenua and manamoana by Te Rūnanga o Ngāti Waewae followed tribal warfare, and Mangatini ki Ngākawau, the Stockton Plateau, where BT Mining operations are undertaken, forms part of the Te Rūnanga o Ngāti Waewae takiwa. Te Rūnanga o Ngāti Waewae are kaitiaki, or tangata tiaki, over their takiwa, including its natural resources, taonga species and ancestral landscapes, and exercise continued customary and ancestral association.

1045

The Project area is located within Te Tai Poutini, which sits entirely within the takiwā of Ngāi Tahu Whānui, with mana whenua exercised by Te Rūnanga o Ngāti Waewae. This relationship is formally recognised through the Te Rūnanga o Ngāi Tahu Act 1996 and the Ngāi Tahu Claims Settlement Act 1998, affirming Ngāi Tahu as tangata whenua with enduring rangatiratanga over the land, water, and natural resources of the region

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Ngāti Waewae maintains a deep and continuous cultural connection to the Kawatiri (Buller) district, grounded in whakapapa, ancestral occupation, and customary use of the landscape. The wider project area forms part of an extensive cultural landscape that historically supported mahinga kai, travel routes, settlements, and resource gathering.

1055

The cultural environment is underpinned by a holistic Te Ao Māori worldview, which recognises the interconnectedness of all elements of the natural environment. Mountains, waterways, ecosystems, and people are considered inseparable components of a single living system, with the health of headwater catchments being particularly important to the wellbeing of the wider environment. Central to this relationship are the concepts of

1060

kaitiakitanga (guardianship) and mauri (life force), which guide Ngāti Waewae in their responsibility to protect and sustain natural and cultural resources for future generations.

3.3.2 Heritage

1065	Mining on the Stockton Plateau began in 1896 with the Westport Stockton Coal Company. Initially, this was limited to underground operations in the Millerton area, before moving to other areas on the Stockton Plateau between 1908 and 1944. Over a span of 60 years, approximately 400 ha were mined using underground methods. Early miners used simple tools such as picks and shovels to extract coal, leaving behind support pillars to maintain roof stability. Where feasible, tunnels were sloped to allow groundwater and rain to drain naturally via gravity. Over time, mining methods evolved with the introduction of compressed air tools and blasting techniques. However, remnants of these early practices (such as underground fires, hot rock, heated coal, and combustion gases) still pose risks and must be carefully managed before and during current mining operations.
1070	
1075	In 1944, the transition to opencast mining (under the new ownership of State Coal Mines) marked the start of large-scale development. State Coal also purchased the Millerton and Denniston operations of Westport Coal Company in 1948. Underground mining at Stockton ceased in September 1980, after which all coal was produced by opencast mining. As part of this expansion into open-cast mining, a 7.7 km aerial ropeway was constructed in 1953 to transport coal from the plateau to Ngākawau, replacing an ageing rail system. In the 1980s, new coal handling facilities were also established at Ngākawau to support ongoing operations. In 2001, the ropeway was shortened to 2.2 km. Figure 3-1 [Located in Chapter A.2 – Mining Overview] highlights the key historic working areas in relation to the proposed project area.
1080	
1085	Recorded archaeological or historic heritage sites in the vicinity of the Project are illustrated in Figure 3-24, with further detail of the current historical setting of the respective Sub-Areas provided below.

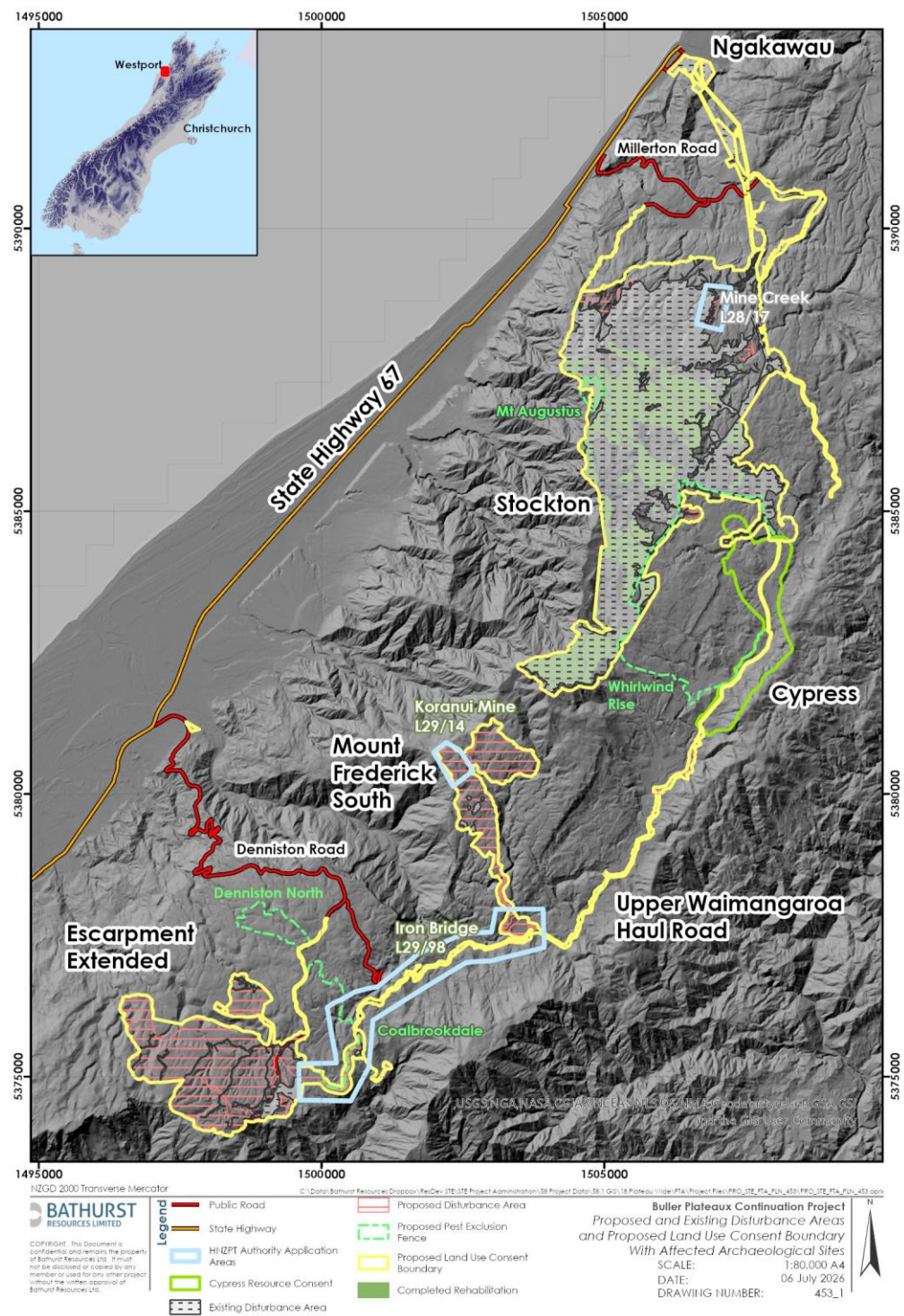


Figure 3-24: Archaeological Authority Application Areas

3.3.2.1 Stockton Plateau and Stockton Sub-Area

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The Stockton Plateau today contains a dispersed but significant assemblage of archaeological and historic heritage features reflecting more than a century of coal-mining

activity. While modern open-cast operations have altered large parts of the landscape, a number of heritage elements remain visible or partially intact, continuing to illustrate the development of coal extraction and associated settlements across the plateau.

1095 Historic features that survive on the plateau include remnant tramway formations, mine portals, industrial foundations, and settlement remains, together demonstrating the evolution from early underground mining at the turn of the 20th century to later surface mining operations. Some of these features, particularly at Mine Creek and along the Electric Loco Line, have previously been subject to archaeological survey, recording, and limited excavation.

1100 At present, three recorded archaeological or historic heritage sites lie within, or in close proximity to, the Stockton Sub-Area:

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1120 In addition to these scheduled sites, the plateau contains historic underground mine workings dating from the late 19th and late 20th centuries. Although not generally accessible due to safety constraints, these workings contribute to the heritage landscape and remain recorded on historic mining plans.

3.3.2.2 MFS Sub-Area

1125

There has been historical underground mining in part of the MFS Sub-Area associated with the Koranui mine, which operated during the 1800s and the Taipo Mine, which operated during 1920s to 1940s (**Figure 3-25**).

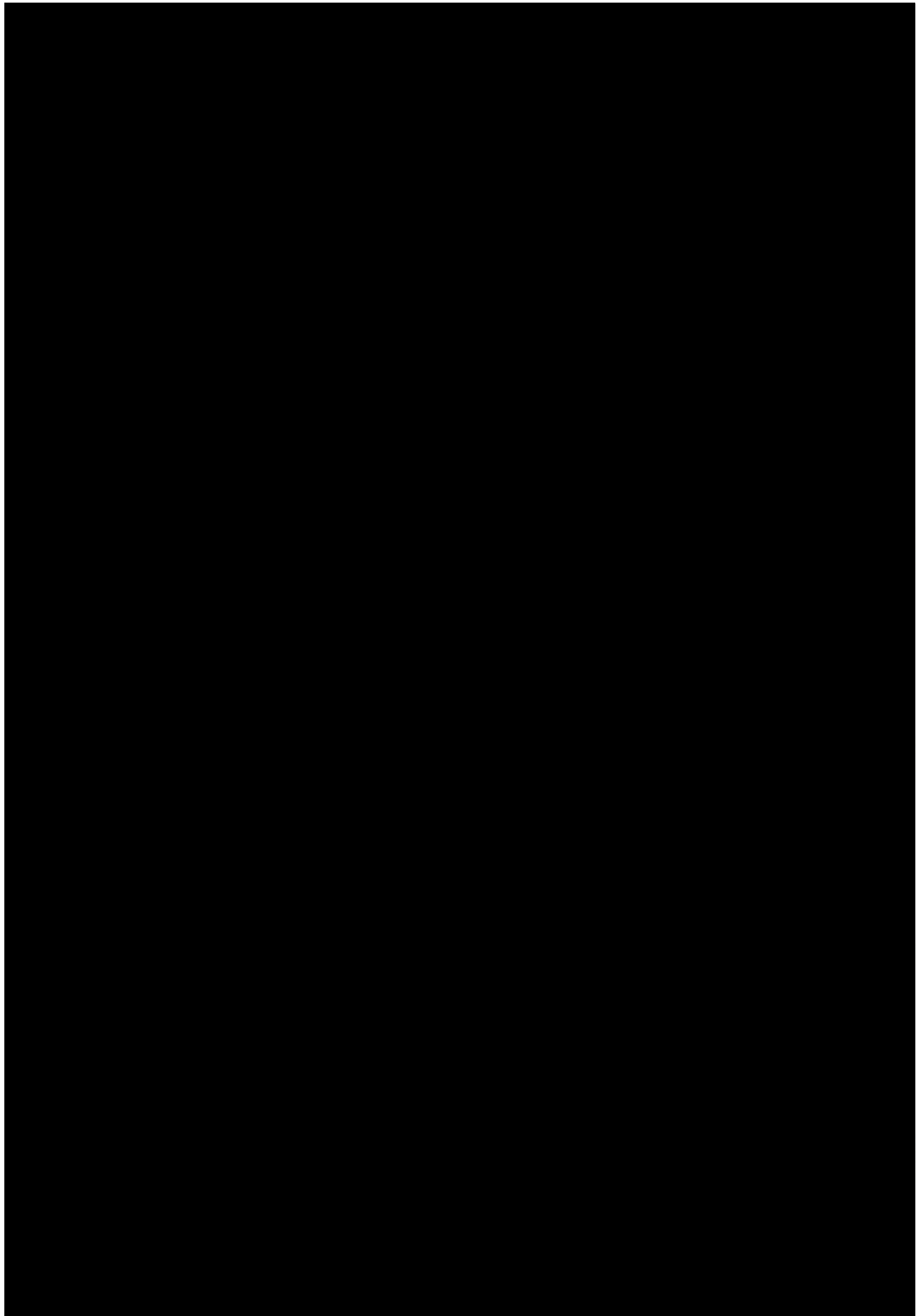


Figure 3-25: MFS Historic Areas

The Koranui mine and Incline were developed in the late 1870s and 1880s. This early mine created numerous underground drives, ventilation shafts, tramways, and portals, many of

1130

which now survive as collapsed features. Historic records describe the hill as being “honeycombed” with abandoned drives. These pre-1900 features form part of a significant archaeological landscape.

1140

Within this historic mining setting, historical underground workings, collapsed portals, subsidence features, and linear depressions from old drives are scattered across the terrain.

1145

Because these mining phases were followed by decades of natural regeneration, the MFS Sub-Area today is a mix of:

- > Dense native vegetation obscuring, but not erasing, mining features;
- > Collapsed underground voids and portals creating visible surface instability;
- > Scattered artefacts, structural remnants, and tramway formations; and
- > Historic mining footprints integrated into the natural landscape.

1150

The result is a landscape where historic mining and natural ecological processes are layered together, forming the complex environmental and heritage context present today.

3.3.2.3 Denniston Plateau and ESE Sub-Area

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The Denniston Plateau has a long history of mining, and as such, has been extensively assessed for its historic heritage and archaeological values. Its historic coal-mining landscape spans a long period (from 1878 to the 1990s). Mine sites from all periods, including some rare ones, are more complete than any other such sites in New Zealand. The area has been identified as one of New Zealand’s most important industrial archaeological landscapes and an outstanding historic site. **Figure 2-3**, found in **Chapter A.2 – Mining Overview**, showcases the key historical mine workings on the Denniston Plateau.

1160

Denniston township is the oldest mining settlement on the Buller Plateau and historically holds a major place in New Zealand's coal mining industry through the sustained quality and

quantity of its coal output. The archaeological sites present on the Denniston Plateau are notably in good condition, making the area a highly significant archaeological landscape.

- 1165 Parts of the Plateau have been listed under the *Heritage New Zealand Pouhere Taonga Act 2014* (“**HNZPTA**”) as the Denniston Historic Area, a Category I historic place.¹⁶ The listing's extent focused mainly on the 19th-century mines and mining infrastructure as the features of highest significance. It includes the Denniston Incline, the brakehead, the Banbury arch, mine mouth and rail link, Burnett's Face, Coalbrookdale, the rope road, the bath houses, the settlement of Denniston and The Camp. The historic area's boundary runs from the base of the incline to the centre of activities at the brakehead and continues along the route to major mining areas at Burnett's Face and Coalbrookdale. This listing recognises the high historical, archaeological and technical values of the Denniston landscape. It describes Denniston as 'one of New Zealand's most significant industrial sites'.
- 1170
- 1175 In addition, the Operative BDP lists the following in the Schedule of Historic Buildings and Structures on the Denniston Plateau:
- > Banbury Arch;¹⁷
 - > Stone Retaining Wall;¹⁸ and
 - > The Denniston Incline Plaque.¹⁹
- 1180 The ESE Sub-Area is within a landscape with a long and well-documented history of 20th-century underground and later opencast coal mining, particularly centered around the Whareatea mine, Sullivan mine, and the Monocable Aerial Cableway system. Evidence of historic underground coal workings is present within and near the ESE Sub-Area, reflecting long established mining activity in the Escarpment, Whareatea, Sullivan and Coalbrookdale areas. The Sullivan CML encompasses three of the main previous mining areas; the
- 1185 Whareatea, Sullivan, and Sullivan West mines, which were mined in the second half of the 20th century.

Details of key historical sites within or adjacent to the ESE Sub-Area are summarised in **Table 3-8**.

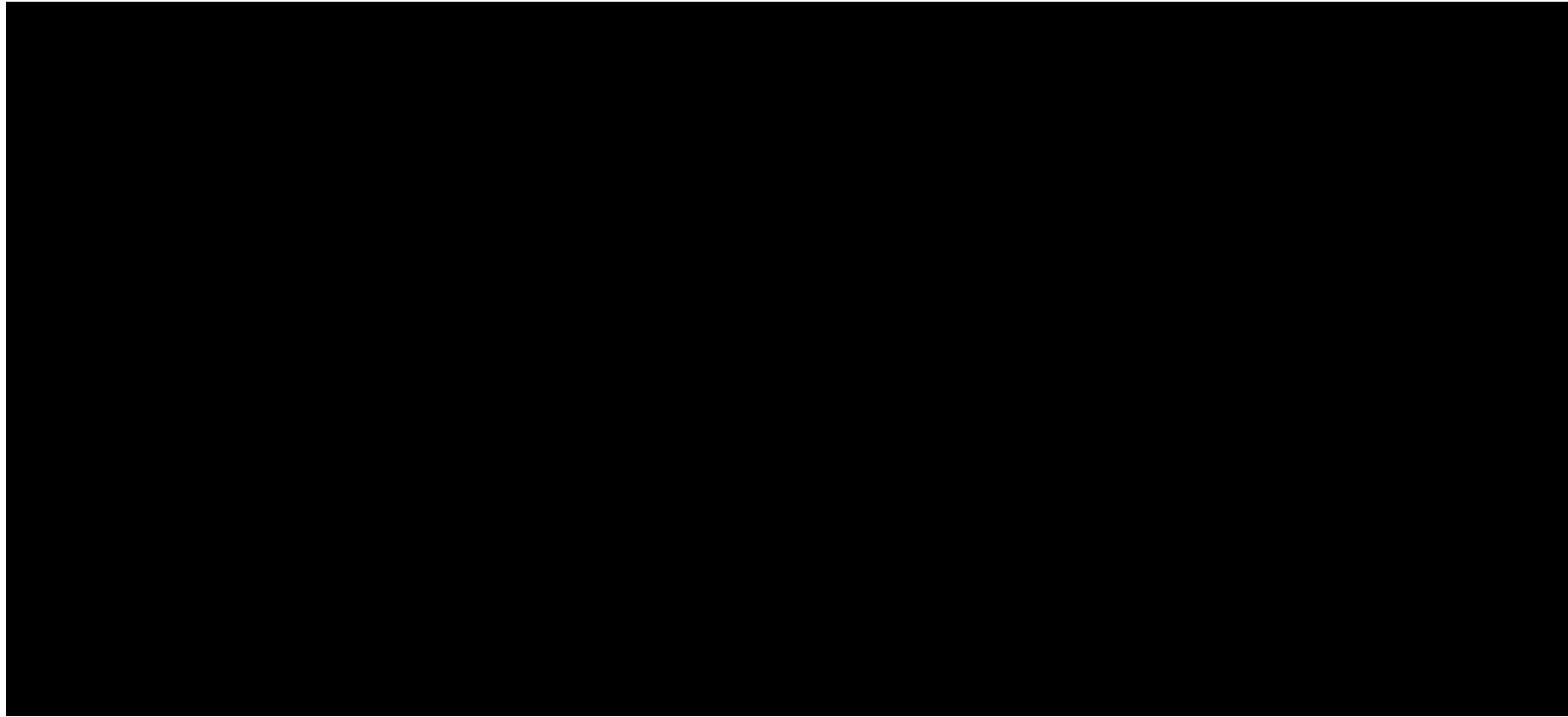
¹⁶ NZ Heritage List No. 7049.

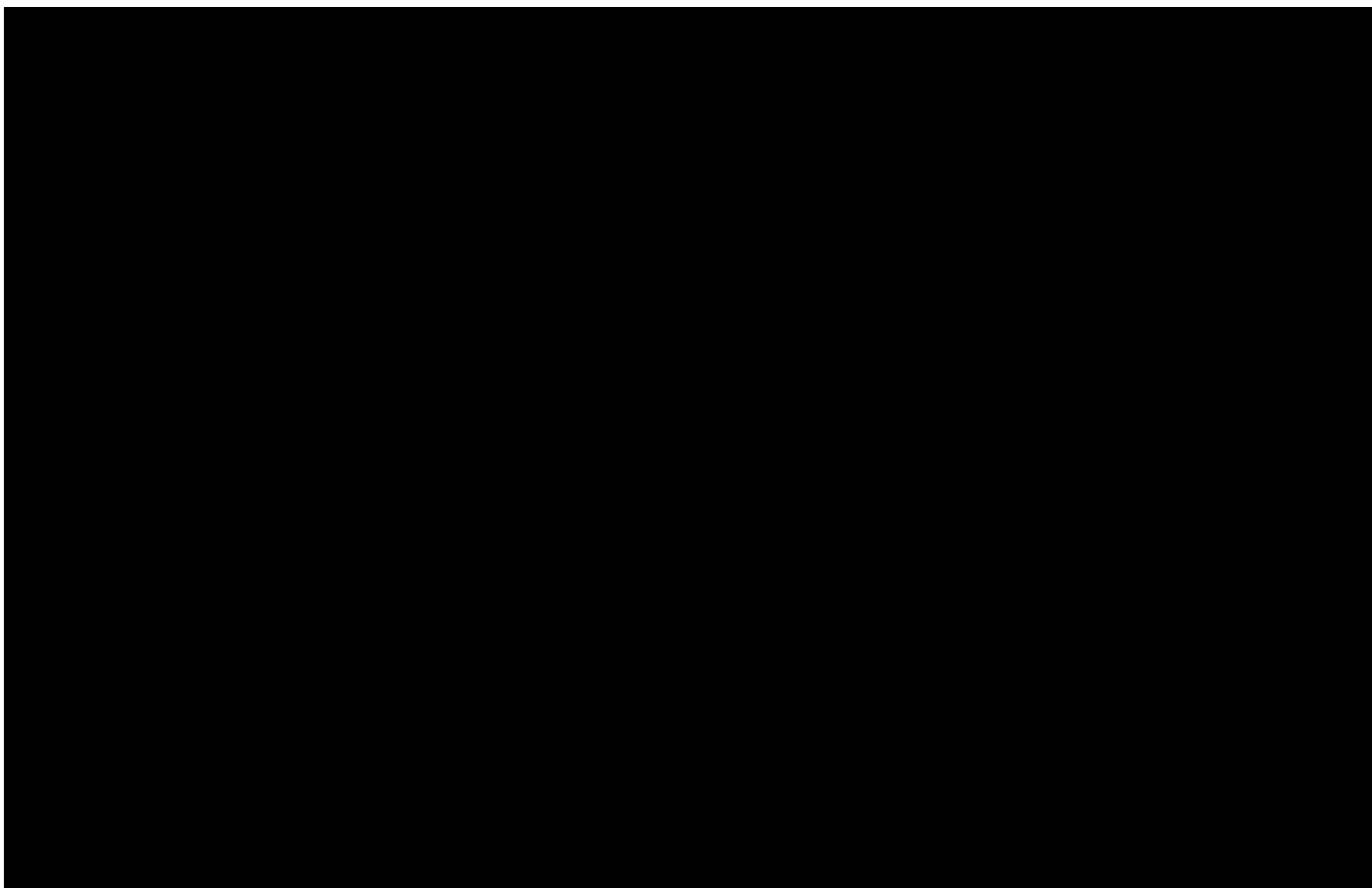
¹⁷ NZ Heritage List No. 250.

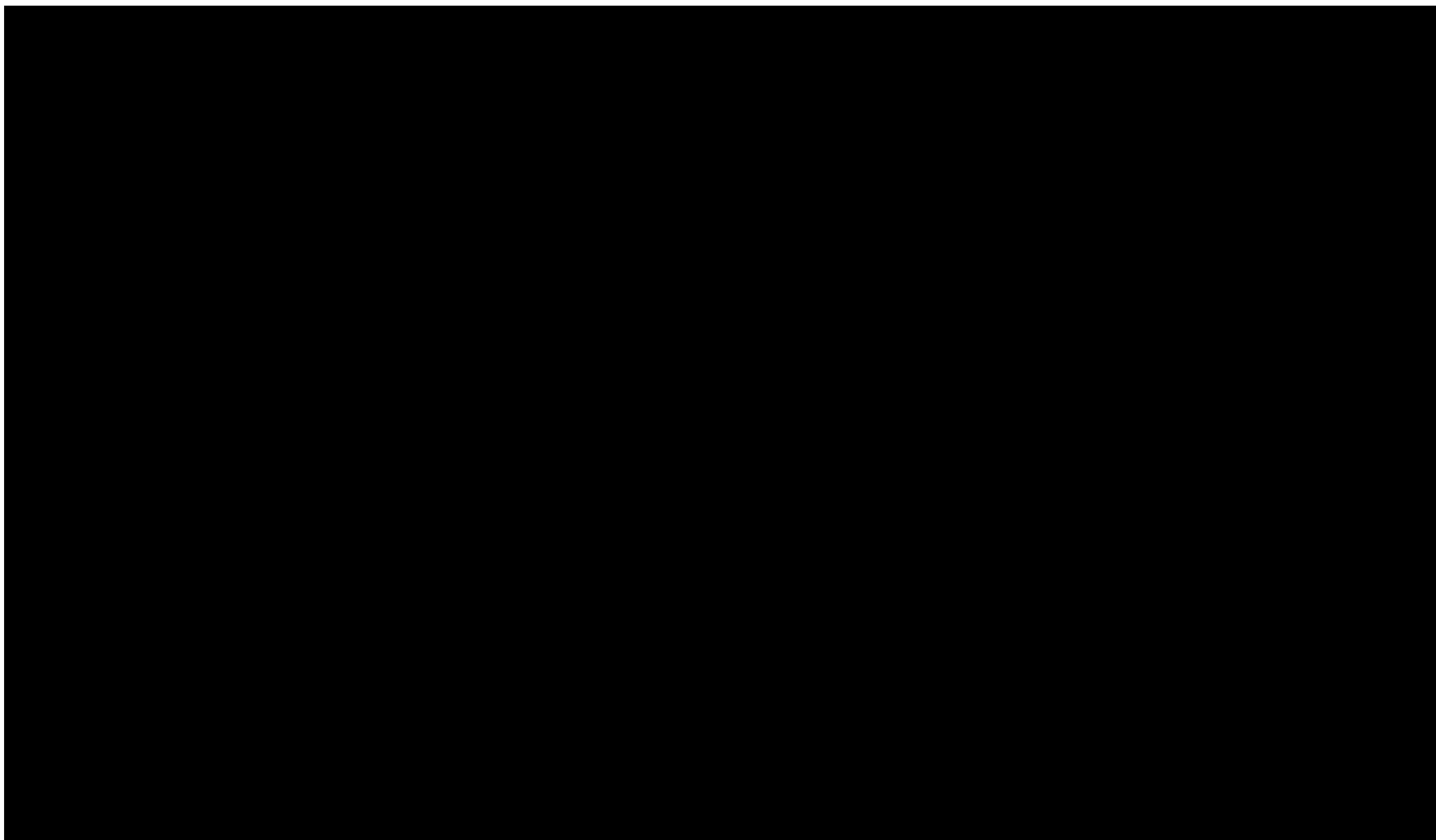
¹⁸ NZ Heritage List No. 291.

¹⁹ NZ Heritage List No. 306.









1195 3.3.2.4 UWHR Sub-Area

Clough & Associates Ltd (2026) outlined the existing heritage of the UWHR Sub-Area.

1200 The proposed UWHR traverses a landscape with a long and complex history of coal mining, settlement, and infrastructure development on the Denniston and Stockton Plateaux. The environment through which the UWHR will pass contains an array of historic and archaeological features, some prominent and well recorded, others fragmentary or partially obscured by vegetation and previous land modification.

1205 The southern portion of the UWHR corridor lies within the very southern extent of the Heritage New Zealand Listed Area – Denniston Historic Area, a Category I historic place. This wider historic landscape incorporates significant late 19th- and early 20th-century coal mining sites, including industrial infrastructure, settlement remains, rope roads, and dam structures associated with the historic Coalbrookdale mine and the Village of Coalbrookdale. While the selected UWHR alignment has been designed to avoid known archaeological features, its proximity to these sites reflects the density and historical significance of the area’s industrial heritage.

1210 Within the southwestern extent of the proposed corridor, the environment is characterised by a mixture of previously disturbed areas and sections of intact historic landscape within and adjacent to the Denniston Historic Area. [REDACTED]

1215 Further north and east, the corridor crosses an area with extensive historic underground workings associated with the late 19th- to mid-20th-century Iron Bridge Mine. [REDACTED]

[REDACTED] [REDACTED]

1225

1230

1235

Overall, the existing environment of the proposed UWHR is characterised by a dense and varied assemblage of historical and archaeological features spanning the late 19th to mid-20th centuries. The heritage setting, therefore, represents a culturally and historically significant mining environment.

1240 3.3.3 Recreation

The existing recreational uses of Stockton Plateau and Denniston Plateau are summarised in the following subsections.

3.3.3.1 Stockton Plateau

1245

The existing areas within the Stockton Sub-Area currently have very low levels of recreational use (Greenaway & Associates, 2025).

1250

The Plover Stream Conservation Area (administered by DOC) lies within the Stockton Sub-Area. Immediately adjacent is the Ngākawau Ecological Area, also administered by DOC. However, access is very limited, mostly via the Stockton Mine area (closed to the public). Therefore, this area will support low levels of hunting and trekking. DOC's 2022 conservation values report²⁰ on the area gave the following summary of its recreation values:

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- > This assessment area includes intact and modified forest and wetlands as well as active and historic mine infrastructure, including Stockton Mine road, but has no tracks or facilities managed by DOC.
- > Guided mine tours to the Stockton Mine occur. This conservation area contains heritage values and sites associated with coal mining and has little recreational use.
- > These areas are in a Backcountry-remote zone. There are no tracks or facilities managed by DOC.

²⁰ <https://www.doc.govt.nz/about-us/our-role/managing-conservation/stewardship-land/documents-supporting-stewardship-land-reclassification/>

1260 A locally agreed-upon botanical and historical mining reserve, the Millerton Heritage and Ecological Reserve, is also within the main CML 37150 area. The reserve was created in 2003 as an initiative to compensate for Solid Energy’s mining activities. Although the reserve is not part of the conservation estate under the Conservation Act or gazetted as a reserve under the Reserves Act, it remains an area where mining operations are restricted through a Memorandum of Understanding between BT (novated from Solid Energy in 2017), the Millerton and Plateau Protection Society Incorporated (MAPPS) and the Buller District Council.

1270 More broadly, Whitewater NZ recognises the lower Ngākawau River as a Grade 4+ to Grade 5 kayaking river; however, it is used relatively infrequently due to its challenging conditions and limited accessibility. Mangatini Falls, located along the Charming Creek Walkway, is regarded as a picturesque feature within the landscape. While the walkway has previously been noted as one of the top multi-day walks in the South Island, access to Mangatini Falls is now more limited following the removal of a bridge and sections of the track.

1275 Recreational use of the MFS Sub-Area is very limited. Access is difficult, with no established tracks and only informal routes. The former Britannia Track, the only established public track in the area, has been closed since 2023. As a result, current activity is restricted to occasional motorbike use, some four-wheel drive travel, and limited off-track exploration on foot. Overall, use is low, dispersed, and informal, and the area does not support notable recreation values compared with other parts of the Buller Plateaux.

3.3.3.2 Denniston Plateau

1280 Rob Greenaway & Associates (2025) have described the existing recreational environment of the Denniston Plateau. Multiple small reserves are located in the immediate Denniston township area, including local-purpose, recreation, scenic, and historic reserves, as well as additional areas of stewardship land. Most recreation activities occur within the Mount Rochfort Stewardship Area. Surveys of visitors to the Denniston Plateau found that most visitors identified sightseeing as their main activity. Other activities identified included walking, trail running, mountain biking, photography, four-wheel driving, motorbiking and cycle touring. The best aspects of the area identified were dominated by history, views, and interpretation panels.

1290 DOC’s West Coast Conservation Management Strategy 2010-2020 broadly describes the recreational opportunities on the Denniston Plateau as a range of low-key activities associated with its historic coalfields, heritage features, and distinctive landscapes. The area supports several walking tracks, including the historic bridle track that links the brakehead with the former Denniston township, as well as other short walking routes across the plateau. A newer track utilising sections of the former rope road and the Denniston

1295	Incline connects visitors to Burnetts Face and Coalbrookdale, offering opportunities to experience the area's natural and historic values.
1300	Vehicle-based recreation is also available, with a four-wheel drive loop track providing access through subalpine terrain, although use is controlled due to the environment's fragility. Formed roads additionally allow access to established paragliding launch points on both the Denniston and Stockton Plateaux. Local walkways in the area include the Denniston Bridle Path, Brakehead Walk and Coalbrookdale Walk. A series of mountain bike tracks within the Denniston Plateau are also used for trail running. Overall, recreation on the plateau is characterised by heritage appreciation, walking, limited 4WD use, and access to scenic viewpoints, rather than high-intensity activities.
1305	A key recreational value of the UWHR corridor is its contribution to east–west connectivity across the Buller Plateaux. This connectivity is important for mountain biking, bikepacking, and four-wheel driving, all of which rely on access between the Denniston Plateau, the inland Mackley Track, and the broader network of informal and historic routes that traverse the area. Mountain biking is particularly notable along this corridor. Analysis of Strava
1310	heatmap data shows two distinct mountain biking track access routes connecting to the Mackley Track, indicating regular use by riders who utilise the existing rough 4WD tracks and natural clearances to move between plateaux. While recreational levels are not high in absolute terms, the routes that do exist form part of a valued back-country network.

3.3.4 Noise

1315	3.3.4.1 Stockton Plateau The Stockton Plateau is remote, and its noise environment is shaped largely by its isolation and harsh climate. In undisturbed areas away from mining operations, natural sounds dominate, including strong westerly winds across exposed ridges, heavy rainfall, flowing streams, and native birdlife.
1320	Areas affected by mining are already characterised by existing industrial noise sources. Stockton is New Zealand's largest open-cast coal operation, and its activities contribute significantly to the local noise environment. Key sources include: > Mining equipment; > Processing and infrastructure; and
1325	> Transport movements.

1330 Noise levels generally decrease with distance from the mine and are rapidly attenuated by the plateau's rugged topography and dense vegetation in surrounding valleys. However, within and adjacent to operational areas, noise can be continuous and intrusive compared to the natural background. Noise limits apply within the CML and ACML areas, and existing operations are managed to comply with these limits, forming the established baseline noise environment for the site.

3.3.4.2 Denniston Plateau

1335 The existing noise environment in the Denniston Plateau area is described in Marshall Day's (2026) *Buller Plateaux Continuation Project Assessment of Noise Effects*. Daytime noise measurements undertaken in November 2024 at two receivers in Millerton and Denniston indicate that noise is primarily dominated by ambient natural sounds and local vehicle movements. At night (after 21:30 hours), noise levels decrease significantly.

1340 Both the existing and proposed mining operations benefit from significant distances between primary noise sources and the closest residential receivers at Millerton and Denniston. This separation by distance, combined with the natural terrain, which provides effective noise screening, generally ensures that mining activity noise is and likely to continue to cause low impact to nearby residents.

3.3.5 Roading and Traffic

The following subsections provide a summary of the existing environment sections of:

- 1345
- > Stantec (2025) *Buller Plateaux Continuation Project – Stockton Mine: Integrated Transport Assessment*.
 - > Stantec (2026) *Buller Plateaux Continuation Project – Denniston Plateau Access: Integrated Transport Assessment*.

3.3.5.1 Regional and Local Context

1350 Travel between the Project Area and the wider northern West Coast region involves using SH67 to SH6 south of Westport. The State Highway network for the region is shown in **Figure 3-31**. SH6 connects towns along the West Coast to the south and links to towns to the north. Travel to the east coast involves travelling via Inangahua and Reefton, using SH69 from Inangahua to Reefton, then SH7. SH67, which connects Waimangaroa with Westport,

1355 carries approximately 2,500–2,700 vehicles per day and provides the regional access route for all existing movements.

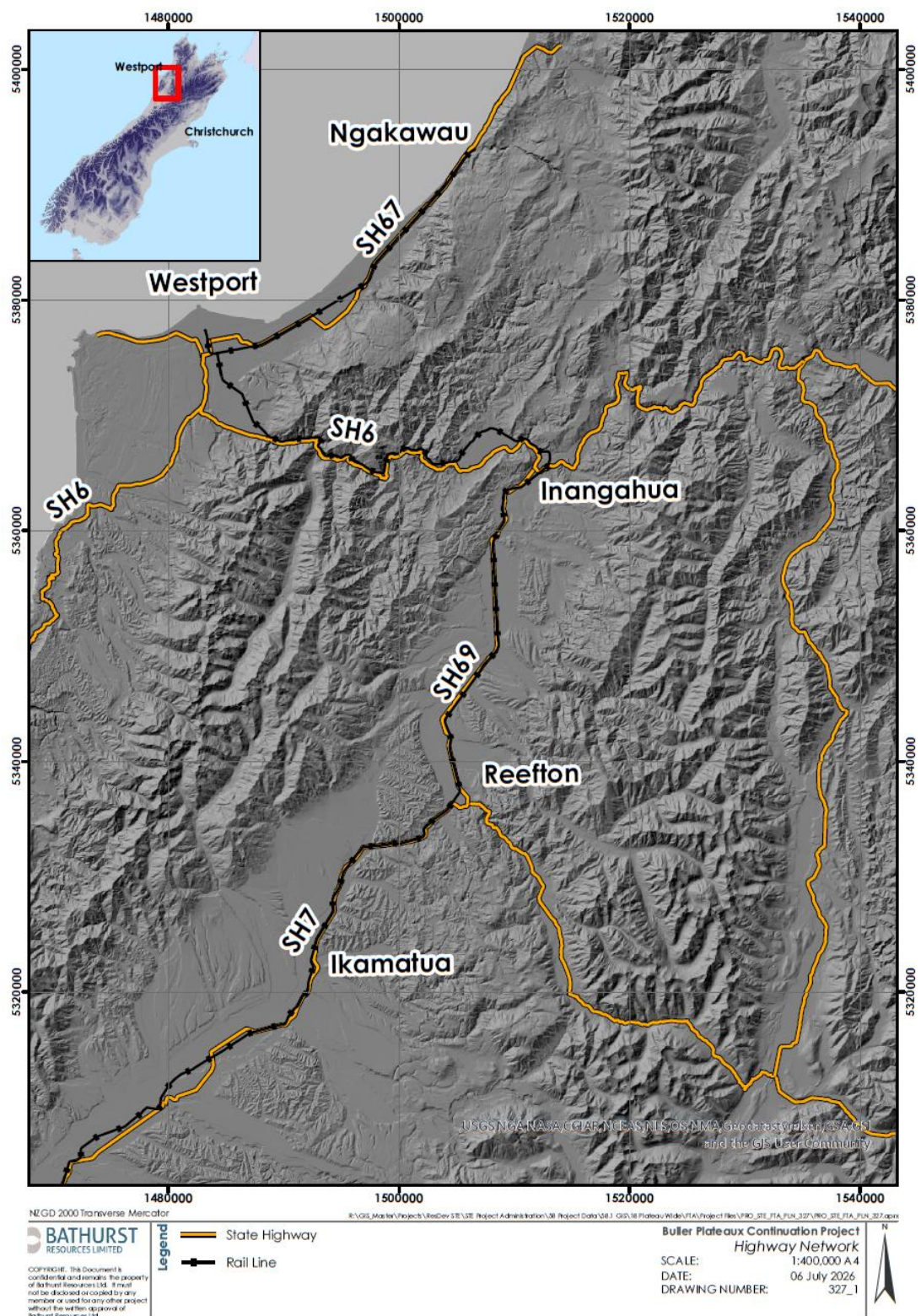


Figure 3-31: State Highway Network

3.3.5.2 Existing Access - Stockton Plateau

1360 The wider transport context for Stockton and Denniston Plateau is shown in **Figure 3-31** and
below in **Figure 3-32**. SH67 provides the only strategic road link in the area, connecting SH6
to Westport and continuing north along the West Coast. SH67 passes through the
settlements of Waimangaroa, Granity, and Ngākawau, with three railway level crossings
located between Westport and Ngākawau. Additional level crossings are present on several
1365 side roads east of SH67, including Millerton Road, which provides access to the mine.

Access to the Stockton Sub-Area is provided via Millerton Road, which connects to State
Highway (“**SH**”) 67 at Granity. 1.8 kms of the Millerton Road was realigned in a joint venture
between Land Transport NZ and Solid Energy in 2006 to bypass the Millerton township,
reducing interaction between mine-related traffic and the settlement.

1370 Existing mining operations at Stockton are supported by an internal network of
interconnected haul roads that provide access to the various mining areas across the mine
site. While these haul roads are generally semi-permanent, ongoing mining activity requires
periodic relocation or extension of the network. Road construction and maintenance are
supported by several gravel borrow areas that supply material for road formation and
1375 sheeting to maintain safe access, particularly during wet weather.

MFS is a new mining area with no existing roading and traffic infrastructure. Under the BPCP,
access is proposed to be via the UWHR, which is set to link ESE and MFS to the existing road
infrastructure at Cypress and Stockton.

Access to the Cypress Sub-Area is by a 3.7 km haul road from the Stockton area in the north.

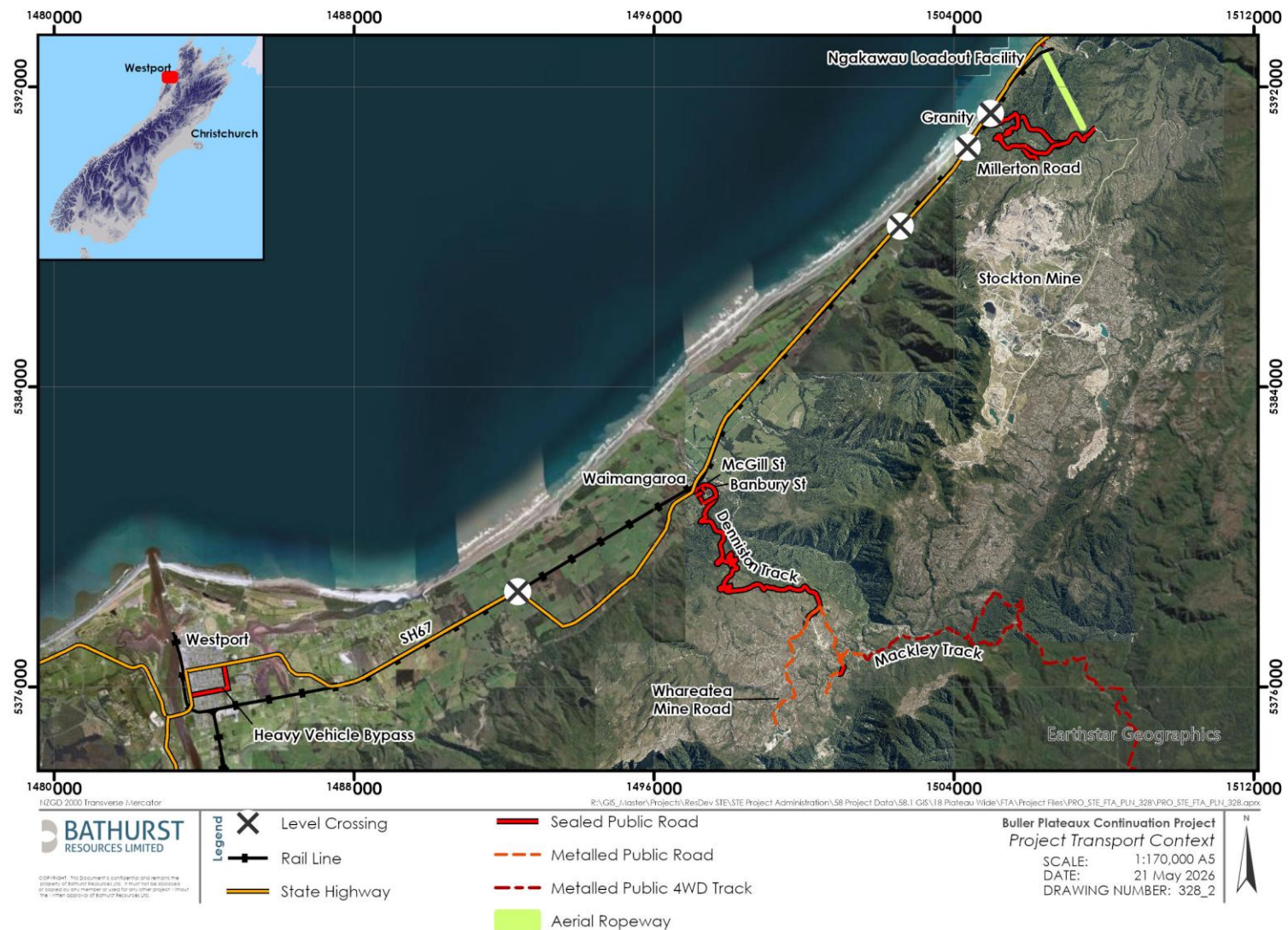


Figure 3-32: Project Transport Context

1385 **3.3.5.3 Existing Access - Denniston Plateau**

1390 The Denniston Plateau is located south-east of Waimangaroa, with the only public road access being via the Denniston Track (**Figure 3-32** above), which comprises Banbury Street, Denniston Road and Burnetts Face Road. There is a parking area at the top of the Denniston Road for visitors to the historic mining area and another visitor car park at the eastern end of Burnetts Face Road. Whareatea Mine Road provides access to the ESE Sub-Area. A range of mountain bike tracks has been established on either side of this road, and an informal parking area (known as the “Quarry car park”) exists at the end of the public road section, approximately 500 metres south of Burnetts Face Road.

1395 Although the UWHR has not yet been constructed, access to the future haul road corridor is currently provided solely via the public road network connecting Waimangaroa to the Denniston Plateau. This route comprises State Highway 67, McGill Street, Banbury Street, Denniston Road and Burnetts Face Road, with Whareatea Mine Road providing the final approach to the ESE area where the southern UWHR section will originate. These roads collectively form the “Denniston Track,” an 8 km ascent gaining almost 600 m in elevation.

1400 Road widths vary between 6.4 and 6.8 m, with several narrow sections, small radius curves, steep unprotected drop offs and unrecoverable drains. Traffic volumes on the corridor are low, typically averaging 70–90 vehicles per day on Denniston Road and 10 vehicles per day on Burnetts Face Road, reflecting the corridor's existing recreational use and the absence of active mining on the plateau. Mountain bikers and other recreational users are present year-

1405 round at low volumes. These conditions form the current baseline against which construction and operational traffic associated with the UWHR will be assessed.

3.3.5.4 Traffic Volumes

Stockton

1410 Millerton Road is used for service vehicle movements at the Stockton Mine and also for all staff movements. **Figure 3-33** shows the traffic volumes recorded by Bathurst on Millerton Road over the ten-month period January to October 2025. The average weekday volume over the seven months to July was 290 vpd. The higher volumes recorded in August resulted from the need to transport coal by truck from Stockton to Ngakawau because the aerial ropeway could not be used. Weekend volumes were typically in the range 60 to 80 vpd.

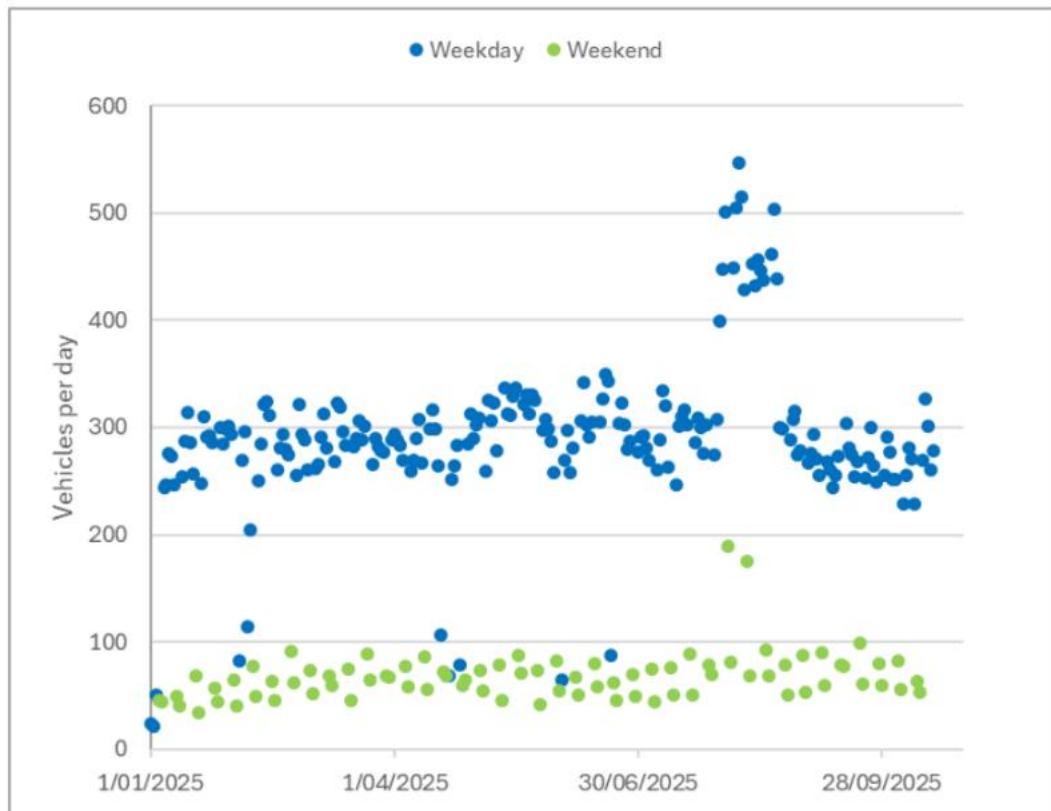


Figure 3-33: Daily Traffic Volumes on Millerton Road, January to October 2025 (Stantec 2025)

Figure 3-34 shows the typical hourly variation in traffic volumes on Millerton Road. On a weekday, there is an early morning peak flow of 30 to 40 vph predominantly towards the mine associated with staff travel. There is a similar-sized flow in the mid-afternoon, with the movements being predominantly towards Granity as staff return home. During the day, two-way volumes on Millerton Road are typically 10 to 15 vph. Traffic volumes at the weekend are significantly lower and typically involve less than 5 vph through the day. The average weekday traffic volume on Millerton Road based on Bathurst count information from September to December in 2024 was about 270 vpd compared with less than 50 vpd at the weekend. About 25% of movements are heavy vehicles, with the majority being rigid trucks. Articulated trucks account for 5 to 10 movements per day.

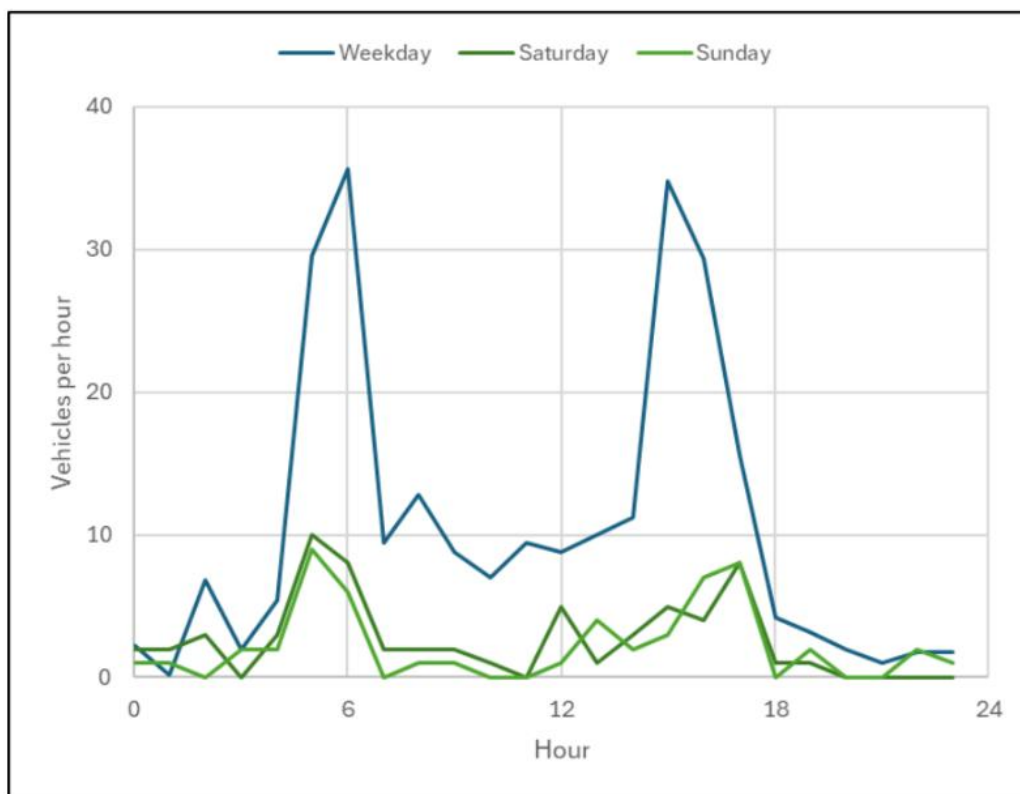


Figure 3-34: Hourly Traffic Volumes on Millerton Road – October 2025 (Source: Bathurst)

1430

Denniston

1435

Figure 3-35 shows the annual daily traffic volumes on SH67 recorded by NZTA at their count site north of the Orowaiti River (northeast of Westport) since 2018. The average daily volume over that time has risen from about 2,100 vpd in 2018 to about 2,500 vpd in 2024. The 90th- and 98th-percentile volumes represent traffic volumes during the busiest five and two weeks of the year, respectively. The difference between these and average volumes indicates strong seasonal variation in traffic volumes. The 90th percentile volume was about 3,000 vpd during the 2023-2024 period compared with about 2,500 vpd prior to 2022.

1440

In the 6-month period, July to December 2024, the average weekday traffic volume on SH67 north of Orowaiti River was about 2,720 vpd with a 98th percentile volume of 3,160 vpd. These volumes were higher than during the similar period in 2023, primarily reflecting the closure of the railway between Reefton and Ikamatua in June 2024 for tunnel repairs, which required more truck movements to transport coal from Ngakawau to Ikamatua.

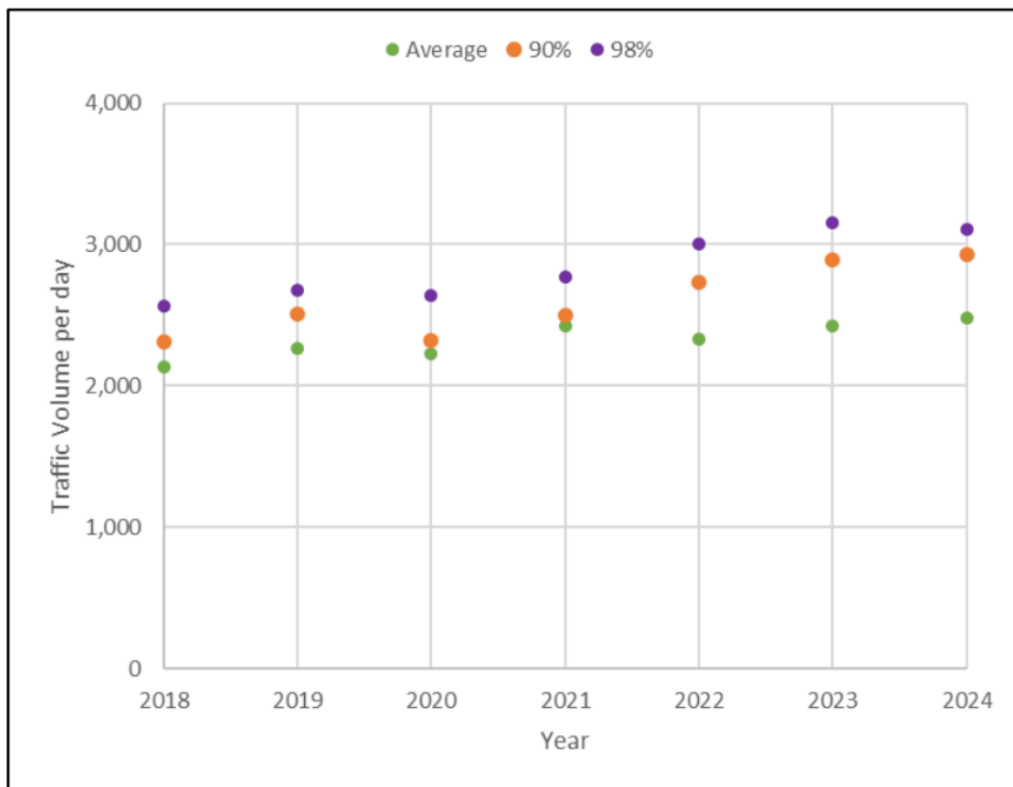


Figure 3-35: Average Daily Traffic Volumes – SH67 North of Orowaiti River (Source: NZTA 06700009)

Figure 3-36 shows the daily traffic volumes recorded by NZTA on SH67 north of the Orowaiti River over the 2023-24 period. Weekday volumes show seasonal variation, with higher volumes during the summer months (typically about 2,900 vpd) and the lowest volumes in the winter months. Weekend traffic volumes are lower than on weekdays, at 1,500- 2,000 vpd.

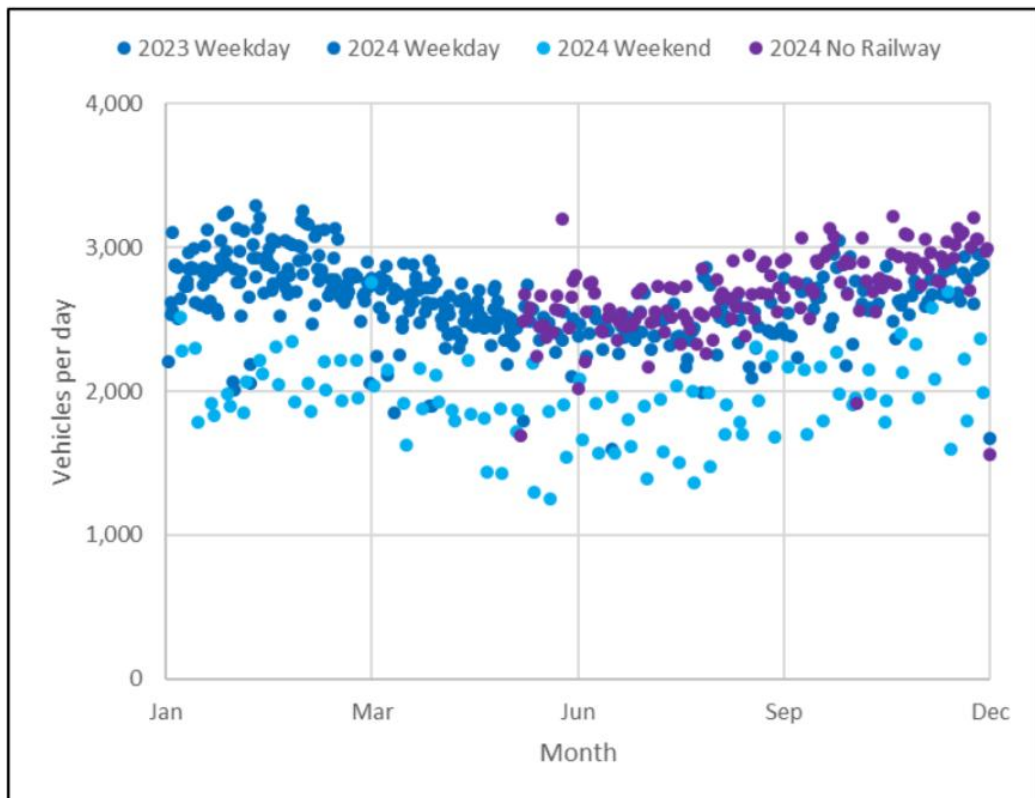


Figure 3-36: Daily Traffic Volumes 2023-2024 – SH67 North of Orowaiti River (Source: NZTA 06700009)

Figure 3-37 shows the hourly variation in traffic volumes on SH67 in early October 2025.

There are clear differences in the volumes on weekdays compared with the weekend. On weekdays, the traffic volumes rise from the early morning to a broad peak from about 9:00 AM to 5:00 PM of about 200 to 220 vehicles per hour (vph). There is some evidence for work-based travel patterns with small peaks in the travel volumes at 8:00 PM and in the mid to late afternoon period. The weekend volumes show a late morning peak of about 220 vph but then fall gradually for the rest of the day.

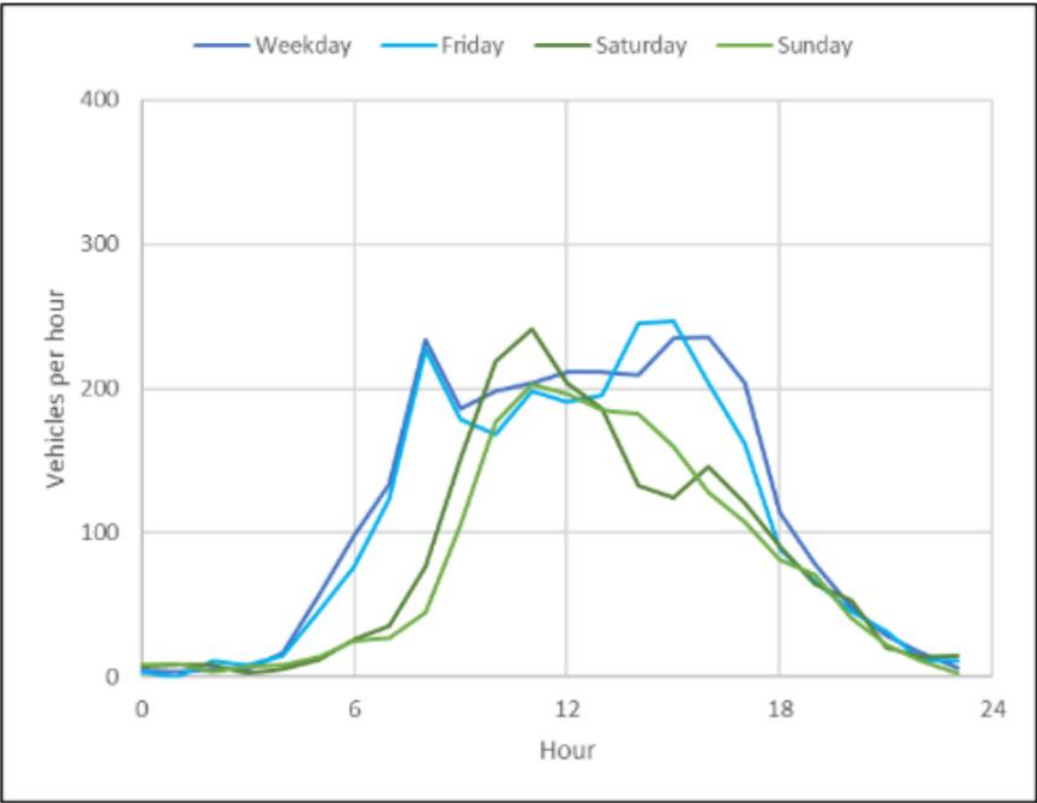


Figure 3-37: Hourly Variation in Traffic Volumes – SH67 North of Orowaiti River (Source: NZTA 06700009)

1465 **Table 3-9** provides a summary of the daily traffic volumes on Denniston Road and the Denniston plateau as recorded by Bathurst from January to December in 2024. Although daily volumes on Burnetts Face Road are relatively low, the 90th- and 98th-percentile volumes clearly indicate higher levels of use during the busiest weeks of the year. Cyclists are present throughout the year on the plateau due the presence of the mountain bike tracks, although these are at low volumes.

1470 **Table 3-9: Daily Vehicle Volumes – 2024 (Source: Bathurst)**

Location	All vehicles		
	Average	90 th %	98 th %
Denniston Road	73	131	206
Burnetts Face Road	11	34	65

Figure 3-38 shows the hourly variation in traffic volumes recorded on Denniston Road over a weeklong period in February 2024, representing typical summer demand. Hourly volumes during the week were below 15 to 20 vph but reached 30 to 40 vph on Saturday and 20 to 30 vph on Sunday. This pattern reflects the recreational demand generated by the Denniston historic area and mountain bike tracks.

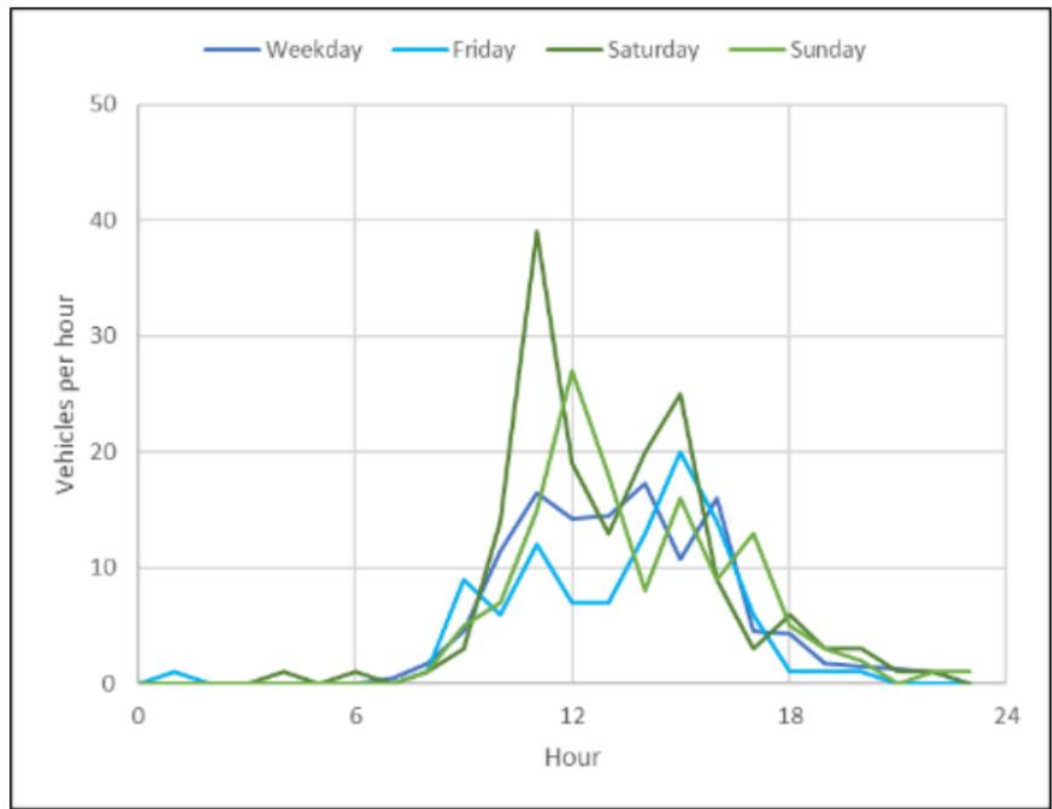


Figure 3-38: Hourly Volumes on Denniston Road – February 2024 (Source: Bathurst)

3.3.5.5 Road Safety

The NZTA’s Crash Analysis System (“**CAS**”) includes only two crashes on Millerton Road over the ten-year period 2015 to 2024 with no injuries reported at either crash. An additional crash was reported at the SH67 / Millerton Road intersection.

CAS includes one crash report on the Denniston Track in the ten-year period 2015 to 2024. It is considered likely that this reflects the low volume of road users rather than being indicative of the safety characteristics of the road.

3.3.6 Socio-Economic

A socio-economic profile of the Bathurst operations in the WCRC Area and BDC areas was completed (AIGIS, 2024). The profile was designed to develop a social baseline and

1490 understand the current workforce's contributions to, and engagement in, the local community and economy.

3.3.6.1 Social

A review of the demographic data indicated clear differences in the demographic structure between the WCRC area, the BDC area and the larger New Zealand population. Notable differences included:

- 1495 > The BDC and WCRC populations are older than the national population;
- > The BDC and WCRC populations have higher proportions of males than the national population;
- > The BDC and WCRC populations are less ethnically and culturally diverse than the national population, demonstrated by data on ethnic origin, country of birth and main language spoken;
- 1500 > Employment data shows the largest occupational groups are those that are likely to be employed in mining, agriculture and other trade-based industries, consistent with the nature of the major industries in the district and region;
- > Average earnings are lower for the BDC and WCRC than for New Zealand. Conversely, per capita income is higher for the BDC and WCRC than for New Zealand;
- 1505 > The BDC and WCRC populations feature more households comprising couples without children, and single-person households than is the case for the national population; and
- > Population predictions (age and household structure) indicate that the population is likely to decline in size over the coming decades. At the same time, the population is predicted to gradually become older on average. This is likely to result in declining demand across the local and regional economy.
- 1510

1515 An employee survey was conducted to develop a demographic and socioeconomic description of Bathurst's workforce employed in the BDC area. At the time of the survey, Bathurst had a nominal workforce of 317 people and an average of 72 full-time equivalent (FTE) contractor employees. The survey resulted in 283 valid responses from the entire workforce (including contractors), with a response rate of 72%.

The survey results can be summarised as follows:

- 1520 > The workforce is 'younger' on the whole than the regional and district populations as expected. Workforce members have larger households, with more children on average

	than the general population. Both such outcomes are natural consequences of comparisons between a 'working-age' population and a general population;
1525	> The average time spent working in the industry suggests a workforce with specialised skills that may not otherwise be fully employed in the regional or local labour markets. An absence of mining at Stockton Mine may exacerbate the existing issue of regional employment underutilisation;
1530	> The survey results indicate that the workforce has strong and longstanding ties to the region and its communities. On average, workers have lived locally for 22 years, with approximately 79% owning or purchasing their primary residence. Community engagement is also high, with 40% of respondents actively involved in local groups or activities. In addition, 90% of workers' households include others who are either employed or in education, further demonstrating deep residential and social integration within the area; and
1535	> The data on community participation demonstrates that, along with being economically active in BDC and WCRC, the workforce is socially engaged in its communities. These engagements involve a range of activities from emergency services organisations to community and cultural groups and sports clubs. In this way, a significant proportion of Bathurst's workforce contributes to social cohesion and community wellbeing on the West Coast.
1540	In addition to the surveys, a programme of interviews with local stakeholders was conducted during November and December 2023. The aim was to understand the community's views on Bathurst's role in the Buller District and the West Coast Region more generally. To achieve this, various organisations and groups were interviewed because they could provide a representative view of how the general community views Bathurst.
1545	Overall, the community representatives indicated clearly that Bathurst plays a positive role in the local community. The large number of differing perspectives found was attributed to the range of organisations approached and their different roles in the community. These included direct contributions, such as financial and in-kind support, and indirect advantages of having a large employer in the district that pays comparatively high incomes.
1550	It is noted that these indirect impacts included economic inflows to businesses, the provision of competent personnel and equipment in emergency situations, and the maintenance of enrolments in local schools.
1555	Participants did identify non-supportive sentiment in the district. Such participants also acknowledged impacts, particularly noting environmental effects, which are unavoidable outcomes of mining. However, the social and economic effects of the absence of Stockton

Mine (i.e. if it was not operating) were seen as positively outweighing the impacts of the mining operation.

On balance, it was concluded that the community is generally in favour of mining as an important historic, current and future industrial contributor to Buller and the West Coast Region generally.

3.3.6.2 Economic

In the national context, the West Coast Region is a comparatively small regional economy. Previously published data by Development West Coast (“**DWC**”) (Infometrics, 2024) identified mining as one of the West Coast Region’s four ‘main economic drivers’. In 2023, the mining industry contributed approximately 8.4% of regional GDP, and 20% of Buller’s GDP (AIGIS, 2024).

In addition to Bathurst’s employment-related contributions to national, regional and local economies, Bathurst also procures goods and services from suppliers located in various areas of New Zealand, particularly within the BDC and WCRC areas. For the year ending 31 March 2024, Bathurst spent \$75.8 million in direct transactions with 127 West Coast businesses.

Additionally, Bathurst makes significant contributions to local community groups and charitable organisations. The Company donated approximately \$856,000 to 33 charitable, service and community groups operating in the Buller District in 2023.

The Bathurst workforce also provides both economic and social benefit within the region, through consumption and investment activity, and involvement in the community. The workforce spends an average of around 56% of their incomes in the regional economy. Based on assumptions drawn from Statistics New Zealand (“**StatsNZ**”) and a net employee income benefit calculation, the workforce is estimated to spend around \$8.7 million per annum in the region.

Stockton

Bathurst’s existing Stockton Mine is the largest employer in the region and, more broadly, one of the largest private sector business entities within the WCRC area. It is also the largest operator within the Buller District, based on measures including employment, economic output, and exports. These economic characteristics form part of the current baseline environment, rather than representing a new or speculative benefit.

Under the BPCP, these benefits would continue for the duration of the Project. This enables the retention of established economic activity. Bathurst’s West Coast operations already generate substantial positive economic effects, particularly at the regional and local scales.

1590 These effects are most evident in Westport and surrounding areas within the BDC area,
reflecting the community's proximity to the Stockton Mine and its associated support
activities.

The majority of the current workforce is employed at Stockton Mine. Significantly, the
workforce is largely comprised of residents in the region and is particularly concentrated in

1595 the Buller District.

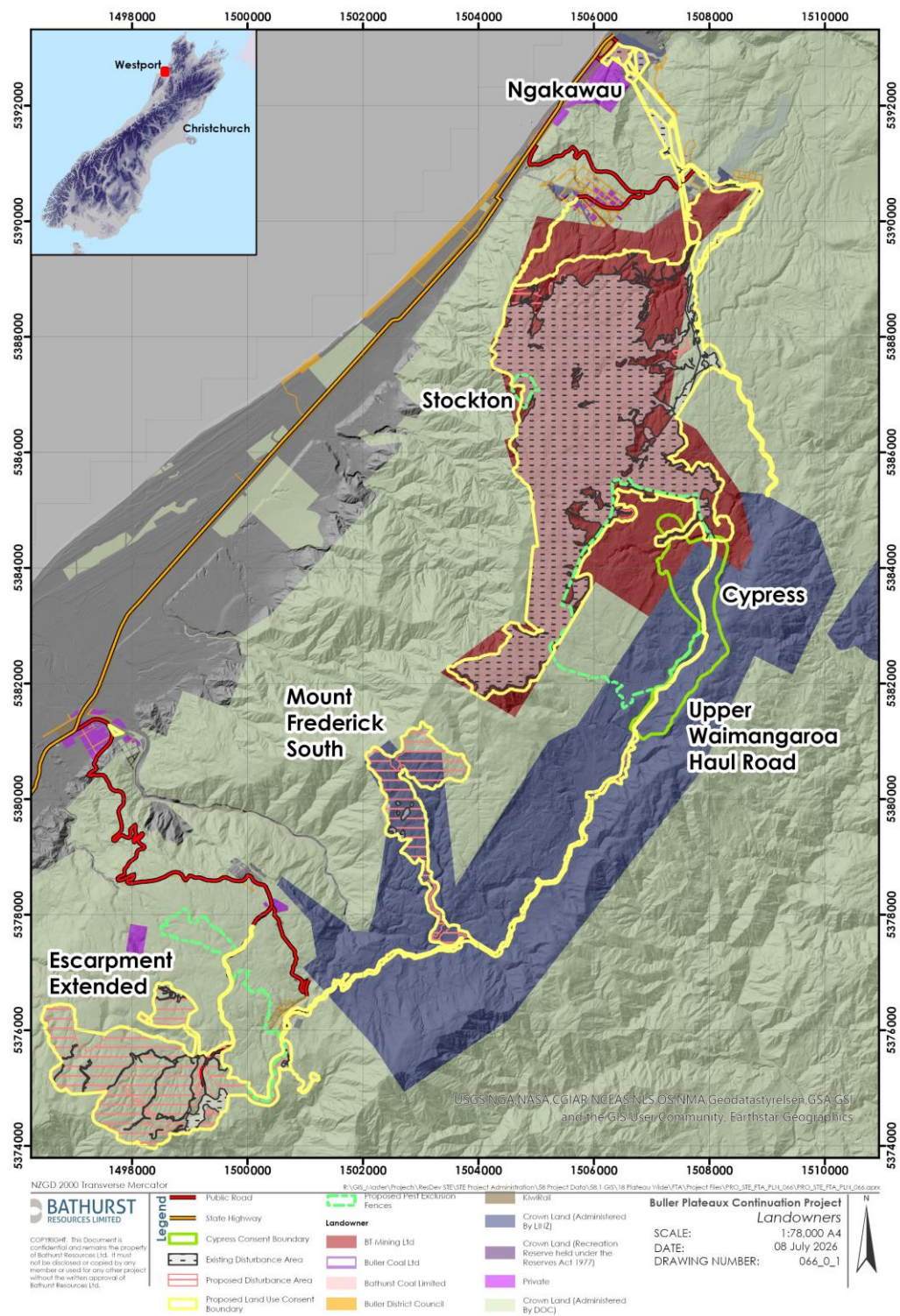
Accordingly, continuing these economic benefits under the BPCP represents maintaining an
existing contribution to the local and regional economy.

3.4 LEGAL ENVIRONMENT

3.4.1 Land Ownership Over Project Area

1600 Land ownership is a mix of Crown, Bathurst, BDC and privately owned land, with existing
approvals for the current mining operations across several areas (Stockton, Cypress and the
existing Escarpment mine within the ESE Sub-Area) of the BCBP footprint, as shown in
Figure 3-39. This is addressed in greater detail within the individual Sub-Area sections which
follow.

1605 **Part H** contains all relevant information relating to affected and adjacent landholders,
including plans, Records of Title, land parcel details, and landholder status information.



1610

Figure 3-39: Project Sub-Areas, Showing Land Ownership

3.4.1.1 Stockton Sub-Area

1615	The Crown historically owned and operated Stockton through a department called State Coal Mines, and the land was designated as a State Coal Mines Area under the <i>Coal Mines Act 1979</i> (“Coal Mines Act”). In 1987, control and ownership of Stockton were transferred to a state-owned company, the Coal Corporation of New Zealand Ltd (later named Solid Energy New Zealand Ltd), and CML 37150 and ACMLs 371502 and 371503 were granted to Solid Energy under the Coal Mines Act.
1620	On 31 August 2017, BT Mining acquired the Stockton. BT Mining also acquired the land underlying the majority of the Stockton CML and ACMLs, including several titles at Ngākawau, where rail loadout infrastructure is situated. Following completion of all non-AMD rehabilitation at Stockton, the land must be transferred back to the Crown. BDC, the Crown (DOC, LINZ), and KiwiRail are the other relevant landowners for land associated with the Stockton Sub-Area.
1625	Current relevant landowners within the Stockton Sub-Area are shown in Figures 3-40, 3-41 and 3-42 below.

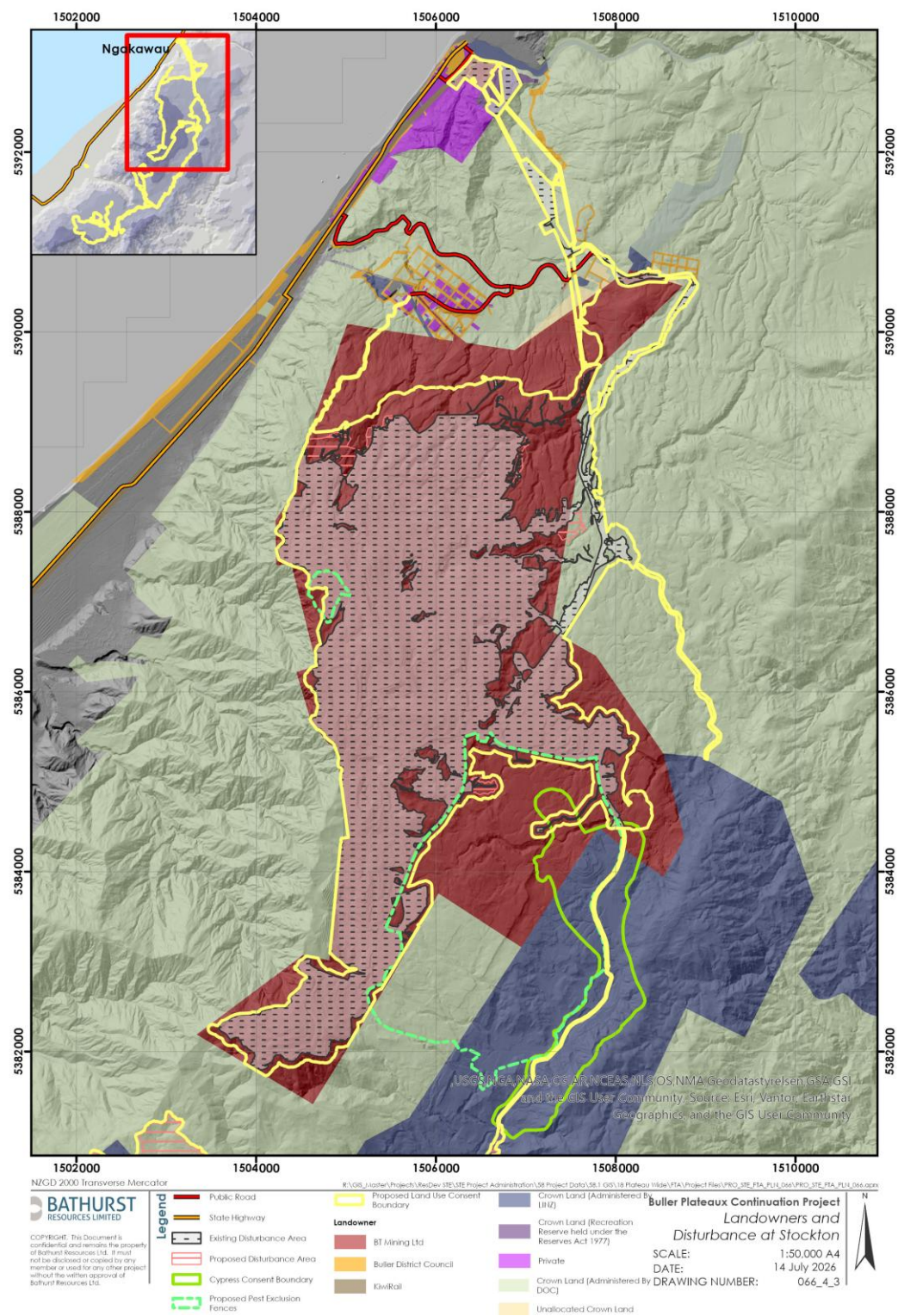


Figure 3-40: Land Ownership for the Stockton area

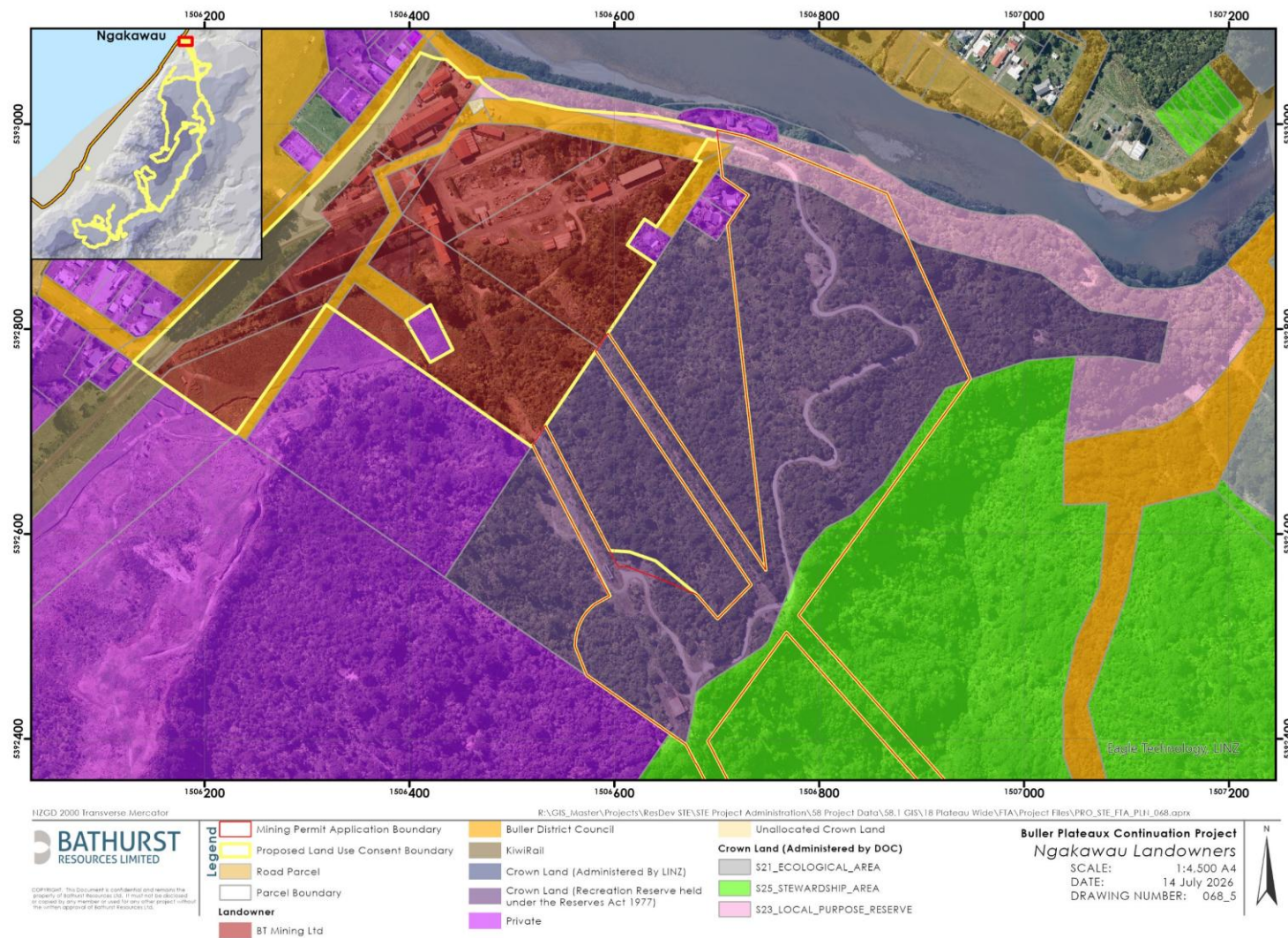


Figure 3-41: Land Ownership at Ngākawau

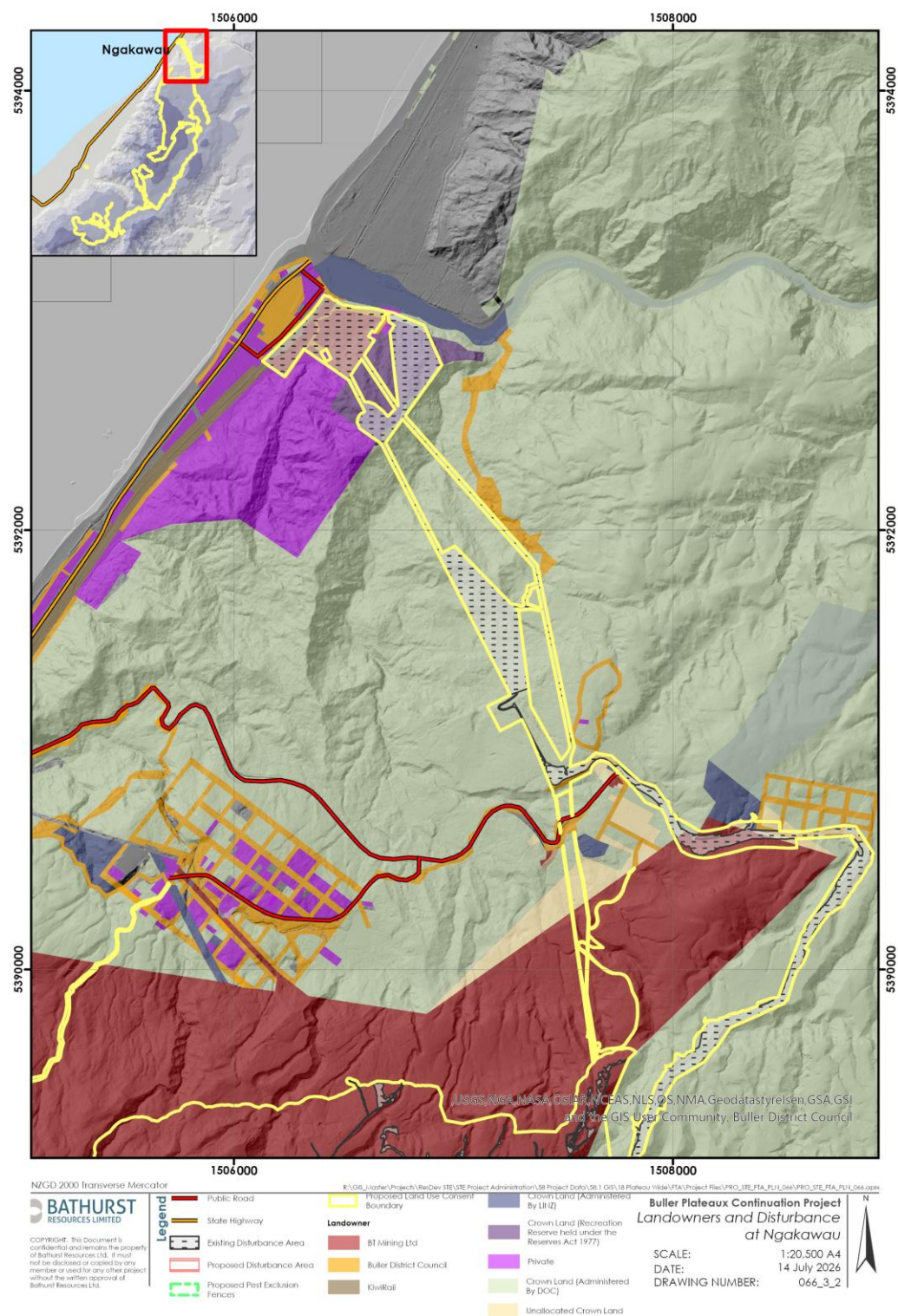


Figure 3-42: Landownership and Disturbance at Ngākawau Rail Loadout and the Aerial Ropeway

3.4.1.2 ESE Sub-Area

As shown in **Figure 3-43** the ESE is primarily located on Crown land administered by DOC, which is part of the Mount Rochfort Conservation Area and designated stewardship land.

1635

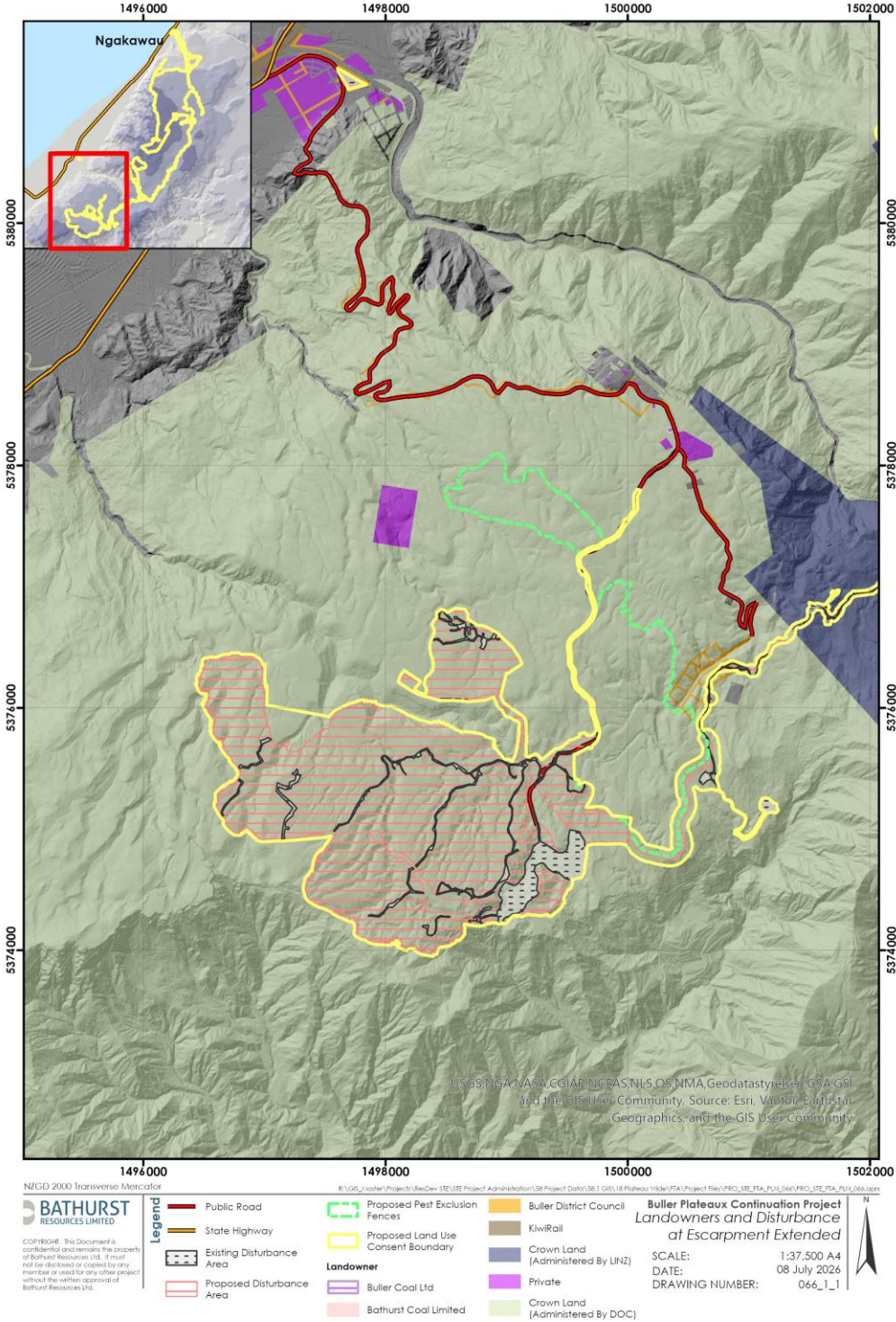


Figure 3-43: Land Ownership in the ESE Sub-Area

3.4.1.3 MFS Sub-Area

As shown in **Figure 3-44**, the proposed MFS area spans Crown land administered by both LINZ and the DOC.

1640

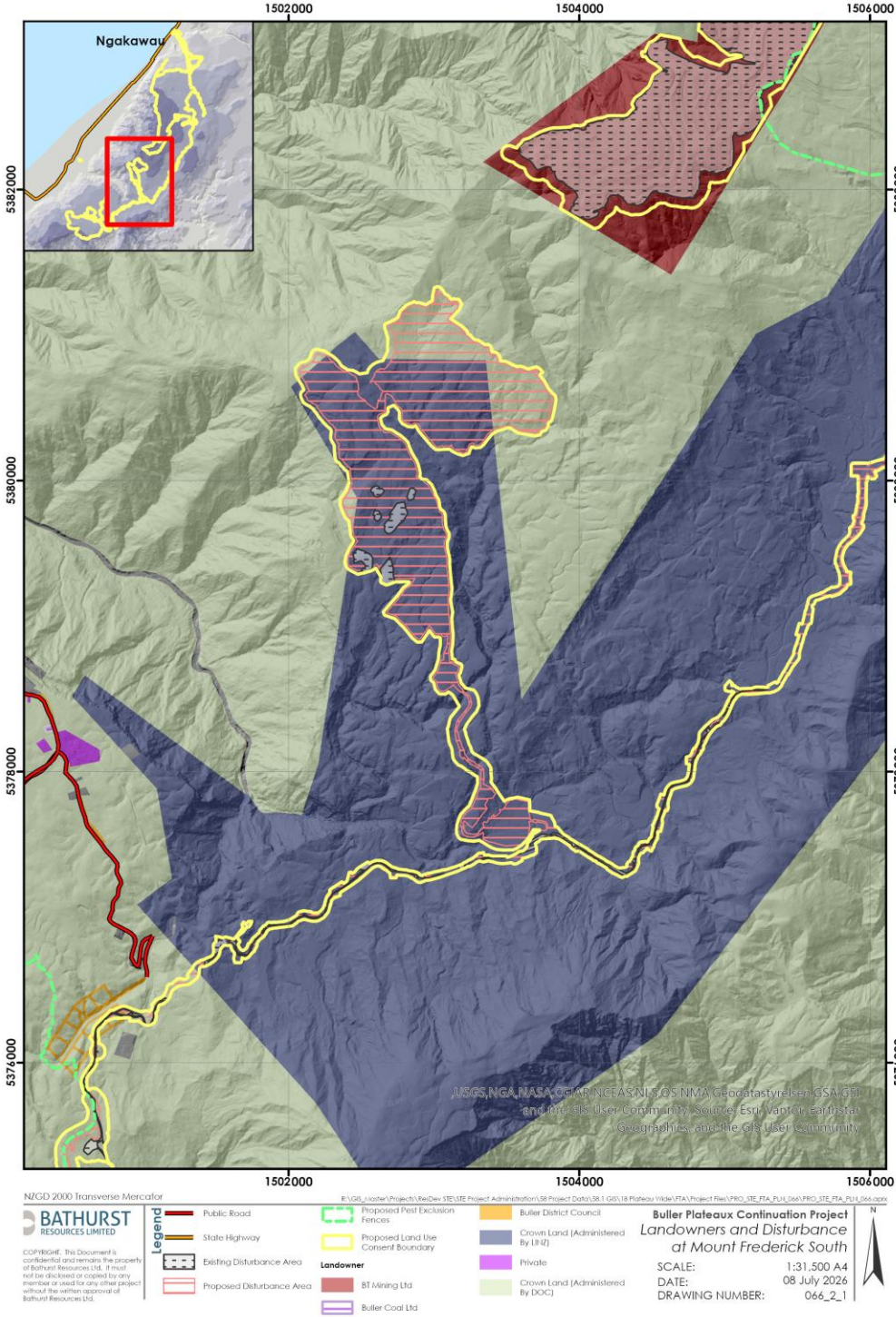


Figure 3-44: Land ownership in the MFS Sub-Area

3.4.1.4 UWHR Sub-Area

The majority of the UWHR Sub-Area lies on Crown land administered by LINZ, with the remaining sections located on Crown land administered by DOC (Figure 3-45).

1645

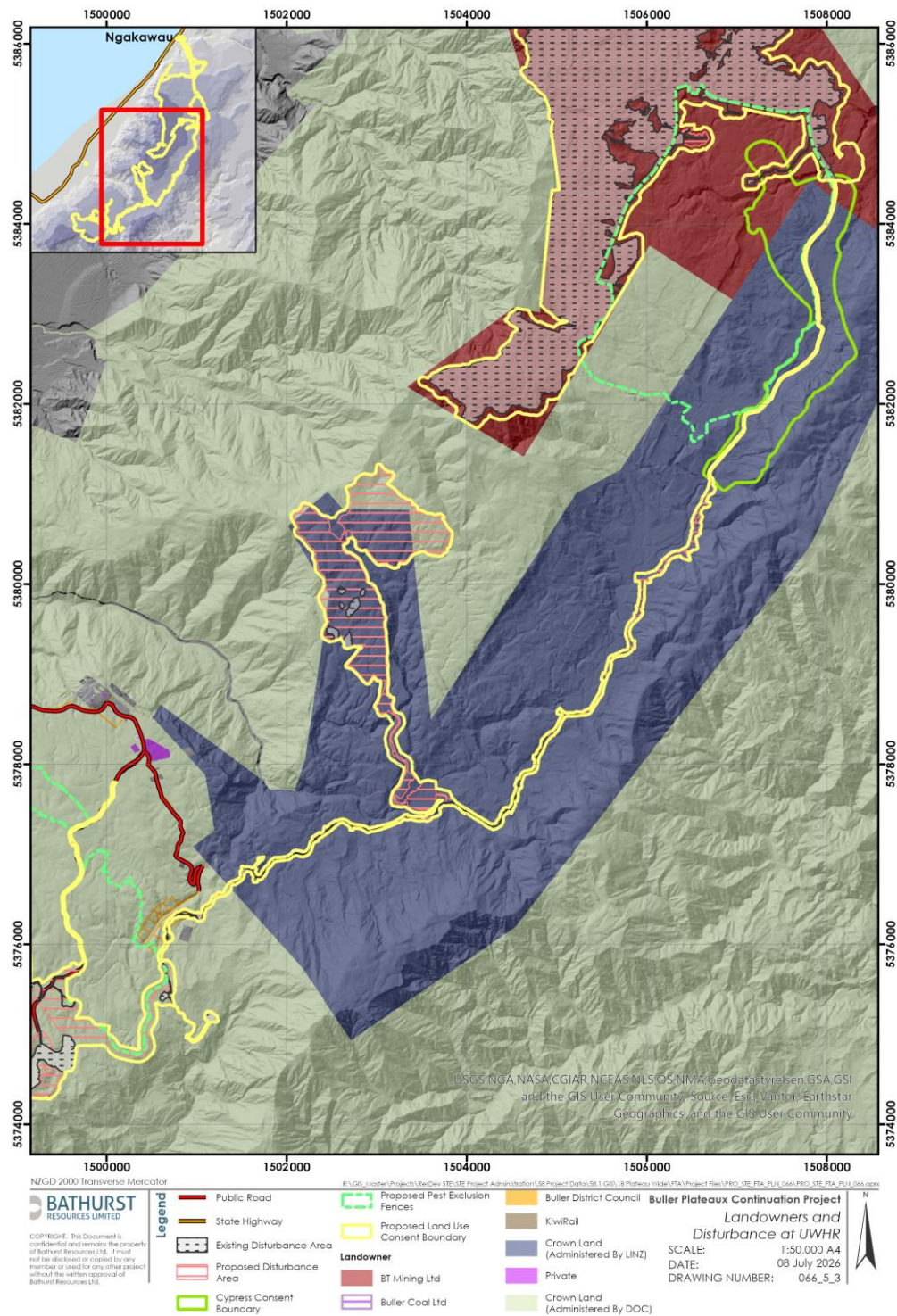


Figure 3-45: Landownership at UWHR

3.4.2 Statutory Framework

1650 The BPCP is located within the regulatory boundaries of the WCRC and BDC. A summary of the relevant zonings, overlays, and notations under the various regional plans administered by the WCRC, the Te Tai o Poutini Plan (“**TTPP**”) and the Buller District Plan (“**BDP**”) is provided in the subsections below (**Figures 3-46 and 3-47**). A full assessment of the RMA statutory planning documents is provided in **Chapter A.8 – RMA Approvals** of this application.

1655 In terms of the FTAA, the following outlines the status of Crown land within and adjacent to the Project Sub-Areas, along with the purposes for which it is administered by the DOC or LINZ. BDC land is in the Project Area; the FTAA does not facilitate access arrangements for Council-owned land, so occupation authorisations are being sought separately. Additionally, other notable statutory features, such as archaeological sites registered under
1660 the NZHPT, are also detailed.

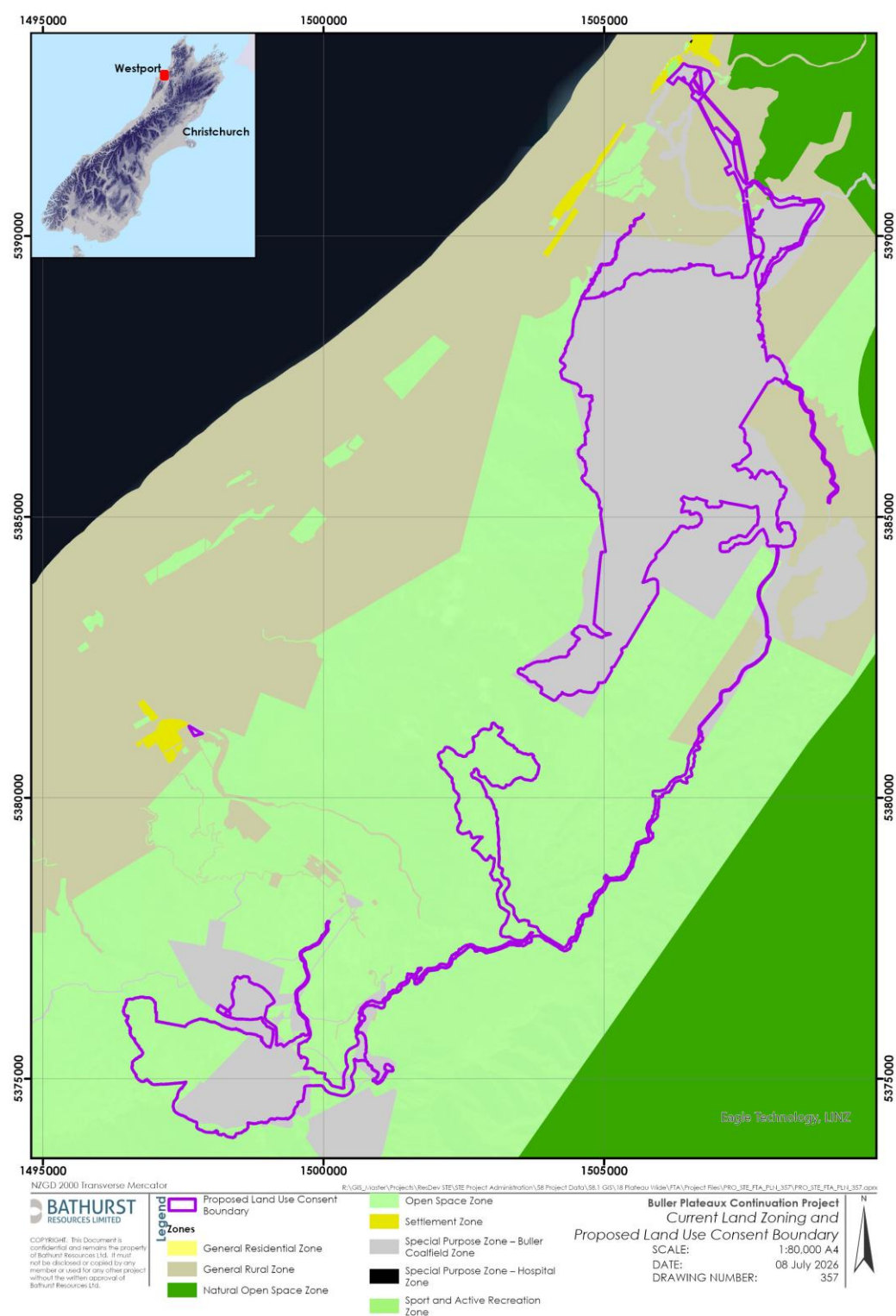


Figure 3-46: BDP Current Land Zoning and Proposed Land Use Consent Boundary

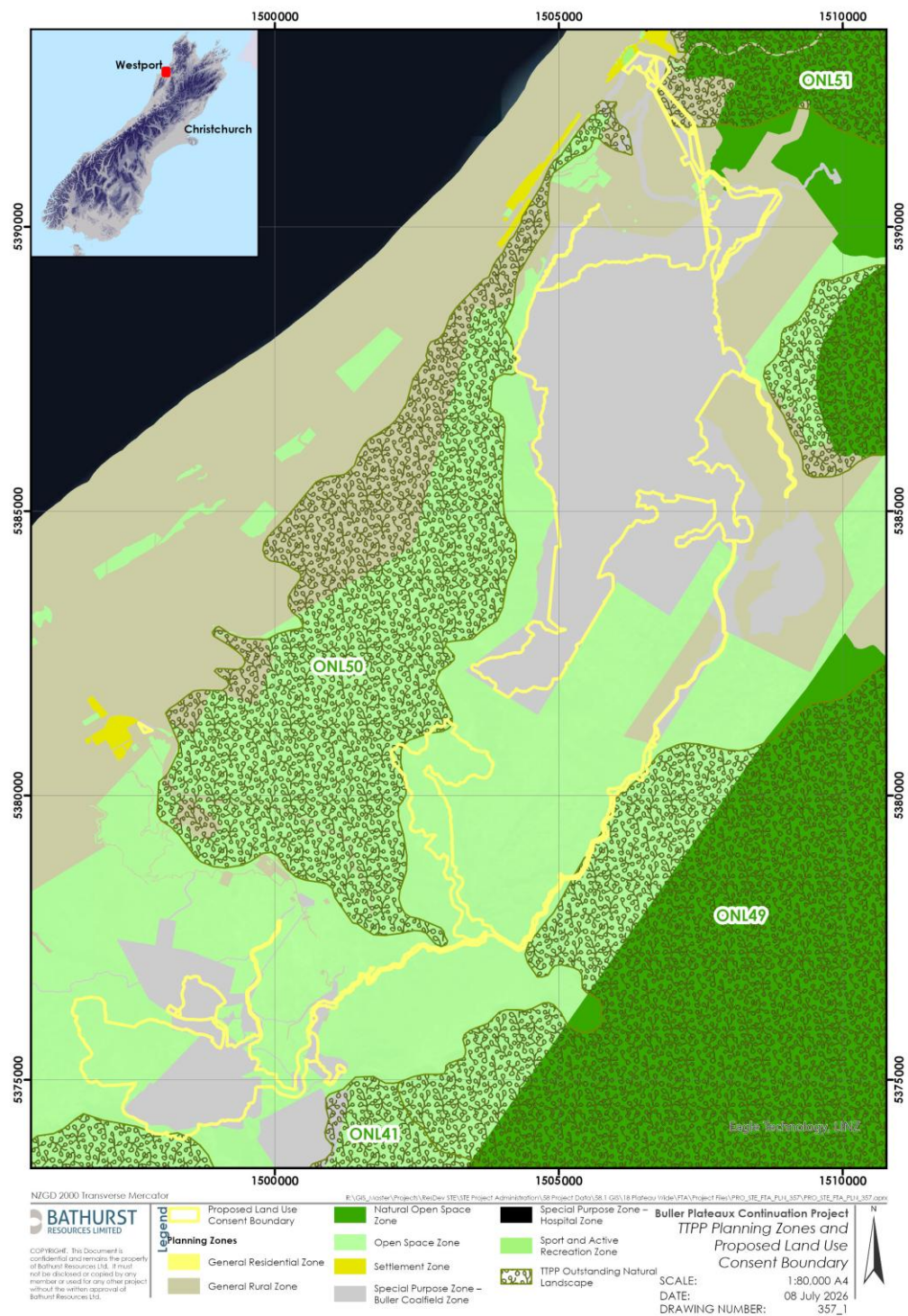
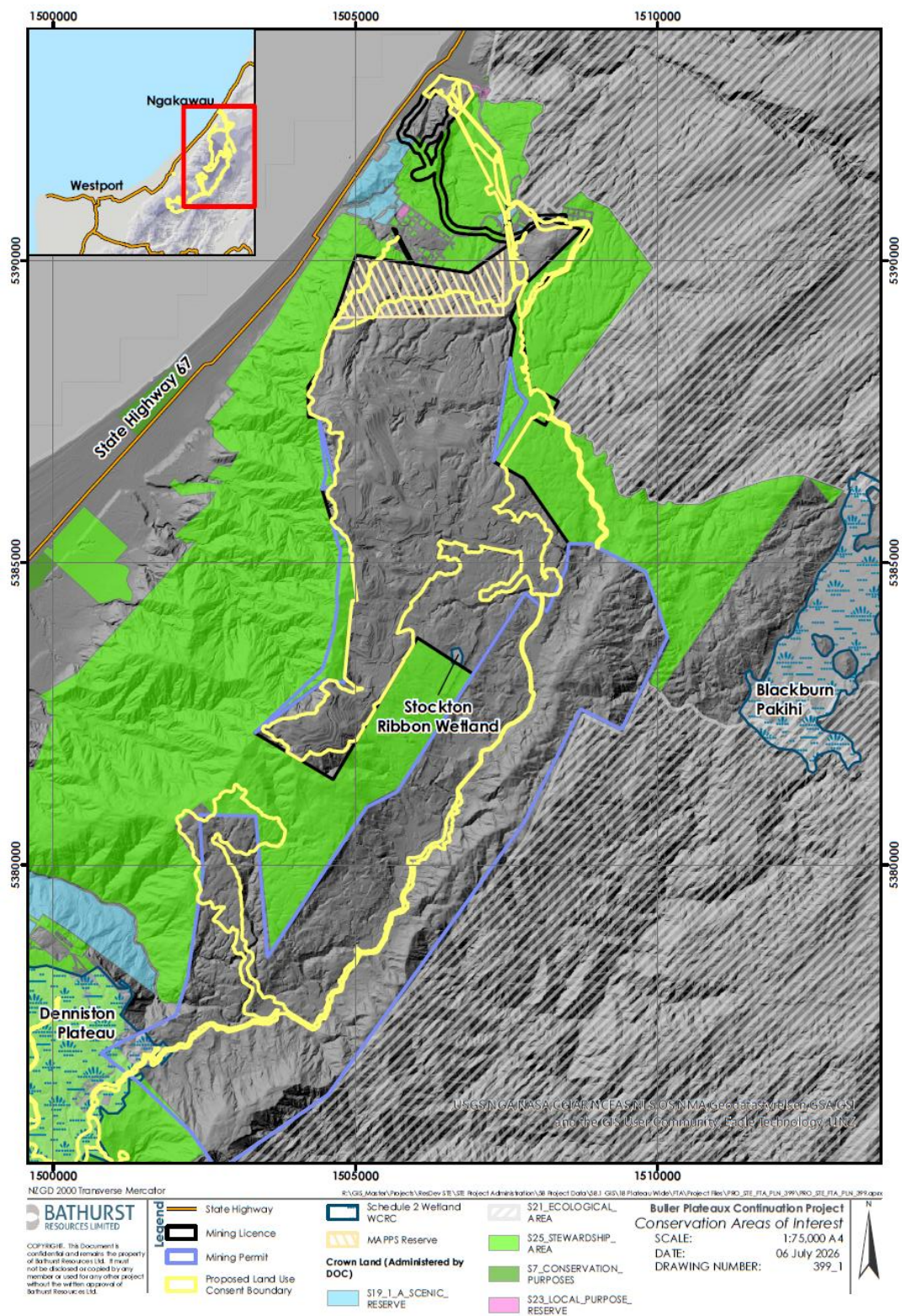


Figure 3-47: TTPP Planning Zones and Proposed Land Use Consent Boundary

3.4.2.1 Statutory Framework Stockton Sub-Area

Stockton sits within the Rural Zone under the Operative BDP. Under the TTPP, Stockton is zoned to the Buller Coalfield Zone (“BCZ”), which explicitly seeks to recognise the regional

- 1670 and district benefits of the existing Stockton operations and the wider Buller Plateaux coalfield. Small areas of the existing and future Stockton mining areas are located in the surrounding Open Space Zone (“**OSZ**”) and the General Rural Zone (“**GRUZ**”). The Stockton mine gate/ haul road is located in the Natural Open Space Zone (“**NOSZ**”). The existing Ngākawau Rail Loadout facility is zoned Industrial under the Operative BDP and is identified
- 1675 as part of the BCZ under the TTPP. Other notable features shown on the TTPP planning maps for the Stockton Sub-Area are:
- > Ngākawau Rail Loadout: KRH1 Designation, Designation Authority: KiwiRail Holdings Limited
 - > Ngākawau Rail Loadout: Coastal Environment Overlay
- 1680
- > Ngākawau Rail Loadout: ONL51 Outstanding Natural Landscape Overlay affecting part of the existing aerial ropeway area
 - > Whirlwind Rise Pest Exclusion Fence – Schedule 2 Wetland.
 - > Stockton Mine: Schedule 14.1 Historic Places – Mine Creek Settlement (L28/106), Electric Loco Line (L28/20) and Jorgen’s Drive (L28/16).
- 1685 Adjacent to Stockton is Crown-owned land administered by DOC and classified as Stewardship Areas. This includes the “Stockton Conservation Area” (NaPALIS #2807744 & NaPALIS #2807781), “Millerton” (NaPALIS #2807745), and the Ngākawau Ecological Area to the north. Such stewardship areas surrounding Stockton are shown in **Figure 3-48**.



1690

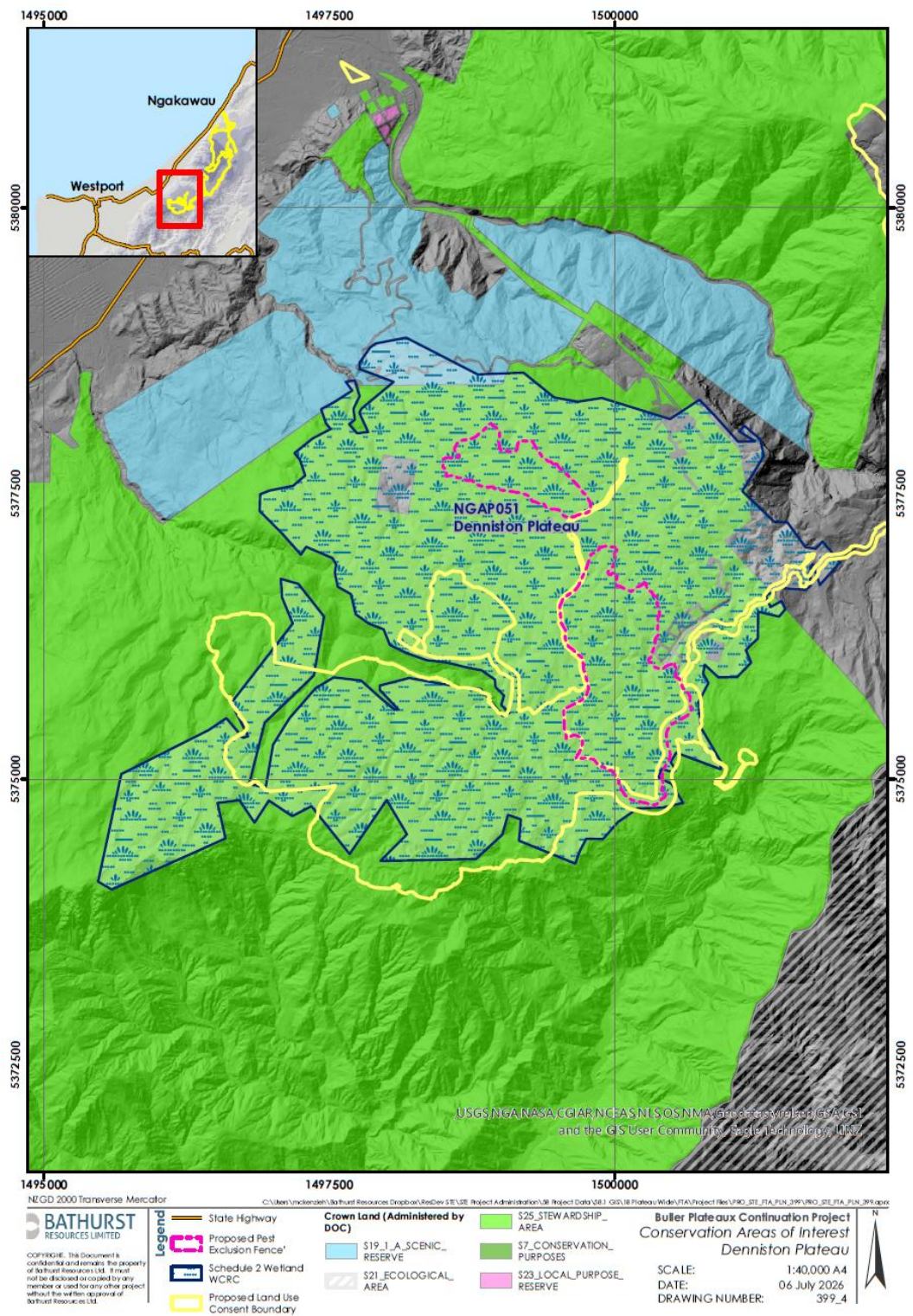
Figure 3-48: Conservation Areas of Interest – Stockton Plateau

3.4.2.2 Statutory framework ESE Sub-Area

The ESE Sub-Area sits within the Rural Zone under the BDP and within the BCZ and GRUZ under the TTPP. Other notable features shown on the TTPP planning maps for the ESE Sub-Area include:

- 1695 > Southern Section of the ESE Sub-Area: ONL41 Outstanding Natural Landscape Overlay affecting the Te Paparoa/ Paparoa Range east and Mt William Range
- > ESE Sub-Area: HH5 Schedule of Historic Heritage Items and Areas affecting the Denniston Historic Area
- > ESE Sub-Area: ARCH5 Schedule of Archaeological Sites affecting the Denniston Historic Area
- 1700 > ESE Sub-Area: Schedule 14.1 – Monocable Aerial Cableway (K29/59).

- In addition to the above, Schedule 2 of the West Coast Regional Land and Water Plan identifies wetlands that are, or are likely to be, ecologically significant, based on their ability to meet one or more ecological criteria relating to habitat value, ecological function, representativeness, rarity, connectivity and distinctiveness. Within the context of this
- 1705 Project, this status applies to areas of the Denniston Plateau. These wetlands are mapped within the regional plan and require consideration of ecological significance criteria as part of any resource consent assessment. The scheduled area on the Denniston Plateau is shown in **Figure 3-49**. The ESE Sub-Area also sits within the DOC Stewardship Area known
- 1710 as the Mount Rochfort Conservation Area, as shown below.



**Figure 3-49: Conservation Area of Interest – Denniston Plateau Statutory Framework
Mount Frederick South Sub-Area**

1715		The MFS Sub-Area sits within the Rural Zone under the BDP and within the BCZ and OSZ under the TTPP. Other notable features shown on the TTPP planning maps for the MFS Sub-Area are: > ONL50 Outstanding Natural Landscape Overlay affecting a small portion of MFS and the Waimangaroa River
1720		Additionally, the Koranui Mine and Incline are listed in Part 14 of the BDP as scheduled for protection (Schedule 14.1 Historic Buildings and Sites – L29/122). Notably, the TTPP does not list the site in Schedule One and therefore does not schedule it for protection. The majority of the MFS Sub-Area lies within Crown Land administered by LINZ. The land was originally designated for State Coal purposes, and LINZ manages it to enable coal extraction.
1725	3.4.2.3	Statutory Framework Upper Waimangaroa Haul Road The UWHR Sub-Area sits within the Rural Zone under the BDP. Under the TTPP, the majority of the UWHR is located within the OSZ. Sections also pass through the BCZ, GRUZ, and ONL49 Outstanding Natural Landscape affecting the Orikākā River Valley.
1730		The majority of the UWHR Sub-Area lies within Crown Land, which is also administered by LINZ.
	3.4.3	Existing Authorisations and Approvals Existing permits across the project area are illustrated in Figure 3-50 below. Further authorisations and approvals across the respective Sub-Areas are explained in the following sub-sections. Appendix 8. B also summarises these authorisations and approvals (and more held by Bathurst across the Plateaux – not discussed below) and how they are (or are not) affected by the BPCP.
1735		

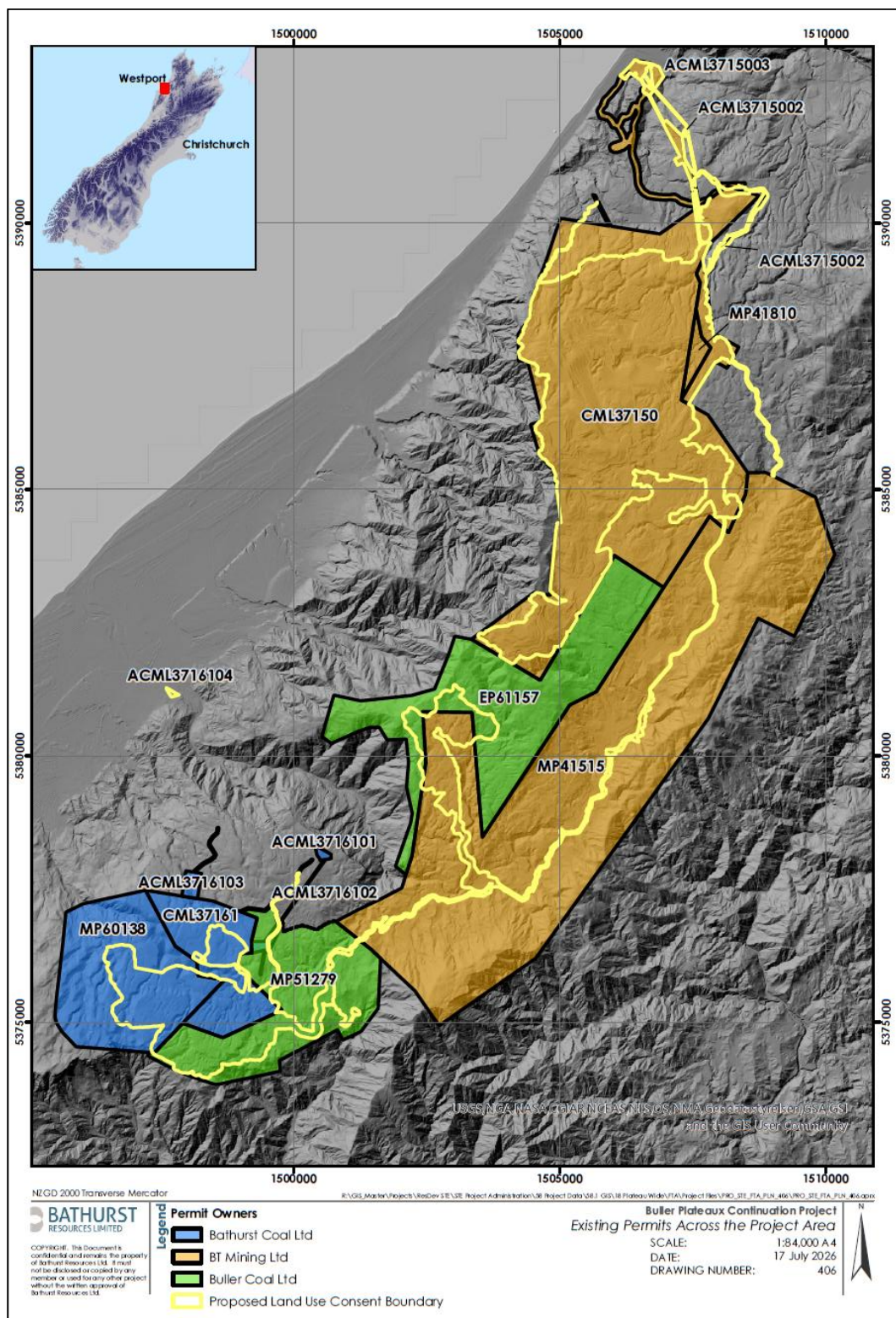


Figure 3-50: Existing Authorisations

3.4.3.1 Stockton Sub-Area

- 1740 Coal resources and mining activities (including rehabilitation to date) undertaken at Stockton are held under CML 37150, and Mining Permits MP41810 and MP52937. ACMLs 371502 and 371503 cover the Ngākawau Rail Loadout, the aerial ropeway, the CHPP, and part of the 2–5 haul road.
- 1745 Activities requiring regional resource consents, notably water takes, diversions and discharges, are not covered by the CML/ACML and are authorised under a range of existing regional council consents, some of which expire around the same time as the CML/ ACMLs.
- The Stockton Sub-Area also has a suite of expired and current access arrangements and concessions, as well as Wildlife Permits (97411-FAU; 108591-FAU; 97412-FAU).

3.4.3.2 ESE Sub-Area

- 1750 Mining is provided for in this area by two active MPs granted under the Crown Minerals Act, and one CML with associated ACMLs.
- Activities at Whareatea West and Escarpment are authorised under the active MPs. Whareatea West operates under MP60138, granted on 16 July 2025, expiring on 15 July 2065, and is held by Bathurst Coal Limited. Escarpment operates under MP51279 held by Buller Coal Limited. This permit was granted on 24 June 2010 and expires on 23 June 2047. Both MPs are located on Crown land administered by DOC within the Mount Rochfort conservation area.
- 1755 An area known as Sullivan operates under CML37161 and four ACMLs (ACML37161-1, ACML37161-2, ACML37161-3 and ACML37161-4). Bathurst Coal Limited holds these licenses, which expire on 31 March 2027. Sullivan is located within the Mount Rochfort conservation area administered by DOC.
- 1760 A separate MP, MP41455, is located east of the ESE Sub-Area, is held by Bathurst Coal Limited, and is wholly within the Mount Rochfort conservation area administered by DOC. This permit was granted on 15 May 1997 and expires on 14 May 2027.
- 1765 A singular AA covers the Escarpment mining area in the ESE Sub-Area.
- 1770 In 2014, the Environment Court approved the operation of an open-cast mine at the southern end of the Denniston Plateau. This Environment Court decision granted approval for the collection of both district and regional consents, cited as RC10/70A-H and RC10193, enabling the construction, operation, and rehabilitation of the ECE. These consents were issued with a range of consent durations, including 12 years, 35 years or unlimited. In 2016, the mine was placed into care and maintenance, and has remained there since. In 2025, a

replacement suite of resource consents was applied for to enable the continuation of the care and maintenance activities, and this is currently being determined by the BDC and WCRC.

1775 The Escarpment Mine Wildlife Act Authority and Concession (Whareatea Road) have expired, and while applications have been lodged, these have yet to be determined.

The Waimangaroa Storage Yard, located at the bottom of Denniston Road, is authorised by ACML 3716104. It is currently used to store containers.

3.4.3.3 MFS and UWHR Sub Area

1780 Within these two Sub-Areas, MP41515 and EP61157 are active. These are detailed below:

> MP41515 covers areas of the Cypress Mine,²¹ the UWHR, and the southern portion of MFS. It was granted on 12 March 1998 and expires on 11 March 2038. It is located on Crown land administered by LINZ for which there are two AAs, AA12984-1 and AA19116-1, with these covering a significant portion of the MP area.

1785 > EP61157 authorises exploration activities in the northern area of MFS. It is held by Buller Coal Limited,²² and is located on land owned by DOC and LINZ. The land administered by DOC is located within the Waimangaroa Granity conservation area. This EP expires in 2030.

1790 An existing Wildlife Permit (59849-FAU) allows for vegetation clearance associated with exploration activities (up to 100 drill holes/sites and 10 pump sites). It does not cover mining activities.

There are no existing resource consents, either district or regional, for mining-related activities in the MFS area.

1795 The southern extent of the UWHR corridor passes through, or in close proximity to, the Coalbrookdale mining area on the Denniston Plateau. Historically, this area was authorised under a suite of resource consents (RC02239/1-13 and BDC consent RC02/146) that provided for underground and opencast coal mining, associated roading, water takes, overburden disposal, stormwater management, and related mining infrastructure.

1800 While mining activities at Cascade Mine and Coalbrookdale have largely ceased, replacement consents were obtained in 2024 to enable the continued use of the existing

²¹ The northern portion of the Cypress Mine is located within the CML37150 permit area (for which the landowner is Bathurst) and the remainder of the mine within the MP41515 permit area (for which the landowner is LINZ).

²² Buller Coal Limited, a 100% subsidiary of Bathurst, is the listed permit operator.

Coalbrookdale Storage Area (RC240051 & RC-2024-0118-01, RC-2024-0118-02) and associated rehabilitation and maintenance activities. These replacement consents provide for:

- 1805 > The ongoing use of the CSA as a laydown, staging and support area for mining, rehabilitation and exploration activities;
- > Stockpiling of gravel, rehabilitation materials, soils, slash and quarry rock;
- > Continued use and maintenance of existing mine access roads;
- > Operation and maintenance of existing stormwater management infrastructure, including diversion drains, culverts and sediment ponds; and
- 1810 > Ongoing rehabilitation and environmental management activities associated with the Coalbrookdale and Cascade mining areas.

1815 The Coalbrookdale consents therefore form part of the existing legal environment in the southern Denniston Plateau area and provide for the ongoing use of established mining access routes, support infrastructure, stormwater management systems and rehabilitation activities adjoining the southern portion of the proposed UWHR alignment.

3.4.3.4 Cypress

1820 The Cypress Mine area is largely outside the CML area. The active mine area is on Crown land administered by LINZ, and is subject to Mining Permit 41515 and two Access Agreements: LINZ AA 12984-1 and LINZ AA 19116-1. The mining permit and access agreements allow for mining activity until 2038.

Land use for the mining activity is authorised until 2040 under RC03164, issued by BDC. A suite of 21 regional consents issued by West Coast Regional Council authorises land use (earthworks and vegetation clearance, stream bed works), water takes, dams, diversions and discharges (to air, water and land) – also to 2040 (RC03175).

1825 Two Wildlife Act authorities were granted for the collection and relocation of protected wildlife from Cypress (WC-59847-FAU within MP41515; WC-59848-FAU within CML37150). These authorities expired in 2022. Replacement authorities (97412-FAU and 108591-FAU respectively) were granted this year.

3.5 EXISTING MINING OPERATIONS

1830 3.5.1 Stockton Sub-Area

Coal mining has taken place on the Stockton Plateau since the late 1800s. As a result, much of the Stockton Sub-Area has been progressively cleared, modified, or rehabilitated prior to BT Mining and is currently in accordance with the conditions of the existing CML.

1835 Given the long history of coal mining and the scale of activity over time, the Stockton environment is now a highly modified and complex working landscape, as shown in **Figures 3-51** and **3-52**. These modifications to the physical environment include landscape, water quality and ecology. The project primarily seeks to renew approvals for continued operation within already disturbed and modified areas, with limited extensions proposed elsewhere in Stockton. For areas where no extension is sought, the existing authorised mining footprint remains unchanged, and the application is simply to renew these existing approvals.

1840



Figure 3-51: Stockton Plateau looking south (above Millerton)



Figure 3-52: Stockton Plateau looking west from Cypress to St Patricks Dam

1845 Approximately 34,000 m³ of overburden is extracted from Stockton per day. The operation is capable of 24-hour, 7-day-a-week operation depending on production requirements. It is currently supported by Monday-to-Friday shift rosters, with two 10-hour shifts per day. In addition, operations (one crew) work a single 10-hour day shift on both Saturday and Sunday.

The current disturbance for Stockton is shown in **Figure 3-53** and current state of rehabilitation areas shown in **Figure 3-54**.

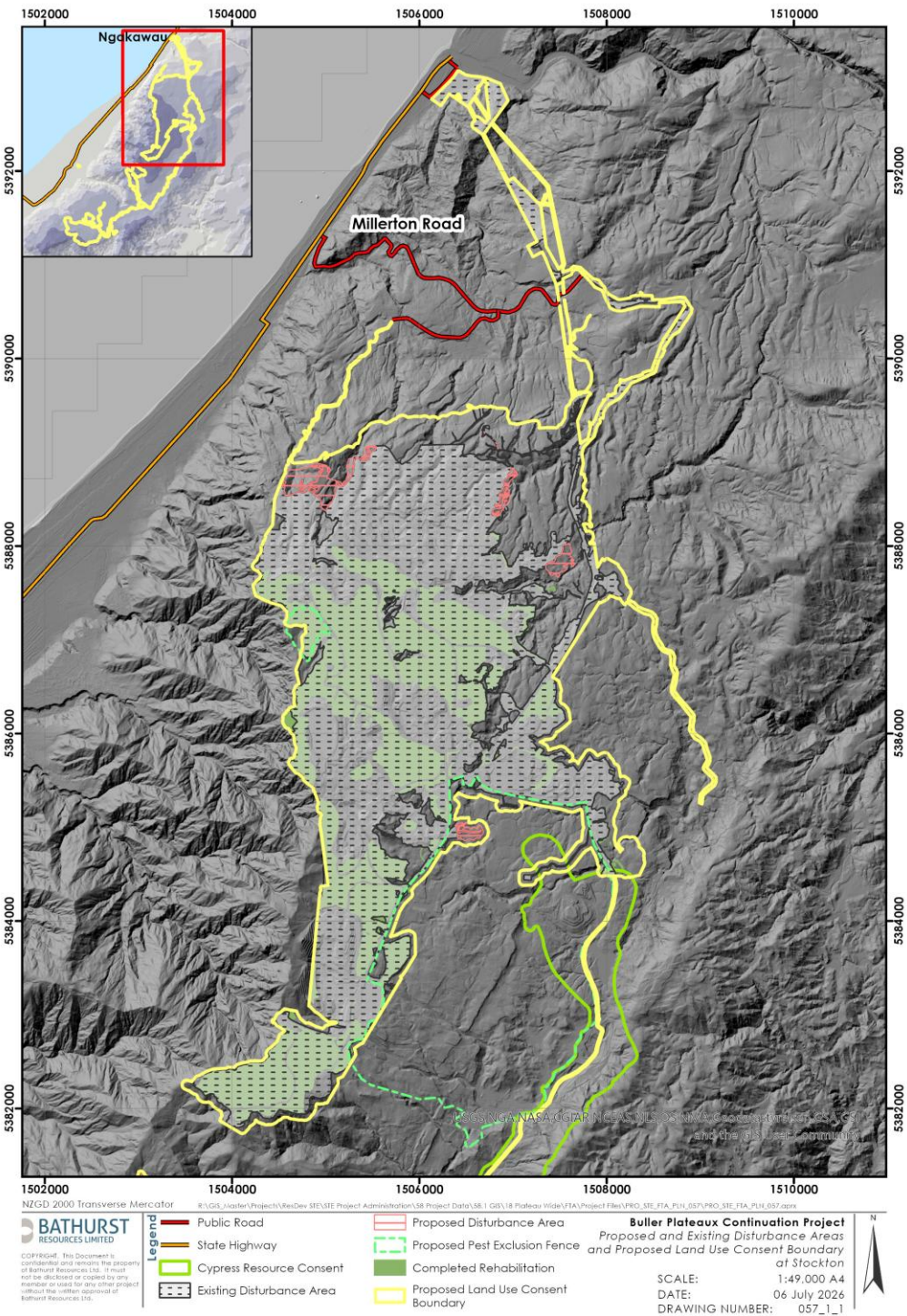
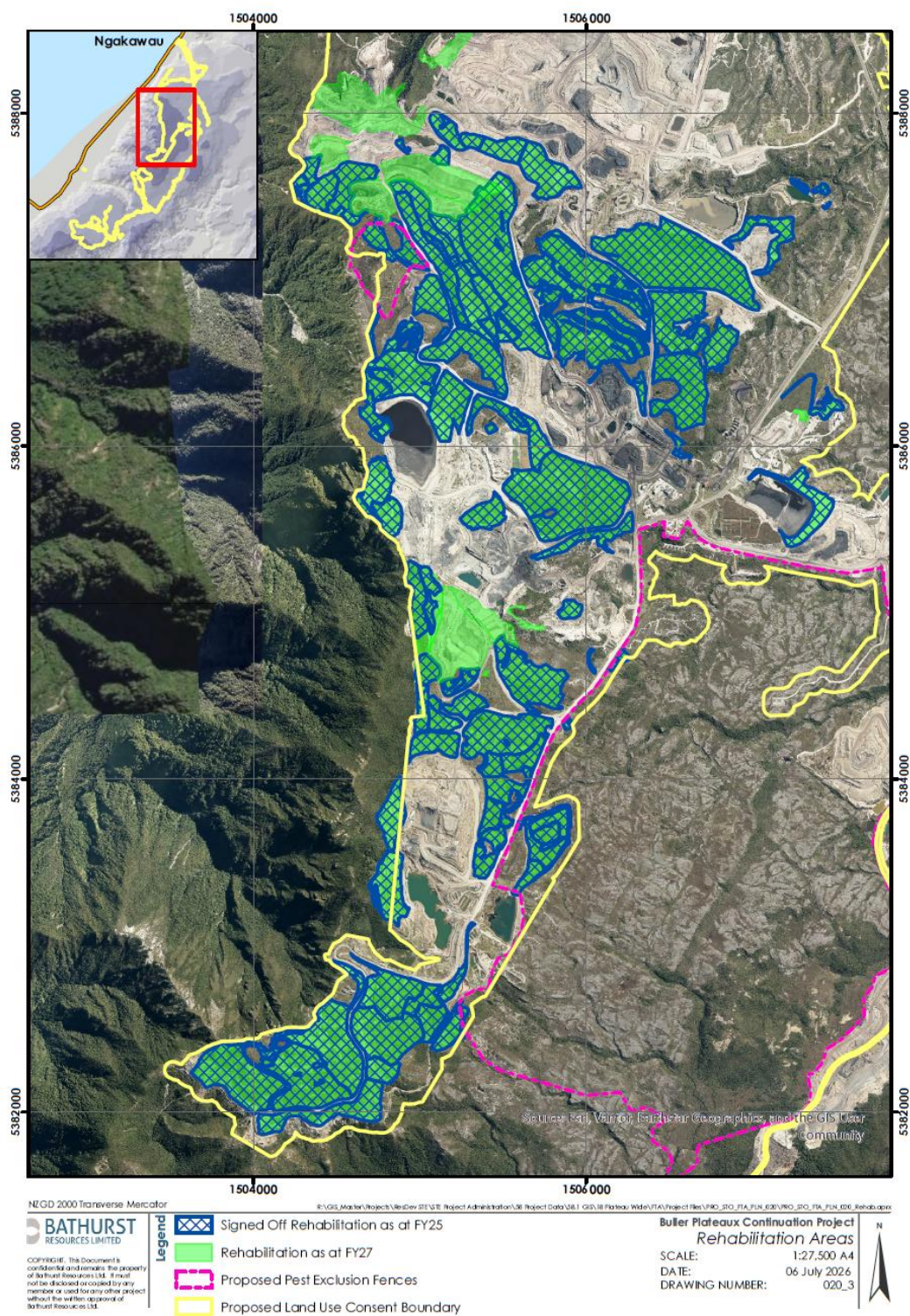


Figure 3-53: Existing Disturbance at Stockton



1855

Figure 3-54: Rehabilitation Areas at Stockton

3.5.1.1 Existing Infrastructure

1860 Stockton also contains much of the key infrastructure that supports both current operations and the proposed extension areas, as shown in **Figure 3-55**. Importantly, several components of this infrastructure, including processing, handling, and transportation facilities, will remain necessary even after mining and rehabilitation at Stockton ceases.

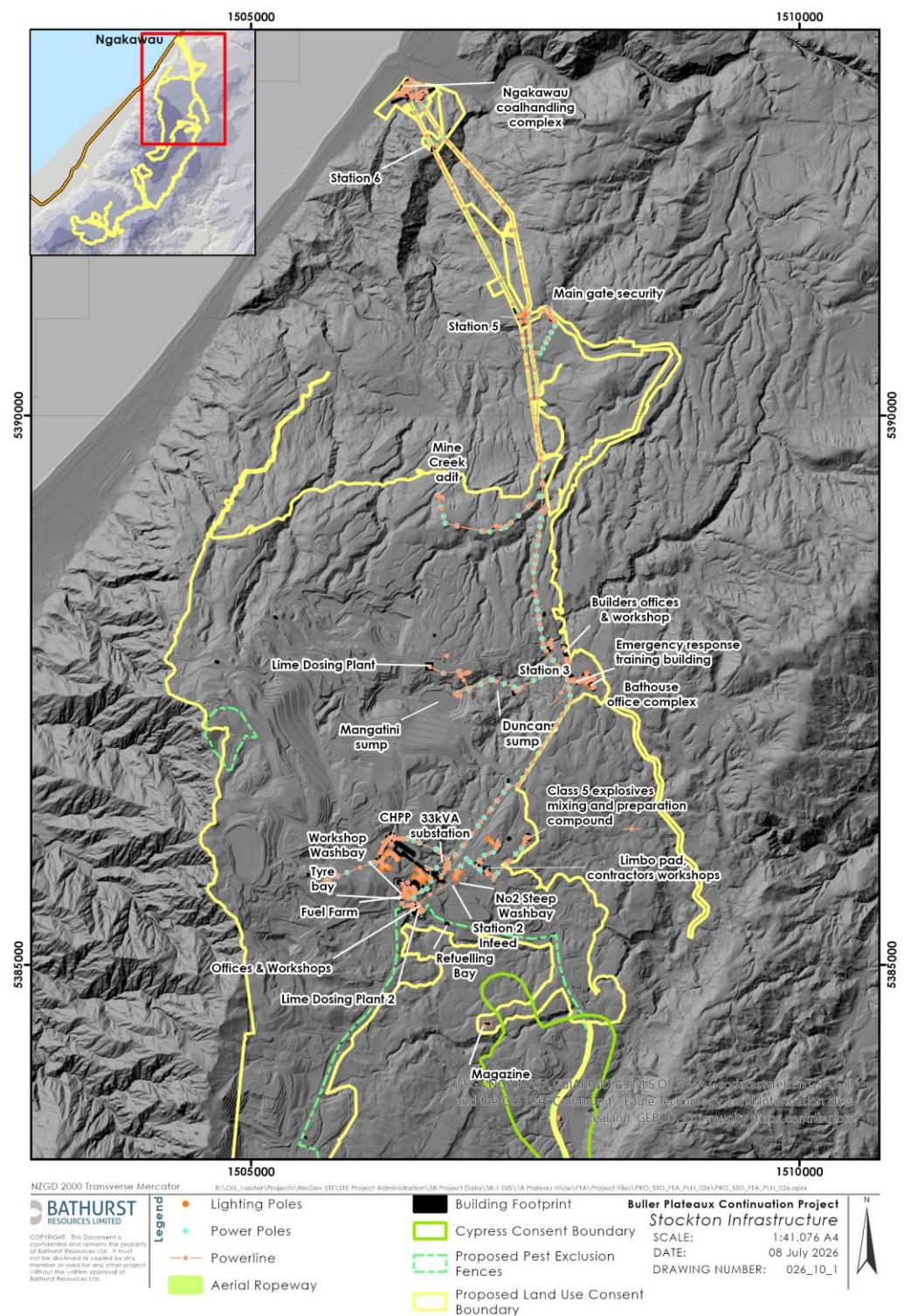


Figure 3-55: Stockton's Current Infrastructure, Buildings and Facilities

1865

Maintenance Facilities

Stockton maintenance area includes large workshops and service bays catering to the larger-sized mobile equipment typical of a mine site. There are bunded storage areas containing hazardous materials, including oils, chemicals, and bulk fuel, with self-bunded tanks and advanced fuel management systems. The area also includes sediment sumps and oily water separators at the vehicle wash bay facilities and workshops.

1870

Ultimately, Stockton is therefore best understood as a mature, long-established mining operation.

The Project is enabled by, and will continue to rely on, existing Stockton infrastructure which is described below.

1875

Stockton Coal Handling and Processing Plant

The Stockton CHPP was commissioned in 2010 and has processed 19.0 Mt of coal (to May 2026), producing 11.0 Mt of saleable product. The CHPP is an essential part of the mine operation and typically produces over half the mine's output. The BPCP supports and relies on existing infrastructure, including this plant.

1880

The CHPP processes coal that is diluted with waste rock. This coal is normally found when mining at coal seam interfaces or in areas with historic underground workings. A smaller amount of coal is sourced from areas with interbedded coal and shales that cannot be separated at the mine face. The CHPP separates coal from waste rock and shale by exploiting their density differences (coal is less dense).

1885

Figure 3-56 below shows the Stockton CHPP.



Figure 3-56: Stockton Coal Handling and Processing Plant Aerial

Other Stockton infrastructure

1890 Infrastructure areas at Stockton also include the Stockton administration and maintenance areas. The Stockton administration area includes buildings, housing offices, a bathhouse and stores, alongside parking for employees, delivery trucks and visitors. There are several storage sheds, laydown areas, emergency management facilities, and a helicopter landing pad. The area also has a range of electrical services and a substation. Power to the site is provided via a separate power line route from Ngākawau.

1895 **Aerial Ropeway**

1900 Following coal processing at the CHPP, if required, coal is transported along a 7.4 km haul road, then loaded onto the Aerial Ropeway, which begins near the Stockton gate. The Aerial Ropeway is approximately 2.3 km long and ends at the Ngākawau Rail Loadout (as shown in **Figure 3-57** below). The Aerial Ropeway has a maximum capacity of 2.3 Mt per annum. The ropeway, due to the elevation change from the escarpment at Station 5, 317 m above sea level, to Station 7 at sea level, can generate its own power, a unique advantage of the system. All the Aerial Towers between Station 5 and Station 7 have mobile plant access for maintenance and rope change-outs.

1905 The Aerial Ropeway currently operates between 7 am and 1 am five days a week (this can change depending on coal demand, which could be up to 24 hours 7 days a week). It follows

a corridor currently authorised by ACML 37150/02. The underlying land is Crown Land administered by DOC, except for one parcel at Ngākawau near the load out facility owned by Hector Reserve Board/BDC (Section 13 Block I Ngākawau SD Parcel ID 3659125).

Vehicle access to each tower along the ropeway is required for inspection and maintenance.



Figure 3-57: End of Aerial Ropeway at the Ngākawau Rail Loadout

Ngākawau Rail Loadout

The Ngākawau Rail Loadout plays a key role in mine operations as it is both a product stockpile area and a rail loadout facility and is shown in **Figure 3-58**. Under normal operating conditions, all coal from Ngākawau Rail Loadout is loaded onto rail and railed to the export facilities at Lyttelton Port near Christchurch. The Ngākawau Rail Loadout currently has 18 trains scheduled per week, typically operating over five days. The maximum train loading capacity is up to four trains per day across seven days per week. Train loading normally occurs between 8:00 am and 9:00 pm, Monday to Friday, although operations may occasionally extend later depending on KiwiRail scheduling.



Figure 3-58: Ngākawau Rail Loadout

Along with the rail loadout, the Ngākawau facility includes infrastructure to support the aerial and mining operations. The main facilities, as shown in **Figure 3-59** are:

- | | |
|------|--|
| 1925 | <ul style="list-style-type: none"> > Engineering workshop for maintenance and repairs of coal handling plant and equipment, pumps and facilities, and fabrication of new plant and equipment; > Electrical workshop and stores facility; > Stores and warehouse facility for fixed plant; > Tubshop for servicing, repairs and maintenance of aerial tubs; |
| 1930 | <ul style="list-style-type: none"> > Sample preparation and coal laboratory facility for analysis of samples; > Light vehicle workshop for servicing and WoF's for the light vehicle fleet; > Weighbridge and weighbridge office; > Laydown area for equipment; > Water treatment plant for treating and managing site water run-off; and |
| 1935 | <ul style="list-style-type: none"> > Offices and training/meeting room. |

Four septic systems service these facilities with capacities ranging from 120 –1,300 litres/day. Resource consents for the septic systems will be applied for and obtained as part of the BPCP suite of Project approvals.

1940

Dust management at the Ngākawau Rail Loadout includes a sprinkler system and wind mesh fences. Water used for dust suppression utilises a small amount of water taken from an adjacent stream, consented under RC01104, expiring 2039. All water runoff from the site is directed to an active water treatment system prior to discharge into the Ngākawau River, which is also authorised by RC01104.

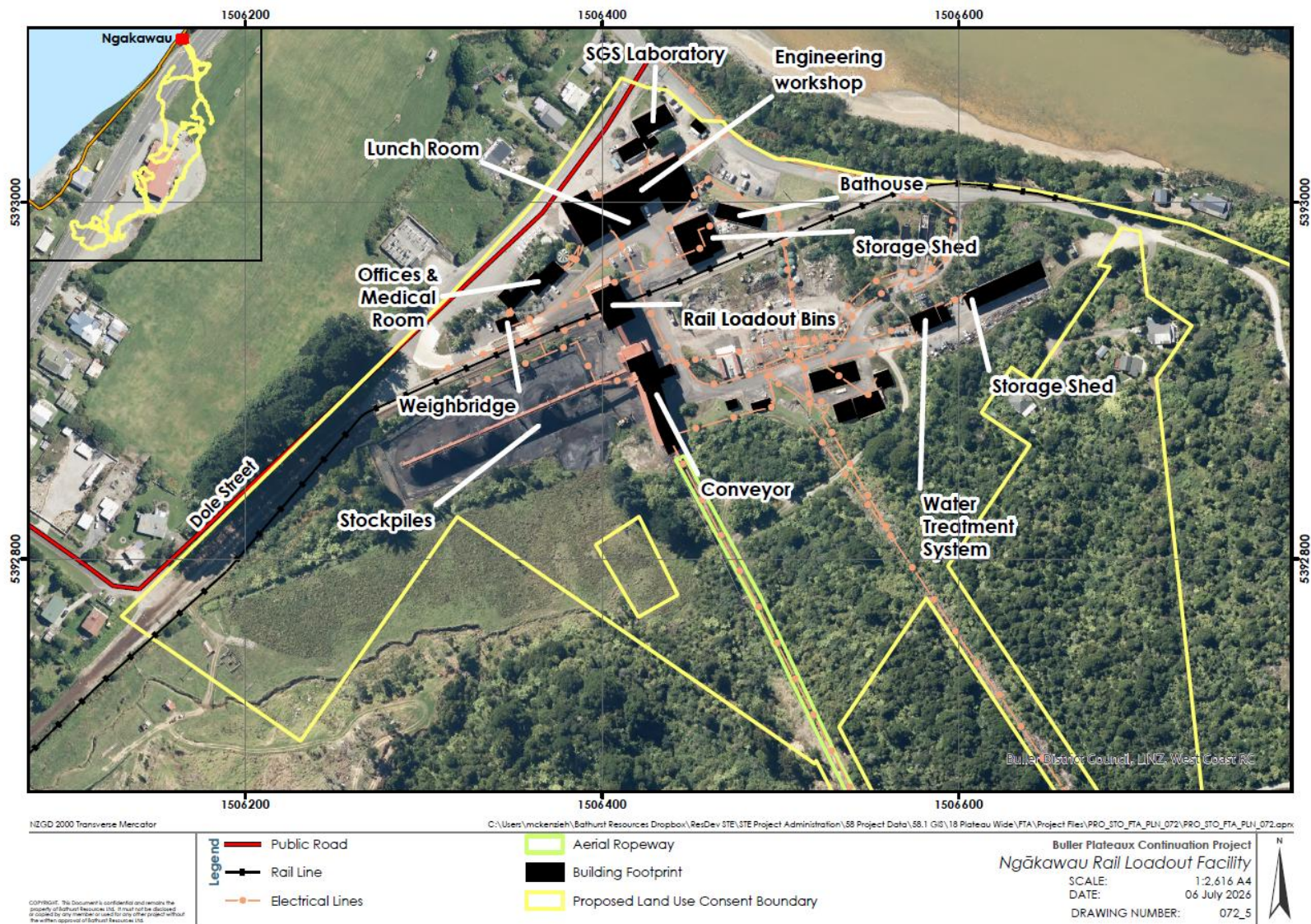


Figure 3-59: Ngākawau Rail Loadout Layout

1945 **3.5.1.2 Rehabilitation**

Rehabilitation obligations at the Stockton Mine arise from both current operations and historic mining undertaken by State Coal Mines and Solid Energy. When the original mining licence was granted, a Crown bond was established to cover rehabilitation, but it was later recognised as insufficient. As a result, an additional bonding arrangement was agreed upon between Solid Energy, the BDC, and the WCRC in 2004.

Following the sale of Stockton in 2017, Bathurst (through BT Mining) assumed responsibility for rehabilitation and closure works, including landform stabilisation, revegetation, and ongoing AMD management. The Crown retained responsibility for certain legacy rehabilitation issues, particularly AMD generated prior to 1 January 2017. This split ensures that operational rehabilitation is delivered by the mine operator while the Crown manages unavoidable historic liabilities.

For non-AMD rehabilitation, the Crown established an escrow fund under a Deed of Indemnity to cover rehabilitation of land disturbed by State Coal Mines or Solid Energy prior to 18 September 2014. BT Mining undertakes rehabilitation on behalf of the Crown under an annual, council-approved Work Plan and is reimbursed from this escrow account. BT Mining also provides an additional bond to cover any shortfall between the escrow funding and the total non-AMD rehabilitation liability.

AMD rehabilitation is managed under a separate Deed of Commitment. Under this framework, BT Mining is required to treat all AMD, regardless of when it was generated. The Crown reimburses BT Mining for its share of AMD treatment costs and funds AMD attributable to historic mining. BT Mining also provides an annually reviewed bond to cover AMD generated by its own operations. Once mining and non-AMD rehabilitation are complete in accordance with existing and future approvals, ownership of the mine site and AMD treatment infrastructure will transfer to the Crown, and BT Mining will be released from future AMD obligations.

Together, these arrangements form a long-standing, layered framework that ensures rehabilitation at Stockton, both historic and current, is properly funded, managed, and implemented, and they therefore constitute a key part of the existing environment at the site.

The flow chart below provides a simplistic overview of this structure:

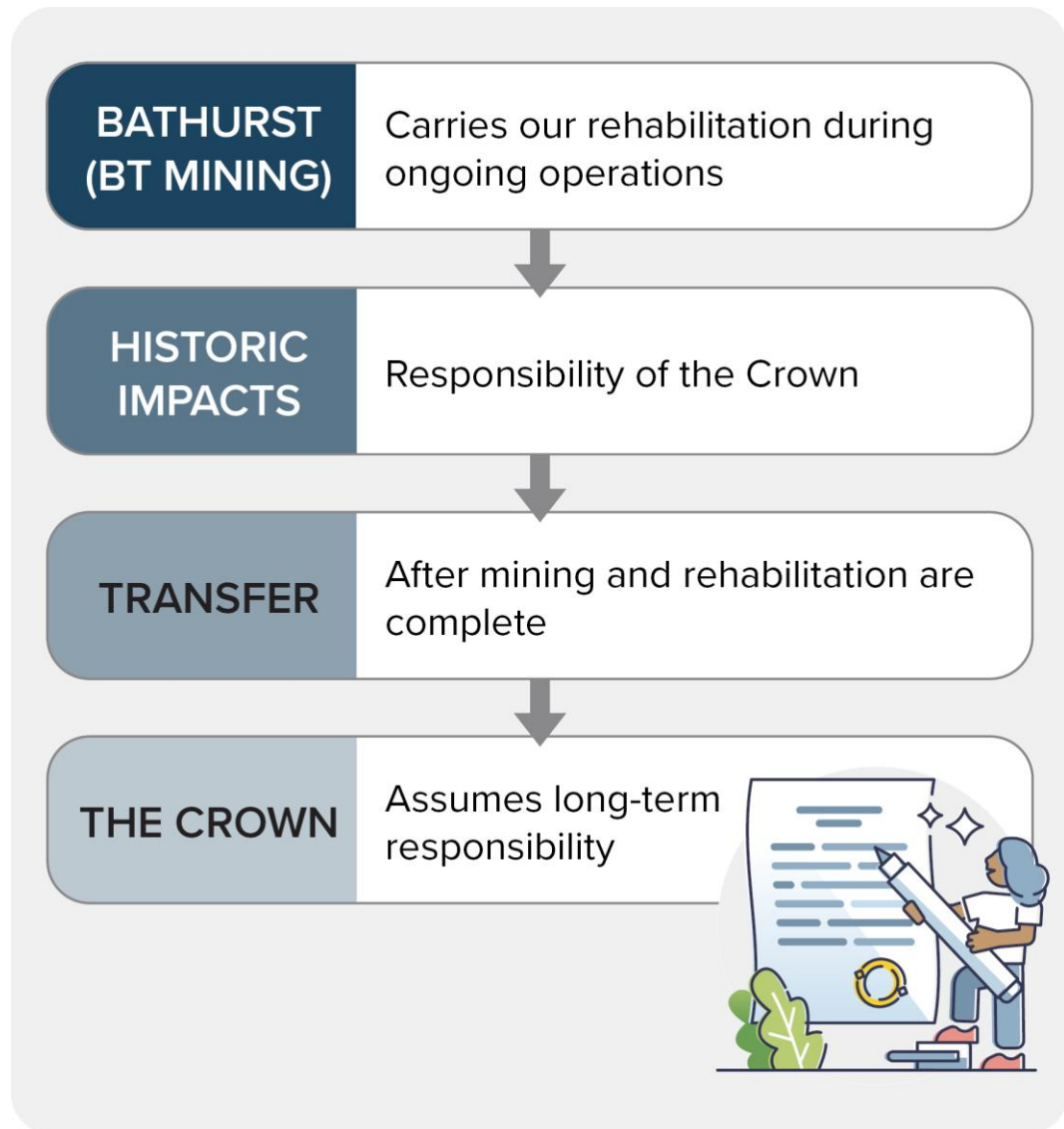


Figure 3-60: High Level Overview of AMD Management at Stockton

Existing Non-AMD Rehabilitation

1980 Given that Stockton is an active, long-established mining operation, rehabilitation occurs progressively as part of ongoing mining activities. Large areas of Stockton have already undergone rehabilitation, while other areas are progressing through the various stages of the process. Rehabilitation is carried out in accordance with the *Stockton Rehab Design Guidelines*, which set out a staged methodology refined over many years to ensure work is undertaken in line with consent and CML requirements. The objective of the rehabilitation programme, as required by the CML, is to leave the site safe and geotechnically stable post-mining, incorporate landforms that are sympathetic to the surrounding landscapes, and

1985

encourage an indigenous, self-sustaining, and diverse vegetation cover and ecosystem. Refer back to **Chapter A.2 – Mining Overview** for details on rehabilitation processes.

1990 **Figure 3-54** above shows the areas within the Stockton footprint that have been confirmed by the regulatory authorities as rehabilitated, with no further rehabilitation planned.

Predator control and weed management are significant elements of all operations and are important for ensuring the site’s closure and regulatory sign-off. Mitigation strategies include separating weed-infested soil stockpiles to avoid spreading weeds into newly recreated landforms, machine hygiene, surveillance for new weed incursions, and control of existing weed infestations.

1995

3.5.1.3 Status of Rehabilitation at Stockton

As required by existing authorisations, mining land use has focused on land rehabilitation, including recontouring landforms, re-establishing native vegetation, and managing water quality, particularly in response to AMD. As at November 2025, 495.45 ha of rehabilitation has been completed and signed off, with a further 9.83 ha currently in rehabilitation. Approximately 768.22 ha of disturbance remains, requiring rehabilitation out of a total disturbance area of 1273.50 ha. The land use and rehabilitation at Stockton is shown in **Figure 3-61** below.

2000



Overall, the review demonstrates that Stockton's rehabilitated areas, particularly those using VDT, now form part of the existing environment, supporting functioning vegetation communities and habitat for native fauna, and progressing towards self-sustaining ecological conditions (**Figures 3-62** and **3-63**).



Figure 3-62: Rehabilitation area at Stockton



2030 **Figure 3-63: Revegetation areas (Location is Mt Frederick sidecast batters)**

3.5.1.4 Water Management

The overarching water management principles that apply to all water management catchments include:

- > Diversion of clean water around disturbed areas;
- 2035 > Minimisation of erosion by managing run-off velocities and direction of water to designated areas;
- > Directing water run-off from disturbed areas to sediment control structures;
- > Design and construction of in-pit sumps for sediment settling and water capture prior to pumping;
- 2040 > Utilising a risk-based approach for water structure design that includes provision for climate change variations;
- > ELF design and construction to minimise AMD generation; and
- > Trials and demonstration of the effectiveness of both active and passive AMD treatment.

2045 Historic underground workings pose safety and environmental challenges for the operation, including collapsed workings and the production of acidic water. Stockton currently manages these challenges through its overarching operational and water management systems. In particular, these systems include capturing and treating contaminated water

from sediment and AMD in historic and current mining operations before releasing it back to natural catchments.

2050 Many of Stockton’s historic and active drainage pathways have been altered or engineered to manage AMD. Water treatment systems, sediment ponds, and diversion channels have been constructed to control flow, reduce erosion, and treat contaminated water before it enters natural waterways. Despite this, legacy impacts from historic underground workings (which produce uncontrolled AMD) continue to affect water quality, with some streams

2055 exhibiting elevated acidity and metal concentrations, necessitating ongoing monitoring and remediation. Rehabilitation efforts aim to restore more natural hydrological patterns, stabilise landforms, and re-establish vegetation to reduce runoff and improve water quality over time.

2060 Water management techniques have improved significantly through the decades of mining at Stockton. Historically, the focus was solely on sediment capture; however, after AMD treatment was established in the Mangatini catchment in the early 2000s, water quality improved significantly. The St. Patrick’s catchment is now also treated for AMD. Improved

2065 demonstrating that incremental ecological recovery is possible under active treatment (Instream, 2026).

3.5.2 ESE Sub-Area

The majority of the proposed ESE Sub-Area is a greenfield site. A small portion comprises the existing Escarpment mine, as outlined in **Figure 3-43**. Escarpment mine has been in care and maintenance mode since 2016, and the resource consents authorising these activities

2070 expired in October 2025.

The disturbed areas associated with the existing Escarpment mine currently comprise bare ground, access tracks and water treatment infrastructure including sediment retention ponds. The Waimangaroa storage yard, located at the base of Denniston Road, also forms part of the Escarpment Extended Sub-Area and is currently used to store exploration drill

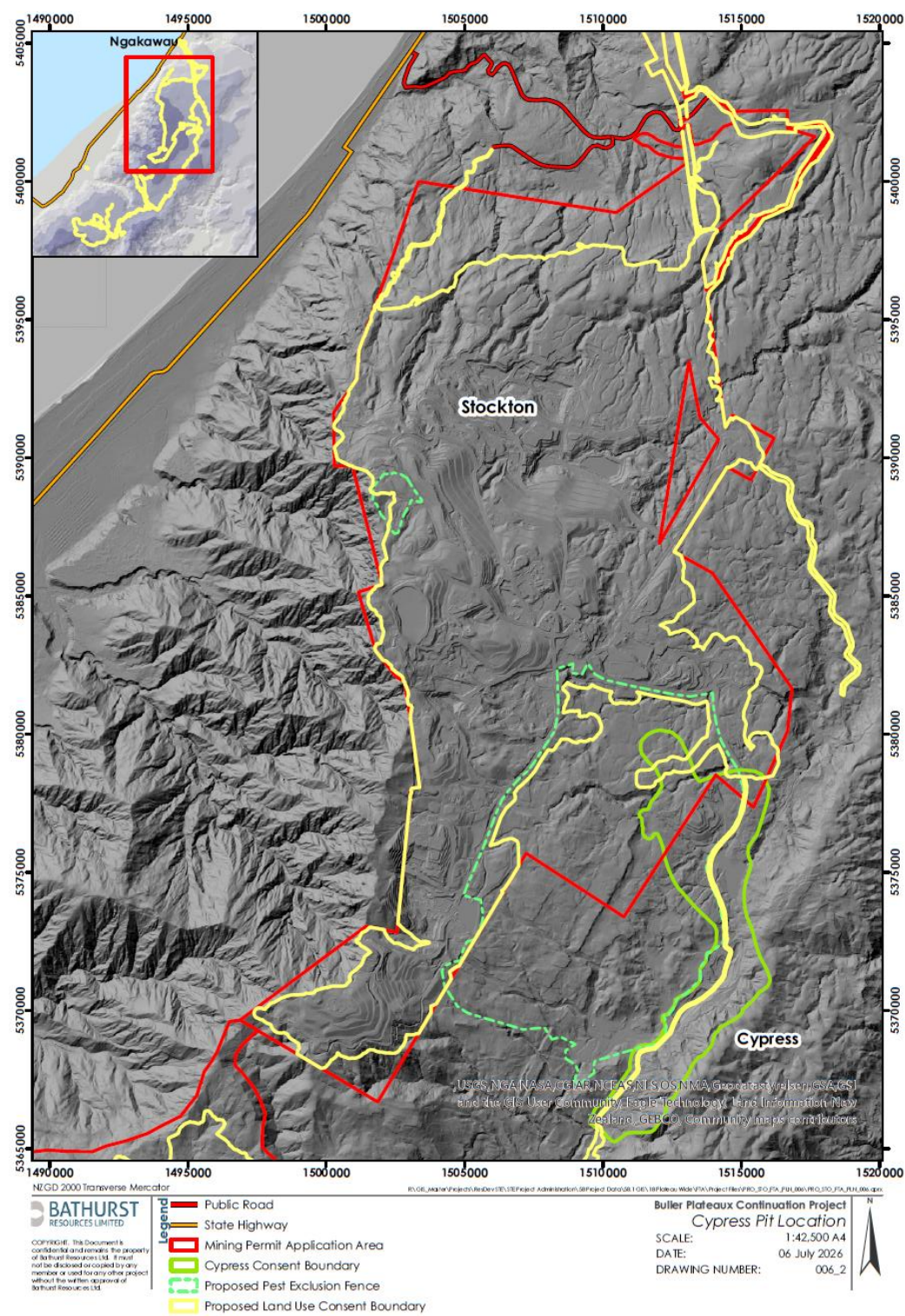
2075 core in shipping containers.

3.5.3 Cypress

Cypress is an existing, legally authorised opencast coal mine. Cypress is located adjacent to Stockton on the Stockton Plateau, as shown in **Figure 3-64** below, and is solely on Crown Land administered by LINZ. It operates under a mining permit. It operates under resource

2080 consents and access arrangements, with mining activities integrated into the wider Stockton mining complex. Ongoing operations, infrastructure and environmental management

systems have been in place for more than a decade, and the mine functions as part of a mature, established mining landscape on the Buller Plateaux.



2085

Figure 3-64: Cypress Pit Location

Cypress is divided into two areas, referred to as Cypress North and Cypress South. These areas are linked by an access road. Mine progression is from north to south. Cypress is an operational site with existing infrastructure to support operations. Operations, including mining methods and equipment, are largely integrated with the adjacent Stockton.

2090

Figure 3-65 below shows the key features of Cypress.

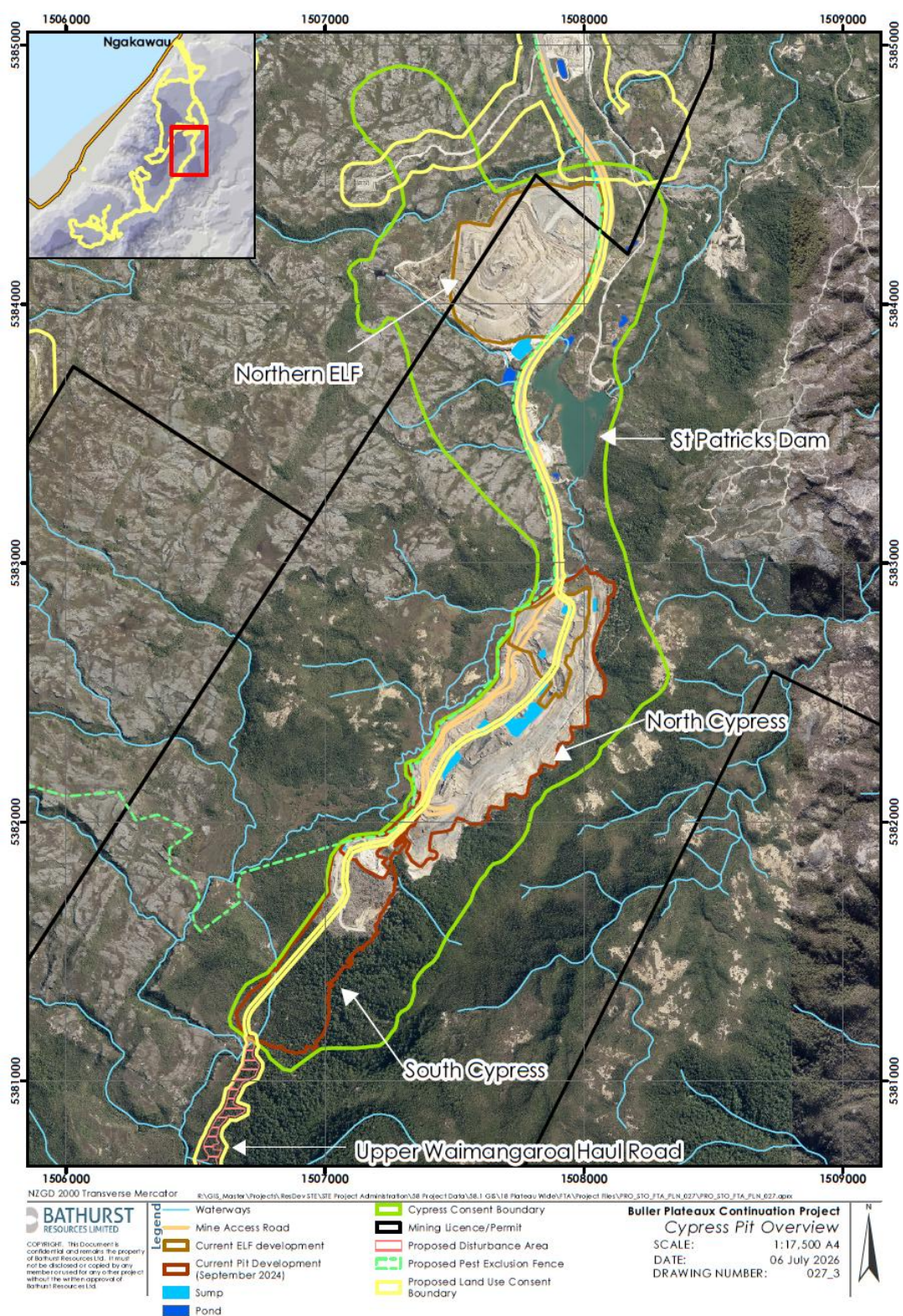


Figure 3-65: Key features of the Cypress Mine area

Mining at Cypress is well-established and forms part of the operational network serving Stockton. The mine contains a combination of:

- 2095
 - > Active pits (Cypress North and Cypress South);
 - > Engineered landforms (including NAF and PAF ELF's);
 - > Internal haul roads;
 - > Water management structures (clean-water diversions, mine-water drains, sumps and pumping systems);
- 2100
 - > Stockpiled topsoil and rehabilitation materials; and
 - > Hardstand areas, aglime dosing pads and ancillary infrastructure.

These components have been developed progressively since 2009 and are maintained as part of ongoing operations.

- 2105

The mine currently includes clearly defined excavation strips, benches, access routes and backfilled areas. Much of the north pit has been mined, reshaped or partially backfilled, creating a modified working landform. Cypress North is therefore characteristic of long-established West Coast opencast mines.

- 2110

Cypress North has undergone multiple stages of mining, including the Cypress North Box Cut and subsequent pushbacks. Completed strips (e.g., Strips 4–6) have been mined, with further development progressing southward. Waste rock and coal removal have created stepped highwalls, exposed coal measure strata, and compacted benches typical of an opencast setting. Cypress South is under active development, with access roads, sumps and early-stage stripping underway.

Long-term storage areas for PAF and NAF material are prominent features of the site.

- 2115
 - > The Northern ELF (“**NELF**”) is a large, engineered landform built by controlled placement of overburden;
 - > Such landforms include constructed lifts, compacted layers, drainage systems and delineated PAF/NAF storage zones;
 - > Aglime dosing (8 kg/tonne) is routinely used to neutralise PAF material.

- 2120

These landforms form a visible part of the modified landscape, with exposed rock, haul roads, and developing rehabilitation areas.

A well-developed internal haul road network connects Cypress to Stockton. The Cypress hardstand area, used for equipment, vehicle separation, and site management, has been

2125 maintained since its major redevelopment in 2017. These roads and pads create a structured industrial presence across the plateau, contrasting with the surrounding natural vegetation.

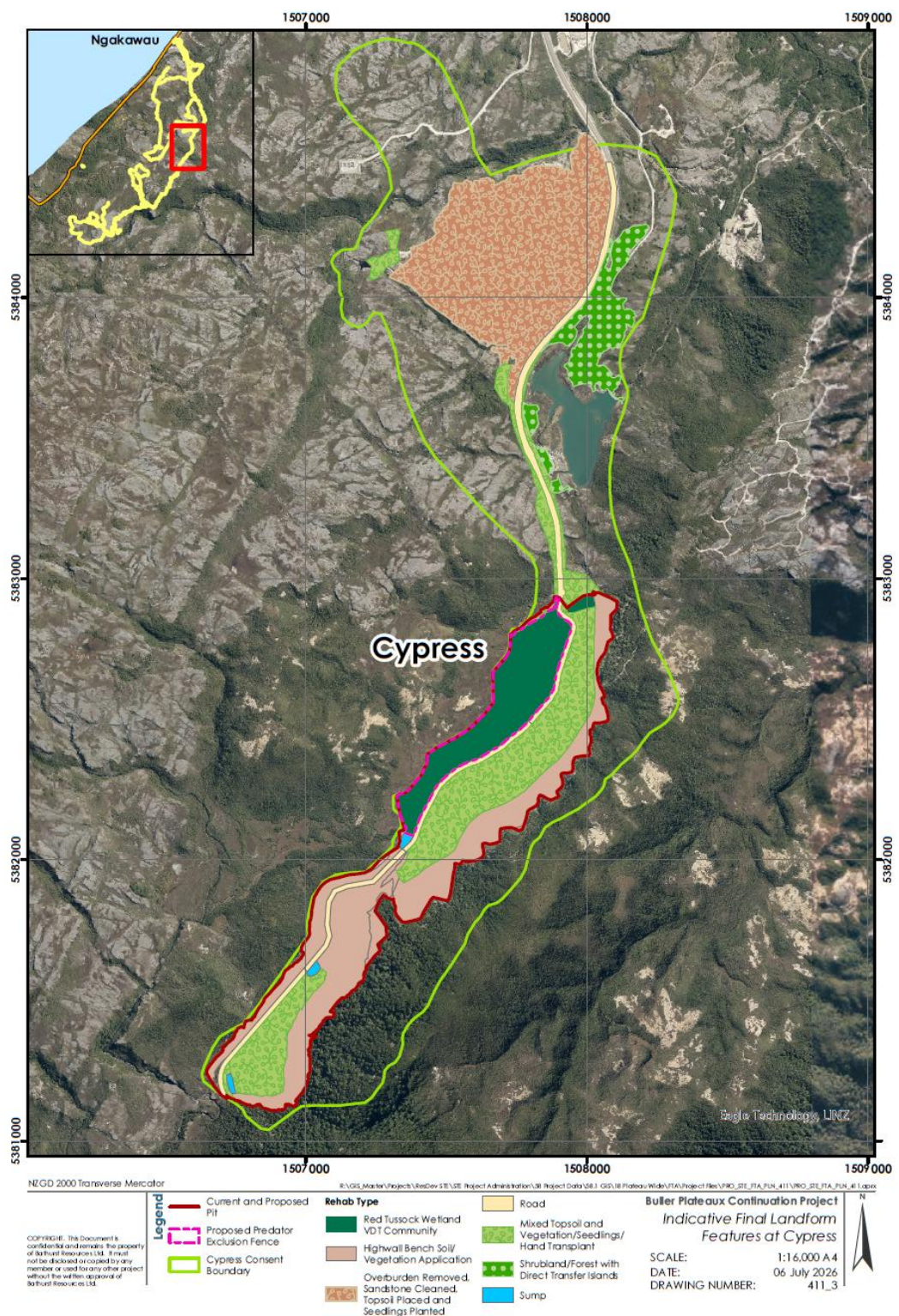
Cypress has an extensive, purpose-built water management network, including:

- > Clean-water diversion drains around highwalls and slope crests;
- > Pit sumps and pumping systems directing water to the McCabe's treatment system at Stockton;
- > NELF PAF sump for acidic drainage capture and treatment; and
- > Sediment controls and engineered culverts.

This system ensures separation of clean and mine-affected water, consistent with long-standing site practice.

2135 Large volumes of topsoil, VDT tussock, and NAF material are stockpiled around Cypress and McCabe's for rehabilitation. Tussock wetlands and herbfield turves (via VDT) have been collected since earlier mining phases and stored for reuse. These storage areas, along with trial planting zones, patches of tussock, and shaped batter slopes, give some areas a partially revegetated appearance.

2140 Ongoing mining is authorised at Cypress under existing consents. Upon cessation of mining operations, Cypress will be rehabilitated and closed, except that as part of the Project, it is proposed to keep the final haul road at Cypress (which forms part of the UWHR) operating until mining operations at ESE and MFS have been completed.



2145

Figure 3-66: Cypress Final Anticipated Rehabilitation

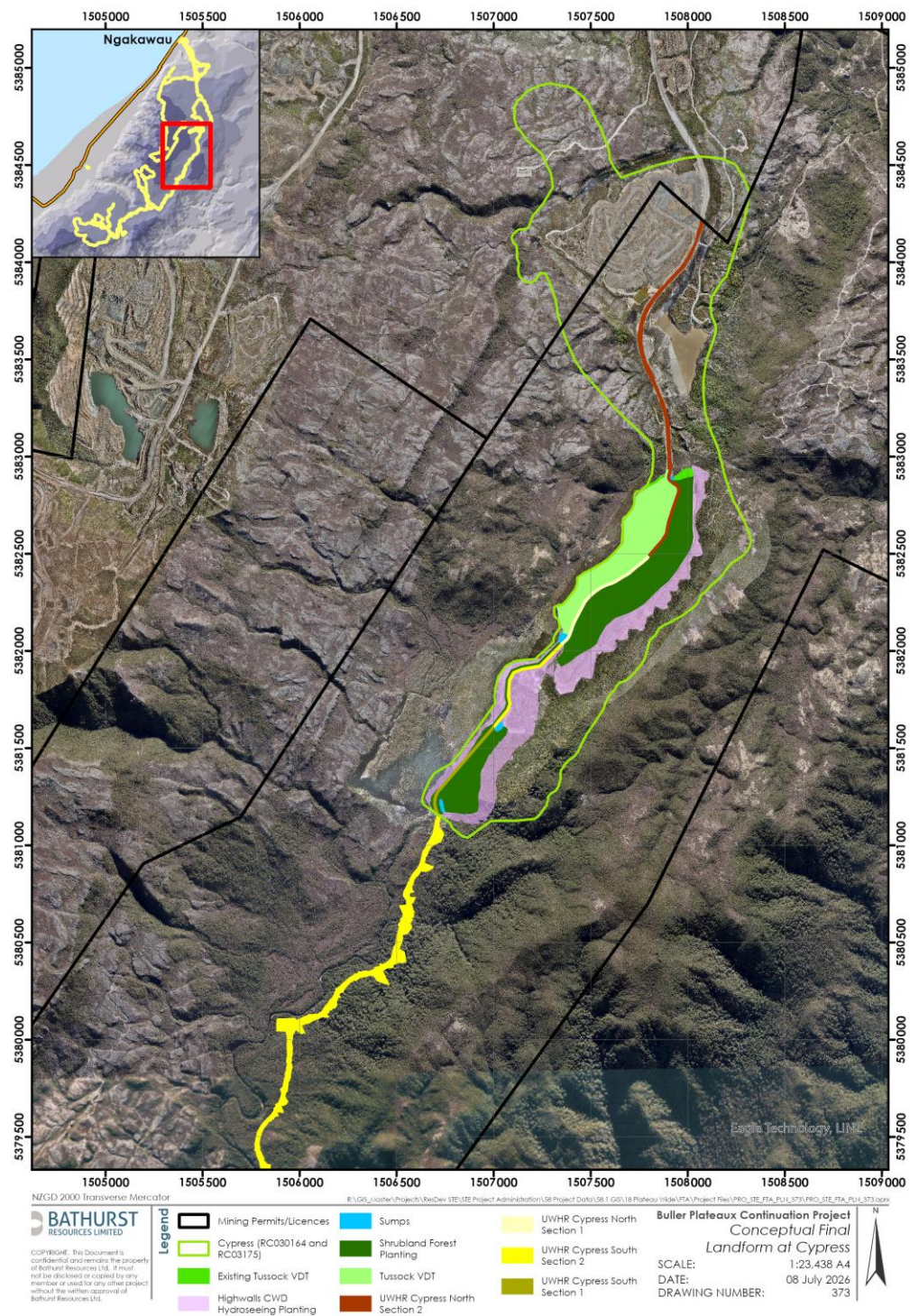


Figure 3-67: Cypress Anticipated Final Landform

2150 **3.5.4 MFS Sub-Area**

2155 The MFS Sub-Area has a long history of coal extraction, with past mining predominantly undertaken by underground methods, as illustrated in **Figure 3-25**. These historical activities have contributed to the current landscape's modified state and are part of the existing environment. No active mining is currently occurring within the MFS sub area. At present, the area contains approximately 5.57 ha of existing disturbance associated with these earlier underground workings.

3.5.5 UWHR Sub-Area

2160 The UWHR Sub-Area traverses a combination of existing mining access corridors, historic mining landscapes, previously disturbed land, and areas where new haul road construction is proposed. This includes parts of the former Coalbrookdale mining area on the southern Denniston Plateau, where existing authorised access routes, support areas, stormwater infrastructure and rehabilitation activities form part of the current environment. As shown in **Figure 3-68**, approximately 3.8 km of the UWHR will utilise the existing road corridor, while a further 6.5 km will follow an existing track. Although this track is not a formed road, it generally defines the proposed UWHR alignment. Widening, upgrades, and other modifications will be undertaken along this route to accommodate the proposed works.

2170 Where practicable, the route has been designed to follow existing access routes and previously disturbed corridors, including historic mining access tracks and areas of past mining activity, in order to minimise the extent of new land disturbance and associated environmental effects. Nevertheless, approximately 5 km of the UWHR will require construction as a new haul road.

2175 **3.5.6 Ecological Management**

Several pre-existing ecological management obligations arise from existing (and previous) mining consents, biodiversity agreements, and legacy offset arrangements. These obligations are summarised in **Table 3-10** and shape the current ecological baseline, defining the pest and weed management environment that exists prior to the proposed Project.

2180

Table 3-10: Summary of existing ecological management obligations

Obligation	Description
SEA	The SEA is a ~1,931 ha legacy management area established to enhance and protect <i>Powelliphanta</i> snail values and associated habitat across parts of the Buller Plateaux, including the Stockton Plateau. Existing pest control obligations in the SEA include: > Predator control targeting mammals known to predate <i>Powelliphanta</i>, including rats and possums. > Historically delivered primarily through intermittent aerial 1080 operations. > These control operations have been shown to be insufficient to prevent ongoing predation, with rodent and weka predation pressure remaining high.
WHEA	The WHEA is an ~8,200 ha legacy management area intended to provide broader biodiversity uplift across the surrounding landscape, including the Stockton Plateau and Sub-Areas such as Cypress. Existing pest control obligations in the WHEA include: > A long-standing programme focused mainly on possum suppression, with only sporadic rat and stoat control; and > Intermittent aerial 1080 operations, generally on an approximate three-to five-year cycle.
DPPA	The DPPA is an ~742 ha legacy management area established under the original Escarpment Mine authorisations to achieve and sustain improvements in key biodiversity attributes via a best endeavours approach. Existing pest control obligations in the DPPA include: > Periodic aerial pest control, primarily via aerial 1080, applied using the same general approach as other Denniston legacy management areas. > A focus on broad-scale suppression rather than continuous, year-round low-density predator management.

Obligation	Description
	> Existing management has not been sufficient to maintain the persistently low predator densities required for durable recovery of highly sensitive fauna and snail refugia.
Oparara Kiwi Management	A predator management programme within the 1,000 ha Oparara Kiwi Sanctuary, consistent with the requirements of the Cypress Mine resource consents. Required to protect and enhance great spotted kiwi populations potentially affected by mining activities. This includes ongoing kiwi population monitoring, protection of kiwi habitat, minimising operational impacts, and implementing long-term predator control programmes targeting stoats, rats and possums. The programme is managed in conjunction with DOC and aims to maintain or improve kiwi population viability and broader biodiversity outcomes within the Oparara Ecosystem.
Heaphy	Ecosystem management within parts of the Heaphy River catchment and surrounding areas of Kahurangi National Park, funded by Bathurst as part of the existing ESE approvals suite. DOC administers the programme under the Heaphy Whakapoai Biodiversity Management Plan 2013-2048, and it includes biodiversity monitoring, pest management, ecological restoration, research, and the protection of threatened species and habitats. The programme forms part of the existing biodiversity compensation framework established under existing authorisations and contributes to biodiversity outcomes separate from, but linked to, the management of mining effects on the Denniston Plateau.
DBEA	The DBEA is a ~4,456 ha legacy management area established under the Escarpment Mine authorisations to provide a biodiversity enhancement area and pest and weed management buffer around the DPPA. Existing obligations in the DBEA include: > Weed control delivered under the Denniston Plateau Biodiversity Management Plan and Weed Control Plan, including annual or periodic control of 38 priority weed species such as gorse, broom, heath rush, mat grass and banana passionfruit. > Animal pest control historically delivered largely through aerial toxin operations, mainly as mast-year or possum-focused responses, rather than a permanent ground-based suppression network. > Weed control has largely relied on hand-spraying and hand-held methods, with effectiveness constrained by terrain, access and reinvasion pressure.

Obligation	Description
1080 operations	Beyond the SEA, WHEA, DPPA and DBEA, the existing ecological setting also reflects the legacy of aerial 1080 operations historically applied across parts of the Stockton Plateau, Denniston Plateau and the wider surrounding landscape for both biodiversity protection and bovine TB management. These aerial 1080 operations were carried out periodically. Knockdowns of rats, possums and stoats were generally short-lived, with rapid reinvasion in the months following operations. Mice were typically not effectively suppressed and sometimes increased following predator reductions. This regime has resulted in predator densities frequently exceeding the low thresholds required for durable recovery of vulnerable fauna such as kiwi, lizards and large invertebrates.
Weed management – Stockton Plateau	Weed control at Stockton is governed by two formal instruments: > The Cypress Mine Rehabilitation Plan; and > The Stockton Mine Weed Control Environmental Management Sub-Plan. As weed pressure remains an ongoing issue on the Stockton Plateau, particularly along disturbed ground, mining platforms and exposed ridgelines, the existing weed management requirements include: > Targeted control of gorse, Scotch broom and <i>Juncus</i> spp. where these species threaten rehabilitation or impede the re-establishment of native vegetation.
Weed management – Denniston Plateau	DOC undertakes weed management within the ESE Sub-Area and wider Denniston legacy management areas, with funding provided by Bathurst through existing consent and access arrangement obligations. Existing obligations include: > Annual or periodic control of 38 priority weed species, including gorse, broom, heath rush, mat grass and banana passionfruit. > Control efforts have largely been undertaken using hand-held methods, with effectiveness constrained by terrain, access and reinvasion pressure. Collectively, these obligations create an environment where weed competition remains a significant constraint on the recovery of sensitive indigenous biodiversity across the Denniston Plateau.
Summary of pest management	As outlined in Kurahaupo's baseline report, <i>Review of pest management on the Buller Plateaux</i>, delivery to date has relied predominantly on intermittent aerial 1080 operations, generally on a three- to five-year cycle,

Obligation	Description
	with limited and irregular ground suppression. In practice, this has resulted in short-lived population knockdowns followed by predator rebound between drops, and therefore persistent predation pressure on sensitive fauna and habitats across the landscape. Independent review confirms that ship rats, mice, stoats and possums are the principal mammalian threats to biodiversity on the Buller Plateaux, including Denniston and Escarpment. While aerial 1080 aimed at possums delivers by-kill of rodents and stoats, the scale and timing of operations have not consistently aligned with ecological triggers (e.g. beech or podocarp mast cascades). Monitoring around the 2015 operation recorded an average possum reduction of ~69%, notably lower than typical aerial outcomes, with high variance among transects and limited evidence of biodiversity benefit beyond possum suppression. Likewise, rodent reductions were modest relative to DOC benchmarks, and rodent numbers did not follow expected mast-cycle patterns, implying alternative food sources and patchy distributions that blunt the effects of pulsed aerial control. Overall, the existing pest and predator regime across the SEA, WHEA, DPPA, DBEA and wider landscape is not achieving durable suppression of key predators at biologically meaningful scales or timeframes. The current approach is intermittent, largely aerial, and not trigger-based, resulting in rebound dynamics that continue to constrain ecological recovery across the wetland-shrubland-forest mosaic of the Buller Plateaux. These constraints are particularly acute for snail refugia, lizard habitat, kiwi recruitment and other high-value microhabitats where continuous low-predator conditions are essential.

Existing Biodiversity Outcomes

2185	The current weed and pest control requirements for the SEA, WHEA, and Stockton help shape the ecological environment. However, biodiversity outcomes are limited by inconsistent, one-dimensional pest-control methods required by the current conditions of consent. The BPCP, as outlined in Chapter A.4 – Project Description, aims to address these issues by enhancing and refining pest control measures currently prescribed in existing consents to increase overall effectiveness. If the BPCP is approved, the existing
2190	obligations related to biodiversity outcomes at Cypress, particularly for snail management, will also be integrated into a broader catchment-wide biodiversity strategy proposed as part of the BPCP. It is also noted that, in relation to the existing Escarpment Mine obligations under its existing DOC AA approvals, Bathurst has met (or will meet) the full compensatory

2195 requirements associated with the approved disturbance footprint, notwithstanding that not all authorised disturbance has yet occurred.

3.5.7 Adjacent Persons and Activities

The following plans (**Figures 3-70 to 3-74**) showcase adjacent landholders.

Consistent with EPA guidance and discussions from other expert panels, *adjacent land* is defined as:

- 2200
- > Land that directly adjoins the site;
 - > Nearby land that is separated from the site only by a road, reflecting the nature of roading in the area; and
 - > Nearby land that is separated from the site by a rail corridor or watercourse.

2205 Each plan highlights a different area and identifies the adjacent landowners. The numbered land parcels shown on each plan correspond to **Table 3-11** below, which includes additional information for each parcel, including the land ID, title, landowner, owner and occupier, and postal address.

Table 3-11: Adjacent Landowners

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
Tintown (136_12)					
			Department of Conservation		
109	7493993		Department of Conservation		18 Manners Street, Wellington 6011
161	3647355		Department of Conservation		
162	3611380		Department of Conservation		
164	3648442		Department of Conservation		
166	3615082		Department of Conservation		
167	3598289		Department of Conservation		
169	3631823		Department of Conservation		
172	3630575		Department of Conservation		
174	3614894		Department of Conservation		
175	3660363		Department of Conservation		
176	3614964		Department of Conservation		
179	3631740		Department of Conservation		
180	3614981		Department of Conservation		
183	3597126		Department of Conservation		
185	3610294		Department of Conservation		
187	3611311		Department of Conservation		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
188	3598217		Department of Conservation		
191	3630516		Department of Conservation		
195	3598804		Department of Conservation		
197	3610295		Department of Conservation		
199	3631690		Department of Conservation		
200	3626917		Department of Conservation		
203	3614367		Department of Conservation		
207	3643601		Department of Conservation		
208	3648355		Department of Conservation		
214	3643599		Department of Conservation		
216	3628238		Department of Conservation		
217	3606170		Department of Conservation		
219	3598256		Department of Conservation		
221	3598391		Department of Conservation		
223	3633433		Department of Conservation		
223	3633433		Department of Conservation		
226	3629032		Department of Conservation		
234	3646489		Department of Conservation		
252	3646483		Department of Conservation		

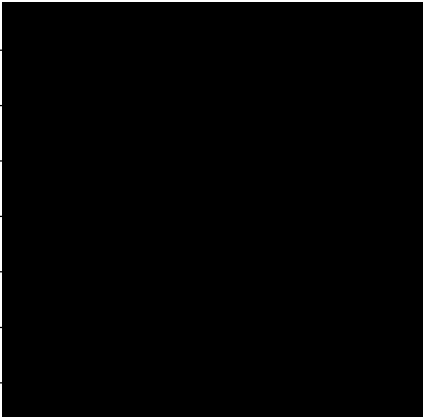
BT Label	Id	Title	Land Owner	Owner / Occupier	Address
254	3645981		Department of Conservation		
256	3613104		Department of Conservation		
277	3613093		Department of Conservation		
278	7493996		Department of Conservation		
280	3648296		Department of Conservation		
292	3626934		Department of Conservation		
795	7488480		Department of Conservation		
1528	3644997		Department of Conservation		
			LINZ / Crown		
243	3660362		Crown		PO Box 5501, Wellington 6140
244	3612641		LINZ		
260	3642238		presumed Crown		
269	3608656		presumed Crown		
366	7259336		Crown		
394	3643628		Crown		
744	7488481		Crown		
1529	3656498		LINZ		
			Buller District Council		
192	3662962		Buller District Council		PO Box 21, Westport 7866

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
359	3664479		Buller District Council		
423	7259330		Buller District Council		
426	3662498		Buller District Council		
1526	725933		Buller District Council		
1527	7259332		Buller District Council		
			Bathurst Coal Limited /BT Mining		
257	3597917		Bathurst		
265	3632752		Bathurst		
967	3600090		BT Mining		
			Private		
204	3598290	NL2C/522		Owner	Via Millerton and Burma Roads, Stockton Mine
Denniston Village (136_9)					
			Department of Conservation		
1354	3609406		Department of Conservation		18 Manners Street, Wellington 6011
Coalbrookdale (136_10)					
			Department of Conservation		
1385	3643237		Department of Conservation		18 Manners Street, Wellington 6011
1388	3626569		Department of Conservation		
1391	3609943		Department of Conservation		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
1396	3660035		Department of Conservation		
1397	3613878		Department of Conservation		
1398	3630584		Department of Conservation		
1400	3597199		Department of Conservation		
1405	3647226		Department of Conservation		
1409	3597200		Department of Conservation		
1411	3630583		Department of Conservation		
1414	3613879		Department of Conservation		
1417	3597203		Department of Conservation		
1420	3631144		Department of Conservation		
1424	3614360		Department of Conservation		
1425	3647233		Department of Conservation		
1428	3631088		Department of Conservation		
1430	3647148		Department of Conservation		
1432	3597177		Department of Conservation		
1434	3614361		Department of Conservation		
1438	3601203		Department of Conservation		
1442	3631089		Department of Conservation		
1444	3597898		Department of Conservation		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
1450	3630354		Department of Conservation		
1465	3630353		Department of Conservation		
1471	3613621		Department of Conservation		
1478	3646990		Department of Conservation		
1486	3647023		Department of Conservation		
			Buller District Council		
1377	3669236		Buller District Council/NZTA		PO Box 21, Westport 7866
1384	3666098		Buller District Council/NZTA		
1387	3668187		Buller District Council/NZTA		
1395	3669844		Buller District Council/NZTA		
1404	3669715		Buller District Council/NZTA		
1412	3668197		Buller District Council/NZTA		
1418	3666097		Buller District Council/NZTA		
1421	3668171		Buller District Council/NZTA		
1431	3669242		Buller District Council/NZTA		
1446	3668168		Buller District Council/NZTA		
1454	3668202		Buller District Council/NZTA		
1466	3669243		Buller District Council/NZTA		
1487	3668167		Buller District Council/NZTA		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
Millerton (136_13)					
			Department of Conservation		
544	3607113	NL28/165	Department of Conservation		18 Manners Street, Wellington 6011
551	3607136		Department of Conservation		
610	3657320	NL28/165	Department of Conservation		
612	3630802		Department of Conservation		
638	3607140	NL28/165	Department of Conservation		
664	3623841	NL28/165	Department of Conservation		
667	3643647	NL28/165	Department of Conservation		
682	3607123	NL28/165	Department of Conservation		
704	3648129	NL28/165	Department of Conservation		
			LINZ / Crown		
816	3598080		LINZ		PO Box 5501, Wellington 6140
672	3640434		Presumed Crown		
			BT Mining Limited		
571	3636213	NL10C/1183	BT Mining Limited		Level 12, 1 Willeston Street, Wellington 6145
			Buller District Council		
572	3669194		Buller District Council		PO Box 21, Westport 7866
588	3666344		Buller District Council		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
598	3666342		Buller District Council		
615	3669195		Buller District Council		
679	3666343		Buller District Council		
688	3666364		Buller District Council		
689	3666364		Buller District Council		
640	3665591		Buller District Council		
688	3666364		Buller District Council		
689	3666364		Buller District Council		
738	3669205		Buller District Council		
775	3666363		Buller District Council		
			Private		
523	3602783	NL10C/1182			5 High Street, Millerton 7823
605	3657315	NL6A/348		Owner	2 Rodney Street, Millerton
628	3614837	365581		Owner	6 Rodney Street, Millerton
646	3598084	365581		Owner	
656	3607141	NL6A/794		Owner	Rodney Street, Millerton 7823
669	3597397	NL6A/514		Owner	8 Rodney Street, Millerton 7823
696	3607079	NL6A/514		Owner	
712	3647759	NL6A/514		Owner	

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
722	3657321	NL6A/920		Owner	Coal Reserve Road, Millerton 7823
740	3631307	NL6A/920			
726	3647420	NL6A/514		Owner	Coal Reserve Road, Millerton 7823
742	3623810	NL6A/514		Owner	
750	3648125	NL2D/1096		Owner	11 Rodney Street, Millerton 7823
753	3614439	NL10B/1259		Owner	Coal Reserve Road, Millerton 7823
768	3623850	NL6A/1224		Owner	Coal Reserve Road, Millerton 7823
771	3640508	NL7D/41			Coal Reserve Road, Millerton 7823
797	3640510	NL1D/284		Vacant	Unable to locate
570	3623860	NL6A/1353		Owner	377 Calliope Street, Millerton 7823
Ngakawau (136_1)					
			Crown (hydro parcel)		
5	3672117		Crown (hydro parcel)		
			Buller District Council		
18	3667128			Buller District Council	PO Box 21, Westport 7866
27	3663341			Buller District Council	
40	3663856			Buller District Council	

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
43	3667116			Buller District Council/NZTA	
				LINZ / Crown	
22	3607151			presumed Crown	PO Box 5501, Wellington 6140
23	3645854	NL143/75	Her Majesty The Queen	His Majesty the King	
26	6542098			LINZ	
29	3626528	NL143/75	Her Majesty The Queen	His Majesty the King	
				Buller District Council (formerly) Ngakawau Hector Recreation Reserve Board	
28	3632051			Buller District Council	
77	3659125			Buller District Council	
				Buller Electricity Limited	
31	3607149	NL5C/1153	Buller Electricity Limited	Buller Electricity Limited	PO Box 243, Westport 7866,
				BT Mining Limited	
59	3640521	NL7B/107	BT Mining Limited	Bathurst	Level 12, 1 Willeston Street, Wellington 6145
72	3636211	NL10D/518	BT Mining Limited	Bathurst	
				Private	
12	3631914	NL125/165		Owner	51 Dole Street, Ngakawau
13	3642860	NL74/187			
14	3642860	NL74/187			

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
15	3631915	NL106/63		Owner	49 Dole Street, Ngakawau
17	3598509	NL111/238		Owner	51 Dole Street, Ngakawau
19	3615175	NL94/152		Unable to locate - rear of 51 Dole Street	
21	3623866	NL2A/1118		Owner	47 Dole Street, Ngakawau
24	6542097	27155		Owner	3 Tyler Street, Ngakawau
41	3623867	NL2D/1039		Owner	5 Ratcliff Road, Ngakawau
47	3640519	NL2D/1130		Owner	4 Ratcliff Road, Ngakawau
53	3657343	NL6A/25		Owner	3 Ratcliff Road, Ngakawau
67	3657346	NL10A/275		Owner (vacant Land)	No address - landlocked in BRL Property
71	3619080	NL10B/380		Owner	14 Dole Street, Ngakawau
79	3627797	NL10A/1294		Owner	Off Dole Street, Ngakawau
89	3631741	NL107/127		Owner	
Waimangaroa (136_7)					
			Buller District Council		
1128	3670469		Buller District Council/NZTA		PO Box 21, Westport 7866
1178	3662147		Buller District Council/NZTA		
1191	3667073		Buller District Council/NZTA		

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
1202	3632013	NL12A/96	Buller District Council		
1211	3669485		Buller District Council/NZTA		
1212	3663439		Buller District Council/NZTA		
1230	3664386		Buller District Council/NZTA		
1231	3670466		Buller District Council/NZTA		
1236	3664527		Buller District Council/NZTA		
1238	3666114		Buller District Council/NZTA		
1241	3669483		Buller District Council/NZTA		
			LINZ / Crown		
1225	3615265	NL30/229	His Majesty the King		PO Box 5501, Wellington 6140
1246	3615915		presumed Crown		
			Bathurst Coal Limited		
1183	3648897	NL70/197	Bathurst Coal Limited		Level 12, 1 Willeston Street, Wellington 6145
1205	3631735	NL70/196	Bathurst Coal Limited		
			Private		
1151	3632015	NL9/124			Off Cummins Street, Waimangaroa
1161	3615269	NL9/124			
1171	3599044	NL9/124			
1180	3598604	NL1A/863		Owner	28 Banbury Street, Waimangaroa

BT Label	Id	Title	Land Owner	Owner / Occupier	Address
1187	3598285	NL12A/97		Owner	
1207	3648649	NL46/244		Owner	11 - 13 Banbury Street, Waimangaroa
1215	3615267	NL2A/212		Owner	
1229	3598325	NL2A/212		Owner	

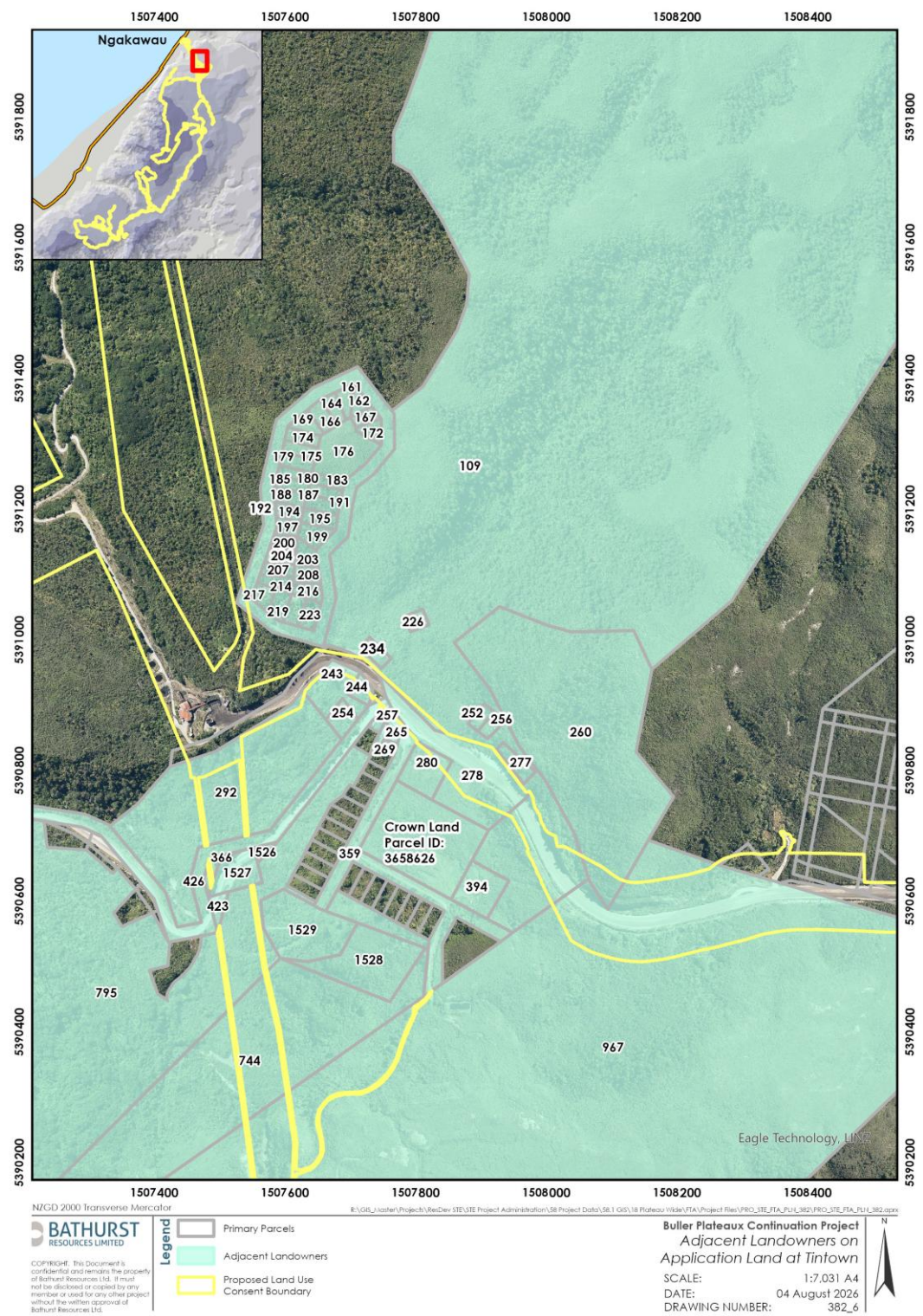


Figure 3-69: Adjacent Landowners on Application Land at Tintown

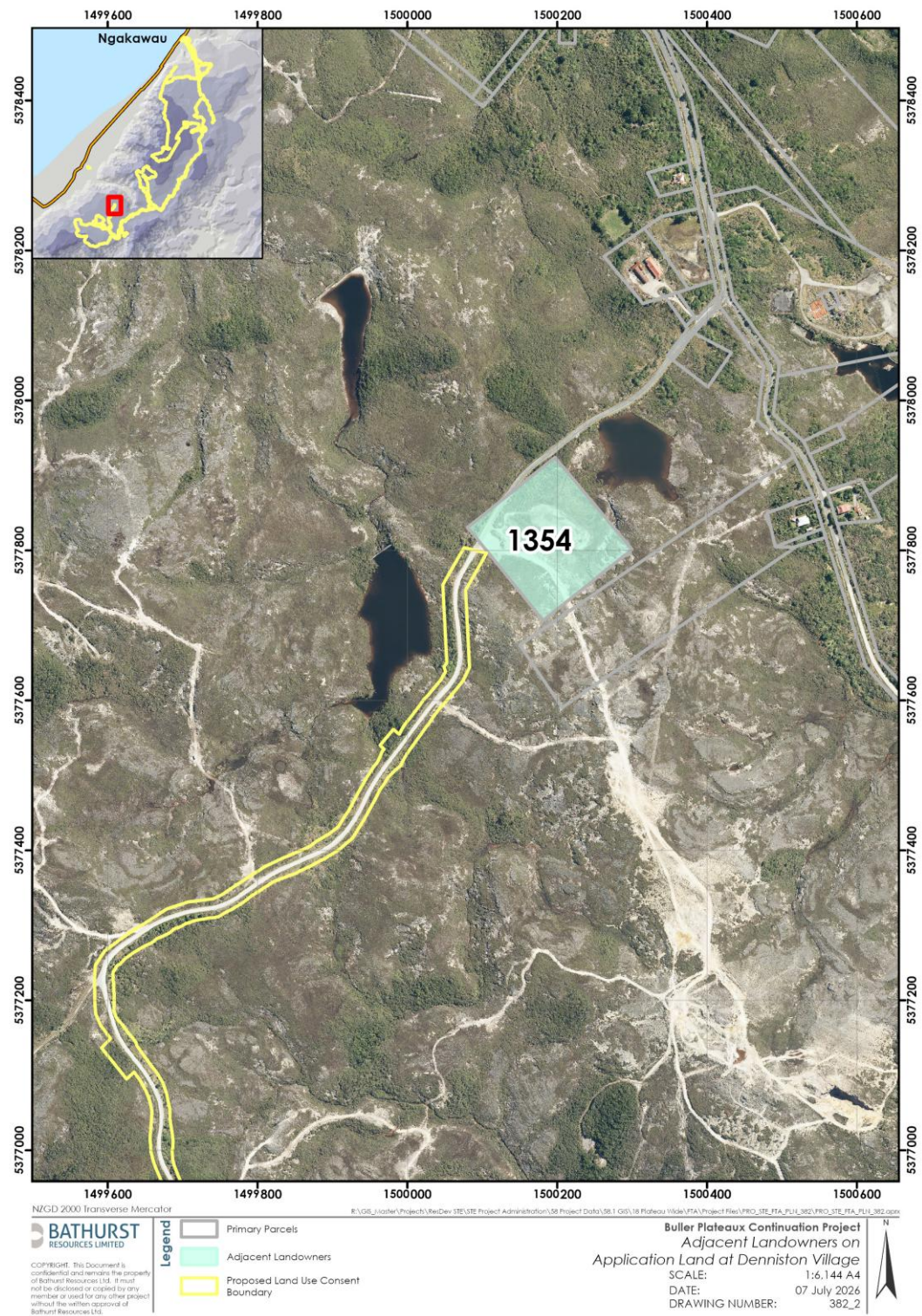


Figure 3-70: Adjacent Landowners on Application Land at Denniston Village

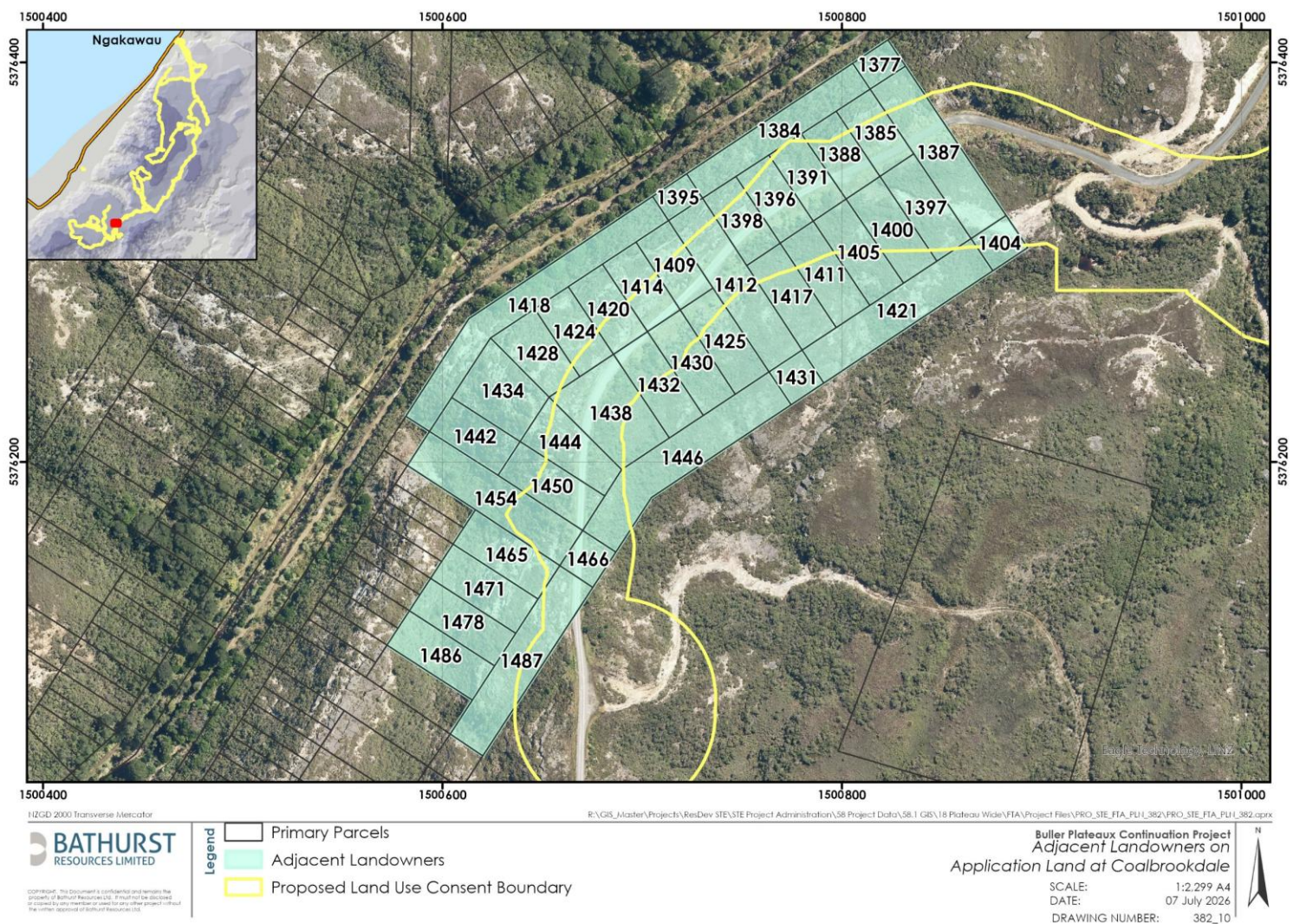


Figure 3-71: Adjacent Landowners on Application Land at Coalbrookdale

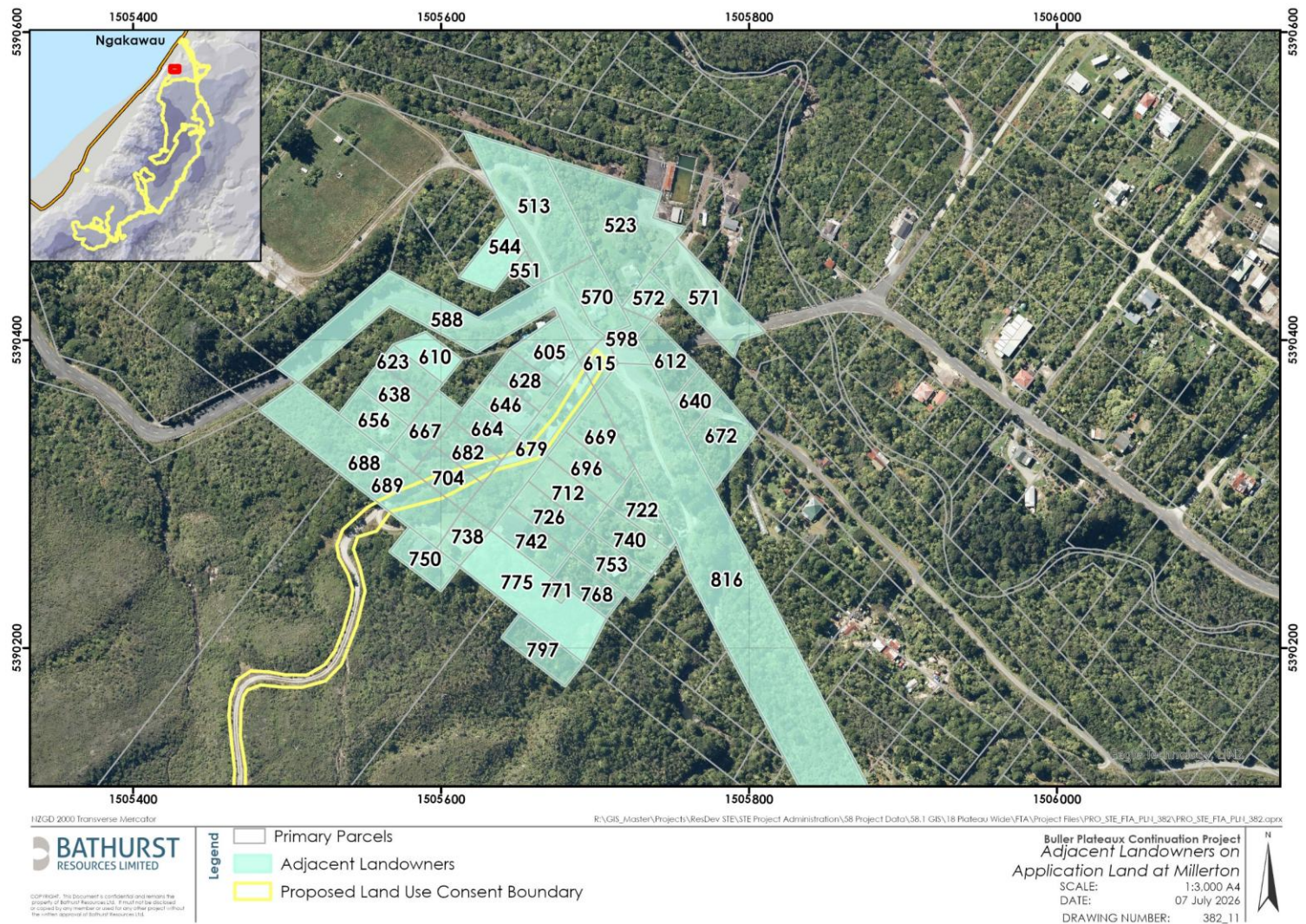


Figure 3-72: Adjacent Landowners on Application Land at Millerton

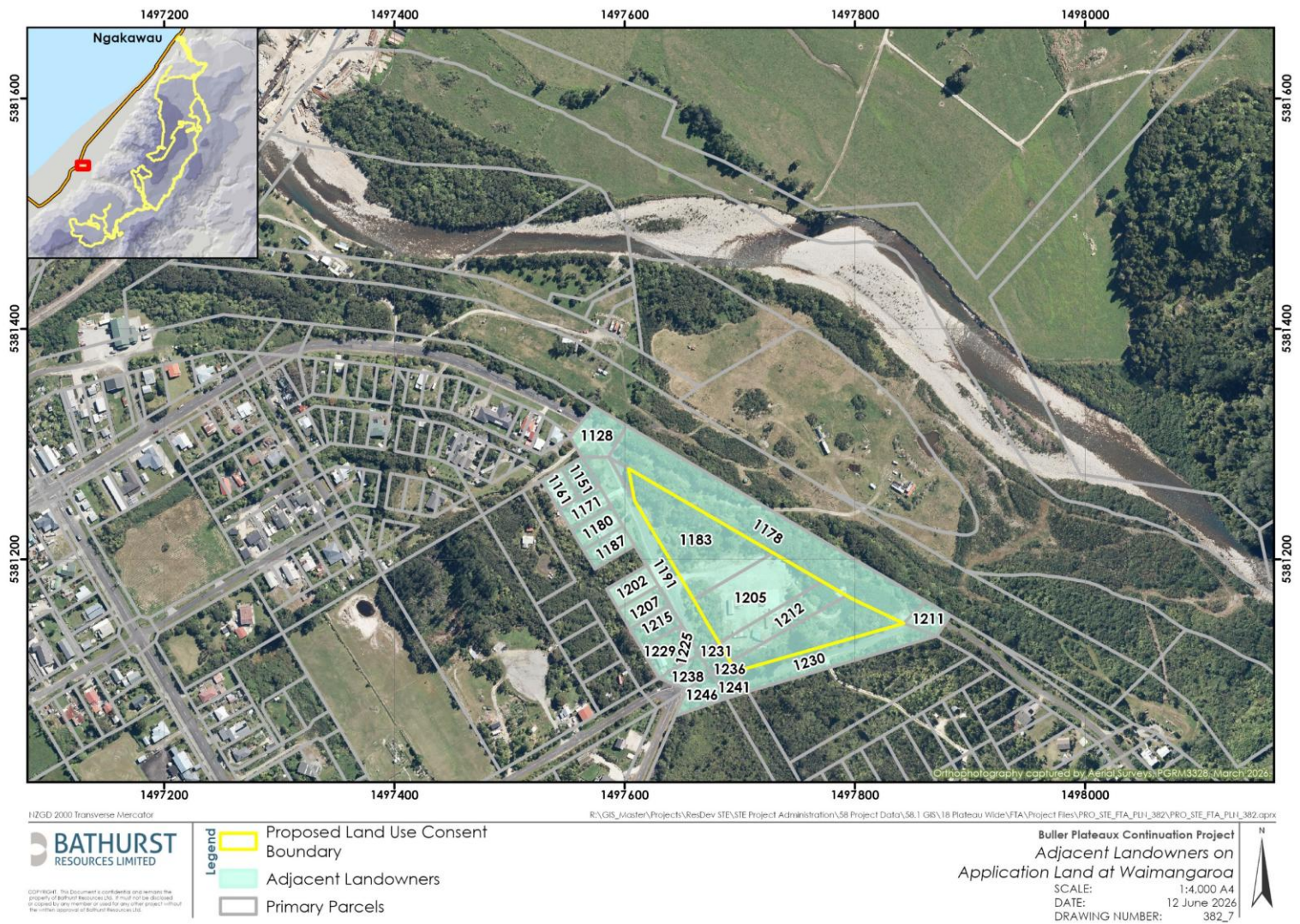


Figure 3-74: Adjacent Landowners on Application Land at Waimangaroa

2205 **3.6 COMPENSATION AREAS**

The BPCP, as outlined in **Chapter A.4 – Project Description**, proposes a range of compensation measures. The environments encompassed by these areas are described below.

3.6.1 Pest Exclusion Fences

2210 All proposed fenced areas are located within wet sub-alpine ‘coal measure’ landscapes. These environments are characterised by thin, poorly drained soils, extensive exposed sandstone pavements, and patchy, low-stature vegetation, typically less than one metre in height.

3.6.1.1 Mt Augustus, Stockton

2215 The smallest of the proposed long-term pest exclusion areas (14.63 ha) is located on the western escarpment of the Stockton Plateau and is also the most elevated, approximately 860 m above sea level. The site adjoins forest along its western boundary, which provides habitat for kiwi, but is otherwise surrounded by active and rehabilitating mine workings. Vegetation within the enclosure is predominantly low-stature, occurring in discrete patches

2220 between sandstone pavements and rock outcrops. Given its proximity to the adjacent forest, the site is accessible to kiwi and may form part of an existing territory.

2225 Topographically, the site rises gently from east (approximately 803 m a.s.l.) to west (approximately 850 m a.s.l.), with the western boundary tracking just inland from the escarpment edge. The terrain is relatively flat overall but interspersed with prominent rock outcrops and extensive exposed sandstone. Approximately 40% of the proposed fence alignment utilises existing roads and tracks, with the remainder requiring new construction.

3.6.1.2 Whirlwind Rise, Stockton Plateau

2230 The Whirlwind Rise enclosure is the largest proposed site, covering approximately 694.5 ha. The landscape is dominated by sandstone pavements but also supports a diverse range of vegetation types and landforms, including a forested hill (Whirlwind Rise) and a network of deeply incised streams bordered by shrublands.

2235 This site also contains the longest proposed fence alignment across both plateaux, extending approximately 11,930 m and enclosing nearly 700 ha. Around 75% of the fence can be constructed along existing roads and tracks, minimising the need for additional earthworks. However, sections south of Whirlwind Rise will require new platform construction across predominantly sandstone pavements.

Part of the Whirlwind Rise fenced area also contains Schedule 2 wetland listed in the Regional Land and Water Plan.

3.6.1.3 Denniston North

2240 Covering approximately 47.2 ha, the Denniston North site is well suited from a construction perspective. An established network of existing roads and tracks provides access around more than 90% of the site perimeter, and the generally gentle gradients enable efficient machine access throughout.

2245 Hydrologically, the site contains relatively few inflow culverts and well-defined crossing points along outflow streams, facilitating both construction and ongoing access. The outflow streams and their contributing catchments are small in scale, consistent with the low-volume drainage systems typical of plateau environments.

2250 Substrates at Denniston North are representative of the wider plateau, comprising exposed rock slabs, cobbles, and fine sediment deposits. These features create a stable yet heterogeneous surface environment, reflecting the natural geomorphology of the area.

3.6.1.4 Coalbrookdale

The Coalbrookdale fence alignment will be constructed largely along existing and proposed roads and tracks. The perimeter is predominantly flat to undulating, with an overall elevation range of approximately 60 m.

2255 One notable constraint is the descent into, crossing of, and ascent out of the Waimangaroa River. This section, approximately 590 m in length (around 9% of the total fence alignment), will require substantial benching and a culvert structure to facilitate the river crossing. The terrain in this area is steep-sided and rocky, presenting the most technically challenging portion of the alignment.

2260 3.6.2 Blackburn–Pākihi ground-control area

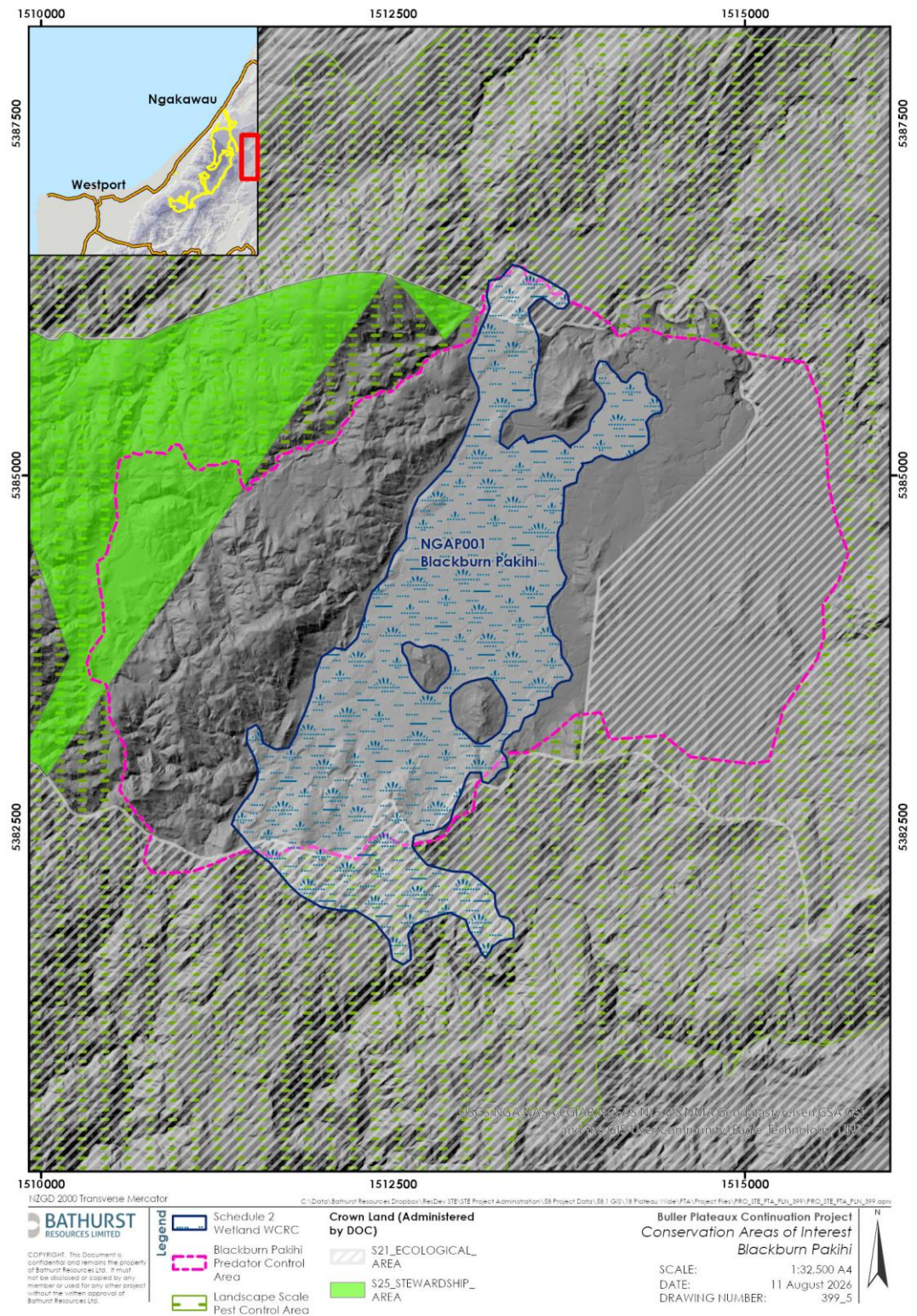
The Blackburn–Pākihi control area, covering approximately 1,509 ha (**Figure 3-75**) occupies the north-eastern margin of the Stockton Plateau. The area is characterised by a complex terrain of upland forest and extensive Pākihi wetland systems, including peat bogs, shallow hollows, and scrub–grass mosaics.

2265 Blackburn Pākihi has lower elevation and lower relief than the Buller Plateaux. It is downstream and downwind of areas previously disturbed by mining, has existing access tracks and is used by feral animals, all of which increase weed pressure. The vegetation comprises tussockland and pākihi habitats surrounded by taller shrubland and forest. Spanish heath (*Erica lusitanica*), gorse, broom, wildling pine, heath rush, Yorkshire fog and

2270

Juncus canadensis are among the weed species known to be present, including along the access track.

A large portion of the Blackburn Pakihi area is also identified as being Schedule 2 wetland under the Regional Land and Water Plan, as shown in **Figure 3-75**.



2275

Figure 3-75: Blackburn Pakihi Area and Schedule 2 Wetland