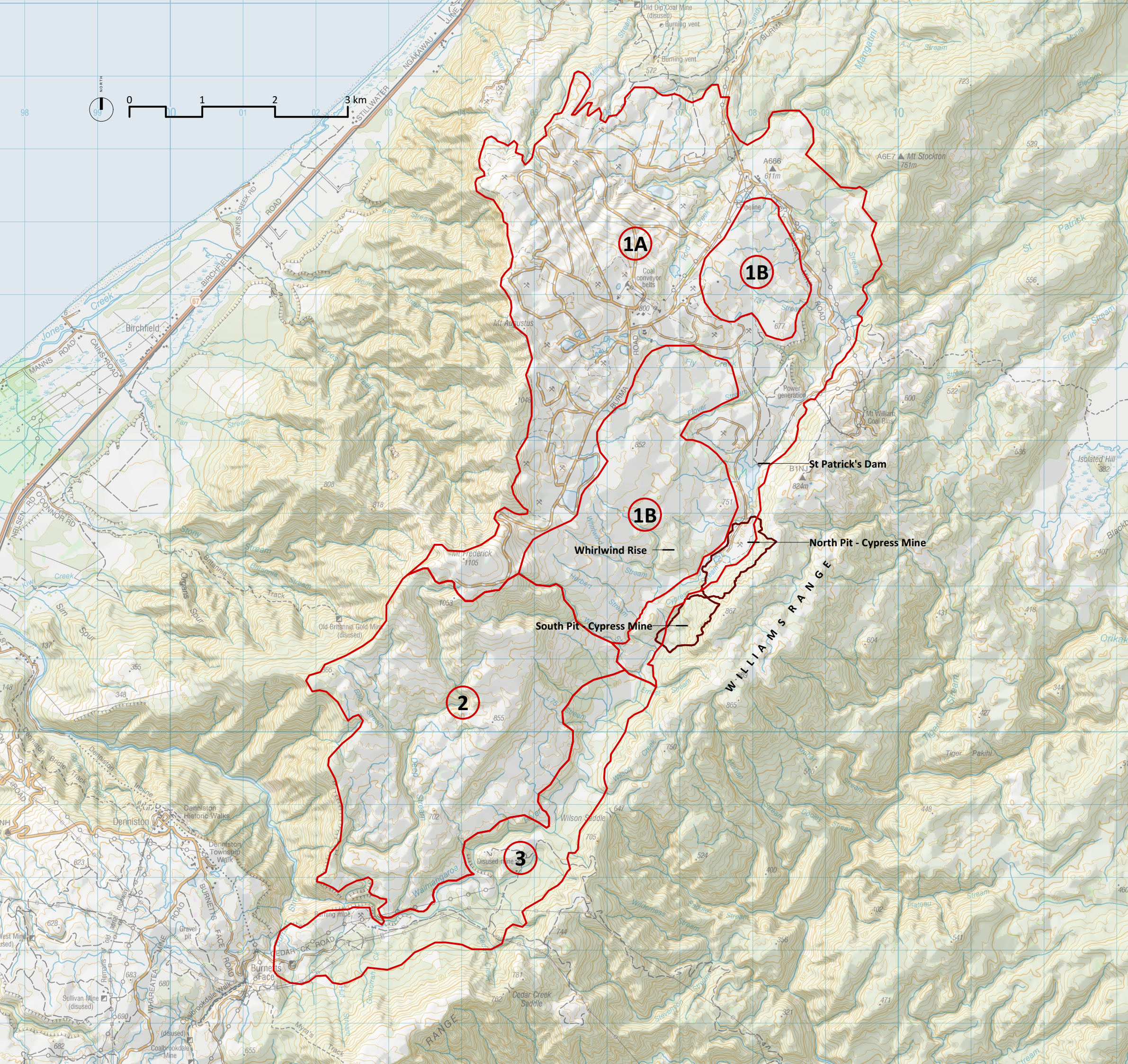




LEGEND

-  STOCKTON PLATEAU
-  STOCKTON PLATEAU
LANDSCAPE CHARACTER UNITS
-  STOCKTON PLATEAU
SUBCHARACTER UNITS
-  ACTIVE CYPRESS MINE AREAS

MAP 23
STOCKTON PLATEAU
LANDSCAPE
CHARACTER UNITS
(LCUs)



Photograph 97 : Stockton Plateau looking south (above Millerton Rd)



Photograph 98 : Stockton Plateau looking west from Cypress Mine and St Patricks Dam

Landscape Character Unit 1 Description

LCU 1 comprises the northern two thirds of the Stockton Plateau bounded in the north by the steep headwaters of Granity Stream, Miller Stream and Sandy Stream to the toe of Mt Stockton. The western boundary is clearly defined by a north-trending ridge including Mt Augustus and Mt Frederick. The eastern boundary is defined by the Mt William Fault along the toe of the Mt William Range, which more or less coincides with the north flowing Cypress Stream. The southern boundary of the plateau is defined by the east-west fault line and pronounced vertical offset along Webb Stream and also includes Mt Frederick. Three other fault lines have been identified traversing LCU 1 in an east west direction generally indicated by abrupt escarpments.

LCU 1 covers an area of approximately 3011.85 ha / 30.11 km² being 7km long in a north south direction. It is approximately 5.5km across in the north, narrowing to 3km wide at the southern end. LCU 1 generally slopes northeast from 900 masl along the western boundary to approximately 600 masl, 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.

Of note is the context afforded by the implemented mining licences and permits granted under the Crown Minerals Act that lie over the majority of LCU 1. The exception is the southern part of the central section of Stockton Plateau (LCU 1B), which is DOC stewardship land and the eastern part of the central section, which includes a strip of unallocated Crown Land.

LCU 1A

LCU 1A occupies most of this LCU and contains the current opencast workings on the Stockton Plateau including reservoirs, structures, overburden areas, stockpiles and haul roads. The landform has been highly modified at a massive landscape scale with benched hillsides and deep excavated pits. Mining infrastructure comprising buildings and storage and processing is located centrally within LCU 1A. There are two main opencast mines currently operating. The Stockton Mine is a series of pits that extend along the entire western boundary and includes excavation of Mt Augustus and Mt Frederick (*refer Map 24, Page 75*).

The Cypress Mine is located at the south-eastern end of LCU 1A and extends along Cypress Stream to St Patricks Dam (*refer Photograph 98, Page 62*) with additional infrastructure including a power scheme, reservoirs, roading, structures and the historic Mt William Mine area, located to the north, at the base of the Mt Stockton and the Mt William Range. The current opencast workings are concentrated at the North Pit of the Cypress Mine, with the South Pit unimplemented at present.

At the Cypress Mine site, the modified topography is at a massive landscape scale with benched hillsides, deep excavated pits and wide carriageways. The mining activity will remove pre-mining features such as Happy Valley, a wetland basin dominated by red tussock associated with seepages and flushes and recognised as an historically rare ecosystem. Over its consented lifetime the Cypress Mine will also remove the low ridgeline separating two drainage catchments, being the headwaters of the Waimangaroa River (flowing south) and Cypress Creek (flowing north). The Cypress Mine also encroaches into the Mt William Range hillsides outside the Stockton Plateau but that to all intents and purposes the mine site is read as being part of LCU 1A. Forest vegetation is being removed from the lower hillsides leaving steep scoured hillslopes.

The eastern part of LCU 1A has been extensively tracked and disturbance is widespread, including power pylons that ascend the hillslopes to the elevated Mt William Coal Bins. Previous underground mining activity on the Mt William North site has resulted in obvious surface disturbance and modifications to the sandstone pavement areas.

Although it may appear to be the result of human modification the Stockton Structural Detachment is a natural landform recognised as a Geopreservation Site located on the LCU 1A and LCU 1B boundary. It is described as a structural detachment in coal seams with associated imbricate shear structures in the Fly Creek Mine Road cutting between Mt William Mine and Stockton (*refer Photograph 105, Page 64*). It is noted as important because of its regional scientific, aesthetic or educational value and vulnerable to significant damage by human-related activities.

Of note are the distinctive drainage patterns that occur as deeply incised cuts into the sandstone erosion pavement, particularly at the head of Cypress Stream where the stream course deviates in a right angle that is obvious from aerial views.

Most of the natural vegetation cover over LCU 1A has been removed with only isolated pockets remaining within LCU 1A and along its boundaries. High elevation beech forest, silver beech-mountain beech forest, leatherwood scrub and *Chionochloa flavescens* grassland comprise a mosaic of vegetation and habitats near the Mt Frederick-Mt Augustus summit range. These diverse habitats are similar to those described for the land snail *Powelliphanta augusta*, which was removed from the mined areas of Mt Augustus. To the north, around the T35 Stream area vegetation comprises just over 1 km² area of mixed beech forest interspersed with small patches of manuka shrubland and forest. A small, isolated patch of red tussock grassland is present on terraces beside the T35 Stream, east of Fly Creek Mine Road. This vegetation type

corresponds to the Ngakawau PNAP Unit 14, red tussock-bog pine-shrub tussockland and is recognised as uncommon.

Where human activity has occurred exotic weed species have spread and natural drainage pattern, water quality and quantity has been affected. Extensive areas have been rehabilitated with varying degrees of success using various techniques including the technique of direct direct transfer of vegetation and replacement paving areas. Other areas, particularly sloping berms have been vegetated with grass species as a temporary measure until mining is complete and restoration is undertaken. Overall LCU 1A is dominated by the mining activity and best described as industrial in character.



Photograph 99 : Stockton Mine workings

Photograph 100 : Stockton Mine infrastructure



Photograph 101 : Stockton Mine looking west
Photograph 102 : Stockton Mine looking northeast



Photograph 103 : Modifications to Mt Frederick and Mt Augustus
Photograph 104 : Stockton Mine
Photograph 105 : Stockton Structural Detachment



Photograph 106 : Cypress Mine looking south

Photograph 107 : Mt William Coal Bins

Photograph 108 : Cypress Mine looking west

Photograph 109 : Cypress Mine

Photograph 110 : St Patricks Dam

Photograph 111 : Cypress Mine workings



Photograph 112 : Rehabilitation area within LCU 1

Photograph 113 : Vegetation rehabilitation

Photograph 114 : Direct Transfer vegetation

Photograph 115 : Stockton Structural Detachment

Photograph 116 : Rock pavement reconstruction

Photograph 117 : Rock pavement reconstruction

Photograph 118 : Revegetation areas within LCU 1

Photograph 119 : Revegetation areas within LCU 1

LCU 1B

The central area (LCU 1B) separates the open cast mine areas along the western and eastern boundary of LCU 1A and encompasses a large and relatively undisturbed area of coal measures extending throughout the central part of the LCU 1 area (refer Map 23, Page 61).

The landform within LCU 1B comprises gently sloping areas of exposed pavement and tussock grassland dissected by deeply incised streams containing low stature native forest shrub species. Waterways of note include T31, Fly Creek and Plover, Whirlwind and Herbert Streams. Whirlwind Rise is a readily recognised feature that is a small, elevated knoll covered with native trees and shrubs.

The landcover in LCU 1B is mostly intact and comprises extensive areas of *Chionochloa juncea* grassland associated with rock pavement, isolated pockets of rimu / mountain beech-southern rata forest and southern rata mountain beech forest, manuka shrubland, and a large area of rimu–mountain beech forest over Whirlwind Rise. Shallow tarns and wetland pools occur but are limited to gently sloping basins within an extensive sandstone landform that occurs between the upper parts of Plover and Whirlwind Streams³⁹. At the southern extent of LCU 1B ribbons of high elevation beech forest are confined to the edges of incised streams. Discrete areas of red tussock grassland associated with fertile wet sites occur on either side of Whirlwind Rise close to the boundary of LCU 1A where the Cypress Mine South Pit is located. A small area of manuka, wire rush, pakihi rush and tangle fern is also located in the vicinity.

The topographical maps and collapsed rock outcrops indicate that, historically, underground mining has occurred in localised places within LCU 1B.



Photograph 120 : Whirlwind Rise, LCU 1B

Photograph 121 : LCU 1B

Photograph 122 : LCU 1B between Stockton and Cypress Mine.

Photograph 123 : Cypress Stream deviation within LCU 1B

Photograph 124 : Landscape boundary between LCU 1A and 1B

³⁹ Wildlands Consultants Ltd. (2010) Mapping of Vegetation and Habitats on the Stockton and Denniston Plateaux. Contract Report 2334. Department of Conservation.

LCU 1 Landscape Values

Biophysical Values

The unique geology and geomorphology of LCU 1, interspersed with high quality Tertiary coal measures contributes to very high biophysical values across the landscape unit. Despite this the Stockton Plateau is not recognised in the New Zealand Geopreservation Inventory as being of regional importance for its scientific values relating to the coal measures. However, the Stockton Structural Detachment that coincides with Fly Creek mine Road is identified as being of regional scientific value. Notable features in LCU 1 are the Webb Fault escarpment between Plover and Whirlwind Streams and Whirlwind Rise.

Landform within LCU 1A has been highly modified by mining, roading, excavation and reservoirs, however for the most part the landform within LCU 1B remains highly legible. Natural drainage is highly modified within LCU 1A where reservoirs / retention ponds have been created to collect stormwater. In contrast, some sections of the steep incised gully streams appear intact such as Ford Creek and its tributaries and T35 Stream in LCU 1A. The main drainage systems and waterways have been compromised by mining excavation which has altered natural drainage patterns and affected water quality and quantity. Cypress Stream has essentially removed and in the case of St Patrick Stream modified by damming and the addition of power generation infrastructure.

The streams within LCU 1B are generally intact and highly natural in character. Fly Creek and T31, Plover, Whirlwind, Herbert and Webb Streams flow south-eastwards in deeply incised gullies which have vegetated edges, within the pavement surface. A Schedule 2 Wetland (NGA PO53) is identified as a shallow tarn complex located centrally within the southern area of LCU 1B and is recognised as a historically rare habitat⁴⁰. (refer Map 25, Page 76).

Remnant vegetation is largely confined to incised gully streams across both sub-character units. The sandstone erosion pavement and associated *Chionochloa juncea* vegetation is the most abundant ecosystem within LCU 1B east of Burma Road and recognised as historically rare habitat and significant species. Forest is relatively sparse across LCU 1B although rimu/ mountain beech-southern rata forest is associated with Whirlwind Rise as a feature of this LCU.

⁴⁰ Wildlands Consultants Ltd. (2010) Mapping of Vegetation and Habitats on the Stockton and Denniston Plateaux. Contract Report 2334. Department of Conservation.

Active and historic mining has altered the landform, removed indigenous vegetation with substantial adverse effects on ecology and habitats across LCU 1A, while LCU 1B remains largely intact with natural landform and landcover. Natural processes have been largely disrupted over LCU 1A by erosion due to high rainfall events occurring, not withstanding stormwater is being controlled and managed by reservoirs and damming.

Perceptual Values

Despite the current extensive mining activity, legibility is high and is in places emphasised by mining activity exposing rock sequences but largely confined to the central area of LCU 1B, where a sense of the LCUs overall landform is retained. The distinctive drainage patterns that occur as deeply incised cuts into the sandstone erosion pavement are a particular feature and contribute to natural character and legibility. One feature of note is located at the head of Cypress Stream where the stream course deviates in a distinctive right angle that is obvious from aerial views.

There is a high contrast between modified areas and pockets of natural character that are associated with gullies and rock pavement. Areas of modified and natural character are obvious and able to be readily discernible by both expert and lay persons, although, overtime it is likely that the rehabilitated areas, particularly those achieved by Direct Transfer vegetation methods, will eventually be indistinguishable from the unmodified areas

Overall LCU 1 is a very distinctive and memorable landscape associated with both the natural landscape and the landscape where mining activity occurs, contributed in part by the human activity and endeavor at a particularly grand scale. Consequently LCU 1 affords a unique sense of place. The sense of place is emphasised by the transient values conveyed by exposure to the highly changeable and dramatic weather systems, which are often present. LCU 1 is also remote as an elevated, enclosed catchment separated from the inhabited coastal plains by the surrounding steep mountains and not readily accessible by the general public. Generally, LCU 1 lacks an overall coherence due to the widespread modification the the landscape that is occurring, including the benching of steep slopes, pits, engineered batters and damming of natural streams and disruption to landform. Overall the landscape of LCU 1 conveys a very discordant pattern and has overall aesthetic value.

Associative Values

Mining is a key component of the cultural identity of the locality and strongly connected to the historic and heritage of the Buller plateaux and West Coast in general. In general, associative values are high.



Photograph 125 : Webb Fault escarpment

Photograph 126 : Revegetation area with a transient quality

Photograph 127 : Landscape modifications