STAGE 3 - SECTION 32

CHAPTER 9

NATURAL AND CULTURAL HERITAGE

APPENDIX 3.3 - LANDSCAPE CHARACTER DESCRIPTIONS CHRISTCHURCH CITY LANDSCAPE STUDY

Notified 25 July 2015

Christchurch City Council

Ōtautahi / Christchurch
CITY LANDSCAPE STUDY

Boffa Miskell

Christchurch City Council

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Mahaanui Kura Taiao staff and Papatipu Rūnanga representatives on the Rūnanga Working Focus Group, the cultural mapping team of Te Rūnanga o Ngāi Tahu and Associate Professor Rawiri Te Maire Tau of the Ngāi Tahu Research Centre, University of Canterbury.

Nei rā te mihi uruhau ki a koutou.

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1. INTRODUCTION

Norman, Edmund 1820-1875: Canterbury Plains, - New Zealand. / Drawn by E. Norman. Maclure, Macdonald & Macgregor, Lith, London. Lyttelton, Published by Martin G. Heywood, [ca 1855].

Item link: http://natlib.govt.nz/records/23051035

1.1 BACKGROUND

Christchurch City Council (CCC) is conducting a review of their District Plan. This process involves the review of all the chapters within the district plan and the consolidation of the Christchurch City and Banks Peninsula District Plans.

As part of this process CCC appointed Boffa Miskell Ltd (BML) in April 2014 to assist with the landscape assessment of Christchurch City, referred to as the Christchurch City Landscape Study. This will provide input in particular for the Natural and Cultural Heritage, Coastal, Rural and Central City Chapters'. The study has been undertaken as an independent technical assessment, and has been subject to a formal external peer review by Graham Densem (landscape architect). The preparation of the landscape assessment required collaborative work with CCC's technical representatives to identify and evaluate landscape **significance in Christchurch City and to subsequently develop appropriate landscape management** mechanisms. BML has previously assisted with the review of landscape related matters on Banks Peninsula for the district plan review (DPR), but this current Study focuses solely on Christchurch City [1].

The preparation of this Study is also in response to the council's obligations under the Canterbury Regional Policy Statement (CRPS). As part of the review of the CRPS in 2010, Environment Canterbury (ECAN) completed a statutory review of the management of its landscapes and natural features in accordance with the requirements of the Resource Management Act 1991 (RMA). The regional review was used as one of the sources of input to this Christchurch City assessment[2].

No comprehensive landscape study has been prepared at a district scale for Christchurch City in the past and, therefore, this Landscape Study is not a review of existing findings, as would generally be the case for a second generation district plan. The current plan only shows a map (Christchurch City Plan, Volume Two, Section 2 Natural Environment, Introduction), illustrating a number of outstanding natural landscapes and features (under section 6a and 6b of the RMA) and significant remnants of indigenous vegetation (section 6c of the RMA) without giving exact boundary outlines or locations.

A goal of the Landscape Study was to ensure that the Outstanding Natural Features and Landscapes (ONF/Ls) proposed in the District Plan review are consistent with each other in terms of their value and boundary identification. This Study contains detailed landscape character descriptions of all natural environments within the city's boundaries which will not only provide input for the DPR, but also provide detailed information for council staff about landscape values that have led to ONF/L identification of particular areas. It is intended this can be used for future strategic planning, as well as assessment of resource consent applications.

In addition to the assessment of the landscape values, the council has also engaged Boffa Miskell Ltd (BML) to assess the natural character values of the Coastal Environment in response to the release of the New Zealand Coastal Policy Statement (NZCPS 2010), which has been included in this report.

1. The Banks Peninsula Landscape Study was prepared in 2006-2007 by BML to inform the Environment Court proceedings of EC C45/2008.

2. Boffa Miskell Limited (BML) was engaged by ECAN to undertake a review of the Canterbury Regional Landscape Study (BML and Lucas Ass., 1993). The study was required to consider the 'key landscape values' (identified in the 1993 Canterbury Regional Landscape Study) by undertaking a landscape characterisation and evaluation review.

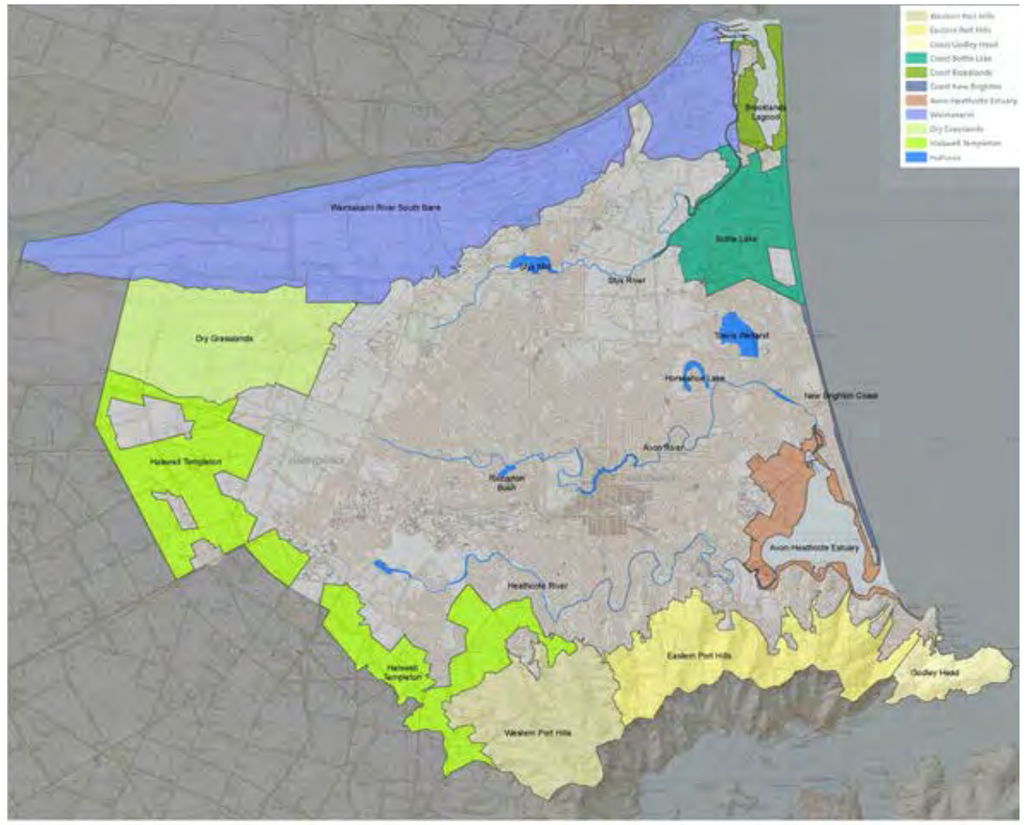

Figure 1: Landscape Character Area Map (see also attached in Appendix 4)

1.2 SUMMARY OF FINDINGS - LANDSCAPE EVALUATION OF CHARACTER AREAS

The following section of the report provides an executive summary of findings for each of the landscape character areas that have been identified in Section 4. This summary includes a brief description of the key characteristics and the landscape values for each area. The methodology for identification of Outstanding Natural Features and Landscapes (ONF/Ls) and Significant Features and Landscapes (SF/Ls) is outlined in Section 3 of this report and detailed character descriptions and value descriptions can be found in Section 4. Section 3 includes the methodology for the characterisation and evaluation of the landscape with an outline of criteria applied to the assessment.

1.2.1 WESTERN PORT HILLS
(REFER ALSO TO SECTION 4.1.1)

(Schedule no.s ONL38.3 & SL11.2, 11.3, 11.4, 11.5, 11.6)

The majority of the Western Port Hills character area has been identified as an ONL, which includes the upper slopes of the crater rim, as well as the main descending spurs and Hoon Hay Valley Stream. The lower lying, more modified areas, which are visually less prominent as a backdrop to Christchurch City, have been identified as SL. The Western Port Hills contain a mix of land cover, with mixed tussock grasslands along the exposed tops and spurs, valuable native broadleaf vegetation in the Hoon Hay Valley Stream catchment and plantation forest between Worsely Spur and Dyers Pass Road. The former Lyttleton volcano, which formed the Port Hills, is a highly legible landscape feature and the rock outcrops along the crater rim and some of the spurs show its volcanic history particularly well. These landscape features are also of high importance to tangata whenua, with many of them holding names and linking to important cultural traditions. The associations with the Port Hills in this area also include European history, which is expressed in the Summit Road, the historic Sign of the Kiwi building and the reserves that have been set aside for conservation by Harry Ell around the turn of the past century. Public access is restricted to Summit Road reserves and Kennedys Bush Track, however the large surrounding areas of rural open space contributes positively to the open space experience of Christchurch residents. The views to and from the hills are one of the key landscape attributes for the city.

Photo 1: The plantation forest that covers part of the Western Port Hills can be seen on the spurs to the right of Te Pohue Sugarloaf (centre). The backdrop of the Port Hills skyline is a very important landscape feature of the southern suburbs. >

Photo 2: The head of Hoon Hay valley contains large areas of regenerating bush. Associative values for tangata whenua relate to various distinctive landforms of the peaks and passes. >

Photo 3: Hoon Hay Valley provides an arcadian rural landscape character, which led to its identification as a Significant Landscape, similar to areas on Banks Peninsula. >

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1.2.2 EASTERN PORT HILLS
(REFER ALSO TO SECTION 4.1.2)

(Schedule no.s ONL38.2 & SL11.1)

The tops and upper slopes of the Eastern Port Hills form the extension to the ONL identified in the previous character area. The residential development of the hill suburbs extends up on several of the spurs, those areas have therefore been excluded from the ONL. Some of the lower lying, visually less prominent areas adjacent to existing development have been identified as SLs. The crater rim that forms the tops of the Port Hills is particularly legible, as a number of high peaks (eg Tauhinu Korokio/Mt Pleasant and Mt Cavendish) and large rock outcrops (eg Te Ahi a Tamatea/Rapaki Rock, Ōtaranui/The Tors and Te Tihi o Kahukura/Castle Rock) and cliffs (eg head of Te Awa Kura/Watsons Creek within Barnett Park and Heathcote Valley) fall within this character area. The cultural associations with many of these features and a number of other prominent landforms are also of high importance to tangata whenua, including pā, kāinga and trails. The Bridle Path was the first European access route into Christchurch from Lyttelton Port and has, therefore, historic significance. In addition to the very high cultural and aesthetic values, the Port Hills also provide important ecological values. While the tussock grasslands contain a high percentage of introduced grasses, some of the wetter gullies contain ecologically important broadleaf forest and regenerating bush (eg Dry bush, Barnett Valley, Jollies Bush). A number of man-made elements, such as transmission lines and visitor infrastructure in Victoria Park have modified the natural character of the Eastern Port Hills, but their general openness provides for exceptional views and act as an impressive back drop to Christchurch.

Photo 4: Dry Bush contains an important small forest remnant, as well as planting and now regenerating native hardwood forest, located in the gully on the eastern side of upper Huntsbury Spur. >

Photo 5: The Eastern Port Hills with their legible spurs are particularly impressive. Te Ahi a Tamatea/Rapaki Rock is one of the most legible examples of volcanic rock outcrops along the crater rim and of high cultural importance. >

Photo 6: Victoria Park on the spur below Te Pohue/ Sugarloaf is an important recreation resource in the central part of the Port Hills with numerous walking and biking tracks. >

1.2.3 AWAROA / GODLEY HEAD
(REFER ALSO TO SECTION 4.2.1)

(Schedule no.s ONL38.1 & HNC35.0)

Awaroa/ Godley Head forms part of the Port Hills land type and retains many similar characteristics to the previous two character areas. The headland, which has been identified as an ONF in its entirety, is located on the easternmost extent of the hills and forms the northern entrance to Whakaraupō/Lyttelton Harbour. The residential areas of Scarborough and Te Onepoto/ Taylors Mistake have been excluded from the ONF. The impressive high cliffs surrounding the headland, which have been eroded by the forces of the ocean, are distinctive features illustrating the volcanic history of the underlying landform. The cliffs and gullies on the Whakaraupō/Lyttelton Harbour side provide habitat for specialised plants, while the drier northern side of the head contains predominantly tussock grassland. The ecological values also include important bird nesting sites (kororā/white-flippered penguin, pārekareka/ spotted shag). The most prominent historic sites on Godley Head are the WW II coastal defence batteries, which are maintained by the Department of Conservation. The Ngāi Tahu pā site in the area, Ōtokitoki is not visible anymore, but holds high cultural significance as a strategic position guarding the entrance to the harbour. Awaroa/Godley Head Reserve and Te Onepoto/Taylors Mistake Beach are also particularly popular with recreational users.

Photo 7: The eastern tip of Awaroa/Godley Head allows for impressive views out onto the ocean and contains a number of WW2 related structures.

Photo 8: The WW2 gun emplacements and associated buildings are of historic importance. The cliffs of Adderley Head, which forms the other side of the Lyttelton Harbour entrance, are visible on the right.

Photo 9: The quirky baches along Taylors Mistake provide a distinctive sense of place for the popular beach. The enclosed beach area, surrounded by volcanic cliffs has particularly high shared and recognised values.

1.2.4 TE RIU O TE AIKA KAWA/BROOKLANDS LAGOON
(REFER ALSO TO SECTION 4.2.2)

(Schedule no. ONF32.0 & ONC32.0)

Te Riu o Te Aika Kawa/Brooklands Lagoon, which is a large tidal waterbody with wetlands and salt marsh areas, is located to the south of the Waimakariri river mouth, and has been identified as an ONF. While it originally formed the outlet of the Waimakariri to the sea, it now only forms the estuary for the Styx River following extensive flood protection works. The remaining connection of Brooklands Lagoon to the sea means, however, that it retains a tidal influence and the important habitat value associated with its extensive mudflats. The mudflats and reed beds form the feeding ground for numerous bird species, which can be particularly well observed in the area. The lagoon is a quiet and wild environment with specialised plant, bird and fish life, some of which have very high mahinga kai value to tangata whenua. The wider area includes a Māori Reserve (MR892) attesting to the cultural significance of the lagoon and its valuable natural resources. The parts of Te Riu o Te Aika Kawa/Brooklands Lagoon that are located below MHWS fall outside Christchurch's district boundaries.

Photo 10: At Spencer/ Seafield Park visitor infrastructure, such as viewing platforms, allows for views into the southern part of Brooklands Lagoon.

Photo 11: The tidal salt/ mud flats are of particular importance to birds and specialised plant life. Brooklands Lagoon and the lower Waimakariri River and mouth are important mahinga kai sites, both traditionally and contemporarily.

Photo 12: The Styx River flows into northern Brooklands Lagoon, while the Waimakariri has been diverted to a course north of the lagoon as part of its flood protection works.

1.2.5 WAITĀKIRI/BOTTLE LAKE

(REFER ALSO TO SECTION 4.2.3)

(Schedule no. SF6.0 & HNC33.0)

The stretch of beach and coastal hinterland within this character area extends between Brooklands Lagoon and Waimairi Beach, and includes the large area of plantation forest known as Bottle Lake Forest. Only the narrow strip of beach and foredune has been identified as SF due to the substantial modification in the hinterland. The coastal interface is largely dominated by natural patterns and processes, which gives this part of the beach a wild and remote feeling. The hinterland contains a degraded wetland now set within a golf course, originally called Waitākiri which is bottle shaped (hence the name Bottle Lake) and was part of a wider wetland system and important mahinga kai in this area. While the area holds cultural and historic associations, including an interesting military history, the modifications to the dune system and original wetlands in the hinterland of the front dunes, lack the legibility of landform that can be experienced form the beach.

Photo 13: The dunes are generally covered in Marram grass for stablisation , but some areas have been revegetated with the native sandbinder Pingao.

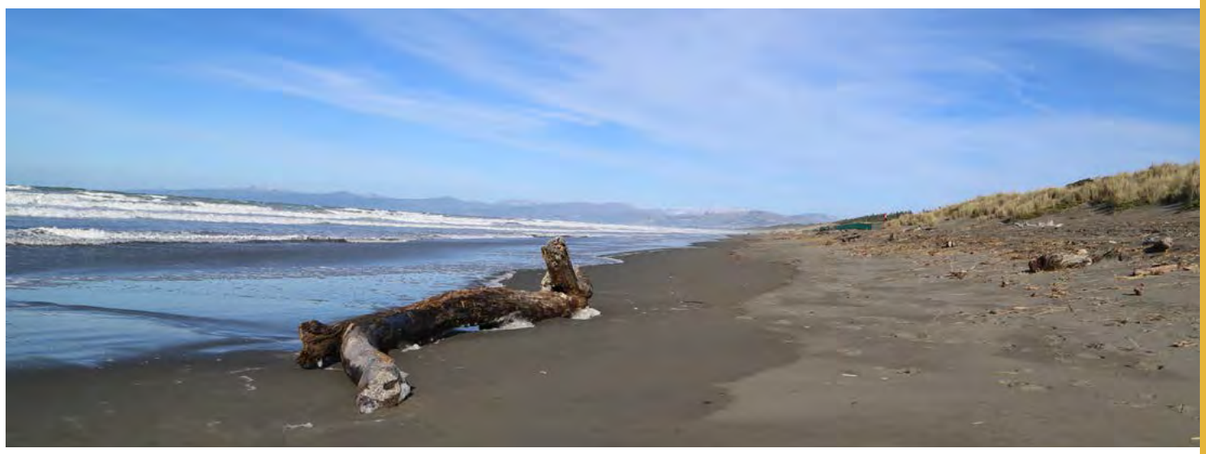

Photo 14: The windswept, rugged beach along the eastern side of Bottle Lake plantation forest is visually separated from the more modified hinterland by a distinctive foredune.

Photo 15: Few wetlands, which originally would have formed extensive swamp areas behind the dunes originally, remain in the Bottle Lake Forest area. Waitakiri wetland is a former mahinga kai site of high importance to tangata whenua.

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1.2.6 NEW BRIGHTON
(REFER ALSO TO SECTION 4.2.4)

(Schedule no. ONF37.0, SF6.0)

The central part of New Brighton contains a linear wide, sandy beach, backed by sand dunes and an intensively used hinterland. The dune system of this central section of New Brighton beach has been modified by a number of buildings and car parks, as well as the large man-made structure of the pier. This area maintains landscape values as part of the wider beach and dune system, however due to the modifications it has been identified as a SF.

The spit of South Brighton, also known as Te Kōrero Karoro, where the road and residential development has been set back further from the beach allows for wider front and back dunes, which have been planted with native vegetation in some areas. The high dunes form a distinctive boundary between the windswept beach with wide, open views and the adjacent residential areas. Due to the high aesthetic (open extensive views), landform (sand spit formation and dunes) and habitat (birds, shellfish and sand binding plants) values, especially associated with the southern part of the spit, the southern beach and dunes have been identified as ONF. Noteable historic and cultural associations, both Māori and European relate to the hinterland of the area, including being an important mahinga kai as well as a site where several historic buildings were located.

Photo 16: North New Brighton/ Waimairi shows a typical cross-section of the vegetated dunes (on the left) and residential development on the right side of Marine Parade.

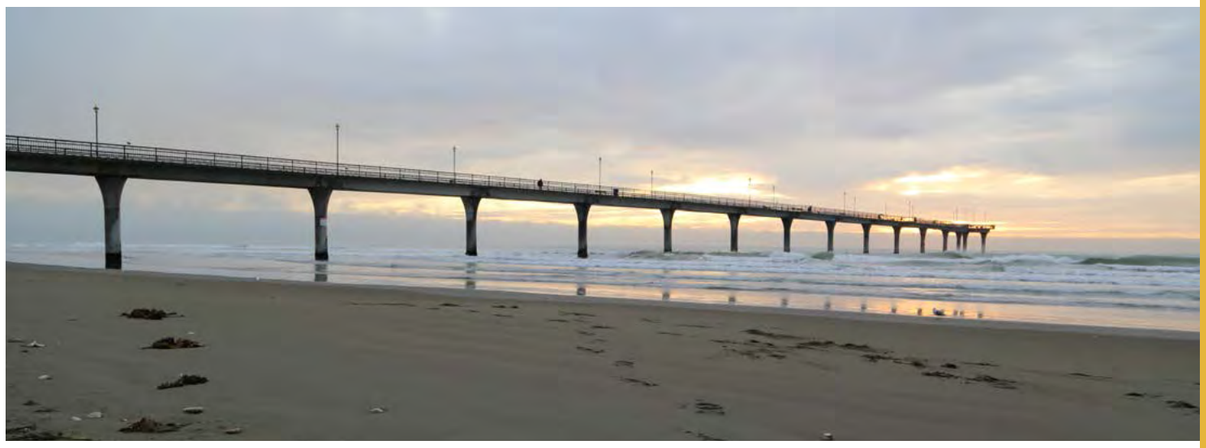

Photo 17: New Brighton Pier is one of the man-made landmarks along the southern part of Pegasus Bay. This central part of New Brighton is very popular for walking, fishing and surfing.

Photo 18: The geomorphologically interesting sandspit of South Brighton provides important bird habitat. Its landscape and visual qualities are also widely recognised, as it confines the narrow entrance of the estuary.

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1.2.7 TE IHUTAI / AVON-HEATHCOTE ESTUARY
(REFER ALSO TO SECTION 4.2.5)

(Schedule no. ONF36.0, SF9.1, SF9.2 & HNC34.0)

Te Ihutai, the estuary of the Avon and Heathcote Rivers, which is confined by New Brighton Spit, is one of the key landscape features of eastern Christchurch. While the context of the estuary has been modified by urban development, the tidal water body retains a predominance of natural processes and has, therefore, been identified as ONF below Mean High Water Spring (MHWS). The estuary has very high ecological significance as a salt marsh area that serve as a bird feeding ground. Te Ihutai is also an area of very high cultural and historical importance to Ngāi Tahu, being a place of significant settlement and mahinga kai, including the former Māori Reserve (MR900) located on the western shore. The estuary was historically used by Europeans as an access route to the city, connecting it to Whakaraupō/Lyttelton Harbour via the Ōpāwaho/Heathcote River. Today, and historically, the Bromley sewerage treatment plant has been located in vicinity of the estuary, but wastewater is no longer discharged into it. The estuary with its changing tidal channels defines the character of the suburbs that surround it and represent a unique recreation resource for the city. The narrow entrance to the estuary at Te Kōrero Karoro/New Brighton spit, where it meets the ocean, is particularly impressive. The parts of Te Ihutai / Avon-Heathcote Estuary that are located below MHWS fall outside Christchurch's district boundaries.

Photo 19: Extensive mud flats can be found on the northern and eastern side of the estuary where the Avon River enters the tidal waters.

Photo 20: The highly productive estuary provides very important habitat for birds searching for food on the exposed tidal flats. Te Ihutai is of high importance for Maori history, settlement, occupation and use as a major mahinga kai.

Photo 21: Rapanui/ Shag Rock, which has suffered damage through the earthquakes, still forms an important visual landmark on the Sumner side of the entrance to the estuary. It is also of very high cultural importance.

1.2.8 WAIMAKARIRI RIVER SOUTH BANK
(REFER ALSO TO SECTION 4.3.1)

(Schedule no. ONF33.0)

The northern boundary of Christchurch is defined by the large, braided Waimakariri River that originates from the Southern Alps. The river is one of the key landscape features of Canterbury and has, therefore been identified as an ONF. The creation of stop banks along the south bank of the river in the 1930s helped to avoid the constant flood risk for Christchurch, but has modified the natural river course, cutting off the formerly extensive south branch, which created a number of islands (including Te Rākai a Hewa, Coutts and Templars). Despite these modifications and a number of introduced weeds along its banks the Waimakariri continues to be a highly dynamic system with high ecological values, including habitat for birds and riparian wetlands. The legibility of the changing channels and the cultural significance of the river and the mahinga kai it provides are exceptionally high. The Waimakariri River Regional Park provides a wide range of recreational opportunities along the river banks. The district boundary with Waimakariri District Council falls within the river bed, occasionally extending towards the north bank. The parts of Te Riu o Te Aika Kawa/Brooklands Lagoon and the Waimakariri River mouth that are located below MHWS fall outside Christchurch's district boundaries.

Photo 22: Extensive stopbanks have been erected along the lower Waimakariri River to reduce the flood risk for Christchurch. They form a demarcation for the river and its associated swamps. Adjacent farmland differs in character.

Photo 23: The Waimakariri road bridge is the main connection to the northern part of Canterbury. When crossing into Christchurch, the river marks the arrival within the district as a landmark within the region.

Photo 24: The braids of the river are typical in their transient nature, as they shift regularly during flood flows.

1.2.9 ŌTŪKAIKINO CREEK
(REFER ALSO TO SECTION 4.3.2)

(Schedule no. SF2.0)

Creek, which is a tributary to the Waimakariri River, is one of a number of important spring-fed rivers within Christchurch City. The water quality of the stream is high, providing important fish habitat. There are also a number of wetlands associated with the stream. While the stream has high ecological values, it is only accessible within the Groynes Reserve, which means that the sensory attributes associated with the Ōtūkaikino are only moderate. This has led to an identification as SF, but it may be appropriate to also acknowledge the values held by Ngāi Tahu as a separate identification for cultural significance.

Photo 25: In the Groynes reserve, some areas of native swamp can be found where spring fed streams emerge from the ground.

Photo 26: The lower Otukaikino flows through farmland and alongside some areas of residential and industrial development. The water quality of the stream remains high compared to other Christchurch waterways.

Photo 27: As the Otukaikino Creek enters the Waimakariri River the difference in water colour distinguishes the spring fed stream from the flood waters of the snow fed river that originates in the Southern Alps.

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1.2.10 DRY GRASSLANDS
(REFER ALSO TO SECTION 4.4.1)

(Schedule no. SF5.0)

The grasslands character area includes a number of separate parts that extend between the Waimakariri River banks and Templeton. Parts of the area contain remnant savannah grasslands dotted with remnant kōwhai trees, which make them a good example of this landscape type on the dry soils of the abandoned river bed. Since the formative processes are still very legible in the form of the former braided channels, which can be particularly well seen from an aerial view, this landscape has been identified as significant despite the reduction of naturalness through the planting of shelterbelts. The specialised plant communities that are well adapted to the dry conditions found in this area, are important remnant of this river plain landscape. The West Melton Reserves are managed by ECAN and at the McLeans Island Grasslands Park by City Council to maintain these dryland ecological values. Evidence of Māori and early European occupation can also be found in the area, including the mahinga kai site known as Pukewhīnau near Coringa.

Photo 28: The stony soils of the former floodplains hold very little moisture, which leads to specialised vegetation.

Photo 29: At the gunclub (ECAN managed land) the savannah grassland is still very legible with a number of kowhai trees.

Photo 30: While the former braids can still be seen in the undulating landform, the land cover has been modified through farming. The landforms are particularly legible from the air.

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1.2.11 HALSWELL TEMPLETON RURAL AREAS
(REFER ALSO TO SECTION 4.4.2)

The low-lying rural areas between the Port Hills and Templeton have been modified by farming and more recently by expanding sub-urban subdivisions. Due to the high level of modification no SF/Ls or ONF/Ls have been identified in this area. It is, however, worth noting that Hendersons Basin area, which is a remnant of a formerly extensive wetland known as Ōtāwhito located at the base of the Port Hills, is of high cultural significance. This wetland is associated with the headwaters of both the Ōpāwaho/Heathcote and Huritini/Halswell Rivers and was a major mahinga kai and as a transport route. The springs found in the area are of biophysical importance and there is potential for ecological restoration in the flood retention areas.

Photo 31: Halswell Quarry provided rock for many historic buildings in Christchurch. The area is now widely planted with native vegetation and provides recreation opportunities.

Photo 32: The rural areas around Halswell have traditionally been used for farming, but more recently new subdivisions have been developed with additional areas allocated for future development.

Photo 33: Hendersons Basin at the base of the Western Port Hills contains many low-lying wet areas. The area used to contain extensive swamps that were a valuable resource for mahinga kai.

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1.2.12 PŪHARAKEKENUI / STYX RIVER
(REFER ALSO TO SECTION 4.5.1)

(Schedule no. SF3.0 & 4.0)

The Pūharakekenui/Styx River is a spring fed river located in the northern suburbs of Christchurch, which flows into Brooklands Lagoon before entering the sea. The river itself and the surrounding land was historically used for a number of purposes. The river and its floodplain have experienced significant modifications, but some of the reserves adjacent to the waterway have undergone substantial restoration planting over the past decades. The most significant restoration area is Styx Mill Conservation Reserve, which is an old meander of the Waimakariri River, extending along the Styx River for 1.6km. Due to the reasonably high ecological values found in this area, the reserve has been identified as a SF, similar to the remainder of the Styx River and associated wetlands which are also considered SFs due to the high amenity values they provide. The Styx River mouth at Brooklands Lagoon is of particularly high ecological value and forms part of the ONF in that area. Ngāi Tahu associations with the river and its wetlands that provide mahinga kai in vicinity to former settlements are very strong.

Photo 34: Styx Mill Reserve has undergone extensive restoration planting and a predator proof fence has been erected around the boundary. Apart from the ecological values it is also popular with walkers and runners.

Photo 35: Janet Steward Reserve in the mid section of the Styx contains large areas of native planting as well as recreation areas for picnics and walking.

Photo 36: The Lower Styx is lined with willows on the northern bank and generally open parkland along the Spencerville side. Formerly the Styx River and its tributaries were surrounded by extensive wetlands that were used by Ngai Tahu as mahinga kai sites.

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1.2.13 ŌTĀKARO / AVON RIVER
(REFER ALSO TO SECTION 4.5.2)

(Schedule no. SF8.1, Central City SF8.2, SF8.3)

The Ōtākaro/Avon River is one of the key features of Christchurch that forms part of the city's identity. As it provides high amenity values for the city along its entire course it has been identified as a SF. The headwaters in the western and northern suburbs define the character of the surrounding residential areas, and include numerous remnant channels. The central section of the river flows through the heart of the city, including Hagley Park, where the historic (heritage buildings, bridges, trees) and tangata whenua associations (including Puari pā and kāinga of Ōtautahi) with the river are particularly strong. A number of wetlands, such as Bexley and Cockayne Reserves, lie adjacent to the lower section of the Avon. The ecological value of the river has been reduced through the urban context, but the river continues to provide freshwater habitat for fish and birds. The lower river is under tidal influence through its connection to the estuary. The river and its tributaries has very high associative values, which may make an identification as a feature of cultural significance appropriate.

Photo 37: Mona Vale marks the point where the major tributaries of the upper Avon tributaries converge. The historic parkland has high associative values.

Photo 38: The waterwheel is commemorative of a flour mill on this site. It is one of many historic structures and buildings found along the central section of the Avon, which contribute to the identity of Christchurch.

Photo 39: The lower Avon is predominantly channelized between stop banks to reduce the flood risk of surrounding residential areas. It still maintains visual and recreational amenity values and is of high cultural importance.

1.2.14 ŌPĀWAHO / HEATHCOTE RIVER
(REFER ALSO TO SECTION 4.5.3)

(Schedule no. SF10.0)

The Ōpāwaho/Heathcote River is another important spring-fed river, which meanders along the base of the Port Hills from a number of springs in the Wigram area to the Avon-Heathcote Estuary in the east. The lower section of the river has been substantially modified through a cut which assisted in straightening its course and reduce flood risk. The river banks are predominantly lined with introduced trees, which provide high amenity value for the surrounding residential areas. As a result the Heathcote has been identified as a SF. The ecological integrity of the river has been reduced through high sediment load in the run-off from the Port Hills, but numerous birds can be found along its course and restoration planting has been undertaken in the upper reaches. The lower Heathcote River has particularly high historic associations as it served as a transport route for early settlers. Similar to the Avon and Styx Rivers, the entire river, including its main tributary (Cashmere Stream) and springs, is of very high cultural importance to tangata whenua. The wetlands that lined the river before human modification took place, were key mahinga kai areas.

Photo 40: The upper and mid Heathcote River flows through residential areas and despite its narrow channel it contributes significantly to the residential amenity of the suburbs at the base of the Port Hills.

Photo 41: Radley Wharf had high historic importance as it was used to transport goods by ship from Lyttelton to Christchurch before the rail tunnel was established. The river and its swamps were also very important for mahinga kai.

Photo 42: The mouth of the Heathcote River above the Ferrymead Bridge has tidal influence through its connection with the estuary. Industrial development occurs in close proximity, but the former towpath - used to tow ships upstream by horse- is now a walkway planted with native vegetation.

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1.2.15 ŌRUAPAEROA / TRAVIS WETLAND
(REFER ALSO TO SECTION 4.5.4)

(Schedule no. ONF34.0)

Ōruapaeroa/Travis wetland is a restored wetland in area that was drained in the past, but still retained an excellent example for a complete wetland soil sequence from low fertility, poorly drained peats to drier silt loams. Intensive restoration efforts over the past decades have created a wetland area that resembles the swamps that would have existed in this area before human modifications. The wetland is now an important wildlife refuge and of very high educational and experiential value. Since this area is an example of an ecosystem that once would have been typical for the lower Canterbury Plains, it has been identified as an ONF. The area also has strong cultural associations through a kāinga, known as Ōruapaeoa, located nearby and that utilised abundant mahinga kai from the wetland.

Photo 43: While it has been severely modified by farming in the past, the extensive swamp areas of Travis wetland have been planted with numerous native plants in an effort to restore the area as close as possible to a natural state.

Photo 44: Travis wetland contains areas of open water, as well as vegetation, which provides cover for birds, making it an important habitat. Mahinga kai was important in this area and the kainga of Oruapaeroa was located nearby.

Photo 45: Pukekos can be found in large numbers in the paddocks surrounding the wetlands.

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1.2.16 WAIKĀKĀRIKI / HORSESHOE LAKE
(REFER ALSO TO SECTION 4.5.5)

(Schedule no. SF7.0)

Waikākāriki/Horseshoe Lake is a rare remnant of an abandoned oxbow of the Ōtākaro/Avon River, which forms an interesting shaped lake, known as a traditional mahinga kai and pā of Ngāi Tahu. The wetland has been modified through the introduction of willows, but significant ecological values remain (such as native plants in understorey) which also make the area an important bird and fish habitat. While modifications in the urban context and the vegetation have reduced the naturalness of the wetland the highly legible geomorphology of this unique landform is recognised as significant within the Christchurch context. Due to the very high cultural importance the wetland has been identified as an SF despite the modifications and the encroachment of the surrounding urban environment. This area could also be suitably identified as a feature of high cultural significance.

Photo 46: The abandoned oxbow of the Avon River, which formed Horseshoe Lake, is still a very legible landform and of geomorphological interest.

Photo 47: The majority of the inner wetland is covered in dense stands of willows, but the understorey is dominated by native wetland plants. The Waikakariki area included a pa site and urupa, as well as being an important mahinga kai.

Photo 48: The outer walkways are popular for recreation, while the recreation infrastructure on the inner bend of the swamp has been severely damaged by the earthquakes.

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1.2.17 PŪTARIKAMOTU / RICCARTON BUSH
(REFER ALSO TO SECTION 4.5.6)

(Schedule no. ONF35.0)

Pūtarikamotu/Riccarton Bush is the last remnant of a lowland Podocarp forest within the city. The reserve survived due to an early conservation effort by the Deans family that managed the first farm in this area. The reserve area also includes some very important historic buildings (Deans' cottage and homestead). The forest was home to a traditional Ngāi Tahu pā and also served as a significant mahinga kai, particularly for forest foods. The ecological values of this last largely unmodified area of native bush, containing a number of very old kahikatea trees, is particularly high. Due to the multitude of exceptional values, including biophysical, perceptual, educational and cultural aspects the reserve has been identified as an ONF.

Photo 49: Riccarton Bush is the most accessible remnant of low land forest found in Canterbury.

Photo 50: Due to protection by the Deans Family impressive old kahikatea trees can still be found in the reserve today. Putarikamotu is of immense cultural significance to both Ngai Tahu as well as early European heritage.

Photo 51: The Deans Cottage (left) and Homestead (right) are of high historic importance and contribute to the overall landscape character and value of the setting.

1.3 LANDSCAPE MEANING AND THE DISTRICT'S STATUTORY CONTEXT

In this Study 'landscapes' have been interpreted as the geographic products of interaction between human societies and culture with the natural environment. While natural processes established the land **on which we live, human processes have modified the land with various characteristic activities and** patterns. Because the human and natural processes are subject to change and evolution, landscapes are dynamic systems which will be subject to further change in the future. This understanding is consistent **with the purpose, principles, definitions and interpretations of the Resource Management Act (RMA),** which provides the context for this study.

The RMA's references to landscape are both explicit and implicit. In "Landscape Planning Guide - For Peri-urban and Rural Areas", Raewyn Peart suggests that the Act

> ***…"enables the identification of four broad categories of landscapes which merit more dedicated focus in regional and district planning, each with slightly different management objectives: outstanding natural landscapes, landscapes which contribute to visual amenity and/or the quality of the environment, areas of the coastal environment with high natural character and areas with cultural or heritage significance. These categories are overlapping and interconnected and may not always have distinct boundaries."***

She goes on to observe that

> ***"Although landscape management, like any other environmental management exercise, is necessarily going to focus on some priority areas, there is a need to be concerned for the maintenance and enhancement of landscape quality everywhere. All landscapes arguably merit some management consideration under the 'sustainable management' purpose of the RMA and the requirement to avoid, remedy or mitigate adverse effects of activities on the environment."***

PURPOSE OF LANDSCAPE MANAGEMENT

From a technical landscape perspective, the purpose of management may be characterised as:

a. avoiding the inappropriate erosion of the intrinsic characteristics and qualities that have built up over time through the interplay of natural and cultural processes; and

b. enabling development and change to occur that avoids the loss of landscape coherence, diversity and cultural identity and meaning.

This landscape perspective is packaged within the RMA under a number of matters of national importance (Section 6) and other matters to which the Council is required to have particular regard (Section 7). The key sections of the RMA that relate to 'landscape' are the 'natural character of the coastal environment, wetlands, and lakes and rivers and their margins' (Section 6(a)), 'outstanding natural features and landscapes' (Section 6(b)), 'historic heritage' (Section 6(f)) and landscapes which contribute to 'visual amenity' and/or 'environmental quality' (Sections 7(c) and (f)). 'Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna' (Section 6(c)) and 'the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga (Section 6(e)) are also clearly linked to a broad understanding of landscape.

Natural features and landscapes that do not meet the criteria for being ranked as 'outstanding' can nonetheless qualify for protection under other clauses in Section 6 or be required to be 'maintained and enhanced' either as 'amenity values' or part of the wider 'environment' Section 7(c) or Section 7(f). Thus, for example, coastal landscapes or rivers/ wetlands that were not 'outstanding landscapes' would still be required to have their 'natural character' preserved under Section 6(a), as would areas of indigenous vegetation or habitats of indigenous fauna that were also not considered to be 'outstanding natural features' under Section 6(b), will require protection under Section 6(c).

All sections of the RMA are relevant to this Study. However, it is Section 6(b) regarding outstanding natural features and landscapes that was the main focus of this assessment at a district scale. Objective 7.2.1 (2) of the Canterbury Regional Policy Statement (CRPS) and Policy 7.3.1 regarding the natural character values of freshwater bodies and their margins in relation to the rivers and other waterbodies also provide relevant context for the preparation of this Study.

OUTSTANDING NATURAL LANDSCAPES

Case law has described the word 'outstanding' in 'outstanding natural features and landscapes' in section 6(b) of the RMA as 'conspicuous, eminent, especially because of excellence' and 'remarkable'. A landscape may be magnificent without being outstanding[3]. Usually an outstanding natural landscape should be so obvious (in general terms) that there is no need for expert analysis but analysis[4] is required to determine where an ONL ends.

REGIONAL AND DISTRICT LEVELS

The Environment Court also found that 'outstanding' can be considered on a regional basis, if being assessed by a regional council. If being considered by a district council, then outstanding must be considered in terms of the district or city. In relation to a district or city plan, what is outstanding can only be assessed on a district-wide basis, because the sum of the district's landscapes are the only immediate comparison that the council has[5].

This approach has led to the identification of additional areas of outstanding natural features and landscapes within Christchurch City than are in the CRPS, as the scale moves from national, to regional, to local. Areas or features that may not meet the threshold to be regionally outstanding may well be outstanding within a district (eg smaller waterways and hill ranges). Within Christchurch City additional ONF/Ls have been identified to those identified within the Canterbury Region as those landscapes are important contributors in the local context. However, it is noted that the ONF/Ls proposed in this Study include all those identified in the operative CRPS (Brooklands Lagoon, Port Hills).

3. Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59 at paragraph 82.

4. Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59 at paragraph 99.

5. Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59 at paragraph 85.

NATURAL LANDSCAPES AND FEATURES

Landscapes are larger areas that are perceived as a whole, which can include a number of features within them. Landscapes can be either experienced from within (eg walking tracks/ Summit Road within Port Hills landscape) or seen as the whole of the outlook (eg the Port Hills perceived as a whole from Christchurch City). Landscape boundaries can coincide with visual catchments.

Landscape features are discrete elements within a landscape, which are generally experienced from outside the features' boundaries. Features display integrity as a whole element and can often be clearly distinguished from the surrounding landscape, which forms the context around them. Generally features are defined by their geomorphological landform boundaries However, in some instances (such as areas of native bush) these are defined more readily by landcover characteristics.

Small landscapes can nest within larger landscapes. Both landscape and feature are scale dependent, eg Banks Peninsula could be identified as a feature when seen as a whole from a satellite aerial view (Regional Scale), while it has landscapes, such as the Akaroa Harbour, and features, such as volcanic outcrops, occurring within it when perceived from within (District and Local Scale).

While RMA Section 6(b) refers to both landscapes and features without differentiating between the two, for this Study a differentiation has been made between the identification of Outstanding Natural Landscapes (ONL) and Features (ONF) and Significant Features (SF) and Landscapes (SL). Within the Christchurch context only the Port Hills are considered to be an ONL, while the other identified areas are referred to as features due to their confined scale.

CULTURAL LANDSCAPES

The concept of 'cultural landscapes' is an emerging area within New Zealand resource management policy and planning. A cultural landscape, as defined by the World Heritage Committee of the UNESCO, is the "cultural properties [of a landscape that] represent the combined works of nature and of man." In New Zealand, the concept has been largely promoted by iwi and hapū in an effort to recognise and provided for the relationship Māori have with ancestral lands, waters and coastal areas and capture areas and values that are not otherwise captured by conventional landscape, ecological or heritage assessments or policy. Cultural landscapes, however, are not confined to those associated with Māori.

An early use of the term 'cultural landscape' in New Zealand came from Maru Whenua – the Māori arm of the Ministry for the Environment, as a more appropriate term than 'Urban Design' and to acknowledge a Māori world view that physical landscapes are inseperable from tupuna, events, occupations and cultural practices. More recently, both iwi and councils have adopted specific policy around the protection and enhancement of cultural landscapes including the Mahaanui Iwi Management Plan (Section 5.8 Ngā Tūtohu Whenua) and the CRPS (Chapter 13 Historic Heritage), both published in 2013 and of relevance to this study. The relevant policies in these documents, particularly the CRPS (Policy 13.3.3), require local authorities to include objectives, polices or methods to manage effects of sub-division, used and development on cultural and hertitage landscapes in district and regional plans; initiate assessment and management of such landscapes and engage with Ngāi Tahu in doing so.

While cultural values are considered as part of this landscape assessment, it is acknowledged that some areas of cultural landscape value may not meet criteria for ONF\Ls and therefore further work may be required to adequately and appropriately include areas of cultural landscape significance. To this end, the Council is working with Ngā Papatipu Rūnanga through Mahaanui Kura Taiao Ltd to consider the best way to achieve this.

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2. METHODOLOGY

The Christchurch Landscape Study was prepared in two stages over the three months between May and July 2014. The first stage consisted of a landscape character assessment, which described the landscapes included in the study area through the establishing of a series of 'Landscape Character Areas' (see Map 1, Appendix 4). The second stage focussed on the evaluation of landscape values within these character areas and an assessment of the natural character of the Christchurch coast. The landscape characterisation and evaluation cover the natural environment within the city boundaries but not the built-up or urbanised areas, as these elements were outside the scope of this study. Values of natural landscapes of cultural significance to tangata whenua are covered, but an exhaustive characterisation of individual heritage buildings, places and settings has not been undertaken, which will be addressed under other parts of the District Plan Review. The methodology applied for the preparation of the landscape study is described in detail below and summarised in the following flow diagram.

Figure 2: The flow diagram above illustrates the stages involved in the preparation of the landscape study and input into the relevant chapter of the Christchurch City Plan.

2.1 STUDY AREA

Since this study focusses on the natural landscapes of the city, residential and business zones have not been included in the assessment. The study area delineation has been based on the following zones **identified in the current District Plan:**

- Rural Zones
- Conservation Zones (including Reserves)
- Open Space Zones (including Recreation Reserves)
- Deferred Living Zones on the Port Hills

The study area includes all of these zones, as well as a narrow strip of land adjacent to the Ihutai/ Avon-Heathcote Estuary, where it was necessary to include parts of residential zones in order to ensure that a meaningful outline for the character area could be achieved. Along the Port Hills it extends up to the former City-Banks Peninsula District boundary, the land beyond that line having been assessed in the Banks Peninsula Landscape Study (BML, 2006).

The outlines of some character areas, in particular the rural areas between Halswell and Templeton, appear to be somewhat disjointed due to the extensive number of residential and business zones located amongst the rural land. While the visual effects of residential areas, including those on the lower slopes of the Port Hills, form part of the overall perception of the adjacent character areas, the urban form has not been included in the characterisation itself.

2.2 SCOPING AND FAMILIARISATION

As a basis for the landscape character assessment, the study team undertook a detailed desktop analysis of the existing information relating to Christchurch's landscape, including a literature review of online and hard copy material outlined in the reference section of this report and the existing District Plan. A series of Geographic Information System (GIS) maps were prepared highlighting different landscape layers, such as vegetation, landuse and geology. The focus of the GIS and desktop studies was to enable a clearer understanding of Christchurch's landscape prior to undertaking on-site investigations ensuring all components were visited. This included background research into sites and values of cultural significance to Ngāi Tahu and initial engagement with Ngāi Tahu Papatipu Rūnanga and Te Rūnanga o Ngāi Tahu representatives (outlined further below).

An adequate amount of site data was thereby assembled despite the restricted timeframes. Following the desktop study the study team undertook four days of site observations, by traversing the city's roads and assessing public land on the ground. This, as well as familiarity with the landscapes and features from previous work enabled the study team to get an overview of the various landscapes and to better understand the type and extent of current land use trends. Access to private land was generally not necessary due to visibility from public viewpoints. A desktop review of aerial photos and GIS datasets was carried out prior to the site visits with maps prepared for the field work.

2.3 CULTURAL SITES AND VALUES OF SIGNIFICANCE TO NGĀI TAHU

To identify values and/or sites of cultural landscape significance to tangata whenua within Christchurch City, a desktop review of relevant planning and historical documents and sources was undertaken that included:

- various iwi environmental planning documents (including the Mahaanui Iwi Management Plan (IMP) and Te Whakatau Kaupapa);
- existing and previous district plan maps and information;
- reports prepared to assist the development of Christchurch City planning documents (including the South West Area Plan and Christchurch Central Recovery Plan); and
- available tribal manuscripts and trusted reference material/information (eg. Herries Beattie).

Information within the Mahaanui IMP includes information on sites and values derived from other sources including the New Zealand Historic Places Trust, New Zealand Archaeological Association, silent files and sites related to the Ngāi Tahu Claims Settlement Act 1998.

From these sources a draft list of cultural sites and values was prepared, which was discussed and reviewed by both Mahaanui Kura Taiao staff and Papatipu Rūnanga representatives on the Rūnanga Working Focus Group, as well as the cultural mapping team of Te Rūnanga o Ngāi Tahu and Associate Professor Rawiri Te Maire Tau of the Ngāi Tahu Research Centre, University of Canterbury. Following this, information from these lists was used to inform the Landscape Study and identify particular cultural values that could be considered as contributing to the identification of outstanding or significant natural features or landscapes. A map has been prepared that illustrates the location of culturally important sites and features in the Port Hills (refer to Map 6).

[Weld, Frederick Aloysius] 1823-1891 :Canterbury Plains, Waimakariri [5 December 1850] Item link: http://natlib.govt.nz/records/22872743

Weld, Frederick Aloysius (Hon Sir), 1823-1891. [Weld, Frederick Aloysius] 1823-1891: Canterbury Plains, Waimakariri [5 December 1850]. Ref: A-269-011. Alexander Turnbull Library, Wellington, New Zealand.

2.4 LANDSCAPE CHARACTER AREA IDENTIFICATION AND ANALYSIS

Landscape characterisation provides a descriptive and analytical basis for the understanding of landscape diversity, attributes and change. Landscape characterisation provides a context for the evaluation of special landscapes (i.e. Outstanding Natural Landscapes) and provides justification for their management. Therefore, the purpose of the characterisation is to provide a largely descriptive and objective foundation for the evaluative assessment (which involves value judgements) and which will later inform the selection of appropriate management mechanisms.

Currently, the Christchurch City Plan does not contain comprehensive landscape descriptions and where they are included in the plan these are not clearly linked to mapped areas (e.g. CC DP Volume 2, 2.7 Objective Port Hills). Therefore, the focus of this study was on developing full character and value descriptions for all landscape character areas and features (see Section 4 of report). The level of information on landscape values to be included in this study required a significant component of judgment by the study team, informed by case law and an understanding of what is perceived as natural. The characterisation included in this landscape study aims to provide consistent descriptions across the natural landscapes within the city. It highlights the landscape attributes that have subsequently been assessed in the evaluation.

Character areas are generally based on definable landform and landcover differences between various parts of an investigation area. Broadly they are based on the three land types that occur within Christchurch City described as follows in the Canterbury Landscape Study Review (BML, 2010 – based on Lucas Associates & I. Lynn/ Landcare Research, see Section 3.1 for description):

- Plains - Coastal Fringe Land Type,
- Plains - Recent Floodplains and Low Terraces Land Type,
- Banks Peninsula - Port Hills Land Type

Each of these land types has subsequently been further divided into landscape character areas, which display similar attributes in terms of their geomorphological and land cover attributes. The character areas are generally perceived to be of homogenous appearance.

The main four character areas, which have been split up further into smaller areas are:

- Port Hills Character Area (2 sub-areas)
- Coastal Character Area (5 sub-areas, including Godley Head)
- Waimakariri River Character Area (2 sub-areas)
- Rural and Grasslands Character Area (2 sub-areas)

LANDSCAPE FEATURES

Within Christchurch a number of important natural features can also be found, generally within an urban context. Due to their limited size, their often curvi-linear nature and the extensive modification of their surroundings they are not considered to be landscape character areas in their own right. Nevertheless, these features include rivers, wetlands and forests that are particularly important for the City of Christchurch, as they are often the last remnants of their kind and part of the local identity.

The following features have, therefore, been described separately as part of the landscape character assessment:

- Pūharakekenui / Styx River
- Ōtākaro / Avon River
- Ōpāwaho / Heathcote River
- Ōruapaeroa / Travis Wetland
- Waikākāriki / Horseshoe Lake
- Pūtarikamotu / Riccarton Bush

As only a part of the Huritini / Halswell River lies within the CCC area, it has not been considered as a separate landscape feature, however, the upper part of the river has been considered in the Halswell-Templeton Rural character area.

Each of the identified character areas has been described in terms of the following landscape aspects:

- Location and boundaries
- Landform
- Landcover
- Occupation, cultural and heritage aspects
- Land use and recreation

Past research documents provided by CCC and a number of relevant publications have provided a large part of the background information for the desktop landscape analysis (see References). In addition, GIS data and existing knowledge of the study area have been used for the character descriptions. Craig Pauling (cultural advisor at BML) has provided input to develop draft descriptions of cultural aspects where they relate to tangata whenua values for each character area. During the course of the cultural work undertaken for the District Plan Review these preliminary descriptions were amended and extended as required[7]. While there was no expert on European heritage directly involved in the preparation of character and value descriptions, the peer review through CCC staff and the external peer reviewer, Landscape Architect Graham Densem, helped to ensure that European heritage aspects were adequately covered. Heritage buildings were only referred to if they occurred within or immediately adjacent to the study area, which excluded residential and business zones. The historic Black Map drawn in 1856[8] has provided information about ecosystems found within Christchurch prior to significant modifications by European settlers (see maps of Waimakariri River, Map 5, Appendix 4).

The descriptions of the landscape character form the basis for detailed evaluation of the landscape values for each character area, which will in turn provide the explanation for Outstanding Natural Feature and Landscape (ONF/L) identification. As part of the evaluation stage site visits have been undertaken to ensure correct mapping of ONF/Ls. Photographs and overview maps have been included in the study report to illustrate findings (see Appendix 3).

7. Where place and species names are mentioned, this report includes the Māori name first, followed by the common name (and/ or scientific name if required). This is done the first time the name occurs within a section, then uses the common name after that.

8. The Black Map produced by early surveyors provides an important historical record about ecosystems found within Christchurch prior to significant modifications by European settlers.

2.5 LANDSCAPE EVALUATION

The landscape evaluation was concerned with identifying the values and quality of the city's landscapes and features. This is a complex task requiring a significant component of judgment by the investigations team based on the comparative analysis of values outlined below. While the landscape characterisation classified the city's landscapes and features into character areas which were described in detail, the evaluative study identifies the character areas' different landscape values including the identification of landscapes in accordance with Sections 5, 6 and 7 of the RMA 1991.

These landscapes include:

- Coastal 'natural character' landscapes (section 6(a))
- Natural character of freshwater bodies and their margins, including rivers and wetlands (section 6(a))
- Outstanding natural features and landscapes (section 6(b))
- Visual Amenity of significant landscapes and features (section 7(c))

It should be noted that the initial brief provided by CCC only required the identification of coastal 'natural character' and outstanding natural landscapes values under sections 6(a) and 6 (b). As the work was progressed though, it became clear that the city's landscapes in a highly modified, urban context, required an additional category of identification. This was due to the fact that some of the landscapes and features could be classified as significant in terms of their values, while not considered outstanding when compared with others. While, the term 'significant landscape' is not directly linked to a specific section of the RMA, they are often alike to other second tier landscapes referred to as 'Visual Amenity Landscapes' under RMA section 7(c) (see section 2.5.2 Thresholds for Identification of Outstanding and Significant Natural Landscapes).

Landscape is a multi-dimensional concept and includes natural science, heritage, cultural, aesthetic and a number of other values. Landscapes are valued differently by different people for a range of reasons. Our world views, upbringing and education will all influence our response to particular landscapes. Maori understanding of, and attitudes to, landscape can be significantly different from those of non -Maori. For most of us our connection to the landscapes around us is deep-rooted. It is likely to involve culture, heritage, memories and much more. Therefore, it is essential that the process of valuation adopted by this study, and the use of its evaluation outcomes, are as transparent as possible.

An external peer review has been carried out for this landscape study by CCC staff, who are specialists in landscape (H Lewthwaite), heritage (A Ohs) and ecology (A Shadbolt), and an external landscape architect (G Densem). Cultural input to the review was provided by cultural advisor C Pauling (BML).

The peer review helped to:

- identify and fill gaps in the landscape character descriptions,
- discuss landscape values of potential ONF/Ls and SF/Ls (exchange knowledge, identify omissions/errors),
- define a threshold, which should be met by district ONF/Ls and SF/Ls, and
- discuss exact boundary outlines of these areas.

The landscape of Christchurch City has been substantially modified over the past centuries, which has had detrimental effects on its naturalness. However, the human influence has also added a distinctive cultural layer to the landscape, which is valued by many today. The difficulty the study team faced during the landscape evaluation phase lay in determining whether these landscapes meet the threshold of being 'outstanding at a district level' and whether they are 'natural enough' to qualify as Outstanding Natural Landscapes. All landscapes have values, therefore the level of information on landscape values required a significant component of judgment by the study team.

2.5.1 LANDSCAPE ASSESSMENT CRITERIA

As mentioned previously, there are various different ways in which landscapes may be appreciated and thresholds for quality determined. The range of criteria that the Environment Court has reinforced for landscape practitioners to consider when valuing landscapes is referred to as the Amended Pigeon Bay criteria or factors[9]. The criteria or factors include (but are not limited to):

1. the natural science factors - the geological, topographical, ecological and dynamic components of the landscape;
2. its aesthetic values including memorability and naturalness;
3. its expressiveness (legibility): how obviously the landscape demonstrates the formative processes leading to it;
4. transient values: occasional presence of wildlife; or its values at certain times of the day or of the year;
5. whether the values are shared and recognised;
6. its value to tangata whenua; and
7. its historical associations.

There is now a level of acceptance in the use of these criteria as an assessment framework. However, it is also increasingly recognised by practitioners that while they are useful, they also have certain limitations. While they were not intended to form a definitive or 'complete' list of landscape values, this is how they have often been used by assessors. Many of the criteria actually overlap and some could be more usefully seen as subsets of one another rather than as separate value categories. This can be confusing and lead to some values being given more weight than others, or 'double-counting'.

A recent review by the New Zealand Institute of Landscape Architects (NZILA) has reordered the Pigeon Bay criteria into three categories, focusing on the landscapes' broad Biophysical, Sensory and Associative values. Condensing the Pigeon Bay criteria or factors into these three broad categories reduces the risk of emphasising some criteria at the cost of others and enables assessors to interpret the landscape values with validity and reliability.

A detailed breakdown and description of each of these three attributes is included in Appendix 1 of this report. The key aspects covered under each one of these attributes can be summarised as follows:

1. Biophysical features, patterns and processes may be natural and/or cultural in origin, and range from the geology and landform that shape a landscape to the physical artefacts such as roads that mark human settlement and livelihood.
2. Sensory qualities are landscape phenomena as directly perceived and experienced by humans, such as the view of a scenic landscape, or the distinctive smell and sound of the foreshore.
3. Associative meanings are spiritual, cultural or social associations with particular landscape elements, features, or areas, such as pā, kāinga, tūpuna awa, mahinga kai and waahi tapu, or other sites of historic events or heritage. Associative activities are patterns of social activity that occur in particular parts of a landscape, for example, popular walking routes or fishing spots.

9. Pigeon Bay Aquaculture Ltd v Christchurch Regional Council [1999] NZRMA 209; Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59 at paragraph 72.

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2.5.2 THRESHOLDS FOR IDENTIFICATION OF OUTSTANDING/ SIGNIFICANT NATURAL LANDSCAPES

Consideration of findings from the desktop review and on-site investigations assisted the study team to determine a landscape's or feature's biophysical, sensory or associative values. This essentially used a five point scale from Very High through to Very Low. Under the methodology, outstanding landscapes or features contained at least a Very High or High attribute scoring. It was acknowledged that not all landscapes needed to score Very High in every category to be considered as an Outstanding Natural Feature or Landscape (ONF/L), although this depended on the landscape under consideration. For comparative purposes a table was prepared for internal use, where each of the landscape attributes were rated from Very High through to Very Low. The results of this rating were included for transparency in the evaluation for each character area in Section 4 of this report (see Identification of Outstanding Natural Landscapes at the end of each sub section).

While some landscapes/ features have high amenity values, such as the Heathcote River, ONF/Ls were only identified in areas that also contained other high landscape values, such as the Port Hills, which in addition to scenic or sensory values includes, high biophysical and associational values. Landscapes and features containing particular scenic values, but a noticeably lower rating of other landscape values, have been identified as Significant Features and Landscapes (SF/Ls). The values of these SF/Ls are often more alike to Visual Amenity Landscapes (VAL), which have been identified in other districts under S7(c) of the RMA. Through case law VALs are often associated with rural landscapes that have an 'arcadian' character, such as the rural valleys of the western Port Hills with a mix of mature exotic vegetation[10]. Since this does not generally apply to the urban context of Christchurch City, the term 'Significant' has been used in this study to identify natural features and landscapes that do not meet the quality threshold for 'Outstanding' in terms of their values. While the identification of SF/Ls was not part of the initial brief for the study, these areas were identified due to their relatively high landscape value, which in the view of the study team lies just below or around the threshold for ONF/L identification. The threshold between SF/L and ONF/L was defined based on a rating for each of the three attributes outlined above. ONF/Ls were defined as those landscapes and features that would reach an overall rating of greater than 'High' with no one of the attributes rated lower than 'Moderate'. A few SF/Ls had a low rating for one of the attributes, but were overall still rated as moderate- high. This allows for landscapes and features to be considered as SF/Ls that may for example be relatively modified biophysically but very important in terms of their cultural associations, such as the Heathcote River.

Landscapes may be important under section 7 of the RMA for a large variety of reasons. As stated in the Wakatipu[11] decision these reasons can include, by way of example, that the landscapes are important both in respect of the maintenance of amenity values and more generally of the quality of the local environment. It may also include landscapes that are important in terms of their scenic and visual qualities, which applies for example to the SLs identified in the rural areas around the base of the western Port Hills. Furthermore there are landscapes included as VALs that may potentially be outstanding, but do not exhibit the predominance of natural attributes that an ONL is required to display due to extensive modifications (which can include historic and current land uses, introduction of exotic grasses, trees, weeds, earthworks and buildings).

Natural features and landscapes that do not meet the criteria for being ranked as 'outstanding' can nonetheless be required to be "maintained and enhanced" either as "amenity values" or part of the wider "environment" under Section 7(c) or 7(f). The most rigorous approach to landscape evaluation is likely to involve a layering of values with an evaluation of the quality of each values layer accompanied by an explicit (to the extent possible) justification as to why the values meet the threshold for ONF/L or SF/L status. In this way, the justification for status is relatively robust and explicit. Finally, the explanation provides a basis for directing specific management mechanisms designed to protect the actual outstanding/ significant values present. For example, if a landscape is considered to be outstanding because of its biophysical values, appropriate management mechanisms to protect those values may be very different from a landscape that is outstanding due to its cultural heritage values. Of course, in many cases the value layers will overlap and a landscape will be outstanding for a range of reasons. Management mechanisms should reflect this.

For each character area the values are explained in the text, and the study is explicit about the rating of these values and why they have led to an identification as a SF/L or ONF/L.

10. Wakatipu Environmental Society Inc. v Queenstown Lakes District Council [2000] NZRMA 59 at paragraphs 113 – 115.

11. Wakatipu Environmental Society Inc. v Queenstown Lakes District Council [2000] NZRMA 59 at paragraph 114

HOW NATURAL DOES A LANDSCAPE/ FEATURE HAVE TO BE IN ORDER TO BE CONSIDERED?

As outlined in other Landscape Studies (eg Eastern Mackenzie Basin Landscape Study, Densem & BML, 2013) a natural landscape is one possessing a dominance of natural elements, patterns and processes (for instance soil, hydrology, topography and vegetation), over those created by humans. A natural landscape has a predominance of unchanged landforms, functioning water, drainage and soil processes and tree, plant and animal patterns, compared to human developments such as buildings, earthworks, vegetation modification, fencing, roads, quarries, reclamations or subdivision. Under the RMA a landscape does not have to be unmodified to be natural, just relatively unmodified. At issue is the degree of the natural component compared to the degree of human modification, and the balance of dominance of one over the other. This has to be assessed in the context of Christchurch City.

Court decisions make it clear a landscape need not have indigenous or native vegetation to be considered natural, even though landscapes with a significant component of unmodified native vegetation would be considered more natural and closer to a pristine state. Landscape assessments in New Zealand generally ascribe higher landscape values to unmodified areas, but this does not imply that anything less than pristine is devoid of natural values, just that they are of lesser value[12]. Most of the above issues arose in the 'Plan Change 13 Interim Decision' concerning the Mackenzie Basin. In this Decision the Court determined that landscapes with a wide range of 'High' landscape values can qualify as an ONF/Ls despite significant modifications[13]. In the Interim Decision, the Court 'provisionally approved' a seven-point scale of naturalness that might be useful in landscape proceedings (but subject to a caveat about naturalness being a cultural construct)[14]. SLs and ONLs can, therefore, be identified in the moderate to high, high or very high range of naturalness, while they would not qualify if they are moderate or below in naturalness. The Court viewed this scale as having potential to standardise references to degree of naturalness in landscape proceedings, and it is therefore adopted in this study. The same paragraphs of the Mackenzie Basin Interim Decision also discuss the degree of naturalness necessary for a landscape to be an outstanding natural landscape.

It states that the criteria of 'naturalness' usually include:

- relatively unmodified and legible physical landform and relief;
- the landscape being uncluttered by structures and/or obvious human influence;
- the presence of water (lake, river, sea);
- the presence of vegetation (especially native vegetation) and other ecological patterns.

The subsequent discussion makes it clear the Court regards naturalness as comprising a balance between the natural and cultural components of a landscape[15]. It concludes that modified landscapes, and not just pristine ones, can qualify as ONF/L.

12. Wakatipu Environmental Society Inc. v Queenstown Lakes District Council [2000] NZRMA 209 at paragraphs 88 and 89.

13. High Country Rosehip Orchards Ltd v Mackenzie District Council [2011] NZEnvC 387, paragraphs 105 - 106, but also the general discussions in 76 – 105.

14. High Country Rosehip Orchards Ltd v Mackenzie District Council [2011] NZEnvC 387, paragraphs, paragraphs 93 - 95

15. Long Bay-Okura Great Park Society Inc. v North Shore City Council, EnvC Auckland A078/08 16 July 2008 atThe issue is considered also in Long Bay-Okura Great Park Society Inc. v North Shore City Council, EnvC Auckland A078/08 16 July 2008 atThe , paragraphs 133 – 135.

2.6 MAPPING OF OUTSTANDING/ SIGNIFICANT NATURAL FEATURES AND LANDSCAPES

Following the landscape evaluation, the next step the study team undertook was to determine the spatial extent of the city's ONF/Ls and SF/Ls. The study team was able to delineate areas that displayed notably high qualities of a range of biophysical, sensory and associative values based on a number of GIS layers that informed the study and aerial photographs. The GIS layers used for the assessment are detailed in Appendix 2 of this report.

ONF/Ls and SF/Ls have been consistently mapped on aerial photos provided by ECAN at a scale 1:5.000, in some instances at 1:2.500 as required for particular features. Depending on the specific values identified for a landscape or feature, a number of different mapping techniques were used in this study to identify boundaries:

1. Land typing Approach: This approach has been applied at a broader scale before refining the boundary outlines with one of the two approaches below. Due to the comparatively small scale of the study areas, this approach was often too coarse, but it informed the initial identification of the ONF along Brooklands, the Estuary and the Waimakariri River.
2. Land use Approach: This approach was particularly important for the identification of features within Christchurch, where the land use/ cover changed substantially in the immediate surroundings of the landscape/ feature. This applied for example to the wetlands of Horseshoe Lake and Travis Wetland, as well as Riccarton Bush. The mapping for the Port Hills has also been refined along land use change boundaries, where this gave stronger guidance than the use of a contour line or a landform boundary.
3. Zone boundary Approach: Often land use also aligns with the zone boundaries between rural and residential/ industrial areas, as past and current rules for zones have led to differences in development densities. This is the case for many of the spurs on the Port Hills, which have been intensively developed to the edge of residential zone boundaries.

In some instances the ONF/Ls and SF/Ls are extending into areas that are located below Mean High Water Spring (MHWS) in the coastal environment. While it is acknowledged that the territorial boundaries of the city terminate at this line, it was considered inappropriate from a landscape point of view to clip these areas out of the identified areas. This applies in particular to the Avon/ Heathcote Estuary and Brooklands Lagoon, where the key landscape values are located around or below MHWS. It is understood that for the preparation of maps to be included in the Christchurch City Plan, these areas will be clipped to the territorial boundaries, as required.

Springs are features that are of general significance to the city's landscape as a whole, but have not been mapped as SFs. Christchurch's many springs, some of which are dry nowadays still tell a story of the swamps and spring-fed streams that once covered the low-lying parts of Christchurch in the past (see Map 4, Appendix 4 for springs and waterways).

2.7 COASTAL ENVIRONMENT AND NATURAL CHARACTER ASSESSMENT

When the New Zealand Coastal Policy Statement 2010 (NZCPS) was released in December 2010, local authorities were tasked under Policy 13 to map or otherwise identify (at least) areas of high natural character in the coastal environment.

2.7.1 DEFINING THE COASTAL ENVIRONMENT

The Coastal Environment Overlay for Ōtautahi/Christchurch City and Te Pātaka o Rākaihautū/Banks Peninsula has been developed where the Council used multi-criteria analysis to determine the landward **extent of the coastal environment. A series of workshops were held with technical experts in the fields** of ecology, coastal hazards and coastal geology, landscape planning, parks and recreation, heritage and planning at which the following criteria were applied and ranked:

a. natural coastal character;
b. coastal landscape and ecology;
c. coastal natural hazards;
d. interaction with coastal marine area;
e. public access and recreation;
f. heritage values; and
g. practical and reasonable approach.

The landward extent of the Coastal Environment is shown as an overlay on the District Plan maps. Community submissions are likely to result in further refinements to the overlay.

2.7.2 COASTAL NATURAL CHARACTER

The environments with the greatest natural character are those with comparatively low levels of human modification and are, therefore, composed of natural elements appearing in natural patterns and underpinned by natural processes.

Natural character is not defined in the RMA or in the NZCPS 2010. Assessing natural character is not new and the methodology developed draws on the considerable experience gained from evaluating coastal landscapes over the past 20 years and on case law. The NZCPS under Policy 13 confirms that natural character is not the same as natural features and landscapes or amenity values. The policy also lists a number of matters that may be included in natural character. The methodology developed for this study incorporates these matters in line with best practice.

These matters (under Policy 13) include (but are not limited to):

a. natural elements, processes and patterns;
b. biophysical, ecological, geological and geomorphological aspects;
c. natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;
d. the natural movement of water and sediment;
e. the natural darkness of the night sky;
f. places or areas that are wild or scenic;
g. a range of natural character from pristine to modified;
h. experiential attributes, including the sounds and smell of the sea; and their context or setting.

2.7.3 EVALUATION OF NATURAL CHARACTER

The natural character can be assessed on a continuum of modification that describes the expression of natural elements, patterns and processes (or the 'naturalness') in a coastal landscape/ ecosystem where the degree of 'naturalness' depends on:

- The extent to which natural elements, patterns and processes occur and are legible;
- The nature and extent of human modifications to the landscape, seascape and ecosystems;
- The fact that the highest degree of natural character (greatest naturalness) occurs where there is least modification/ uncluttered by obvious or disruptive human influence; and
- Recognition that the degree of natural character is context-dependent and can change over time.

For the purposes of the study, the coastal environment has been divided up into five Coastal Character Areas (Brooklands, Bottle Lake, Brighton, Avon/ Heathcote Estuary and Godley Head). These Coastal Character Areas were based on the Landscape Character Areas, albeit somewhat slimmer in inland extent due to the location of the mapped coastal environment line. It should be noted that the MHWS mark forms the city's territorial boundary along the coastline. However, natural character was also mapped for the Avon/ Heathcote Estuary and Brooklands Lagoon, which lie below MHWS, since processes in these enclosed coastal water bodies are tightly linked to the surrounding edge of the city. Analysis of these inland sheltered waters has been considered for this study for completeness, despite the fact that the water component is outside CCC's jurisdiction. No analysis has occurred within the open coastal marine area, as this area falls outside the district boundaries.

A number of key attributes needs to be considered when assessing the natural character of the coastal environment. Through BML's experience, including the interpretation of the NZCPS 2010, the list of attributes outlined in the following table has been identified as a systematic way to consider the different aspects of the natural patterns, processes and elements of the coastal environment and the degree of modification present. An overall value judgement as to the degree of natural character is made for areas within the Coastal Environment. The Coastal Context is also considered, as elements within this zone can affect, or be affected by, the natural character of the coastal environment.

The methodology rates natural character on a seven-point scale from Very High (lowest amount of modification) to Very Low (greatest amount of modification). The matters included within Policy 13 of the NZCPS have been simplified and reordered into three broader attributes, namely abiotic, biotic and experiential aspects.

In this report the areas of high, very high and outstanding natural character are listed in tables within each of the character areas, where their spatial extent is briefly described. Map 3 in Appendix 4 illustrates the findings of the natural character evaluation, as well as the extent of the Coastal Environment (provided by CCC).

Coastal Character Areas

ATTRIBUTES	DESCRIPTORS	SPECTRUM OF NATURALNESS*
ABIOTIC SYSTEMS	• Climatic influences (wind, rain, exposure); • Geomorphology and identification of different types of landforms (i.e. peninsulas, cliffs, dunes, wetlands); • Terrestrial coastal processes, including erosion, river mouth processes including sedimentation (within the terrestrial zone); • Freshwater processes.	• The evident intactness of the abiotic systems. The degree (very high to very low) to which physical modifications such as built structures, road cuts, earthworks and reclamation works affect this abiotic attribute.
TERRESTRIAL BIOTIC SYSTEMS	• The margins of estuaries, wetlands and terrestrial areas in Zone B including the intactness of their natural ecological processes, patterns and elements; • Extent of freshwater communities; • Land cover and associated land use, including the composition, distribution, and condition of land cover, and the presence of indigenous/exotic species; • Presence of indigenous fauna.	• The degree (very high to very low) to which modifications affect this biotic attribute. Influences include the presence of exotic species on native communities, physical structures such as infrastructure, housing, roading, tracking, reclaimed land, stop banks, as well as commercial forestry and agricultural land use that reduce the naturalness of the biota; • This attribute also includes modifications to freshwater systems, including channelizing watercourses, stop banks, culverts, etc. which affect freshwater biota.
EXPERIENTIAL	• The experience in seeing, feeling and perceiving the Coastal Significance and Active Coastal Interface; • Aromas, visual and scenic, auditory, sense of wildness, remoteness, isolation, natural darkness of the night sky; • Ephemeral biotic activity (i.e. seasonality of flora, presence of birds); • Ephemeral human activity affecting the naturalness (such as recreation, commercial activities; • -Note, this attribute does not include heritage elements.	• The degree (very high to very low) to which physical and biotic modifications affect the naturalness experienced. Influences reducing naturalness include the presence of physical structures including ports, reclaimed land, infrastructure, roading, lighting, industrial noises and non-natural aromas; • Presence of exotic species; • Presence of humans, including recreational activities (driving, walking, camping, settlements); • Note, different people experience naturalness differently,

** Each Coastal Character Area is measured on the spectrum of naturalness (degree of human modifications) to each attribute from Very High to Very Low, then an overall judgement is made. The degree of physical and experiential naturalness is related to the location's context.*

The King Salmon decision of the Supreme Court clarified the importance of policies (in this case the NZCPS), particularly in relation to directive policies that require the avoidance of effects[16]. The essence of the decision clearly provides strong direction to avoid adverse effects on Outstanding Natural Character and Outstanding Natural Landscapes in the Coastal Environment. The decision states that where policy direction states 'avoid', essentially this is what should occur. The implications of this decision have yet to be fully determined and further guidance on this will develop over time.

To meet the requirement outlined within Policy 13 (1)(c) of the NZCPS 2010 that 'at least areas of high natural character' are mapped, areas containing high, very high or outstanding[17] levels of natural character have been outlined at a detailed (1:5,000) scale (see Map 3, Appendix 4). Policy 13 (1)(a) requires avoidance of adverse effects of activities on natural character in the coastal environment with outstanding natural character. For all other areas in the coastal environment Policy 13 (1) (b) requires that significant adverse effects are avoided, remedied or mitigated. Areas identified on the map are more likely to have particular policy mechanisms applied to them.

16. Environmental Defence Society Inc v New Zealand King Salmon Company Ltd [2014] NZSC 38.

17. 'Outstanding' is a comparative evaluative term meaning 'to stand out, exceptional, pre-eminent'. Under the methodology, an area of outstanding natural character must exhibit a combination of natural elements, patterns and processes that are exceptional in their extent, intactness, integrity and lack of built structures (the 'clutter' factor) and other modifications compared to other areas in the Christchurch City.

3. OVERVIEW OF THE CHRISTCHURCH LANDSCAPE

The following section describes the geomorphological and biological **processes, as well as the human influences, that have shaped the** Christchurch landscape. This information served as a background to the landscape character descriptions and evalutions that follow in Section 4 of this report. This broad overview sets the context for the more detailed assessment of the individual character areas.

Ōtautahi/Christchurch City is located on the seaward edge of Kā Pākihi Whakatekateka o Waitaha/the Canterbury Plains, comprising of rural outskirts, suburban and urban areas. Alongside the vast flatness of the plain, the Port Hills are a prominent feature of the Christchurch landscape, being visible for many kilometres from the north and west. The hills provide a southern limit to the city's development. In the north, the city boundary is formed by the braided Waimakariri River which flows eastwards across the plains to its mouth at Pegasus Bay, the city's eastern limit.

The geology and geomorphological processes, which have led to the landscape as we know it today, are diverse and include the volcanic activity of Te Pātaka a Rākaihautū/Banks Peninsula, sedimentation of the rivers and coast, tectonic uplift, glaciation and erosional forces associated with Kā Tiritiri o Te Moana/the Southern Alps.

The influence of human occupation over the past 600 years has added a layer of cultural heritage and has extensively modified the original land cover of the Christchurch area. The drained swamplands of the Canterbury Plains and their unique position above extensive aquifers has provided fertile agricultural land which has continued to be a key driver in the region's economy and a driver of land use change.

Today, fragments of indigenous ecosystems which once flourished on the plains and hills of Christchurch are highly valued for their intrinsic ecological, recreational and amenity values. Within the Christchurch area a variety of these ecosystems are still represented. Some of the most notable features include the gully forests and tussock lands of the Port Hills, the podocarp forest at Pūtaringamotu / Riccarton Bush, wetlands and Te Ihutai/the estuary of the Avon and Heathcote Rivers (Ihutai) and the braided Waimakariri River.

3.1 THE GEOLOGICAL FORMATION AND GEOMORPHOLOGY

The Canterbury Plains, a landform of recent formation, slopes from the **foothills of the Southern Alps to the Pacific Ocean and Banks Peninsula.** The Canterbury plains cover around 750,000 ha, making them the largest alluvial plains in New Zealand. The majority of the plains are made up of the **outwash of eastward flowing, glacier fed rivers, which have, over successive** glaciations eroded the Southern Alps depositing a mosaic of gently sloping greywacke gravel fans, lobes and shingles. One of the largest of these rivers, **the Waimakariri, flows immediately north of Christchurch City. Alongside glacial deposits, past and present tectonics have resulted in significant uplift and infilling which has contributed to the formation of the Canterbury Plains. A network of major and minor faults influence many of the topographic land** forms in Canterbury, including the plains, and movement in some faults is still continuing, demonstrated by the 2010 and 2011 Christchurch earthquakes.

The coastal plains of Canterbury have been formed by some of the most recent geomorphology and coastal processes in the region, whilst the volcanic form of Banks Peninsula is one of the oldest landforms. The west-facing slopes of Banks Peninsula, the Port Hills, form part of an ancient volcano which was once one of two now submerged craters that form today's Banks Peninsula. This volcanic activity occurred long before the Canterbury Plains were formed by glacial outwash, connecting the mountain ranges of the Alps with the Banks Peninsula island volcanoes.

While drainage and infilling of swamps since the arrival of Europeans in the 19th century has led to substantial modification of the landcover, the main features which define Christchurch's landform have been retained. This is reflected in Ian Lynn's (Landcare Research) land type analysis of the Canterbury Region, where 3 landtypes have been identified within the study area: the Plains Coastal Fringe, the Recent Flood Plains and Low Terraces and Banks Peninsula/ Port Hills.

3.1.1 COASTAL MARGIN

LAND TYPE 1
PLAINS - COASTAL FRINGE LAND TYPE

Canterbury plains coastal fringe incorporating undulating to rolling coastal beach sand dunes and associated interdune back swamps, sand plains, gravel beach ridges and bars, and saline lake and lagoonal fringe wetlands. Elevation ranges from 0 - 20m and rainfalls from 500 - 600 mm/A. On a regional scale the land type includes the coastal fringe from the Waipara River mouth to Banks Peninsula and the margins of Te Waihora/Lake Ellesmere. Within Christchurch it includes the Avon- Heathcote Estuary and the coastal plains from New Brighton to Brooklands.

The landform underlying Christchurch and its outer margins has been occupied by swamps, lagoons and estuaries since the present day sea level became established about 6500-6000 years ago (Brown & Weeber). Post glacial sea level rise up to 10,000 years ago saw sea levels extend westwards to the north of Banks Peninsula as far as Kaiapoi, Belfast, Papanui, Riccarton, Spreydon and Beckenham. As sea levels retreated to present day levels a succession of beach deposits, sand dunes, estuaries, lagoons and swamps accumulated across the post glacial deposits of the plains. Because of substantial levelling and alteration of terrain these landform features are now more difficult to define, however examples of historic sand dunes can be found at Burwood, Linwood and Avonside, up to 6km from the present day coastline.

Most of present day Christchurch's coastline is open beach, bordered by an estuary (south), river mouth and lagoon (north) and backed by sand dunes and an intensively used hinterland (west). The estuary of the Ōtākaro/Avon and Ōpāwaho/Heathcote Rivers is one of the main features of the Christchurch coastal environment. The estuary, which covers about 880 hectares, is relatively young. It was probably formed approximately 450 years ago by the southwards drift of sediment from the Waimakariri River mouth towards Banks Peninsula, forming the Brighton Spit and enclosing the river mouths of the Avon and Heathcote. Ōruapaeroa/Travis Wetland at Burwood is a former estuary of the Avon River, alongside Waikākāriki/Horseshoe Lake, which was probably once a meandering arm of the river before it found a more direct route to the sea. It is assumed that the Avon was a distributary of the Waimakariri River and larger flows caused it to enter the sea near the vicinity of Travis Wetland (Brown & Weeber). Today, the shoreline of Pegasus Bay moves seaward in the lee of Banks Peninsula, nourished by sediment swept northward by the Southland current from the Canterbury Bight and sediment swept southward by the Waimakariri River.

3.1.2 RIVER FLOOD PLAIN

LAND TYPE 4
PLAINS - RECENT FLOODPLAINS AND LOW TERRACES LAND TYPE

Active, recent, major river floodplains incorporating wide, braided, active and recently active riverbeds, recent floodplain terraces and associated backswamp wetlands. Elevation ranges from 0 to 500 m and rainfall from 600 to 900 mm/A. The land type includes the lowland sections of the Waimakariri River, which make up the majority of Christchurch in the hinterland of the coastal plains.

The 'black maps' of the 1850s detail the extent of Christchurch's waterways, streams and swamps before the majority of human modification to the landform of Christchurch commenced. The landscape of Christchurch has been dramatically altered since the arrival of Europeans, including the confinement of the Waimakariri River to its northern course by stop banks due to extensive flooding of Christchurch through old river channels in the 1800s. However, the underlying features of the plains formation are still evident today, as are the major waterways draining the Christchurch area, the Avon and Heathcote Rivers (see Map 4 in Appendix 4 for location of waterways and springs in the city).

In post glacial times, the Waimakariri River most likely flowed more directly south to the coast of Banks Peninsula, via Te Waihora/Lake Ellesmere, leaving a path of gravel deposits across the site of present day Christchurch as it switched its course. These historic flood channels are entrenched into the surface of the plains and are infilled with gravel and sand deposits (Brown & Weeber), as can be clearly seen from the air today when approaching Christchurch Airport. Higher areas of the western parts of Christchurch's plains are often covered with silt from historical flooding of the channels. Map 5 in Appendix 4 shows a historic map of the Waimakariri River with its original flow path.

3.1.3 PORT HILLS

LAND TYPE 8
BANKS PENINSULA - PORT HILLS LAND TYPE

Westerly segment of the steep to very steep, dissected (distinct ridge and valleys), Lyttelton volcano **bounded by the western shore of Whakaraupō/Lyttelton harbour and Tara-o-te-rangi-Hikaia/Gebbies Pass; with loess mantled, smooth and tunnelled lower slopes, especially those with a westerly aspect; broken, rocky, moderately steep to very steep westerly aspect mid and upper backslope dip slopes; rocky spur crests and major ridge summits; very steep rocky and bluffy scarp slopes (easterly aspect); very steep coastal cliffs, and small, poorly drained valley floors with beach dunes. Elevation 0 to 580m, rainfall 600** to 850 mm/A.

The northeastern crater rim of the extinct Lyttelton Volcano forms the eastern backdrop to Christchurch, reaching an elevation of 500m above sea level. The Port Hills form part of one of the two basaltic and andesitic cones of Banks Peninsula which were built up by volcanic activity some 10 – 12 million years ago (Brown & Weeber). This volcanic activity occurred long before the Canterbury Plains were formed by glacial outwash, connecting the mountain ranges of the Alps with the Banks Peninsula volcanos which were islands during their formation. The most recent eruptions resulted in a sequence of basalt and lava flows layered with ash, forming the recognisable gently sloping spurs, ridges and valleys that we associate with landscape of the Port Hills today.

A number of conspicuous volcanic rock outcrops along the crest of the Port Hills, such as Te Ahi a Tamatea/Rāpaki Rock, Te Tihi o Kahukura/Castle Rock and Ōtaranui/the Tors provide impressive evidence of the hills' origins. While the southern slopes on the Lyttelton side are steep with rocky escarpments near the tops, the north facing slopes of the Port Hills are gentler in terrain. Wind-blown silt (loess), which has been deposited during the ice ages, mantles the less steep slopes, and has been washed down into the valleys together with volcanic debris. The steep headlands, cliffs and escarpments that define the edge of the Port Hills show their volcanic history and erosional forces of the sea. The coast from Sumner to Godley Head is made up of a variety of cliffs and bays of varying size, with the highest cliffs at the spit of the headlands which are most exposed to the waves of the ocean.

In the early days of Christchurch, many buildings were built with stone due to the lack of local timber. Banks Peninsula Volcanic stone offered a variety of rock types suitable for constructing buildings much of which was extracted from Halswell Quarry. Other popular volcanic stone included Port Hills basalt from the Cashmere area, Port Hills tuff, a recognisable red stone and Hoon Hay Basalt which was used for pillars and facings of buildings. Heathcote trachyte, obtained from a dyke feature in the Heathcote Valley, can be seen on parts of the Christchurch Cathedral (Brown & Weeber).

3.2 SOILS

The soils of the Christchurch area consist of fine layers of subsurface deposits, consisting of gravels, marine deposits, sand, silt, clay, peat, wood and volcanic material closer to Banks Peninsula. The upper surface of the Canterbury Plains in the Christchurch area is made up of the post glacial Springston formation to the west of Christchurch and the Christchurch formation to the east, wrapping around the base of the Peninsula, south west to Te Waihora/Lake Ellesmere. The Port Hills soils reflect the landform's volcanic formation and elevated position at the edge of the Canterbury Plains. The Hills comprise of volcanic rock from the Lyttelton volcanic group and the Mount Pleasant lava formation, overlain with wind-blown loess.

The Springston formation includes gravels, sand and silt deposited in channels by the Waimakariri River as its course fluctuated across the Canterbury plains. The formation has a maximum thickness of 20m and is relatively young, being deposited during the past 3000 years. The Christchurch formation comprises of beach, estuarine, dune and coastal swamps with deposits of greywacke and argillite gravel, sand, peat, silt, sand and clay. Formed by coastal deposits of a retreating coastline, the formation was created by erosional material from the Waimakariri River and sand and marine deposits as the sea level retreated to present day levels. The processes which created this formation, such as longshore drift, and transport and deposit sand and sediment along the north Canterbury coast are still at play today. Most sand has been stabilised by vegetation, flattened or developed for housing. Some of the oldest dunes can still be seen in Richmond, Avonside and Linwood. Surface peat deposits from historic swamps are located within the vicinity of Christchurch. Waimairi peaty loam is a high productivity soil and is favoured for horticultural use. Two areas of peat have so far survived urban expansion, including the Marshland market gardening areas and areas east of Cranford Street at Papanui.

The northwest facing slopes of the Port Hills are cloaked in a layer of windblown silt (loess). Banks Peninsula loess continues to be blown from the braided rivers of the plains by northwest winds onto the faces of the Port Hills, slowly accumulating in the valleys and lower slopes of Banks Peninsula. The yellow to yellow brown loess is naturally erodible and has a low natural fertility in comparison to the small quantities of volcanic soils on the Port Hills which have a high natural fertility. The loess cover of the Port Hills and surface alluvial silt accumulations on the Canterbury Plains provided material for local brick manufacturing and sod and mud building material.

Christchurch, showing the old land office and Worcester Street bridge Item link: http://natlib.govt.nz/records/22848018

Seager, Edward, fl 1924. Christchurch, showing the old land office and Worcester Street bridge. Ref: 1/2-022720-F. Alexander Turnbull Library, Wellington, New Zealand.

3.3 WATERWAYS AND SPRINGS

Canterbury has a complex network of surface and groundwater, as rivers carry mountain rainfall to the coast, aquifers collect and transport water underground, and a series of spring fed lowland rivers drain the plains towards the coastline (see Map 4, Appendix 4 for Christchurch Waterways and Springs). Flow regimes of waterways in the Christchurch area vary depending on their source and catchment. The glacier and snow fed Waimakariri River, which has its source in the Canterbury Alps, has a very different flow pattern to the spring fed lowland rivers of rural and urban Christchurch.

The Waimakariri River is a large braided river on the northern boundary of Christchurch City and is one of the best examples of a braided riverbed and associated wetland habitat in New Zealand. It is an iconic feature of the Canterbury Plains and forms a distinctive boundary to the city. The river has moved course frequently over the centuries prior to settlement and parts of the banks and environs still show signs of the underlying aggradation of the river. In the past, the Waimakariri River was an unconstrained braided river, which had split into two main channels in the lower reaches forming a number of islands, including Te Rākai a Hewa/Kaiapoi Island (which was the biggest), as well as Coutts and Templars Islands which formed later. The south branch of the river, also had a number of significant bends which joined the main northern branch before flowing out to sea about 2 kilometres south of the present day mouth. In the 1930s the river was confined by stop banks to its northern course, to reduce the flood risk to the city from the river's southern branch. Map 5 in Appendix 4 shows a historic map of the Waimakariri River with its original flow path.

The area where Christchurch developed was level but low lying and poorly drained. Originally, a network of spring fed rivers and streams crossed the eastern plains, supporting large areas of raupō wetlands before draining into Te Ihutai/the Avon-Heathcote Estuary. The five main lowland rivers of the plains, the Ōtukaikino, Pūharakekenui/Styx, Ōtakaro/Avon, Ōpawaho/Heathcote, and Huritini/Halswell all originate from spring fed tributaries in the northern, western and south western outskirts of Christchurch. Today the appearance and ecology of these rivers has been extensively modified. Much of the indigenous vegetation and wetlands that adjoined the river banks has been destroyed as swamps were drained to develop arable land for farming and suburban development.

In the context of the surface waterways, the extensive groundwater of the Canterbury Plains needs to be mentioned. The gravel deposits of the Plains form an important groundwater system, providing water for domestic, industrial and rural use. Groundwater recharge for aquifers underlying Christchurch is sourced from the Waimakariri River in the north. Groundwater flows through the aquifer system, through the layers of gravel, silt and clay to the west of Christchurch. Here the flow of groundwater is impeded and springs have surfaced (Brown & Weeber). Many of these springs are still evident today at Avonhead, Burnside, Templeton, Prebbleton and Lincoln. The south eastward flow of groundwater terminates at the impervious volcanic rock of the Port Hills and the low lying areas to the east of Christchurch. Here the groundwater levels rise close to the surface where swamps developed in these low lying areas fed by a variety of different factors, including springs, local heavy rain, overbank floods and poor drainage due to the accumulation of peat. Due to their consistent inundation by water, some of these areas have not been built on or developed, including Hendersons Basin near Hoon Hay and rural areas south of Halswell.

3.4 COAST

The coast line within Christchurch City can be divided into several sections that differ significantly in landscape character. The southern end of Pegasus Bay with its long sweep of sandy beaches falls within the City's boundaries south of the Waimakariri River mouth. The beach between the Waimakariri River mouth and Te Ihutai/Avon-Heathcote Estuary is flanked by active foredunes along the majority of its extent. The northernmost section of the beach is backed by Te Riu o Te Aika Kawa/Brooklands Lagoon, associated with the Waimakariri River and Styx River mouths. To the south of the lagoon the extensive forest plantation of Bottle Lake Forest forms a distinctive area, on what was formerly a significant coastal wetland called Waitākiri. From the plantation forest to the spit that confines the estuary the dense residential development of New Brighton defines the hinterland of the beach. The estuary encompasses the shore and hinterland of the tidal flats near the Ōtākaro/Avon and Ōpāwaho/Heathcote River mouths, as well as the narrow, intensively developed coastal edge around the suburbs of Redcliffs and Sumner. The coast around Godley Head forms part of the Port Hills and with its steep cliffs the headland has very different landscape character to the other coastal areas that are located on the flat parts of Christchurch.

3.5 HUMAN OCCUPATION AND CULTURAL ELEMENTS

According to the traditions of Ngāi Tahu Whānui, human occupation in Canterbury followed the arrival of the Waitaha people in the Uruao canoe, led by its captain Rākaihautū, over forty generations ago. This was preceded by the creation of the South Island, following the wreckage of Te Waka o Aoraki (the canoe of Aoraki) - an early name for the island, and the subsequent shaping, clothing and stocking of the land **and coasts with bountiful resources by Tūterakiwhānoa, accompanied by Kahukura and Marokura.**

After first arriving at Whakatū (Nelson), Rākaihautū divided his party in two, with Rākaihautū leading one group southwards through the interior of the island, and his son, Te Rakihouia, leading the other group southwards along the coastline. Here Te Rakihouia discovered the rivers of the East Coast, and named them Kā Poupou a Te Rakihouia: The weirs of Rakihouia, referring to the bounty of tuna (eels) and kanakana (lampreys) that could be procured there. Rākaihautū first explored the interior of Te Waka o Aoraki and is famed with digging and claiming the inland lakes, followed by those of the coast with his kō (digging tool), called Tūwhakaroria. These lakes included Takapō, Pūkaki, Ōhau, Hāwea, Wānaka, Wainono, Te Aitarakihi (Washdyke Lagoon), Te Waihora (Lake Ellesmere) and Wairewa (Lake Forsyth). At Wairewa, he finished his work renaming his kō, Tuhiraki, and placing it in the earth where it stands today as Mount Bossu on Banks Peninsula.

Ngāi Tahu and Ngāti Mamoe then arrived into in Canterbury in a series of migrations at different times from the eastern part of the North Island from the 16th century onwards, where through a combination of inter-marriage and conquest they merged with the resident hapū of Waitaha to form Ngai Tahu Whānui as we know it today. Most Ngāi Tahu people today can trace their whakapapa back to their Waitaha and Ngāti Mamoe ancestors and commonly acknowledge these origins.

Prior to European settlement, Ngāi Tahu, and before them Ngāti Mamoe and Waitaha maintained a number of permanent and semi-permanent settlements across Canterbury, including within Christchurch City and on Banks Peninsula. Key settlements were established at Kaiapoi, Rāpaki (Lyttleton Harbour), Taumutu (Lake Ellesmere), Koukourārata (Port Levy), Ōnuku (Akaroa) and Wairewa (Little River), where Ngāi Tahu marae and communities remain to the present day.

From their settlements, natural resources were gathered and utilised from various locations that provided both food as well as material for housing, garments, adornments and tools. Movements were according to the seasons and following the lifecycles of the various animals and plants, collectively referred to as mahinga kai. Mahinga kai, and the associated custom of kai hau kai (exchange of food/resources), is of central importance to Ngai Tahu culture and identity. Literally meaning 'to work the food', it refers to the gathering of food and resources, the places where they are gathered and the practices used in doing so.

Early archaeological evidence, particularly along the Canterbury coastline indicates the wide and varied use of the area's rich resources. Moncks Cave, near Redcliffs provides an example of this with radiocarbon dating placing Māori occupation of the area around the early 15th century. Along with a carved and painted hoe (canoe paddle) and ama (outrigger canoe float) found in the cave, the remains of numerous native birds, fish, shellfish as well as mammals, including the Polynesian rat and New Zealand fur seal were found (Jacomb 2008). Numerous other settlement and mahinga kai sites around Te Ihutai show a similar pattern.

While the estuary itself provided an abundance of valuable food resources, the wider catchment, made up of an extensive network of springs, waterways, swamps, grasslands and lowland podocarp forests, was equally important. The extent of this network, much of which was still present at the time of European arrival, was captured on the 1856 'Black Map', as well as numerous written and visual records from this period. All of the city's rivers were valued mahinga kai and had a number of food gathering sites dotted along them, particularly around swamps and wetlands.

A network of trails, tracks and waterway passages followed Christchurch's rivers, as well as the coastline, and connected the key settlements and numerous mahinga kai sites. For example, the Rāpaki track over the Port Hills still follows the original route utilised by Ngāi Tahu that linked the pā of Ōpāwaho (near modern day Opawa) and Rāpaki, in Whakaraupō (Lyttelton Harbour).

The traditional species known to be gathered and procured in and around Christchurch include:

- Fish: tuna (eels), kanakana (lampreys), kokopū, inaka (whitebait), waikoura (freshwater crayfish), pātiki (flounders), tūaki (cockles) and pipi.
- Plants: aruhe (fernroot), whīnau (hinau), pōkākā, mataī, kahikatea, tōtara, kōrari (flowering flax stalks), koareare (raupō/bulrush), kāuru (cabbage tree root), tutu and kumara.
- Birds: kererū (wood pigeon), kākā, kōkō (tui), kōparapara (bellbird), mohotatai (banded rail), parera (grey duck), pūtakitaki (paradise duck), rāipo (scaup), pāteke (brown teal), tataa (spoonbill duck).
- Other: kiore (rat)

Today, many of these species, and the sites utilised in the past are no longer present or in a degraded state but nonetheless remain important to Ngāi Tahu as wāhi taonga and/or wāhi tapu. Further details of these are provided throughout the report.

In their time, Ngāi Tahu created a significant change to the pre-human landscape on both the plains and Port Hills. It is estimated that the reoccurring burning of lowland and Port Hills forests reducing forest cover of the Port Hills by between 30 and 50 percent (CCC, Christchurch City Contextual History Overview). This process was also assisted by dry climatic conditions which transformed the plains and the northern faces of the Port Hills into extensive short tussock grasslands dotted with shrubs and small forests. This process was then dramatically accelerated by the arrival of European settlers, particularly where grazing and cultivation followed deforestation that did not allow forest regeneration.

From the late 1700s Ngāi Tahu welcomed the arrival of Europeans and were eager to acquire new resources and skills through trade and exchange. Some parts of the traditional Ngāi Tahu economy were supplemented or replaced by the new animals and crops, such as the potato, which offered a stable food source year round and that could be grown further south than the kumara. By the 1830s, Ngāi Tahu had built up a thriving industry supplying whaling ships with provisions such as pigs, potatoes and wheat. Later, shore based whaling stations were established under the authority of local Ngāi Tahu chiefs, particularly on the Peninsula. Inter-marriage was also common place in this early period with many European whalers and sealers marrying Ngāi Tahu women and living amongst the iwi. Many Ngāi Tahu family names today give evidence to these early unions.

PHOTOS COURTESY OF
Alistair Marshall, Phil Millar, David Irvine and Vaughan Keesing

Following the signing of the Treaty of Waitangi by Ngāi Tahu chiefs at Ōnuku, Ōtākou and Ruapuke Island in 1840, Ngai Tahu began entering into a series of land sale deeds with the Crown. From 1844 to 1863 Ngāi Tahu sold their lands in a series of nine purchases. The first and largest of these was the 'Kemps' purchase of Canterbury in 1848, negotiated by Henry Tacy Kemp. This saw 20 million acres (about 8 million hectares) sold for £2,000, with the promise of ample reserves being set aside for Ngāi Tahu to live and survive on, along with continued access to their precious mahinga kai.

As early as 1849 however, Ngāi Tahu began noticing problems with either the non-allocation or reduced allocation of reserves, depletion of resources through agricultural expansion of settlers and a lack of access to mahinga kai through private property. This led to the beginnings of the Ngāi Tahu Claim, Te Kerēme. The loss of mahinga kai meant Ngāi Tahu could no longer feed themselves and trade as they had done in their traditional way.

The first Europeans settled at Riccarton Bush (Putaringamotu) around 1840 but were quickly discouraged by the realities of pioneer farming, bush clearance and isolation. The Deans brothers did however successfully establish their Riccarton Bush Farm a few years later. The famous 'first four' ships of Christchurch arrived in December 1850. Within a year more than 15 ships had arrived, creating a settlement of more than 3,000 people. The Canterbury Association, a private company sponsored by the Church of England, planned the settlement of Canterbury. The Anglican colony was inspired by Edward Gibbon Wakefield of the New Zealand Company, a theorist of colonisation who wished to transport a cross section of English society to New Zealand.

After a rail tunnel was built connecting Lyttelton Harbour with the plains of Christchurch (1867), the rate of landscape change greatly accelerated and extensive pastoralism and settlement developed on the Canterbury Plains. More and more settlers arrived and a network of roads, townships and railways was built. The Waimakariri River was eventually contained to its northern course by stop banks after flooding occurred southwards down historic river channels into the new settlement. The extensive swamps surrounding Christchurch were drained, stream courses straightened and tussock and fern lands were cleared to make way for farmland. After the sparse stands of lowland timber on the plains were reduced, the colonists' dependence on native timber led to extensive milling on Banks Peninsula and Oxford and Papanui, reducing the forest cover on the Port Hills and plains to small remnant patches. Other resources of the Christchurch landscape were harnessed to develop the new settlement, creating extensive landscape change. Gravel pits and sand extraction assisted to level the site of Christchurch and rock quarries were established at many sites on the Port Hills. During this initial period of colonisation extensive areas of indigenous habitat were lost.

Today's landscape is a product of both natural processes and several centuries of human occupation. Ongoing land uses and the growth of Christchurch City continues to shape the landscape of the city and its surrounding area.

HISTORIC MAP

Map of surveyed districts, Canterbury, 1852

[cartographic material]

Publisher:

[Christchurch, N.Z.? : s.n., 1852]

https://christchurch.bibliocommons.com/item/show/213579037_map_of_surveyed_districts,_canterbury,_1852#bib_info

3.6 LANDCOVER AND LANDUSE

Prior to the arrival of humans, the plains of Christchurch and the Port Hills were cloaked in forest and native grasslands, with vast areas of wetlands and coastal dunelands. Pre-human forest cover in Canterbury was likely to be over 3 million hectares, which equals around 67% of land area. Almost all of Banks Peninsula would have been forested, apart rock outcrops and swamps. The Christchurch, Te Waihora and Banks Peninsula areas were likely to have had one of New Zealand's richest diversities of birdlife in pre-human times (CCC's Biodiversity Strategy 2008-2035) due to the large coastal wetlands, waterways and forests in these areas. A large number of these waterway, wetland and coastal birds are still seen today however. In the 1850s ornithologists Walter Buller and Thomas Henry Potts reported that **older forests of Banks Peninsula supported some of the most prolific birdlife found anywhere in New** Zealand (CCC's Biodiversity Strategy 2008-2035). Banks Peninsula has long been recognised as a region of terrestrial and aquatic endemism, where plant species such as the Akaroa daisy, Banks Peninsula blue tussock, and koromiko are only found on the peninsula. Similarly, the Banks Peninsula tree weta and a number of aquatic insect species are regionally endemic and today only found on the Peninsula.

The Port Hills were almost entirely covered in diverse native forests; cloaked in tōtara-mataī forests with kahikatea in gullies and shrubland on very thin soils over rock. Early fires by Māori and successive land clearance by Europeans for grazing, firewood and construction materials greatly reduced this forest cover. Pockets of remnant forest, with mature tōtara and mataī remain (e.g. at Kennedys, Dry Bush and at the upper Hoon Hay Valley), but today much of the Port Hills are covered by pātiti/silver tussock and grasslands, and shrubland species, including mikimiki/Coprosma, tūmatakuru/matagouri and pōhuehue/ Muehlenbeckia. While the Port Hills were largely forested, the natural vegetation of the plains of Christchurch was a mosaic of swampland species (harakeke/flax, raupō and wiwi/rushes), with grass and shrub-lands (featuring kānuka, tūmatakuru/matagouri, manatū/ribbonwood and tī kouka/cabbage trees). Small patches of forest, dominated by kahikatea, also dotted the plains. Today, Pūtaringamotu/Riccarton Bush is the last remaining remnant of this forest type both within Christchuch and within the mid-Canterbury Plains.

The draining of swamplands by Europeans saw extensive clearance of native vegetation and significant surface modification to the Christchurch landscape. Wetlands at the base of the Port Hills were drained for agriculture by channelising (straightening) the waterways and cutting many drains into the landscape. Exotic trees were extensively planted around Christchurch and surrounding rural areas to provide amenity and shelter from wind. Whilst the Christchurch landscape has been heavily modified to accommodate the colonial grid of the settlement, some of the underlying land forms can still be seen today. For example, the depression at St Michaels Church grounds and the rolling terrain of North Hagley Park (CCC, Christchurch City Contextual Overview).

Small remnants of significant ecosystems that support indigenous biodiversity also still remain in the Christchurch area. The lowland podocarp-hardwood forest at Pūtaringamotu/Riccarton Bush, although today isolated, is a good example of indigenous vegetation in the urban landscape of Christchurch. Gifted to the city by the Deans family in 1914, the modified bush requires ongoing management, yet still provides important habitat for a variety of native bird and invertebrate species.

The river bed of the Waikmakariri River is one of the best examples of a braided river habitat in New Zealand, supporting a variety of indigenous vegetation and native bird species, including the ngutu-parore/wrybill, karoro/ black-billed gull, tarapiroe/black fronted tern and matuku/Australasian bittern. The freshwater springs associated with this braided river system also support a number of unique aquatic invertebrate species and contribute to an important ecosystem type. Remnant riparian wetlands and some remaining kowhai woodland habitats are protected within the Waimakariri River Regional Park. South of the Waimakariri River, on a former river channel, one of the last remnants of the dry plains grassland communities remains. The West Melton Reserves and McLeans Island Grasslands Reserve support dry plains native shrubland, grassland and moss-herbfield habitats. These habitats include the threatened leafless pōhuehue and scabweed, as well as the locally rare longwood tussock, pātōtara/Leucopogon fraseri, tūmatakuru/matagouri, tī kouka/cabbage tree and kōwhai trees.

The five main spring-fed rivers of Christchurch and their tributaries support a substantial number of native waterfowl including kōtuku/herons, kōtare/kingfishers and introduced swallows. Whilst the majority of the rivers' margins are urban and often planted with exotic species such as willow, they provide important habitats for terrestrial and aquatic animals, including aquatic insects and native fish species. Since the mid to late 1990s, native plants have been increasingly used in plantings along river banks, providing even more habitat for fish, birds and invertebrates. A few wetland areas found in the city today give some indication of what the majority of land cover in early Christchurch would have looked like, including Ōruapaeroa/Travis Wetland, Waikākāriki/Horseshoe Lake and Wilsons Swamp. Travis Wetland is located in the north-east of Christchurch, in a low-lying area close to sea-level. The area was initially an estuary for the Ōtākaro/ Avon River, but became increasingly cut off from the sea by a sand bar. As salinity decreased in the area, wetland plants were able to take over from saltmarsh species. Today Travis Wetland Park, acquired by the City in 1996, is the largest freshwater wetland in Christchurch City with an area of 120 hectares. Horseshoe Lake, is a legible landscape feature formed in an old meander of Ōtākaro/Avon River. The wetland is one of the few remaining low-land swamps in the Christchurch area where native species are regenerating under the cover of large willows. Wilsons swamp, adjacent to Ōtukaikino Creek is also of high ecological value where species such as raupō, toe toe, tall tussock sedges, kiokio/blechnum fern, tī kouka/cabbage trees, kōhūhū and karamu survive.

The remaining coastal lagoons, estuaries, wetlands, and dune slacks of the city have been recognised as important links in a chain of wetlands along the Canterbury Coast, used by migrating birds. The areas provide food and breeding habitats for birds migrating to the North Island and Australia. Lagoons and estuaries, such as Te Riu o Te Aika Kawa/Brooklands Lagoon and Te Ihutai/Avon-Heathcote Estuary, feature extensive areas of saltmarsh vegetation, mudflat habitats and duneland plant communities on seaward spits and inland of the coast. Cockayne Reserve (3 ha) is a narrow strip of wetland bordered by the lower reaches of the Ōtākaro/Avon River approximately 2.5 kilometres upstream from the estuary. The reserve was established in the late 1800s and is one of the few native lowland wetlands remaining in Christchurch. The vegetation in this reserve has changed as a result of the Canterbury earthquakes, where subsidence has allowed more salt water to inundate the waters, resulting in a change in habitat and plant species. The sea cliffs of Scarborough and Godley Head are also important as nesting locations for seabirds, particularly kawau/ spotted shag, akiaki/red-billed gull and a range of other species.

4. LANDSCAPE CHARACTER AREA DESCRIPTIONS AND EVALUATIONS

The following landscape character descriptions and evaluations follow the same format for each of the character areas (see Appendix 4, Map 1 for outlines of Landscape Character Areas). A detailed description of the landscape characteristics is followed by an evaluation of the biophysical, sensory and associative attributes occurring in the area (provided in bullet point format) and an **identification of Outstanding Natural Landscapes and Features (ONF/Ls) and Significant Landscapes** and Features (SL/Fs). The boundary outlines of any ONF/Ls and SL/Fs occurring in each character area are described in detail.

For the coastal character areas a description of the coastal environment boundary and an evaluation of the coastal natural character, addressing abiotic, biotic and experiential attributes is provided (in bullet point format), followed by a table listing the areas of high, very high and outstanding natural character.

4.1 PORT HILLS CHARACTER AREA

The Port Hills Character Area has been divided into two distinctive sections to describe the landscape in more detail. The following paragraphs provide an overview on the formative processes that apply to **the hills in their entirety, while more specific descriptions of existing land cover and perceptual qualities have been included in the separate sub-area descriptions, which split the hills into a western (Kennedys** Bush to Dyers Pass), and eastern (Dyers Pass to Scarborough Spur) section. While Godley Head forms part of the volcanic land type underlying the Port Hills, it has been described in detail under the Coastal **Character Areas due to the strong coastal influence on the headland.**

The Port Hills, extending in an east- west direction along the southern side of Christchurch, separate the city and its port in Whakaraupō/Lyttelton Harbour, which they are named after. The crest of the Port Hills varies in height, being lowest at the eastern end. Between the two road passes of Puke Atua/Dyers and Tapuwaeharuru/ Evan Pass are several distinctive summits, including Te Pōhue/Sugarloaf (494 m), recognisable by the television transmission tower on its summit, Mount Cavendish (448 m), and Tauhinu Korokio/Mount Pleasant (499 m), the highest peak along Christchurch's Port Hills. The hills south and east of Tara-o-te-rangi-Hikaia/Gebbies Pass are regarded as part of Banks Peninsula proper rather than the Port Hills. The boundary to Selwyn District is located on the eastern margin of Kennedys Bush.

The Port Hills form part of an ancient volcano, which was one of two now-submerged craters that form today's Te Pātaka a Rākaihautū/Banks Peninsula. The volcano was originally formed around 12 million years ago. This volcanic activity occurred long before Kā Pākihi Whakatekateka o Waitaha/the Canterbury Plains were formed by glacial outwash, connecting the mountain ranges of the Alps with the Banks Peninsula volcanos which were islands during their formation. Eruption of the Lyttelton Volcano began by building a volcanic cone onto a pre-existing land mass formed of various rock types. As the volcano developed, the rising magma caused the surface of the land to deform upwards and break up, resulting in vertical dikes forming a radial pattern, centred on Charteris Bay. The volcano is thought to have reached a height of about 1200 m before erosion started to wear it down. As the frequency of eruptions decreased, the speed of erosion accelerated particularly of the softer ash in the centre of the crater, causing the crater to be widened and deepened. Later the crater was breached in the west at Gebbies Pass, where the Mount Herbert Volcano erupted filling the breach and developing its own cone. These Mt Herbert rocks represent an intermediate stage in the migration of volcanic activity from Lyttelton to Akaroa. Today Lyttelton harbour is a 'drowned landscape', since the volcano gradually subsided and the sea levels rose after the ice ages.

The crater rim of the ancient volcano that surrounds Lyttelton Harbour forms the summit of the Port Hills. A number of conspicuous volcanic rock outcrops along the crest of the ridge, such as Te Ahi a Tamatea/Rāpaki Rock, Te Tihi o Kahukura/Castle Rock and Ōtaranui/the Tors provide impressive evidence of the hills' origins. While the southern slopes on the Lyttelton side are steep with rocky escarpments near the tops, the north facing slopes of the Port Hills are gentler in terrain. Wind-blown silt (loess), which has been deposited during the ice ages, mantles the less steep slopes, and has been washed down into the valleys together with volcanic debris. The Port Hills are drained by a number of streams, most of which are ephemeral in flow, following a distinctive radial drainage pattern. The rainfall on the Port Hills is highly variable, with significant differences between high and low elevations. Generally, rainfall and mist/cloud cover is higher above the 300m contour with snow above 400m in winter. The amount of rainfall also varies considerably from east to west along the Port Hills with the eastern end receiving significantly less annual rainfall (600mm versus 900mm/year). A number of artificial ponds can be found on the Port Hills, which are used for stock water and fire ponds during the dry summer months.

Prior to human settlement, the Port Hills were cloaked in tōtara-mataī forests with some kahikatea in gullies and shrubland on very thin soils over rock. Following the arrival of Māori, early fires reduced the forests, resulting in the Port Hills' northern slopes being replaced by early successional vegetation of silver tussocks and reverting shrubland, including species such as mikimiki/Coprosma, tūmatakuru/matagouri and pōhuehue/Muehlenbeckia. Following European settlement in the 1800s the hills were further burned and grazed for farming, while the wetlands around the base of the hills were drained for agriculture by creating straight channels and drains. Significant areas of the short tussock, which is now the dominant vegetation on the hills, developed in pre-European times with more forest remaining in the western parts of the hills than the east. Almost all the remaining forest disappeared in early European times, when harvested for timber or cleared for grazing (Wilson, 1989).

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Today a few forest remnants can still be found in upper Hoon Hay Valley, Dry and Jollies Bush.

The Port Hills area includes a number of sites of significance to Ngāi Tahu Whānui, including pā (fortified villages), kāinga (villages/settlements), urupā (burials) and mahinga kai (food gathering and production) sites and areas. Most of the peaks and ridges are also significant, being important landscape features and navigational points, as well as recording the feats of ancestors and/or the creation traditions of the landscape itself. The Port Hills were also important as a travelling route between the settlements and mahinga kai resources of Whakaraupō/Lyttelton Harbour (as well as those further on Te Pātaka a Rākaihautū/Banks Peninsula) and those around the base of the Port Hills and associated with Te Ihutai/the Avon-Heathcote Estuary, Ōtākaro/Avon River and Ōpāwaho/ Heathcote River, as well as linking to those towards Kaiapoi pā in the north and those around Te Waihora/Lake Ellesmere to the south, and beyond.

During early European settlement the Port Hills presented a challenging barrier between the harbour and the settlement of Christchurch, their steepness and ruggedness making access difficult. Initially the majority of settlers used the steep Bridle Path to transport themselves and their belongings to the plains on the other side, while heavier goods went by boat to Ferrymead. It is no coincidence that the Lyttelton Rail tunnel, one of the longest in the world at the time, was opened within 17 years of the establishing of Christchurch, when the population was little more than 5,000. Today the Lyttelton rail tunnel and a separate road tunnel connect the port and the city suburbs, and three road routes cross the range, as well as the Summit Road along the crater rim.

The south-eastern suburbs of Christchurch now spread onto the lower slopes of the Port Hills and into the valleys between spurs, including Cashmere, Heathcote Valley, Mt Pleasant and Sumner. Other parts of the hills are used for farming and forestry, as well as a significant number of scenic reserves created for recreational and conservation purposes, following an initiative by Christchurch Member of Parliament Harry Ell at the turn of the 20th century. The Summit Road Association (established in 1909) played an important role in arranging for reserves to be set aside on the Port Hills and in building the summit road. Harry Ell was Vice-President of the Association and Leonard Cockayne was their Botanist. In 1948 the Summit Road Society was formed to continue development and maintenance of the reserves. The Summit Road Authority was set up to administer the Summit Road (Canterbury) Protection Act (1963, 2001), which specifically controls land use on the upper slopes to ensure unobstructed views from the Summit Road are maintained. Further major Port Hills land purchases were undertaken by private trusts, the Department of Conservation and the City Council in the 1980ies through to 2006. These significantly increased public land holding on the Port Hils with the aim of providing greater landscape biodiversity protection and improving public access.

Despite the heavy deforestation and clearance of native bush, a diverse range of wildlife and plant life still populates the Port Hills. The Port Hills provide habitat for some 250 native plant species, 22 land and 29 coastal bird species, approximately five lizard species and a relatively unstudied but large number of invertebrate species. Native birds such as the kōparapara/bellbird, pīwaiwaka/fantail, tauhou/silvereye, riroriro/grey warbler and pīpīwharauroa/shining cuckoo are commonly found in the remaining bush. While the native kererū/native wood pigeon can only occasionally be seen in the area, some introduced species, such as the blackbird, chaffinch and song thrush are very abundant. As well as a many insect species, mokomoko or geckos and skinks are commonly found. Indigenous plant species such as kōkōmuka/Banks Peninsula hebe inhabit rock crevices along with rare ferns. The more exposed hillsides are covered with pātiti/silver tussock and other native grasses, unusually so for an area so close to urban development. The remaining podocarp forest contains rare remnant mataī, tōtara and kahikatea trees as well as fruit and flowering species such as kōwhai, manatū/ribbonwood, māhoe, tī kouka/ cabbage trees, kānuka and kotukutuku/fuchsia. The tussock exists within a dominant regime of exotic grasslands and requires constant but extensive grazing to survive. Present-day cover of the Port Hills is predominantly modified pātiti/silver tussock (Poa cita) short-tussock grassland with wī / hard tussock (Festuca novae-zelandiae) a minor component in some areas, while the inter-tussock matrix is dominated by adventive species, particularly cocks foot. The native plant areas, in particular native trees, are a minority on the City side of the Port Hills.

As well as being ecologically important, the hills are an important recreation area for Christchurch residents, with large areas of public parks and reserves, including tracks for mountain biking and walking. A popular walking trail, which provides extensive views across the city and into Lyttelton Harbour, follows the crater rim from Godley Head to Ahuriri Reserve above Gebbies Pass, connecting many of the other walking tracks into an extensive network. The Summit Road, which also closely follows the rim, is a convenient access route to the tops. A gondola lift to the top of Mount Cavendish was opened in 1992, providing an alternative access to the summit and a major tourist attraction for the Canterbury area. A number of utility structures, such as radio, cell phone, TV transmitter towers, as well as a radar dome can be found along the hills. The Port Hills are a prominent feature of the central Canterbury landscape, being visible for many kilometres from the north and west. They are an icon of the city, as they form a distinctive southern boundary of the urban development together with the sea to the east and the Waimakariri River to the north.

4.1.1 WESTERN PORT HILLS

Kennedys Bush settlement is located at the south-western margin of Christchurch. The character area extends between Kennedys Bush and Halswell Quarry in the west and Dyers Pass Road in the east and between the Summit of the Port Hills to the valleys below. West of Dyers Pass, the Port Hills curve away southward and **become higher, rising to 573 m at Ō-Mawete/Coopers Knob (outside study area). The highest point in the study** area is Marleys Hill. The long descending spurs along this part of the Port Hills are generally gently sloping and contain fewer rock outcrops and escarpments than the areas to the east of Dyers Pass.

The land cover within this character area varies significantly. While the area in general contains more woody vegetation cover than the eastern sections of the hills, only parts of it comprise native vegetation. This character area contains areas of plantation forest between Hoon Hay Valley and Dyers Pass Road. At the head of the Hoon Hay Valley and along the upper Hoon Hay Valley Stream, to the west of Marleys Hill, is the Hoon Hay Bush, a large area of privately owned remnant and regenerating nativeforest. There are also small areas of native regeneration amongst the shrub weed covered slopes of the upper Lansdowne Valley. Some of these sites will eventually increase in ecological importance, if native forest species are able to expand in area, quality and diversity.

Residential development occurs at the base of the hill around Westmorland and Hoon Hay Valley, and extends up the spurs of Kennedys Bush Road and Worselys Road. A few existing dwellings are located near the Summit Road around Marleys Hill. However, the majority of the area is of rural character, with a mosaic of rural land uses. The tops of the long spurs are generally covered in low producing grassland with extensive grazing.

A key Ngāi Tahu site and landscape feature in this area is Ōtūmatua, a hillock located on the ridge above the Halswell Quarry leading up to Kennedy's Bush, sometimes referred to as Moffats Corner. Ōtūmatua is considered a wāhi tapu (sacred place) and previously had a tūahu (alter) located on top that was used as a place to forecast the weather. From Ōtūmatua, clear views of Te Waihora/Lake Ellesmere, Kā Pākihi Whakatekateka o Waitaha/the Canterbury Plains, Kā Tiritiri o te Moana/Southern Alps and Te Tai o Mahaanui/Pegasus Bight can be seen, including most importantly the key settlements of Kaiapoi in the north and Taumutu in the south. On a clear day, views of the Kaikōura ranges are also possible. Ōtūmatua is also important as a boundary marker, used by Ngāi Tahu to separate the Kemps Purchase of Canterbury in 1848 and the subsequent purchases on Banks Peninsula to the Crown. This hillock is also known as Kitchener's Knoll, where Field Marshall Kitchener watched a major military exercise during his inspection tour of New Zealand in 1910.

The wider area also contains a number of key Ngāi Tahu cultural sites along the base of the hills, including pā, kāinga and mahinga kai sites associated with the Huritini/Halswell River and Te Waihora/Lake Ellesmere. The upper tributary of the Halswell is known as Te Tau-awa-a-Maka /Nottingham Stream and was a mahinga kai site for tuna/eels, aruhe/bracken fern, tutu, kōareare (edible part of raupō) and waterfowl. Caves in the Lansdowne Valley area, including Ō-te-ika-i-te-ana were important resting places and mahinga kai areas between Te Tau-awa-a-Maka and Manuka pā near Tai Tapu. Ō-te-ika-i-te-ana was known for the gathering of a number of specialty foods including the kiore/Polynesian rat, koreke/NZ quail and tutukiwi/South Island snipe, as well as more common foods including aruhe/fernroot and tuna/eel. Further down the Halswell River, Ahuriri Lagoon was a major mahinga kai. To the north, Ōtawhito was a mahinga kai site within the old repo/wetland that existed within Hendersons Basin, near present day Westmorland.

Other key landscape features of the hills themselves in this character area include: Ōtūtohukai (ridge south of Dyers Pass), Ō-Mawete/Coopers Knob, Ō-Rongomai/Cass Peak, Puke Atua/Dyers Pass and Te Pōhue/ Sugarloaf. Many of these features refer to the migration and settlement of Ngāi Tahu in the area, and numerous battles with Ngāti Mamoe. Puke Atua was a key travelling route leading to Ohinehou/Governors Bay and the other settlements around Whakaraupō/Lyttelton Harbour, while Te Pōhue refers to the native climbing plant pōhuehue/Muehlenbeckia that occurs there(refer to Map 6 for location of features).

Kennedy's Bush Reserve, located in Selwyn District, has a long history as part of the now extensive network of reserves on the Port Hills. Thomas Kennedy purchased land with native bush in the Port Hills in 1856, an area that later also contained Halswell Quarry. Efforts to conserve Port Hills indigenous bush remnants started in the early 20th Century. Concerned with the rapidly diminishing bush on the Port Hills, conservationist and Member of Parliament Harry Ell, who promoted a network of scenic reserves around bush remnants on the Port Hills, implemented the first scenic reserve at Kennedys Bush in 1908, above his father's farm. Later rest houses and tea rooms, the buildings today still found at the Sign of the Bellbird and Kiwi, were built near the reserve. Harry Ell's vision was to establish a network of scenic reserves along the Port Hills, with the Summit Road providing the linkage between reserves and regularly spaced rest houses for walkers and travellers. The Sign of the Kiwi also served as a toll house, where motorists were charged a highly controversial toll for using the Summit Road, which was also proposed by Ell to provide access to the hills. During Ell's term in Parliament, from 1899 to 1919, he secured numerous scenic reserves throughout New Zealand.

Nowadays, a number of walking trails are located within Kennedys Bush Reserve below the Sign of the Bellbird, where it straddles the boundary between Christchurch and Selwyn Districts (outside the study area). Halswell Quarry at the base of the hill used to be a major source of stone for construction in Christchurch. Today, as Halswell Quarry Park, it has been rehabilitated, planted with extensive areas of native vegetation and tracks have been put in place for walkers and mountain bikers. The popular Kennedys Bush Track connects Halswell Quarry Park with the Summit Road and track around the crater rim.

LANDSCAPE EVALUATION

Biophysical attributes:

- Upper Hoon Hay Valley and the Hoon Hay Valley Stream headwaters, a tributary of the Cashmere Stream are lined with broadleaf forest, kānuka woodland and some podocarp trees, covering the majority of the steep sided gullies.
- Cashmere Stream and its tributaries are major Heathcote River tributaries.
- Revegetation with native vegetation around Halswell Quarry Park.
- Hoon Hay Scenic Reserve along the crater rim contains native bracken fernland and regenerating forest.
- Two large forestry plantations occupy upper and mid elevation slopes between Dyers Pass Road and Kennedys Bush spur
- Rock outcrops along the crater rim and on spurs are legible signs of volcanic history.
- Geopreservation site: Multiple dykes approx. 500m west of Sign of the Kiwi.
- The radial valley pattern with distinctive ridge/valley landforms and erodable loess soils is particularly legible.

Sensory attributes:

- Recreation infrastructure in the form of reserves and trails can be found in Halswell Quarry Park, Hoon Hay Scenic Reserve and Kennedys Bush Track, as well as the Crater Rim walkway.
- The prominent crater rim and the peak of Marleys Hill form an important visual backdrop to western part of Christchurch.
- Dyers Pass Road and the Summit Road are important access routes to the Port Hills, where long distance views of the city can be gained.

Associative attributes:

- The Sign of the Kiwi is one of the key historic landmark buildings in the Port Hills.
- The Sign of the Bellbird, although a ruin, is an important historic building in Harry Ell's Summit Road network, located outside the study area.
- Associative values for tangata whenua relate to various distinctive landforms of the peaks and passes along this section of the Port Hills.
- Ōtūmatua is a distinctive spur in this character area offering extensive views of the surrounding landscape and is considered a wāhi tapu (sacred place) by Ngāi Tahu, due to it previously having a tūahu (alter) located on top that was used as a place to forecast the weather.

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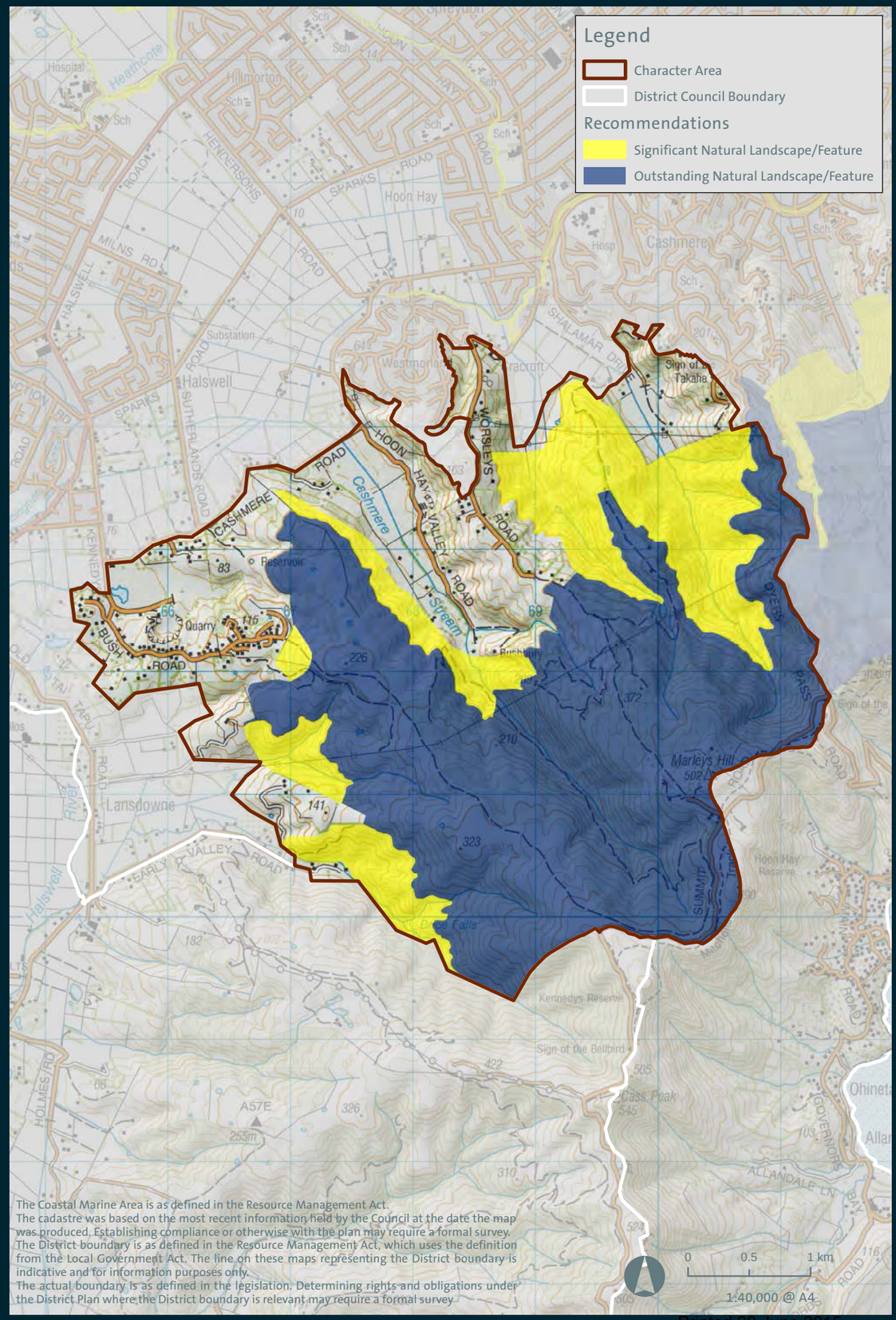
IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The Port Hills, while described in sections under each character area, are a landscape feature that extends along the entire southern boundary of Christchurch City. They form part of the wider Lyttelton Harbour crater rim and therefore, for the identification of ONL areas, cross boundary issues need to be taken into account. Within both Banks Peninsula District (now part of Christchurch City) and Selwyn District, the hills have been identified as an ONL along the entirety of the ridgeline. The extent of the ONL onto the lower slopes varies and is largely determined by land use and level of development.

Within the Western Port Hills Character Area the tops above the 100m (Kennedys Spur)/160m contour (Worsely Spur to Dyers Pass Road) and the bush in Cashmere Stream Valley have been identified as ONL due to their high biophysical values, high perceptual values and high associative values. The low-lying rural areas in the Lansdowne Valley and those below the 160m contour between Worsleys Spur and Dyers Pass Road, which are less visible from surrounding viewpoints, have been identified as SL due to their moderate biophysical values, moderate perceptual values and high associative values. The naturalness of the ONL varies, as some areas are covered in plantation forest, while other parts contain native vegetation of varying quality. In particular for areas in native vegetation cover the naturalness is high, while some of the lower lying, more intensively farmed or forested areas within the SL identification display lower naturalness. It is worth noting that a number of deferred living zones are located within this character area.

The legibility values of the crater rim with the distinctive ridge and valley pattern, rock outcrops and peaks (Marleys Hill) are among the key characteristics that lead to ONL identification. The tops of the Port Hills form the skyline and backdrop for Christchurch City. In order to protect the aesthetic values of the skyline and the integrity of the natural landform, the top of the hills and the peaks along the crater rim need to be considered as an ONL in its entirety.

The land use varies along the hills and the ecological value of the land cover along this western section of the hills is more or less confined to two large areas of native vegetation, one along Kennedys Spur and the other in the gully along Cashmere Stream. The remainder of the area is dominated by exotic plantation forest, which reduce the legibility to varying degrees and ecological function to some extent. However, Worsely Spur, while covered in plantation forest, is considered to be an important part of the landform sequence due to its elevated nature and should therefore be a part of the ONL. The 160m contour line has assisted in defining the lower extent of the ONL around the forested areas, since the lower lying areas are less visible from the city and Dyers Pass Road. In some areas native bush has been included in addition and areas with buildings have been excluded where appropriate. The landform of Ōtūmatua on the lower part of Kennedys Spur has been included in the ONL due to its high cultural value and visibility.



4.1.2 EASTERN PORT HILLS

Between Evans Pass and Dyers Pass several high summits are located along the crest of the Port Hills, **including Te Pōhue/Sugarloaf (494 m), recognisable by the television transmission tower on its summit, O Kete Upoko/Mount Cavendish (448 m) and Tauhinu Korokio/Mount Pleasant (499 m), the highest peak in** the northern arc of the Port Hills.

The Port Hills contain a variety of landscape components that display regularity in their pattern, reflecting their volcanic history. The Christchurch side of the Port Hills are the gentler outer slopes of the former volcano, which have been eroded into a radial pattern over time, reflecting the former lava flows radiating from the central vent. The long descending spurs with smooth, loess-mantled lower slopes and broken, rocky dip slopes near the tops are separated by poorly drained valley floors. Exposed basalt bluffs and outcrops are common on the steep midslopes of the valley sides and tunnel erosion and surface slips are common on the loess soils.

Rocky summits and crests form the distinctive 'crater rim', which is the skyline between steeper slopes around the Lyttelton volcanic crater and the gentler outer slopes. Basalt cliffs and outcrops are particularly prevalent at these higher elevations. Around Mt Cavendish, cuttings in the Summit Road cross good examples of lava outcrops, and others can be seen at Te Tihi o Kahukura/Castle Rock, Te Ahi a Tamatea/Rapaki Rock, Ōtaranui/The Tors and Windsor Castle. A number of caves are unusual landscape features, such as those found in Barnett Park, Sumner and Redcliffs (see below for cultural information). Several hot springs, which are thought to be derived from deep percolating groundwater and found adjacent to the hills on both sides of the crater rim (at Ferrymead, St Andrews Hill, Cass Bay, Rāpaki and Motukarara) and have been identified as Geopreservation Sites (Lyttelton Springs).

The eastern section of the Port Hills contains large areas of extensively grazed grassland, where silver tussock can be found amongst the matrix of introduced grasses. The grazing is at a low level where indigenous grass, shrub and tree species can be maintained and no over-sowing or fertilising is required. Within the grasslands are fenced-off small remnants of native bush with additional planting areas, such as Dry Bush/ Bush Head, which are notable for containing podocarp-hardwood forest species including tōtara, kahikatea, māhoe, houhi/lacebark and horoeka/lancewood. In Jollies Bush, below Mt Pleasant, species include tāwhai/beech, tōtara and broadleaved shrubs. The true right of Cashmere Valley, near Pentre Terrace, contains a stand of kānuka woodland amongst

pines. Large areas of pātiti/silver tussock can be found around Sugarloaf Reserve, Mt Vernon, Heathcote/ Horotane/Avoca Valley, Barnett Valley and Mt Pleasant Reserve. Some confined stands of native broom shrubland occur in the Heathcote area. The bush near the central part of Barnett Valley contains rare hardwood bush with titoki. Around rock outcrops and fell fields where grazing is restricted, are some of the most diverse native shrub habitats on the northern side of the Port Hills.

The eastern Port Hills are also rich in their cultural history, elements of which can still be found in the landscape today. The numerous volcanic caves and tunnels along the bottom of the hills between the mouth of the Ōpāwaho/Heathcote River and Sumner, including Te Ana o Hineraki/Moa Bone Cave and Moncks Cave near Raekura/Redcliffs were utilised as rock shelters and/or were part of traditional kāinga (settlements) located around Te Ihutai. A number of archaeological sites have been identified in this area, with the caves containing both taonga/artefacts as well as middens. In particular, Moncks Cave contained a carved and painted hoe or canoe paddle and, an ama or outrigger canoe float, as well as remains of numerous native birds, fish, shellfish as well as mammals, including the Polynesian rat and New Zealand fur seal. Radiocarbon dating from Moncks Cave place early Māori occupation of the area around the early 15th century (Jacomb 2008). Significant pā and kāinga in this area include Te Raekura (near Redcliffs) and Tauhinu-Korokio on Mount Pleasant, which were key Ngāti Mamoe settlements at the time of the arrival of Ngāi Tahu. These settlements utilised the abundant mahinga kai resources of Te Ihutai, including pātiki (flounders), tūaki (cockles), tuna (eel) as well as birds. Other culturally important landscapes features at the base of the hills and associated with Te Ihutai include: Ōhikaparuparu (mudflats off Ferrymead/Heathcote mouth), Te Pou o Tūtaemaro (the headland near Redcliffs), Ōtamahika (mudflats at Redcliffs), Waipātiki (channel at the outlet of Te Awa Kura/Watsons Creek), Rapanui/Shag Rock, while Tuawera/Cave Rock and Matuku-takotako/Sumner Beach lay beyond.

Culturally important landscape features along the summit of the central Port Hills area include: Te Pōhue/ Sugarloaf, Te Iringa o Kahukura (a spur on the ridge east of Dyers Pass), Te Ahi a Tamatea/Rāpaki Rock, Te Upoko Kurī/Witch Hill, Ōtaranui/The Tors, Te Whakatakanga o te Ngārehu a Tamatea (range east from Rāpaki towards Ohinehou/Lyttelton), Te Tihi o Kahukura/Castle Rock, Te Moenga o Wheke (a locality near Te Tihi o Kahukura), Ō-Kete-Upoko (summits above Lyttelton, including Mt. Cavendish), Tauhinu-Korokio/Mt. Pleasant and Tapuwaeharuru/Evans Pass. Again, these names and features record historical events and link to important creation, migration and settlement traditions associated with the area (refer to Map 6 in Appendix 4 for location of features).

At the beginning of European settlement the first transport 'problem' that had to be solved if Christchurch was to thrive was access to the port, Lyttelton, from the city. With the arrival of the first influx of settlers, a track was formed over the hills from Lyttelton to Heathcote. It was called the Bridle Path and was negotiable by horses. The Rapaki Track, which was an access route for Māori between catchments, was also used to cross the Port Hills between Lyttelton and Christchurch before the Sumner Road was completed in 1858. The historic building at the Sign of the Kiwi, which served as a toll house and tea rooms for the Summit Road has been described in the previous character area. Other prominent historic features include the World War II Heavy Anti-aircraft Artillery Battery built to combat enemy aircraft at Mt Pleasant.

The market gardens in the Heathcote Valley are also of historic relevance, as the settlement was initially the hub of Christchurch's horticultural and orchard industry. By 1872 apples, stone fruit and grape wine were being grown in the Heathcote Valley and it, with the Avoca and Bowenvale Valleys, became major suppliers of orchard and market-garden produce, based on the their favourable microclimates.

A number of reserves have been bought for public use by the Christchurch City Council, the Port Hills Parks Trust Board, DOC and the Summit Road Society, which now link up in a chain of reserves offering similar recreational opportunities. This also includes the Department of Conservation managed Lyttelton Scenic Reserve at Mt Cavendish and Mt Pleasant/Tauhinukorokio Scenic Reserve. Victoria Park, Bowenvale and Sugarloaf Reserves are particularly popular in the central section of the Port Hills. The aim was to protect and enhance the Port Hills' biodiversity, the City's rural backdrop, protect views, provide for public access and prevent housing creeping onto the upper part of the Port Hills. Most of the hills will require ongoing grazing maintenance to combat the regrowth of woody weeds. A mosaic of conservation bush areas and managed grassland is emerging in the Eastern Port Hills Character Area. Native species have been planted in the moister gullies, and tussocks have been planted on the higher slopes near the Summit Road. Eventually the Port Hills will have much larger areas occupied by native forest and bush.

Nowadays, residential development extends up the spurs to an elevation of around 200 m in Cashmere and Huntsbury and to about 300 m at Mt Pleasant and Moncks Spur. A number of popular walking tracks provide access to the central section of the Port Hills, including Harry Ell walkway, Huntsbury, Mt Vernon and Rāpaki Tracks. These tracks connect with the popular walking and mountain bike track, which follows the crater rim. The Bridle Path has a rich history, which are marked by a number of seats commemorating the First Four Ships that brought the first European settlers to Canterbury, a memorial cross, memorials to pioneer women, two WWII strong points and entrance markers at both ends of the path. The path serves as a pedestrian and bike link between the top of the Heathcote Valley with Lyttelton Township. The gondola from the Heathcote Valley to the top of Mt Cavendish is a major tourist attraction of Christchurch. Extensive views of the city and Pegasus Bay coast on one side and Whakaraupō/Lyttelton Harbour on the other side can be gained from the observation building at the top. The Sugarloaf communication transmission tower, situated on one of the prominent landforms in the area, is one of the very few man-made structures located along the tops of the Port Hills. With a height of 121m it has been a landmark near Dyers Pass for around fifty years. The radio masts on Tauhinu Korokio/Mt Pleasant are of a much smaller scale.

Landscape elements that modify the natural character of the Eastern Port Hills include the prominent mid elevation line of pylons that traverse the hills between Horotane Valley and Dyers Pass Road, farm fence lines, an old airstrip near Huntsbury Track and exotic conifer planting on the skyline in Scott reserve and the old rectilinear pine plantations in Victoria park. The Victoria and Elizabeth Park recreation and Ranger Headquarters area is highly developed to urban park standard, has important exotic botanical and historical plantings, memorials and visitor infrastructure.

The Port Hills are a prime landscape feature, forming the backdrop to the central and eastern City and parts of the Canterbury Plains. It is the section of the Port Hills contained within this Eastern Port Hills Character Area which is the key area visually, and also recreationally, since they are particularly accessible from the suburbs located relatively close to Christchurch's centre. The hills form a foil of largely undeveloped rugged tops, contrasting with the urban environment located on the spurs, valleys and plains below. The open character and natural appearance of the Port Hills contribute to the visual and recreational amenity of Christchurch, as they form a primary feature of the city's identity that provides for a variety of recreation and access opportunities.

LANDSCAPE EVALUATION

Biophysical attributes:

- This section of the Port Hills contains the most legible rock outcrops, such as Te Ahi a Tamatea/Rapaki Rock, Te Tihi o Kahukura/Castle Rock, Ōtaranui/The Tors and Windsor Castle, telling a story of the volcanic origins of the hills.
- Numerous caves and tunnels are important geomorphological features.
- Castle Rock trachyte intrusion and the Rapaki dykes are also geopreservation sites.
- The majority of the character area is covered in extensively grazed grassland, containing silver tussocks and hard tussocks.
- Important remnant areas of native hardwood forest are found on wetter ground in gullies, such as Dry Bush (Bowenvale), top of Central Barnett Valley (contains mataī) and Jollies Bush (below Mt Pleasant).
- Significant native shrub areas and diversity occur around cliffs and outcrops, such as on the eastern side of the Heathcote Valley.
- Numerous gullies have been replanted with native vegetation, which is starting to form dense stands in some areas, including the top of Huntsbury Spur and Greenwood Park.

Sensory attributes:

- The coherent sequence of spurs and valleys of the central section of the Port Hills is visually particularly important for the city of Christchurch, as it forms the skyline from most viewpoints.
- The most distinctive peaks on the skyline are Te Pōhue/Sugarloaf, Mt Vernon, Ōtaranui/The Tors, Ō-Kete Upoko/Mt Cavendish and Tauhinu Korokio/Mt Pleasant.
- The extensive rock bands and cliffs in the Heathcote Valley, Barnett Park, Windsor Castle (Sumnervale) are defining features within the visual catchments.
- The majority of spur tops are covered in a silver tussock/exotic grassland mix with forested gullies accentuating the radial drainage pattern of the hills. The hills provide a natural foil to the densely developed hill suburbs.
- The openness, naturalness and vastness of the slopes and their contrast with the urban area are the key attributes contributing to the character of the hills.
- The spurs descend towards the flat suburbs of Christchurch in a distinctive radial pattern that reflects the directions of lava flow from the former volcano.
- The spurs separate the major valleys into a series of contained visual catchments for which the spurs are the skyline. The spurs correspondingly have wide views across adjacent valleys and the plains generally.
- The change in colour with the seasons, daylight and weather, as well as the snow cover of the tops in winter and dry brown of summer provide visual interest and transient values.
- The recreation opportunities include an extensive network of trails for walking and biking.
- The Summit Road not only has a rich history, it also serves as a major access route along the hills.
- The Mt Cavendish gondola is a major tourist attraction, which provides easy access to the top of the hills.

Associative attributes:

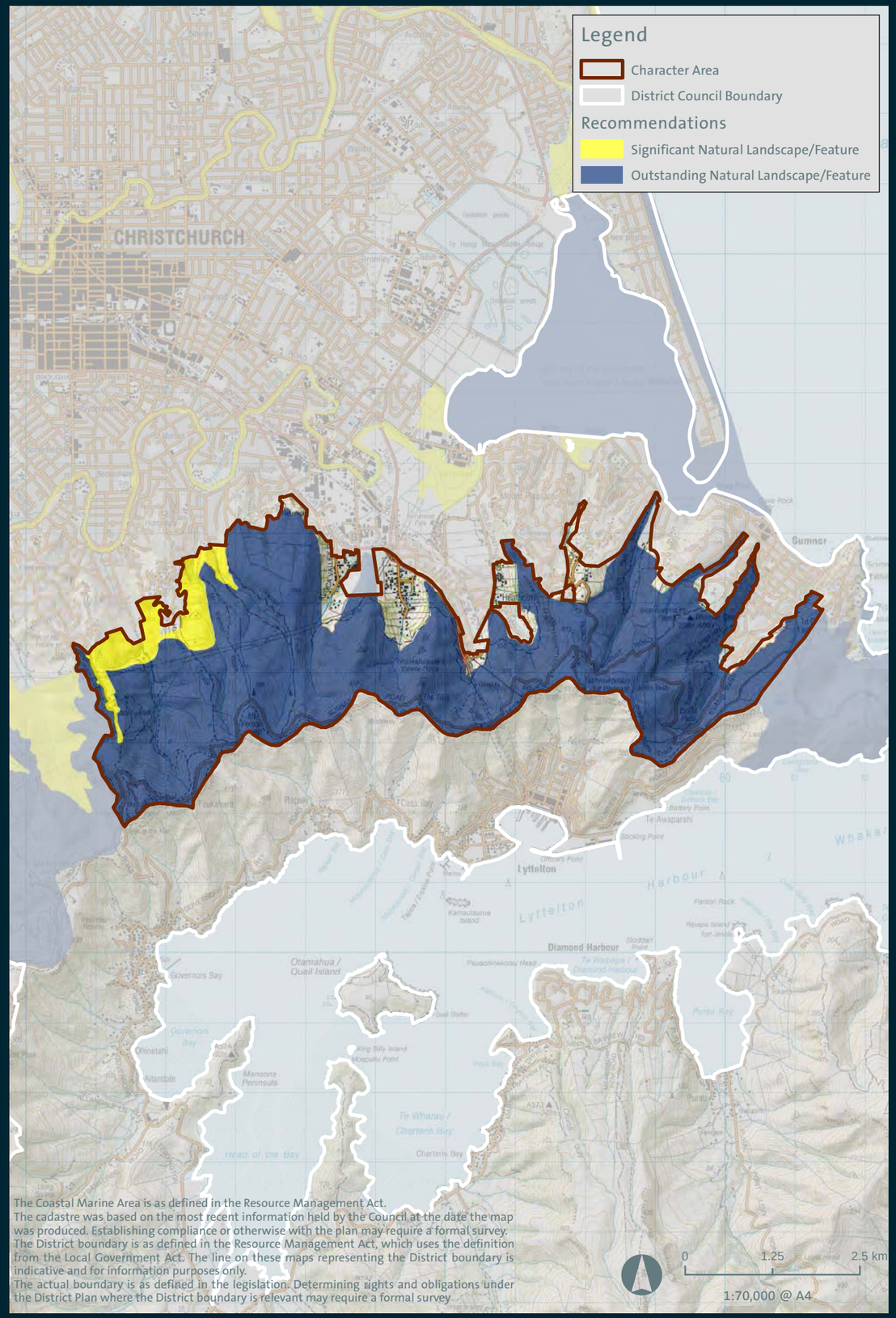
- Many of the distinctive summits and rock outcrops along the crater rim are of importance to tangata whenua, including Te Pōhue/Sugarloaf, Te Ahi a Tamatea/Rapaki Rock, Te Upoko Kurī/Witch Hill, Ōtaranui/The Tors, Te Whakatakanga o te Ngārehu a Tamatea (range east from Rāpaki towards Ohinehou/Lyttelton), Te Tihi o Kahukura/Castle Rock, Te Moenga o Wheke (a locality near Te Tihi o Kahukura), Ō-kete-upoko (summits above Lyttelton, including Mt. Cavendish) and Tauhinu-korokio/Mt. Pleasant.
- A number of passes along the hills served as access routes for Māori between catchments, including Puke Atua/Dyer Pass, Te Iringa o Kahukura and Tapuwaeharuru/Evans Pass, as well as the former pā site of Tauhinu Korokio on Mount Pleasant.
- The Bridle Path is important in European history with a number of memorials along the way.
- The Lyttelton rail and road tunnels are of historic significance.
- Large areas of council and DOC managed land fall into this section of the Port Hills, which enables public access and restoration planting in this area.
- The crater rim walkway and mountain bike track are amongst the most popular tracks within Christchurch, providing stunning views of the city.
- Victoria Park and its associated trails provides particularly popular recreation opportunities.
- Victoria Park is the longest-established and most accessible recreation reserve and remains the administrative focus of Port Hills conservation and recreation.
- Importance of views to the Port Hills is reflected in paintings and photographs depicting the natural and rugged landform in the backdrop of Christchurch.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the Eastern Port Hills Character Area the upper Bowenvale Valley, Huntsbury Spur (above the 100m contour) from Vernon Farm track to Heathcote, upper Mt Pleasant, Barnett Valley, Richmond Hill and a number of cliffs have been identified as ONL due to their high biophysical values, very high perceptual values and high associative values. The lower Bowenvale Valley, the rural parts of the lower Huntsbury Spur and Mt Vernon to Rapaki have been identified as SL due to their moderate biophysical values, high perceptual values and high associative values. The naturalness of the hills varies, with some areas covered in regenerating shrubland and tussock grassland of varying quality. In general the naturalness of the Eastern Port Hills is higher than on the Western Port Hills, where forestry is more prevalent in some areas. Overall, the hills are natural in appearance despite the presence of the Summit Road and some man-made structures. The hills form an important rural foil to the developed parts of Christchurch. It is worth noting that a number of deferred living zones are located within this character area.

The majority of the Port Hills within this character area have been identified as an ONL due to the high importance of their exceptional landscape characteristics. This section of the hills has a generally more natural appearance than the western part due to the predominance of native land cover and open space characteristics. While the majority of the spurs are covered in mixed tussock grassland, the gullies occassionally contain small native forest/ shrubland remnants bolstered by recent City Council streamside planting . It is considered important that the full sequence of spurs and gullies is included in the ONL and, therefore, the relatively low-lying 100m contour has been followed in many areas. The 100m contour and rural zoning boundary align with the landform change at the base of the largely unmodified spurs between Mt Vernon Track and Avoca Valley, which are amongst the last remaining spurs within Christchurch where the entire landform sequence is intact without significant man-made structures, apart from pylons.

Where intensive residential development extends into the valleys (Bowenvale, Heathcote, Sumner) or high up on spurs (Cashmere, Huntsbury, Mt Pleasant, Moncks Spur, Clifton Terrace) these areas have been excluded from the ONL. The ONL includes a number of large CCC reserves, including Victoria, Bowenvale and Barnett Parks, Castle Rock, Scott Valley and John Britten Reserves, which contain a varying level of recreation infrastructure but are generally devoid of other man-made structures.



4.2 COASTAL CHARACTER AREAS

The coast line within Christchurch City can be divided into several sections that differ significantly in landscape character. The southern end of Pegasus Bay with its long sweep of sandy beaches falls within the City's boundaries south of the Waimakariri River mouth. The beach between the Waimakariri River mouth and Te Ihutai/ the Avon-Heathcote Estuary is flanked by active foredunes along the majority of its extent. The hinterland of the dunes varies, however, and the coastline has therefore been divided into three sections. The northernmost section of the beach is backed by Te Riu o Te Aika Kawa/Brooklands Lagoon, associated with the Waimakariri River mouth. To the south of the lagoon the extensive forest plantation of Bottle Lake Forest forms a distinctive character area, on what was formerly a significant coastal wetland called Waitākiri. From the plantation forest to the spit that confines the Te Ihutai/Avon-Heathcote Estuary the dense residential development of New Brighton defines the hinterland of the beach, which is described as a third character area below. The estuary character area encompasses the shore and hinterland of the tidal flats near the Ōtākaro/Avon and Ōpāwaho/Heathcote River mouths, as well as the narrow, intensively developed coastal hinterland around the suburbs of Redcliffs and Sumner. The coast around Godley Head is described as a separate character area, as it forms part of the Port Hills land type that extends along the crater rim of the former Lyttleton volcano. With its steep cliffs the headland has very different landscape values to the other coastal areas that are located on the flat parts of Christchurch.

4.2.1 AWAROA / GODLEY HEAD

Awaroa/Godley Head forms the eastern boundary of the Port Hills, where they meet the ocean of Pegasus Bay. The headland guards and signals the entrance to Lyttelton Harbour with sheer 120 metre-high cliffs towering above the sea. The headland falls in its entirety within Christchurch City, extending east from the suburb of Sumner in the north and Lyttelton Township in the south. On the northern side the headland is confined by Sumner Head, forming a distinctive boundary between the gentle beach of Sumner and the steep cliffs of Scarborough. On the Lyttelton Harbour side the rugged bays of Livingstone and Breeze Bay and the bands of rock escarpments contrast with the smooth, grassed tops of the headland. The remains of a ship beached in Breeze Bay are still visible.

The steep headlands, cliffs and escarpments that define the coastal interface of Godley Head show the volcanic history of the Port Hills and erosional forces of the sea. The coast along the head is made up of a variety of cliffs and bays of varying size, with the highest cliffs at the spit of the headland that is most exposed to the waves of the ocean. The most well-known bays are the expansive, sandy Te Onepoto/Taylors Mistake and the intimate, stony Boulder Bay, which are very different in character and size, both located on the northern side of the headland. The loess soils on the drought prone heads are susceptible to tunnel gully erosion and slips are common.

This area contains a number of key cultural sites and landscape features. Ōtokitoki is the name of an important Ngāi Tahu pā that was situated in a strategic location on the hills above Gollans Bay, and is sometimes used to refer to Gollans Bay itself. From Ōtokitoki, extensive views are possible, across virtually all of Te Tai o Mahaanui/ Pegasus Bay in the north, and along the coastline of the peninsula to Panau/Long Look Point in the south. Due to its importance, Ōtokitoki was claimed by Te Koromata (and others) in the Native Land Court in 1868, but was unsuccessful due to a map/plan not being furnished as required by the Court. Awaroa is used to refer to the Godley Head area due to it being the entrance of the harbour. Tapuwaeharuru is the summit above Evans Pass, as well as the name given to the pass itself, and was a major travelling route linking the eastern end of the harbour with the settlements and resources of Te Ihutai. Mahoenui is the name of the range running east from Tapuwaehaururu/Evans Pass to the headland. On the harbour side of the area is Te Awaparahi (an earlier name for Gollans Bay), Te Awatoetoe (the bay between Battery Point and Sticking Point) and Urumau (a cave above Sticking point). On the northern side are the beaches of Te Onepoto/Taylors Mistake and Matuku-takotako/ Sumner. A number of archaeological sites have been identified, including at Sumner, around Scarborough Head, up to Evans Pass, around Ōtokitoki and at Te Onepoto - all attesting to Māori use and occupation of the area.

In mid 1850s Godley Head was set aside by the Canterbury Provincial Council as a reserve for military purposes and soon after that a lighthouse was erected close to the tip of the headland, high above the coastal edge. The lighthouse, built in 1865, had to be moved during WWII to make way for a coastal defence battery in this area, which is still largely intact. Godley Head, built to protect Lyttelton Port from enemy ships, is one of the most complete coastal defence sites left in New Zealand.

Today the majority of the Godley Head character area is a reserve, with City Council managing the south western side of the headland (Scarborough Hill Park) and the Department of Conservation managing the land east of Taylors Mistake (Godley Head Reserve). The vegetation on the headland consists largely of modified, extensively grazed grasslands with small remnants of native shrubs on steep, wetter rock faces and gullies on the slopes facing Lyttelton Harbour. The northern side of the headland is particularly dry, but on the southern side, areas of dense pātiti/silver tussock occur on the shadier, moister parts of the upper slopes and into the gullies of the more recently grazed land. Small-leaved shrubland is most common on the mid-slopes, while harakeke/flax and broadleaved species are recolonising less disturbed areas such as at the coastal edge, steep gullies and below rocky outcrops. In contrast, the very dry northern side contains less native vegetation and is dominated by introduced species, including pasture grasses and a number of succulent and woody weeds.

The coastal environment, however, continues to provide habitats for a wide range of unique wildlife, such as seabirds on the cliffs and the locally endemic kororā/white-flippered penguin in the sheltered Boulder Bay area. In the marine environment, ūpokohue/Hector's dolphin can be found. The cliff-nesting pārekareka/spotted shag population comprises the largest concentration of breeding coastal/wetland birds in the Christchurch area.

Overall the character of the area has been influenced by 700 years of human occupation and activity. Removal of the native coastal forest, stock grazing and construction of a military complex at Godley Head have all brought about change to the environment. The landscape is now treeless, with the exception of some old pines planted near the head. Nevertheless, the character of the headland, dominated by open, unobstructed views is largely natural. The eastern part of the headland contains only few structures and maintains a relatively undeveloped

landscape. The western boundary of the character area forms, however, the interface to the suburb of Sumner, which extends along the flat valley floor behind Sumner Beach. The dwellings on the steeper western side of the valley extend over the top of Scarborough Spur into Taylors Mistake. Today, the lower part of Scarborough Spur has been modified by dense residential development, while only the western side of Taylors Mistake has been subdivided. The Christchurch earthquakes had substantial impact on the residential areas along Clifton Hill and Whitewash Head, where buildings were destroyed along the collapsing escarpment edges. Properties in these areas and parts of Sumner were red-zoned to provide setbacks on land endangered by rockfall or cliff collapse. A number of quaint and quirky baches along the Taylors Mistake coastline give the western side of the Taylors Mistake beach a special character, and hold heritage values.

Godley Head has a dramatic, exposed maritime atmosphere, with views across the Lyttelton Harbour to Banks Peninsula and along the Pegasus Bay coastline, and as far as the Kaikoura Ranges and Southern Alps on a clear day. Recreation opportunities in the area are extensive with a network of walking and mountain bike trails, which connect the headland to the remainder of the Port Hills. The tracks vary in difficulty and provide different experiences, with some of the tracks extending along the steep Lyttelton Harbour side, along the exposed tops with views either side and along the high coastal cliffs on the northern side. These tracks are heavily used by the public and the gun emplacement near the head are popular historic sites, accessible to the public. The Summit Road extends along the northern side of the crater rim as far as the outer part of the headland, where it provides easy access to the historic buildings in this area. Taylors Mistake is also renowned as one of the prime surfing spots of Christchurch and the cliffs of Whitewash Head form a distinctive feature along the headland that separates Taylors Mistake from Sumner. The high, eroding cliffs in this area (Sumner Head, Whitewash Head and Giants Nose) can be viewed from the coastal walkway.

LANDSCAPE EVALUATION

Biophysical attributes:

- The headland has very high legibility values, as it forms the entrance to the drowned volcano that makes up Whakaraupō/Lyttelton Harbour.
- The steep cliffs along the headland and Whitewash Head are distinctive features, which are a result of the erosional forces of the sea.
- The rocky coast line is an important landscape feature, representative of the cliffs which can otherwise only be found around the Banks Peninsula coast.
- The majority of the headland is covered in silver tussock, which is extensively grazed.
- In particular on south facing wetter slopes/ gullies, native vegetation can be found.
- The headland has high value as a habitat for wildlife, including penguins that can be found in Boulder Bay and a shag colony.
- Sumner is surrounded by impressive cliffs and rock outcrops that display their volcanic origins.

Sensory attributes:

- The aesthetic attributes of Godley Head are amongst the most dramatic and important of any in Christchurch.
- The headland has high naturalness, with a largely natural appearance, significant native content to the grassland and cliff vegetation and few nodes of human development. The limited areas of trees maintain the openness of the area.
- The wild, exposed, remote feeling of the outer coastal area with its impressive cliffs is valued by many.
- The visual connections to the coast, open sea and Lyttelton Harbour, as well as Christchurch City and the foothills of the Southern Alps beyond are particularly memorable.
- The beach of Te Onepoto/Taylors Mistake is Christchurch's most secluded beach, which makes it an attractive destination for beach goers and surfers.

Associative attributes:

- The character area contains a number of key cultural sites and landscape features, including most significantly the pā of Ōtokitoki.
- The headland of Awaroa, which signals the entrance to the harbour, as well as the ridge from Awaroa to Tapuwaeharuru/Evan Pass called Mahoenui, situated above Ōtokitoki, and Te Onepoto/Taylors Mistake are also culturally important landscape features to Māori and Europeans. The gun emplacements and associated buildings are a popular and easily accessible historic site.
- The DOC managed land provides a range of recreation opportunities, which can be easily accessed via the Summit Road from Evans Pass.
- The baches along Te Onepoto/Taylors Mistake have heritage value and contribute to the character of the beach setting.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within this Coastal Character Area the headland of Awaroa/ Godley Head has been identified as an ONF in its entirety due to its high biophysical values, very high perceptual values and high associative values. The naturalness of Godley Head lies in particular in its openness with few man-made structures. While the majority of the headland is extensively grazed, native tussocks occur within the grasslands. The Lyttelton Harbour side contains more native shrubs amongst the steep cliffs and rock faces. The cliffs on all sides of the headland are in a largely natural state, with particularly high ecological values on the southern faces.

The ONF area also includes the prominent cliffs around the densely developed headlands of Sumner and Whitewash Head, as well as Giants Nose and Moki Point. The residential areas of Sumner, Scarborough and Taylors Mistake have been excluded from the identification. Along the eastern side of Sumner the 100m contour was followed as far as Scarborough Head, from where the ONF continues along a land use boundary to Taylors Mistake, excluding the developed lower-lying coastal areas.

IDENTIFICATION OF THE COASTAL ENVIRONMENT

Because the coastal and Port Hills environments are inextricably linked within the Awaroa/Godley Head Character Area, it has been included as one of the Coastal Character Areas, despite the fact that the underlying land type forms part of the Port Hills volcanic landform.

The inland limit of the coastal environment within the Awaroa/Godley Head Coastal Character Area extends from Scarborough Hill in the north along Taylors Mistake Road until it reaches the point immediately south of Peninsula View off Godley Drive, where it follows the open gully south-westwards towards the Summit Road (see Map 3, Appendix 4). Beyond this area the coastal environment limit extends to the quarry at Te Awaparahi/Gollans Bay in Lyttelton Harbour. The entire Godley Head peninsula is thus included within the coastal environment.

COASTAL NATURAL CHARACTER EVALUATION

Abiotic attributes:

- Impressive headland of Godley Head guards the entrance to Lyttelton Harbour with 120metre high sheer cliffs.
- Sequence of steep cliffs, rocky peninsulas and sandy bays define the coastline.
- Steep sections of headland are susceptible to erosion, but create impressive geological features.

Biotic attributes:

- Limited indigenous vegetation present, apart from silver tussock cover, however native species occur in steep gullies and below rocky outcrops.
- Cliffs provide a unique habitat for a range of wildlife, including seabirds and the locally endemic kororā/white-flippered penguin in the sheltered Boulder Bay area.
- The cliff-nesting pārekareka/spotted shag population comprises the largest concentration of breeding coastal/ wetland birds in the Christchurch area.
- Hectors dolphins are also commonly sighted within the marine environment.

Experiential attributes:

- Wild and often windswept views of the coast are appreciated from the Godley Head walkway track.
- Taylors Mistake is a popular beach for wind surfing and swimming.
- Remote-like experiences are obtained from the many mountain bike and walking tracks.

IDENTIFICATION OF HIGH, VERY HIGH AND OUTSTANDING NATURAL CHARACTER

Natural Character Rating	Identified Area
High Natural Character	
Very High Natural Character	The coastal cliffs around Awaroa/Godley Head from Te Onepoto/Taylors Mistake to Livingstone Bay
Outstanding Natural Character	

4.2.2 TE RIU O TE AIKA KAWA/BROOKLANDS

Te Riu o Te Aika Kawa/Brooklands Lagoon, is located to the south of the Waimakariri River, close to the River mouth. Oblong in shape, the lagoon is approximately 4 km long (extending in a north-south direction) and approximately 250 m wide (in an east-west direction). Towards the south the lagoon widens to approximately 650 m and covers a total area of roughly 270 hectares. The small settlement of Spencerville lies along the western boundary of the lagoon, protected from the Waimakariri River by stop banks and flood gates. The settlement of Brooklands has been red-zoned following the extensive ground damage through the Christchurch earthquake and it is possible that this area will eventually revert back to a more natural state without built development.

Brooklands 'Lagoon' is in fact a long, narrow estuary - with the Pūharakekenui/ Styx River flowing into it, while the Waimakariri River follows its main river channel past the lagoon entrance to the north. Brooklands Lagoon is protected from the sea by Brooklands Spit and coastal sand dunes. The Brooklands Spit landform is of very recent origin. Until the 1950s, the area of sea bed now occupied by the spit was the site where the combined forces of the Waimakariri and Pūharakekenui/Styx rivers would connect with the sea and that created shifting sandbars with two sand spits located at both ends/ either side of the opening. Today the linear coastal landform, consisting of broad, parallel dunes, separates the hinterland occupied by Brooklands Lagoon and Spencer/ Seafield Parks from Pegasus Bay. Through its connection to the Waimakariri River the lagoon retains a tidal influence, which varies throughout the lagoon. Despite being called a lagoon it is an estuary, with tidal cycles of sea water that mix with the freshwater of the Waimakariri and Pūharakekenui/Styx Rivers. Until the 1930s, the Waimakariri used to flow directly into the lagoon before connecting with the ocean, but the river cut its own connection in its current position following extensive river works (see Waimakariri character description). Adjacent to the main channel, there are extensive areas of mudflats which are only submerged at high tide. Particularly extensive mudflats can be found around the central section of the lagoon that are home to a range of shellfish species, including tuaki/cockles, while the southern end contains more vegetation, such as reed-beds/jointed wire rush and some raupo. River bank stabilisation and flood protection works extend along the Lower Waimakariri, but the mouth maintains its dynamic attributes.

While the hinterland is highly modified, the lagoon and dunelands maintain important ecological attributes. The Brooklands Lagoon is a link in a chain of wetlands that run along the central Pegasus Bay, which are used by migrating birds as well as breeding habitat and wintering site. The characteristics of the lagoon and the fauna and flora found within and around it vary from north to south, depending on the saltwater influence. The southern lagoon is a wildlife refuge and the open mudflats and reed beds form the main feeding ground for a number of birds at low tide. Various native sedges, rushes, grasses, salt tolerant herbs and occasional shrubs, such as the mākaka/saltmarsh ribbonwood, can be found around the mudflats and saltmarsh areas. The vegetation on Brooklands Spit contains some remnants of the original native duneland vegetation in the form of harakeke/flax, mānuka, tī kouka/cabbage trees and mature akeake. The seaward side of the spit comprises an active foredune at the top of a wide beach. The introduced marram grass dominates the beach faces of the dunes, along with occasional ice plant.

Te Riu o Te Aika Kawa/Brooklands Lagoon and the Waimakariri River mouth is an important cultural site for Ngāi Tahu, particularly for mahinga kai (food gathering). Shellfish, including tūaki (cockle), roroa, and whetiko (periwinkle) were important, as well as patiki (flounder). Tuna (eels) feed around the mouth of the Pūharakekenui/ Styx River, which is also an important inanga (whitebait) spawning area. A Māori Reserve (MR 892), also named Pūharakekenui was granted in 1868 by the Native Land Court to the original owners of Kaikanui Reserve on the edges of the lagoon. There are urupā and numerous archaeological sites recorded in the area, including those containing middens and ovens. Further up the Pūharakekenui/Styx River, in the vicinity of where the Styx Mill conservation reserve is today, a mahinga kai site known as Te Kōpareōihu was situated that was important for aruhe/fernroot, kiore/Polynesian rat, koreke/NZ quail and tutukiwi/South Island snipe. Ōrauwhata is the name of a kāinga and mahinga kai site in the Belfast area that was important for tuna/ eel, kanakana/lamprey eel, pārera/grey duck, pūtakitaki/paradise duck, kōau/shag, koreke/NZ quail and kiore/Polynesian rat.

In the 1850s early European settlers divided the land surrounding the lower Waimakariri River into large pastoral runs. The vegetation was soon stripped away by over-grazing and the light sandy soils were blown inland, which meant that farming was abandoned in the area.

Today Spencer and southern Seafield Parks are popular family recreational hubs located at the southern end of the area. Observation platforms, at the southern end of the lagoon, provide places for observing birdlife. The lagoon is a very popular spot for bird watching and the Waimakariri River mouth is an important whitebaiting and salmon fishing spot. Brooklands Lagoon is a remote place within the Christchurch City, where the urban hinterland appears distant and natural processes dominate.

LANDSCAPE EVALUATION

Biophysical attributes:

- The landform of Brooklands Spit and Lagoon formed behind the dunes barrier are interesting geomorphological features.
- The dynamic estuary/ lagoon of the Pūharakekenui/Styx and Waimakariri Rivers are rare coastal features.
- The saltmarsh and mudflats occurring alongside the lagoon channel and on the lower Waimakariri/ Styx banks are important habitats, in particular for bird life, shellfish and invertebrates.
- Specialised plants occur in the area of tidal influence, with species dependent on the gradient of saltwater influence from north to south.
- Some native duneland vegetation occurs on the spit.
- The lagoon is an important link of wetlands along Pegasus Bay, used by migrating birds as well as breeding habitat and wintering site.
- The lower Styx River and mouth are of high ecological importance as part of the estuarine system.

Sensory attributes:

- Remote coastal area, where the spectacular river mouth of the Waimakariri can be experienced from the spit.
- The character of Brooklands Lagoon, sheltered from the open sea, provides a calm and open environment with extensive views.
- The extensive bird life in the area is an attraction for bird watchers and families alike.

Associative attributes:

- Brooklands Lagoon and the lower Waimakariri River and mouth are important mahinga kai sites, both traditionally and contemporarily.
- A number of urupā and archaeological sites in the area tell a story of early occupation, as well as the existence of the Pūharakekenui Māori Reserve that maintains a significant Ngāi Tahu presence in the area.
- The majority of the area lends itself to quiet recreation, including fishing and whitebaiting at the Waimakariri river mouth.
- Spencer Park provides important recreational values, including a camp ground and extensive bike trail network.
- Two walkways provide access to the area for public enjoyment.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the Te Riu o Te Aika Kawa/Brooklands Coastal Character Area all of the lagoon and its mudflats, including the Styx River mouth and sand spit have been identified as ONF due to their very high biophysical values, high perceptual values and very high associative values. The naturalness of the lagoon and mudflat areas is particularly high, since natural elements, patterns and processes dominate in this environment.

This ONF includes the saltmarsh and wetland areas to the east and south of the lagoon, as well as the Lower Waimakariri River with its southern banks as far as the Styx River mouth. The parts of Te Riu o Te Aika Kawa/ Brooklands Lagoon that are located below MHWS fall outside Christchurch's district boundaries.

IDENTIFICATION OF THE COASTAL ENVIRONMENT

The inland extent of the coastal environment within this Coastal Character Area is centred on the Brooklands Lagoon estuary and its margins. The margins of the estuary have varying degrees of coastal influences and this can be determined by the extent of modification associated with them. The coastal environment therefore includes land that retains coastal processes, influences and qualities that are significant, as well as other aspects contained within Policy 1(2) of the NZCPS 2010. Modification within the coastal environment can attenuate coastal elements, patterns and processes that in turn can foreshorten the extent.

The inland extent of the coastal environment for Brooklands Lagoon includes the land to the immediate south of the Waimakariri River up to the stop-banks. The area excludes the settlement of Brooklands, where it crosses the rear of red-zoned properties backing onto the estuary. Further south, the coastal environment is determined by the extent of the tidal influences on the estuary's margins. To the south the extent is aligned with the Coastal Character Area's boundary, along Heyders Road.

COASTAL NATURAL CHARACTER EVALUATION

Abiotic attributes:

- Landform of Brooklands Spit and Lagoon formed behind the dunes barrier are interesting geomorphological features.
- The dynamic estuary/ lagoon of the Styx and Waimakariri Rivers are rare coastal features.

Biotic attributes:

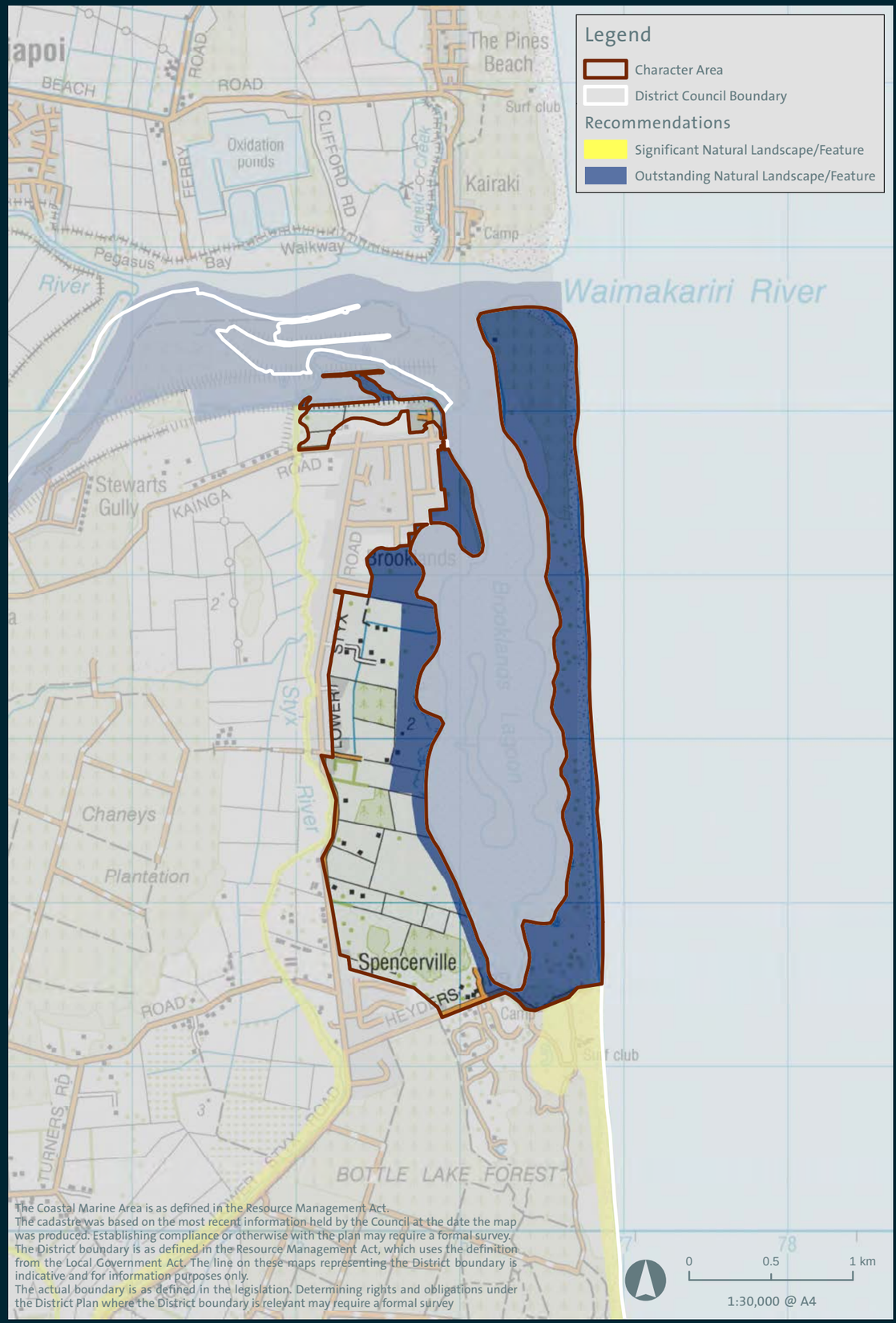
- The saltmarsh and mudflats occurring alongside the lagoon channel and on the lower Waimakariri/ Styx banks are important habitats, in particular for bird life, shellfish and invertebrates.
- Specialised plants occur in the area of tidal influence, with species dependent on the gradient of saltwater influence from north to south.
- Some native duneland vegetation occurs on the spit.
- The lagoon is an important link of wetlands along Pegasus Bay.
- The lower Styx River and mouth are of high ecological importance as part of the estuarine system.

Experiential attributes:

- Remote coastal area, where the spectacular river mouth of the Waimakariri can be experienced from the spit.
- The character of Brooklands Lagoon, sheltered from the open sea, provides a calm and open environment with extensive views.
- The extensive bird life in the area is an attraction for bird watchers and families alike.
- Food gathering, fishing and hunting are popular in and around the Lagoon and Waimakariri River mouth area.

IDENTIFICATION OF HIGH, VERY HIGH AND OUTSTANDING NATURAL CHARACTER

Natural Character Rating	Identified Area
High Natural Character	-
Very High Natural Character	-
Outstanding Natural Character	The waterbody and immediate margins of Te Riu o Te Aika Kawa/Brooklands Lagoon, including the spit.



4.2.3 WAITĀKIRI/BOTTLE LAKE

The beach landform along Pegasus Bay continues all the way south from the Waimakariri to the mouth of the Avon-Heathcote Estuary, with increasing levels of modification to its hinterland. South of Brooklands Lagoon, Bottle Lake Forest, a production forest and recreational park, extends approximately 5 kilometres along the coastal back dunes. Human occupation has caused considerable changes to the original vegetation and landscape of the hinterland in this coastal area, which once contained an extensive wetland. This area also comprised active dunes and a lake surrounded by swamp land referred to as “Bottle Lake” due to its shape, and known to Ngāi Tahu as Waitākiri, the remnant of which still exists within the Windsor golf course.

Waitākiri was an extensive area of wetlands draining into the Pūharakekenui/Styx River, and an important mahinga kai. Drainage of the area for agricultural land following European settlement reduced the wetlands, while subsequent land-use significantly modified the whole area. One of the early surveyed runs in the area named the Sandhills Run, encompassed the Waitākiri wetlands. Early run-holders introduced pine seedlings into the area and started trimming the vegetated banks of the bottle-shaped lake to bring in cattle for grazing. Since stock was frequently lost in the bogs, subsequent owners continued to drain the land. Over the years the area surrounding the lake was neglected and by the late 1930s the open water of the lake had virtually disappeared. In the first half of the 20th century the development of two golf courses, Windsor and Waitikiri, took place in the area, with the Windsor Golf Course (also known as Bottle Lake Course) including the former main lake and wetland. The Burwood landfill also operated from 1984 until 2005, but was reopened following the September 2010 earthquake to temporarily hold building demolition waste. It is also worth noting that Bottle Lake Forest has an interesting military history. Since 1867 the forest was used for military exercises, which has led to the naming of the roads within the forest. During World War II the forest was used as a defence post, which was established in preparation of a potential Japanese invasion.

The plantation forest consists of mainly pine (Pinus radiata) trees. It was planted in the early 1900s and covers 800 hectares of land, stretching from Burwood to Spencerville, and to Pegasus Bay on the east coast. First plantings began in Bottle Lake Forest as early as 1883, originally to control erosion of the sandhills by wind. The planting has served the purpose of stabilising the dunelands, but this resulted in significant impacts on vegetation composition and landform. Nowadays, the trees continue to be harvested and scarring is obvious in areas that have recently been harvested. While the landscape pattern of straight tree rows and access roads has a highly managed appearance, Bottle Lake Forest also includes a number of native understorey plants, such as indigenous moss, lichens, and common ferns, in particular bracken fern. Dune slack plant communities with succulent grasses with Carex, tall fescus and lupins occur on the drier margins of Bottle Lake Forest. The foredunes along the beach are generally covered in marram grass, giving a relatively natural impression while being an introduced species, and lupins occur on sandy soils in the immediate hinterland. At Spencer Park to the south of Brooklands Lagoon, the hollows between the dunes continue as a series of freshwater depressions. These, and their margins, once contained some notable native species, which have mostly disappeared under a canopy of pines and poplar. These interdune slacks are only present in degraded and vulnerable condition north of Bottle Lake Forest behind the foredunes and sometimes overtopped by pine plantations.

Spencer Park became a public domain in 1933 and subsequently a popular recreation reserve. The council also acquired the land nearby, where it planted trees in area that was later named Bottle Lake Forest Park. While the public was initially barred from using the working forest, since gaining park status, the forest is being used by visitors wanting to enjoy the expanse and the tranquillity. Bottle Lake Forest Park is now a popular recreational park, with numerous tracks provided throughout the forest. A scenic coastal track along the eastern boundary of the park provides ocean views and beach access. The tracks connect with those at Spencer Park directly north of Bottle Lake Forest Park, most of them dedicated trails for walking, horse trekking and mountain biking. The visitors’ centre provides information about the different roles of Bottle Lake Forest. Further north, Spencer Park is another popular place for swimming with sheltered picnic areas, wetland walks and a number of other facilities.

LANDSCAPE EVALUATION

Biophysical attributes:

- The foredune on the eastern side of Bottle Lake forest is an extensive natural feature that lines the long sweeping Pegasus Bay.
- The dune zone is an active, dynamic system influenced by processes of dune building and erosion.
- Some dune slack plant communities exist on the forest margins.
- The majority of the hinterland in this character area is highly modified with pine forest plantations and biophysical values are predominantly confined to the foredune and beach.
- The remnant of Waitākiri/Bottle Lake that still exists within the Windsor golf course provides a link to the former wetlands of the area and contains native vegetation.

Sensory attributes:

- While Bottle Lake Forest is highly modified with monoculture plantation, the beach and the dunes continue to provide a natural appearance.
- The beach is strewn with drift wood and windswept, where a wild experience of the sea can be gained.
- Views out to the beach and the Port Hills/ Banks Peninsula can be gained from the walkway along the dunes.
- Within the plantation forest a feeling of enclosure with the absence of scale contrasts with the openness of the foredune and beach.

Associative attributes:

- Intensive recreational use can be found within Bottle Lake Forest Park, including an extensive network of trails
- Historic associations relate to the military uses within Bottle Lake Forest.
- The remnant Waitākiri wetland still holds value for tangata whenua as a former mahinga kai and surviving part of the former wetlands.
- Spencer Park contains popular recreation infrastructure, such as a surf club and campground.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the Waitākiri/Bottle Lake Coastal Character Area the beach and coastal foredunes have been identified as SFs due to their high biophysical values, very high perceptual values and moderate associative values.

This character area varies significantly in terms of its naturalness and landscape values, with the beach and foredunes dominated by natural processes that are legible in the landscape. The aesthetic values of the wild, windswept beach with its extensive views are high. The beach provides a sense of solitude which is unique for a setting in close proximity to the city. While the hinterland of the beach, included in the character area, has been substantially altered, the immediate coastal interface continues to provide important landscape values. The foredunes and beach have, therefore, been identified as a significant feature, while the modified plantation forest in the hinterland has been excluded.

IDENTIFICATION OF THE COASTAL ENVIRONMENT

The inland extent of the coastal environment within this Coastal Character Area is determined predominantly by the area occupied by the fore and backdunes. The pine forest, being a modification to this area attenuates the natural elements, patterns and processes, and therefore curtails the inland extent of the coastal environment.

Within the northern part of the character area, the coastal environment excludes the Spencer Beach Holiday Park but includes the backdunes around the surf club. Beyond this to the south the coastal environment boundary follows forestry tracks and is defined by the inland extent of the coastal back dunes. At the landfill, the coastal environment follows its eastern boundary before extending southwards to include the back dunes and series of small dune lakes before connecting with Aston Drive and the southernmost part of the Coastal Character Area

COASTAL NATURAL CHARACTER EVALUATION

Abiotic attributes:

- The foredune on the eastern side of Bottle Lake forest is an extensive natural feature that lines the long sweeping Pegasus Bay.
- The dune zone is an active, dynamic system influenced by processes of dune building and erosion.

Biotic attributes:

- Some dune slack plant communities exist on the forest margins.
- The majority of the hinterland in this character area is highly modified with pine forest plantations and biophysical values are predominantly confined to the fore dune and beach.

Experiential attributes:

- While Bottle Lake Forest is highly modified with monoculture plantation, the beach and the dunes continue to provide a natural appearance.
- The beach is strewn with drift wood and windswept, where wild and remote-like experiences can be gained.
- Views out to the beach and the Port Hills/ Banks Peninsula can be gained from the walkway along the dunes.
- Within the plantation forest a feeling of enclosure with the absence of scale contrasts with the openness of the foredune and beach.

IDENTIFICATION OF HIGH, VERY HIGH AND OUTSTANDING NATURAL CHARACTER

Natural Character Rating	Identified Area
High Natural Character	Foredunes and beach
Very High Natural Character	
Outstanding Natural Character	

4.2.4 CHRISTCHURCH COAST NEW BRIGHTON

South of Waitākiri and Bottle Lake Forest lies a long, relatively modified stretch of coast extending to Te Kōrero Karoro/ South Brighton Spit. The spit also forms part of the eastern enclosure of the Te Ihutai/Avon-Heathcote Estuary. This very linear coastal area consists of wide, sandy beaches, backed by sand dunes and an intensively used hinterland. The character area extends to the east of Christchurch suburbs of North New Brighton and New Brighton.

The Māori name for the wider area that includes New Brighton was Ōruapaeroa. Ōruapaeroa, specifically refers to a kāinga or settlement and mahinga kai area located near QEII Park. This kāinga sat between the extensive wetland area, now known as Travis Wetland, and the former coastal dunes that stretched to the beach to the east. Therefore, the name Ōruapaeroa has been applied to both the wetland as well as the beach dunes. The name itself refers to key elements of the landscape, with 'Ō-rua' giving reference to the prevailing easterly wind, while 'paeroa' refers to the extensive dunes. The whare (houses) of Ōruapaeroa were still present in the 1860s until they were burnt down by the original Crown grant holder of the land, Mr Raine (Taylor p48, see also Travis Wetland character description). To the south, the South Brighton spit is known as Te Kōrero Karoro, in reference to the karoro or blacked-back gull that frequent the area and that have done so for centuries. The spit area is important as a mahinga kai, utilised particularly in the past for various shellfish and fish species caught at the mouth of the estuary and on the coast. The whole coastal area was a major travelling route, including trails along the coastal dunes to the north, as well as the use of the ocean and waterways in waka. This area has close connections with two key settlement sites, including Te Kai a Te Karoro situated on the spit side of the estuary near the mouth of the Ōtākaro and Raekura near Redcliffs.

The open coast of Christchurch along New Brighton Beach is characterised by sandy beaches, which are stable in the long term, and a broad, shallow, gently-sloping continental shelf off shore. Sand dunes are formed at the interface between the sea and land, with a height of up to 10 metres backing the wide sandy beach. Dune height increases southward from central Pegasus Bay to New Brighton, decreasing again along the spit. Established foredunes have developed by steady sand deposition on the seaward side, while the landward side becomes more stable and protected from salt spray and sand deposition and nutrients increase. This supports the colonisation of intermediate species and stabilises the foredune further.

Along the Spit, the dunes comprise a single line of foredunes about 50 to 70 metres wide, with houses typically set back behind a road (Marine Parade) along their landward edge. Infrastructure located on the dunes includes the pier, houses, surf clubs and associated access ways/ ramps, and roads immediately adjacent to the backslopes of the dunes. The natural shape of the dunes has been most significantly altered in proximity of the library building and pier. Restored wetlands with indigenous vegetation remnants, such as Travis Swamp further inland, are very rare. Due to the extensive coastal development, that characterises much of the southern part of this area, dune stabilisation has been a focus. This has led to the extensive planting of introduced marram grass, ice plant and tree lupin, which comes at the expense of the native sand binders, such as Spinifex and pingao. Restoration of spinifex, which is one of the major native dune builders, has been undertaken on foredunes at South Brighton. Collectively this vegetation provides an almost-continuous and stabilising cover, with the exception of a few large, predominantly unvegetated gaps. A number of birds use the tidal area of the beach and the godwits are one of the prominent bird species found feeding around South Brighton Spit. An important feature of the ecology of the area is the presence and abundance of fish and shellfish, particularly tūaki (cockles) that provide ample food for birds.

Today New Brighton Beach provides a range of recreational opportunities. The beach is a very popular space for outdoor recreation not only for locals but for the wider Christchurch population. Walkways are installed at regular intervals along the New Brighton coastline to protect the dunes and provide access to beaches for the public. New Brighton pier is a popular destination, with swimming, fishing and surfing opportunities in its vicinity. New Brighton, however, also has a rich history as a holiday destination. The area, which was initially an independent seaside village, was connected to Christchurch City by tram in 1887, which further spurred residential growth. When trading hours were restricted to five days, Saturday trading was permitted at New Brighton, which gave it an important role for retail in the 1970s/80s. This is still reflected to some degree in New Brighton's shopping mall buildings and lay-out. The Ozone Hotel, with changing rooms and a café, in North New Brighton was a historic building on Marine Parade, which was only recently demolished due to earthquake damage. The first wooden pier was built in the 19th century and demolished in the 1960s before replacing it with the current concrete pier at the end of the century.

The dunes along New Brighton's Marine Parade reach a height of 6 to 9 metres and provide visual separation of the beach from the residential areas of New Brighton, which helps to maintain the natural character of the beach. The residential dwellings of New Brighton are generally quite low in profile and the majority of the suburb maintains the specific character of a beach settlement. The viewpoints along the top of the sand dunes provide outlook across the New Brighton residential areas with the Port Hills forming a prominent backdrop. Only a few scattered pine trees have been planted on the bottom of the land-facing dune slopes intervening in the outlook, but significant native forest and shrubland restoration planting has been undertaken. Views to Sumner Beach, Godley Head and Banks Peninsula are unobstructed but dependent on weather conditions. The Kaikōura Ranges can be seen in the far distance to the north.

Along the homogenous open landscape of Pegasus Bay, New Brighton Pier forms a significant landmark visible from distant viewpoints in Pegasus Bay and the Port Hills and a central node in the New Brighton area. The pier extends out into the sea (approximately 300 m) and provides a viewing platform at the end. The linear shape of the pier creates a connection between the land and sea. The pier has become increasingly popular with local recreationists and tourists walking out to the end of the pier to gain unobstructed views back on the city with impressive views onto the Port Hills in the background.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the New Brighton Coastal Character Area the southern part of the beach and coastal foredunes, South Brighton Spit and the entrance to the estuary have been identified as ONF due to their high biophysical values, high perceptual values and high associative values.

Parts of New Brighton Beach and dunes have been identified as an ONF, however, along the majority of Marine Parade between Waimairi Surf Lifesafing Club and Mountbatten Street, the dunes have been more substantially modified by development. The development on the dunes includes, a number of buildings and carpark, such as surf clubs and most prominently New Brighton Pier and library. This modification in the form of earthworks has impacted on the legibility and integrity of the dunes as a landform, which are only around 50m wide in this area. This section of the heavily used beach and dunes has not been included in the ONF due to the comparatively lower level of naturalness. The dunes and beach of Central New Brighton that have not been substantially modified through earthworks and buildings have been identified as SF, as they are important contributors to the amenity of this popular part of the coast within an urban context.

In South Brighton the increased setback (over 100m) of residential areas provides more space for fore and back dunes, which in many areas have been planted with native vegetation. Due to the intactness of the sequence of beach and foredunes along the southern part of New Brighton Beach, the coastal interface, including the beach and dunes, in this area has been identified as an ONF. The ONF identification excludes all residential areas of New Brighton and the highly modified section of dunes around New Brighton Pier. The beach becomes increasingly wild and quiet to the south, before ending in the highly legible sandspit of South Brighton.

Due to the high legibility and biophysical values the South Brighton Spit and the entrance to the Avon/ Heathcote Estuary this area has also been identified as an ONF. This highly dynamic area where the estuary meets the ocean, includes Rapanui/Shag Rock and Tuawera/Cave Rock on the Sumner side of the estuary mouth, which have particularly high associative values. The highly modified parts of the Sumner shore, including the Main Road, associated buildings and the seawall along the Esplanade, have however, not been included in this ONF.

LANDSCAPE EVALUATION

Biophysical attributes:

- The sand spit of New Brighton is an important geomorphological feature, as it defines the eastern edge of Christchurch and contains the Avon/Heathcote Estuary behind the sand bar.
- Te Kōrero Karoro/South New Brighton spit is an important bird habitat, including for species such as the godwit, as well as being plentiful in fish and shellfish species.
- Restoration of spinifex and pingao as native sand binders has improved the ecological value of some areas of foredunes.
- Restoration programmes of the backdunes have helped to establish native shrubland.

Sensory attributes:

- The southern tip of New Brighton spit is a remote coastal part of Christchurch where natural processes can be experienced.
- The narrow entrance to Te Ihutai/the Avon-Heathcote Estuary, confined by New Brighton spit on the northern side is a visually important landmark as it separates the open ocean from the sheltered estuary.
- The beach of New Brighton become increasingly remote and wild in appearance to the south, as the dominant man-made structures, such as the pier, become less visible.
- In places the dunes on the southern coast are up to over 100 m wide, which means that the buildings of the densely developed hinterland are visually less prominent.
- The views across the remote, windswept south beach extend across the mouth of the estuary to the Port Hills, Godley Head and Banks Peninsula.

Associative attributes:

- The northern part of the area – Ōruapaeroa and the associated kāinga and mahinga kai area located near QEII Park, as well as the southern area of Te Kōrero Karoro and its association with the two settlements of Te Kai a Te Karoro and Raekura are of significance to tangata whenua.
- New Brighton has a rich European history as a seaside village with a prominent pier as a landmark.
- The pier is an attraction for tourists and locals alike.
- New Brighton is one of the key surfing spots of Christchurch.

IDENTIFICATION OF THE COASTAL ENVIRONMENT

Due to the heavily modified nature of this Coastal Character Area, the inland extent of the coastal environment follows main urban delineations, including roads and open spaces. In some instances, the extent of the coastal environment is relatively close to the coastal waters, due in part to the modifications that have attenuated the biophysical processes. The coastal environment has, however, not been confined to the dunes and beach, since sensory attributes, such as the sound of the waves and coastal processes including the seaspray, can still be experienced further inland.

Commencing in the northernmost part, the extent of the coastal environment follows Eastwood Rise then extends southwards along Aston Drive. At the intersection of Beach Road and Aston Drive the extent crosses through houses parallel to Marine Parade to join with Jutland Street and further south to Tonks Street and through part of the Rawhiti Domain and the golf club. The extent is aligned with the rear of houses off Marine Parade and the eastern boundary of the golf club before extending over Londsdale Street to follow Keppel Street to Hawke Street. Beyond Hawke Street, the extent of the coastal environment continues southwards through the main mall area of New Brighton aligning with Oram Avenue to Shackleton Street. At Shackleton Street, the extent of the coastal environment traverses through houses that front Mountbatten, Tovey and Jervois Streets to connect with Pine Avenue. At the point where Pine Avenue extends to the east by Malta Crescent the extent of the coastal environment extends westwards towards the Heathcote and Avon Estuary.

COASTAL NATURAL CHARACTER EVALUATION

Abiotic attributes:

- The sand spit of New Brighton is an important geomorphological feature, as it defines the eastern edge of Christchurch and contains the Avon/Heathcote Estuary behind the sand bar.

Biotic attributes:

- Te Kōrero Karoro/South New Brighton spit is an important bird habitat, including for species such as the godwit.
- Restoration of spinifex and pingao as native sand binders has improved the ecological value of some areas of foredunes.
- Restoration programmes of the backdunes have helped to establish native shrubland.

Experiential attributes:

- The southern tip of New Brighton spit is a remote coastal part of Christchurch where natural processes can be experienced.
- The narrow entrance to the Avon/Heathcote Estuary, confined by New Brighton spit on the northern side is a visually important landmark as it separates the open ocean from the sheltered estuary.
- The beach of New Brighton become increasingly remote and wild in appearance to the south, as the dominant man-made structures, such as the pier, become less visible.
- In places the dunes on the southern coast are up to over 100 m wide, which means that the buildings of the densely developed hinterland are visually less prominent.
- The views across the remote, windswept south beach extend across the mouth of the estuary to the Port Hills, Godley Head and Banks Peninsula.

IDENTIFICATION OF HIGH, VERY HIGH AND OUTSTANDING NATURAL CHARACTER

Natural Character Rating	Identified Area
High Natural Character	South New Brighton Beach and dunes, excluding man-made structures around New Brighton pier
Very High Natural Character	Te Kōrero Karoro / the southern tip of New Brighton spit
Outstanding Natural Character	

4.2.5 TE IHUTAI / AVON-HEATHCOTE ESTUARY

This character area encompasses Te Ihutai/the Avon- Heathcote Estuary, which formed around the river mouths of the two main waterways within Christchurch in the east of the city. The estuary, which covers about 880 hectares, is relatively young, probably formed only 450 years ago and today forms an integral part of the Christchurch coastline, followed in size by Brooklands Lagoon. The industrial area of Ferrymead and residential areas of Redcliffs and Sumner form the context of the estuary and to the east it is confined by the Te Kōrero Karoro/South Brighton sand spit. The steeply rising spurs of the Port Hills contain residential areas overlooking the estuary. On the flats along Ferrymead linear drains have been installed in an effort to reclaim this swampy area for industrial/ business and residential development.

In the distant past, New Brighton Spit and the Avon-Heathcote Estuary were created by the southward drift of sediment from the Waimakariri River mouth towards Banks Peninsula. The spit forced the Avon River to change its course and to exit through a narrow gap between South Brighton and Sumner. Today human activities influence the dynamic coastal processes through seawalls around the estuary and along the coast out to Sumner, which limits the exchange of sediment between the backshore and foreshore. In particular in Sumner this increases the impact of the waves that reach the beach and lessens the ability of the beach system to respond. The causeway across McCormacks Bay still allows for tidal processes, but has substantially modified this part of the estuary. Through the development of bridges and roads around the edge of the estuary and drainage of saltmarsh areas in the hinterland the patterns and processes of the coastal edge have changed. The earthquakes of 2010 and 2011 caused the northern part of the estuary at the mouth of the Avon River to sink, while the south-eastern part at the mouth of the Heathcote has been pushed up. Liquefaction was also considerable in some areas.

A number of caves, which have both cultural and heritage significance, can be found along the Port Hills' side of the estuary and have been described under the Port Hills Character Area. Tuawera/Cave Rock (formerly Cass Rock), is a significant cultural landmark for Ngāi Tahu, as well as being of importance to European heritage. It is topped with the flagmast that signalled the state of the bar to ships approaching the estuary and is the most conspicuous, located at the western end of Sumner Promenade where a network of caves has been eroded out by the sea from a lava flow. Rapanui/Shag Rock at the mouth of the Avon-Heathcote Estuary is a sea stack composed of columnar- jointed basaltic lava resting upon red, oxidised volcanic ash. This rock formation, which has been identified as a geopreservation site, is alandmark in this area and has somewhat iconic status as a landscape feature defining the entrance of the estuary at its narrowest point and known to Ngāi Tahu as the great 'stern post'. Sadly, the Christchurch earthquakes of 2010-11 have led to the collapse of Rapanui, which now forms a large pile of boulders on the beach, with only a small upright 'post' still remaining. The Clifton sea cliffs, located at the landward side of Shag Rock are an equally distinctive and well-known feature, marking the entrance to the suburb of Sumner. The cliffs have also been severely altered by the recent Christchurch earthquakes, with houses collapsed near the top edge and severe rockfall along the base of the cliffs, which is currently secured with a row of shipping containers.

The shores of the estuary have been heavily modified by seawalls, roads and residential development, but natural processes dominate within the tidal area and river mouths. While hapua- type[18] lagoons are common in Canterbury around river mouths, extensive estuaries are rare. The lower courses of the Avon and Heathcote Rivers are affected by tidal activity, therefore containing a mix of fresh and sea water with salinity measured up to the Opawa Road Bridge (about 4.5 km upstream) in the Heathcote and at least to the Avondale Bridge on the Avon. The Avon-Heathcote Estuary with its distinctive tidal flow has a high species abundance and biomass, including a rich and varied invertebrate fauna. Nuisance macroalgae (sea lettuce) often forms dense mats on the exposed mudflats of the lower estuary, which can result in low oxygen levels of the surface sediment and a foul smell when decaying. In the upper saltmarsh around the estuary succulents, knobby clubrush, three-square, oioi and mākaka/saltmarsh ribbonwood occur. The estuary is also a site known for birds, notably the kuaka/godwit, as well as tōrea/oystercatchers and kōtare/kingfishers. A range of native and exotic fish live in the Avon River and estuary. The mudflats in the estuary support an abundance of invertebrates and crustaceans, including significant populations of tūaki/cockles. A range of native fish species are also present in the estuary including pātiki.

18. Is an elongated lagoon separated from the sea by a narrow barrier and situated at the mouth of large rivers that are usually braided. They form on mixed sand/ gravel coasts, where the hinterland is a steep alluvial fan and are indicative of a coast being continually being reshaped, by wave- and river-dominated processes (waves most important).

Bexley Wetland, near the Avon River mouth, offers expansive views and abundant bird life, incorporating salt marsh, salt meadow, coastal bush and freshwater wetland areas. The wetland is of ecological importance, but has sustained significant damage from the earthquakes. Naughty Boys Island, located in the lower Avon River near Bexley Wetland, was created in the 1950s when a new river channel was dredged in the Avon River to ease flooding problems at South New Brighton. It is a 400 m long island, accessible only through ankle deep mud, named after two boys who were killed in a tunnel collapse on the site. Both sites have received rehabilitation planting and form ecologically important parts of the estuary. The enhancement of these and other areas, such as the Charlesworth Reserve, helps to re-instate native vegetation and natural processes in a predominantly modified coastal fringe.

The 240 ha Bromley Oxidation Ponds comprise the Te Huingi Manu Wildlife Refuge. The site is located adjacent to the western shoreline of the estuary and is managed by the City Council. The main function of the oxidation ponds is to treat the wastewater generated by the city – which has a history in this area. Early Europeans initially used a night soil collection system to transport human waste to a disposal site in the sandhills of Linwood. In the 1880s a sewage system was introduced by the newly established drainage board, which progressively expanded before a new sewage treatment station with oxidation ponds was built in the early 1960s on the site of the old sewage farm. Treated effluent continued to be discharged into the Estuary until an Ocean Outfall was constructed at New Brighton in the 21st century. Today, an important secondary function of the oxidation ponds is to provide breeding, feeding and roosting opportunities for wetland birds, such as raipō/scaup, tatā/shovelers, tete/grey teals, pūtakitaki/paradise shelduck and many others. Many bird species moult or overwinter on the ponds, making the site an important area for waterfowl with vegetated islands suitable for nesting. The Linwood Paddocks, located on the southern side of the oxidation ponds, are important sites for pākura/pūkeko nesting, as well as for roosting and feeding during high tide for other waterfowl and waders.

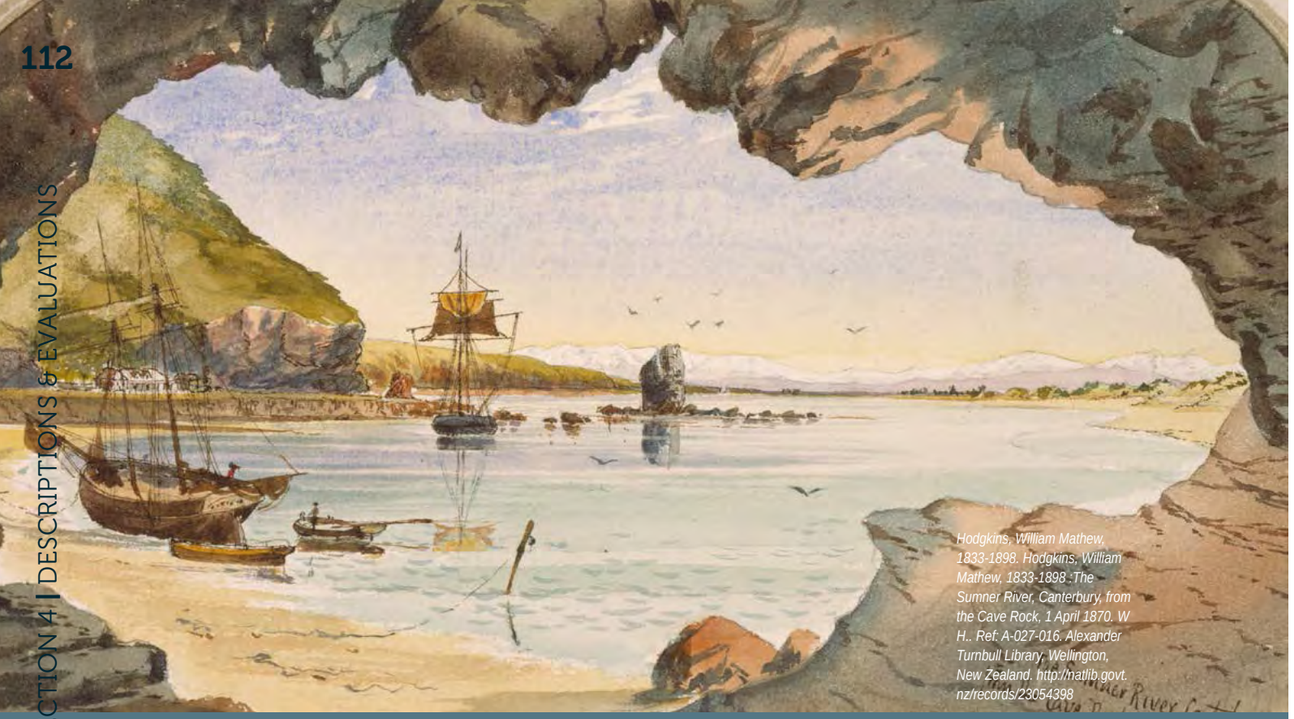
Te Ihutai is an area of immense cultural and historical importance to Ngāi Tahu Whānui, being a place of significant settlement and food gathering. The key pā and kāinga associated with Te Ihutai include Te Kai a Te Karoro (near Jellicoe Park) and Raekura (near Redcliffs), as well as Tauhinu Korokio (on Mt Pleasant). The mahinga kai gathered from the estuary included tuna (eels), kanakana (lamprey), inanga (whitebait), pātiki (flounder), tūaki (cockles) and pipi. Kumara and aruhe (edible fern root) were grown in the sandy soils at the mouth of the Ōtākaro / Avon River and mānuka weirs were built around the mouth of the rivers to catch tuna during their migration downstream. Other key cultural sites associated with Te Ihutai already noted in the Port Hills sections include: Ōhikaparuparu (mudflats off Ferrymead/Heathcote mouth), Te Pou o Tūtaemaro (the headland near Redcliffs), Te Ana o Hineraki/Moa Bone Cave, Ōtamahika (mudflats at Redcliffs), Waipātiki (channel at the outlet of Te Awa Kura/Watsons Creek), and Rapanui/Shag Rock, as well as Te Kōrero Karoro/ South Brighton Spit, Tuawera/Cave Rock and Matuku-takotako/Sumner Beach. Numerous archaeological sites have been identified in these areas and all around the estuary providing further evidence of Māori occupation and use of the whole area.

The importance of the Ihutai catchment and its mahinga kai was highlighted by the claims of Hakopa Te Ata o Tu, Pita Te Hori and others of Ngāi Tūāhuriri to the Native Land Court in 1868. They attempted to have traditionally significant sites put aside as mahinga kai reserves but were largely unsuccessful. A Māori Reserve named Te Ihutai (MR 900) was granted at the estuary, but was later taken under the Public Works Act for the Christchurch Sewage Scheme. This, accompanied by the subsequent discharge of human effluent into the estuary, has been an issue ever since. So important were the sites and the integrity of the mahinga kai found there, that the owners of the reserve would not accept money offered as compensation, because they believed that only an area of land having similar characteristics to that which was taken would be adequate recompense (Tau et al 1990). These actions effectively shut Ngāi Tahu out of the development of the city and ultimately, the subsequent management of the Ihutai catchment.

The estuary was also used by early European settlers to transport their goods from the port on smaller vessels by crossing the Sumner bar and navigating the shallow estuary. The Avon River was navigable – just – as far as 'The Bricks' by the Barbadoes Street Bridge. Most freight was, however, taken up the lower Heathcote to Ferrymead, Steam (about where the Tunnel Road crosses the Heathcote) or Christchurch (by the Radley bridge) wharves. There was a regular service by steamer from Lyttelton to Ferrymead by at least 1858.

Nowadays the coast along the eastern fringe of Christchurch has the greatest human population density of the South Island coastline. The main human uses to affect the coastal zone around the estuary are urbanisation and associated, large-scale modification of the physical coastal environment including the industrial areas and oxidation ponds. Seawalls have been installed along most of the coastal frontage of Ferrymead, Redcliffs and Sumner and areas of reclamation form part of the Avon-Heathcote Estuary shoreline. A number of stormwater pipes flow into the estuary, which have negative effects on the water and sediment quality. The installation of an offshore ocean wastewater outfall ended 40 years of wastewater discharge into the Avon-Heathcote Estuary.

The location of roads, infrastructure and residential areas around the western and southern edge of the estuary leads to high accessibility of this part of the coast. The road to Sumner follows the coastline and causeway, which allows for views to South Brighton Spit and the ocean. The character of the enclosed estuary changes when approaching Shag Rock, where the open sea and New Brighton Spit dominate the setting, giving it a more coastal then estuarine appearance. The beach in the suburb of Sumner is one of the most popular attractions in Christchurch and is extensively used for swimming and surfing. The estuary is particularly valued for its windsurfing and kayaking opportunities and the sea walls are popular fishing spots. While the coastline is very accessible along the west and south, the oxidation ponds to the north cut it off from the hinterland. Walkways can be found in the 20 hectare Charlesworth Reserve, situated beyond Humphreys Drive to the east of the estuary.



Hodgkins, William Mathew, 1833-1898. Hodgkins, William Mathew, 1833-1898 :The Sumner River, Canterbury, from the Cave Rock, 1 April 1870. W H.. Ref: A-027-016. Alexander Turnbull Library, Wellington, New Zealand. http://natlib.govt.nz/records/23054398

LANDSCAPE EVALUATION

Biophysical attributes:

- Formative processes of the estuary with the Avon and Heathcote river mouths and New Brighton Sand spit are highly legible.
- The active estuary with shifting channels is highly dynamic and the influence of the tide is particularly important for the ecosystem.
- Very high importance as a bird feeding and breeding site, nationally important for wading birds.
- Rapanui/Shag Rock and Clifton Cliffs are Geopreservation sites on southern side of the estuary entrance.
- Tuawera/Cave Rock is an impressive geological feature that shows its volcanic origins.
- The series of caves and rocky headlands from the mouth of the Ōpāwaho / Heathcote River to Scarborough Heads, including Te Pou o Tūtaemaro (the 'Rock' or headland near Redcliffs), Te Ana o Hineraki/Moa Bone Cave and Moncks Cave are significant geological features as well as having associated heritage, archaeological and cultural values.

Sensory attributes:

- The edges of the estuary are modified along the southern side (Bromley, Ferrymead, Redcliffs, Sumner), while the northern part around the Avon mouth and New Brighton Spit are more natural in appearance.
- The accessible parts of the estuary are frequently used for recreational activities, such as kayaking, windsurfing and bird watching.
- The estuary forms a central part of the eastern suburbs, including those on the eastern Port Hills, looking out onto the estuary.
- The smell of the tidal estuary is distinctive.

Associative attributes:

- High importance of Māori history, settlement, occupation and use of Te Ihutai as a major mahinga kai.
- A concentration of archaeological sites, including caves, rock shelters and middens provide evidence of Māori occupation and an opportunity for education and interpretation.
- Key landscape features of particular significance to Ngāi Tahu include: Ōhikaparuparu (mudflats off Ferrymead/ Heathcote mouth), Te Pou o Tūtaemaro ('the Rock' or headland near Redcliffs), Te Ana o Hineraki/Moa Bone Cave, Ōtamahika (mudflats at Redcliffs), Waipātiki (channel at the outlet of Te Awa Kura/Watsons Creek), and Rapanui/Shag Rock, as well as Te Kōrero Karoro/South Brighton Spit, Tuawera/Cave Rock and Matuku-takotako/Sumner Beach.
- European history of shipping goods up the lower Heathcote River to first settlement of Christchurch.
- Tuawera/Cave Rock with its flagpole is a landmark of Sumner
- Rapanui/Shag Rock is an iconic landscape feature defining the entrance of the estuary, although in a diminished state following the 2010-2012 earthquakes.
- Matuku-takotako/Sumner Beach is particularly popular for recreational use.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within this Coastal Character Area all of the Te Ihutai/Avon-Heathcote Estuary below MHWS has been identified as an ONF due to its high biophysical values, high perceptual values and very high associative values. Charlesworth Reserve and McCormacks Bay have been identified as SFs, since their perceptual and associative values are only moderate. These two areas are physically separated from the main estuary through roads, but tidal processes continue to occur.

As described under the previous character area the South Brighton Spit and the entrance to the Avon/ Heathcote Estuary have been identified as an ONF due to the high legibility and biophysical values. This highly dynamic ONF area where the estuary meets the ocean, includes Rapanui/Shag Rock and Tuawera/Cave Rock on the Sumner side of the estuary mouth, which have particularly high associative values. The highly modified parts of the Sumner shore, including the Main Road, associated buildings and the seawall along the Esplanade, have not been included in this ONF.

The biophysical values of the estuary are considered to be high, in particular due to the high ecological values of the intertidal area for birds. In addition to the high biophysical values the estuary also provides high associative values, which include both European heritage and tangata whenua associations. The perceptual attributes that contribute to the ONF identification include recreation opportunities as well as the importance of the estuary as a landscape feature that visually and physically defines the south eastern suburbs of Christchurch. The immediate surroundings of the estuary, however, contain significant modifications. This means that, in particular along the southern side of the estuary, the interface between land and intertidal area is neither active in terms of its natural processes nor natural in appearance. Within the estuary itself, however, natural patterns and processes largely dominate despite the development in the urban context. It is, therefore, considered appropriate to identify the estuary, including the saltmarsh and mudflat areas below MHWS, as ONF, while excluding the adjacent modifications in the form of seawalls, roads and buildings. The tidal mudflats in Charlesworth Reserve have been identified as a SF due to their ecological restoration potential that contributes to the value of the estuary and the legibility of the tidal processes. The parts of Te Ihutai/Avon-Heathcote Estuary that are located below MHWS fall outside Christchurch's district boundaries.

IDENTIFICATION OF THE COASTAL ENVIRONMENT

The inland extent of the coastal environment within this Coastal Character Area is centred on the Avon/ Heathcote estuary and its margins. As with the Brooklands Lagoon, the margins of the estuary have varying degrees of coastal influences, generally determined by the extent of modification associated with them. Modification within the coastal environment can attenuate coastal elements, patterns and processes which in turn can foreshorten its inland extent.

The inland extent of the coastal environment for the Avon/ Heathcote Estuary includes the land with tidal influences along the estuary's margins, as well as areas where the experiential and visual connections to the estuary are significant. Commencing in the east, the extent of the coastal environment includes South New Brighton Park where it follows its eastern boundary. At Beatty Street, the coastal environment extends northwards following the edge of the built up area associated with South New Brighton to Bridge Street. Beyond Bridge Street, the extent follows Kibblewhite Street then follows the rear of properties off Union Street to Admirals Way. The tidal influences of the Avon River mean that the extent of the coastal environment in this section follows the river upstream to the Avondale Bridge, where it then crosses the river to follow the rear boundaries of properties flanking the Avon River.

Bexley Wetland is included within the coastal environment which extends to Anzac Drive and south to Dyers Road, however the oxidation ponds south of Dyers Road are excluded due to their level of human modification. Here the coastal environment extends along the ponds' southern boundary. Beyond the ponds to the south, the coastal environment then crosses the open Linwood Paddocks towards Linwood Avenue/ Charlesworth Street. Charlesworth Reserve and the margins of the Heathcote River are included in the coastal environment, while the built up part of Ferrymead falls outside. The tidal influences of the Heathcote River mean that the extent of the coastal environment in this section follows the river upstream to Radley Bridge, where it then crosses the river to include the estuarine part of Ferrymead Park before connecting with Ferrymead Park Drive. From here, the coastal environment extends beyond the Bridle Path Road to include the northern faces of residential Mount Pleasant. While the elevated areas of the lower Port Hills suburbs are not as strongly influenced by coastal processes as the tidal flats, the experiential attributes of the estuary still dominate along these surrounding elevated residential sections.

There is no specific road which determines the extent on this more undulating terrain, rather the extent of the coastal environment is governed by two factors. The extent of significant coastal influences adjacent to the estuary, and further east, those adjacent to the open ocean. Coastal influences are somewhat attenuated within an estuary setting as opposed to an open ocean setting. Therefore the coastal environment around Tauhinu Korokio/Mount Pleasant, Te Raekura/Redcliffs and part of Monks Bay extends to a point where those coastal influences and experiential attributes appear less significant. At Sumner the coastal environment is defined by Nayland Street until it extends up the hill to Scarborough. The whole of Scarborough Hill and adjacent residences are included within the coastal environment.

COASTAL NATURAL CHARACTER EVALUATION

Abiotic attributes:

- Formative processes of the estuary with the Ōtākaro/Avon and Ōpāwaho/ Heathcote river mouths and Te Kōrero Karoro/South Brighton Sand spit are legible.
- Active estuary with shifting channels, which can be distinguished particularly well from above (eg Port Hills).
- Influence of the tide is particularly important for the ecosystem- the distinctive difference in submerged tidal area makes it a highly dynamic system.
- Rapanui/Shag Rock and Clifton Cliffs are Geopreservation sites on southern side of the estuary entrance.
- The seawalls around the southern part of the estuary have modified the natural processes that allowed for tidal influence and active interface with the hinterland.

Biotic attributes:

- Very high importance as a bird feeding and breeding site, nationally important for wading birds.
- Very rich, productive ecosystem due to high nutrients.
- The saltmarsh areas are particularly important habitats.
- The mudflats in the estuary support an abundance of invertebrates, including bivalves (eg significant populations) of tūaki/cockles and crustaceans.
- A number of reserves, such as Bexley Wetland and Charlesworth Reserve, have received extensive native restoration planting.

Experiential attributes:

- Edges of the estuary are modified along the southern side (Bromley, Ferrymead, Redcliffs, Sumner), while the northern part around the Avon mouth and New Brighton Spit are more natural in appearance.
- A mass of known archaeological sites, including caves and rock shelters, as well as settlement sites provide a unique education and interpretational experience on early Māori settlement, occupation and use of the estuary.
- The accessible parts of the estuary are frequently used for recreational activities, such as kayaking, windsurfing and bird watching.
- The estuary forms a central part of the eastern suburbs, including those on the eastern Port Hills, looking out onto the estuary.
- The smell of the tidal estuary is distinctive.

IDENTIFICATION OF HIGH, VERY HIGH AND OUTSTANDING NATURAL CHARACTER

Natural Character Rating	Identified Area
High Natural Character	Avon/ Heathcote Estuary below MHWS
Very High Natural Character	
Outstanding Natural Character	

4.3 WAIMAKARIRI RIVER CHARACTER AREAS

The Waimakariri River is a large braided river on the northern boundary of Christchurch City and is one of the best examples of a braided riverbed and associated wetland habitat in New Zealand. It is an iconic feature of the Canterbury Plains and forms a distinctive boundary to the city. The Waimakariri River character area includes the floodplain and associated area of stony soils and springs on the southern banks of the river from Weedons Ross Road to the river mouth and Brooklands Lagoon (which is described under the coastal section). This long character area is made up of a variety of river bed and river margin environments, which includes large areas of pine forest plantations in its upper part and dense willows lining the immediate banks of the lower part. This character area also encompasses the smaller, but ecologically important Ōtūkaikino Creek on the south bank of the Waimakariri River. The river banks are described in more detail from the river mouth upstream below.

4.3.1 WAIMAKARIRI RIVER SOUTH BANK

The river has moved course frequently over the centuries prior to settlement and parts of the banks and environs still show signs of the underlying aggradation of the river. However in the Twentieth Century it was confined within a system of stopbanks and river control plantings intended to protect the City of Christchurch from future inundation. Its lower reaches also were realigned through Wrights Cut to improve flows to the sea. Development of agriculture, recreational activities and to some extent subdivision have led to extensive modifications along the river banks, which has created a mosaic of land uses in the area. The two bridges across the lower Waimakariri, in particular the SH1 motorway bridge, are important transport routes for the region. Settlement has extended north along this route into the suburb of Belfast, which almost reaches the river bank. The upper parts of this character area do not contain this same level of residential development. The majority of the south bank of the lower Waimakariri River is included in a large area of publicly owned land – the Waimakariri River Regional Park- managed by the Canterbury Regional Council.

In the past, the Waimakariri River was an unconstrained braided river, which had split into two main channels in the lower reaches forming a number of islands, including Te Rākai a Hewa/Kaiapoi Island (which was the biggest), as well as Coutts and Templars Islands. The South Branch of the river also had a number of significant bends which joined the main northern branch before connecting with the sea about 2 kilometres south of the present day mouth. During the Depression of the 1930s, unemployed labour was used to create Wrights Cut through Coutts Island in the lower reaches of the river and to create a new system of stopbanks and groynes along the river (see Map 5, Appendix 4 of historic alignment – 1927 Drainage Board Map from CCC). This meant that the river could move shingle and floodwaters out to sea at a faster rate and was aimed at reducing the flood risk to the city. It was not until a large flood in 1940 that the river abandoned the Brooklands Lagoon and made straight for the sea forming today's mouth. Today, the lower reaches of the Waimakariri River are highly modified and bear little resemblance to how they looked 150 years ago. The pine plantations along the river were also planted during the 1930s Great Depression, along with the introduction of willow and poplars that now dominate the riparian edge of the river. Gravel extraction continues today upstream from the highway bridges to maintain river velocities and avoid aggradation in the vicinity of the City.

Despite these substantial bank modifications the Waimakariri River remains as one of the largest and best examples of braided river habitat in New Zealand. Its relatively unmodified fluctuating flow regime has been of critical importance in keeping large areas of the river bed free of invasive weeds, thereby preserving habitat for breeding populations of several threatened native bird species. The river supports many wetland birds and a majority of the threatened species breeding within Christchurch City, including ngutuparore/wrybill, akiaki/ black-billed gull and tarapirohe/black-fronted tern. While the river banks are generally dominated by introduced grass, shrub and tree species, a significant number of native plant species, can be found in pockets along the river. In some places the willow forests support an abundance of native plants under the exotic canopy and some important riparian wetlands can be found along the lower Waimakariri River. Areas to the south of the immediate south bank also still contains some kōwhai woodland habitats, which are further described under the Grassland Character Area section.

Te Rākai a Hewa is the name of the former island formed by the southern branch, also known as Kaiapoi Island which was the site of a kāinga and associated urupā as well as being an mahinga kai for kanakana/lamprey and other fish, pārera/grey duck, pūtakitaki/paradise duck, tatā/shoveller, tete/grey teal, raipo/scaup, aruhe/bracken as well as pora/turnip cultivations. Te Rau-akaaka is the name of a settlement and food production site located near present day Stewarts Gully also important for aruhe/fernroot, pārera/grey duck, pūtakitaki/paradise duck, pora/turnip as well as tuna/eel. Nearby, at Coutts Island, Ōtamateraki is a mahinga kai site that was important for similar species as well as kōau/shag, the extinct koreke/NZ quail and kiore/Polynesian rat. Further south towards the city, Taumatanui was a key settlement where potatoes and turnips where cultivated, along with the gathering of tuna and aruhe. Further west, near current day Coringa is a site called Pukewhīnau - a mahinga kai site known for the procurement of kāuru (made from the root of tī kouka/cabbage tree) and tuna. A number of springs and waterways in the Chaneys corner area, near the present day Ōtūkaikino reserve, were associated with various urupā and burial sites. All of these sites were part of a network of sites linking south into the city area, east towards Te Riu o Te Aika Kawa/Brooklands Lagoon and north towards Kaiapoi Pā.

Early European settlers used parts of the river banks as a cattle rearing area. A flour mill, powered by the water of a river branch, was located at Coutts Island until the race was widened further by the great flood of 1868 creating Coutts Island, where a small community had settled.

Te Rauakaaka Nature Reserve is located upstream from Brooklands Lagoon and contains regionally-significant saltmarsh and freshwater wetland habitats. The reserve is an integral part of the nationally significant Brooklands Lagoon wildlife habitat supporting populations of threatened swamp birds and waders (see Brooklands Coastal Character Area). Its appearance is of a highly modified semi-wilderness area confined within stopbanks and exotic flood protection plantings. However, the river has retained important landscape features, such as braided river channels and gravel bars/ islands, and indigenous biodiversity, in particular around the braided river bed habitat and saltmarsh areas near the river mouth.

The Pūharakekenui/Styx River mouth contains regionally-significant saltmarsh and freshwater wetland habitats, but these have been highly modified by the morphological changes in the Waimakariri and Styx rivers. The Styx River is further described as a Feature in this report.

Coutts Island runs from the Ōtūkaikino Stream upstream to the Harewood Crossbank east of McLeans Island Road. Upstream of Coutts Island, Templers Island is located between the Waimakariri River and the Christchurch International Airport. The section has extensive areas of regenerating native vegetation beneath the exotic river control plantings. It is also home to many water fowl and braided river bird species. Templers Island extends as far east as the confluence of the Ōtūkaikino Stream. A feature of the stream and its tributaries are the old willow trees, which shade the spring-fed waters and support an understory of indigenous plants (see description of Ōtūkaikino below). This section of the Waimakariri is lined by a narrow band of exotic flood protection forest, consisting mainly of willows and poplars, while the understory contains pockets of kōwhai, mikimiki/Coprosma species, harakeke/flaxes and tutu. The so called 'Sanctuary' at the end of Coutts Island Road is the last remaining sizeable freshwater swamp in the lower Waimakariri River. Numerous native plant species can be found in this spring-fed swamp, amongst them the kātote/soft treefern Cyathea smithii. It is also ideal habitat for the secretive matuku/bittern, kotoreke/marsh crake and pūweto/spottless crake.

One of the most popular areas within the Waimakariri River Regional Park is located at McLeans Island, which is leased out to various organisations, including a steam railway club, a zoo, golf clubs and many other recreational facilities. McLeans Island is a patchwork of flood protection pine forestry blocks alternating with open grassland, in stark contrast to the open shingle riverbed and sparse native vegetation that formerly covered the area. Some old remnant kōwhai and kānuka are still holding on amongst the pine forest albeit with little sign of regeneration. The pine forests support, however, a surprising range of indigenous plants and animals, including several species of ground orchids, native groundcovers and creeping pōhuehue/Muehlenbeckia axillaris.

The southern part of McLeans Island is also the site of an effort to preserve and restore an area of largely unmodified indigenous grassland, one of the very few such areas anywhere on the Plains, which is described in more detail in the Grassland Landscape Character Area. The land uses on the south bank of the Waimakariri also include large areas of plantation forest and gravel extraction operations, which gives parts of the area, in particular directly north of Christchurch airport a semi-industrial appearance. Part of the Isaacs gravel pits have, however, been rehabilitated to create an aquatic wildlife reserve known as Peacock Springs.

As part of the Regional Park a large number of recreation facilities has been established on the Waimakariri south bank. One of these popular recreation areas, apart from McLeans Island described above, is an area known as The Groynes, where a major picnic area has been developed. It has to be noted that the visual connection to the Waimakariri River itself is generally low due to the dense riparian vegetation but access is possible along the public land on the south bank, where a number of access tracks extend along the stop banks, including those established as part of the Regional Park.

LANDSCAPE EVALUATION

Biophysical attributes:

- Braided river provides high legibility values in the upper reaches of this Character Area, where formative processes continue to be particularly dynamic. The combination of an unmodified alpine catchment regime, gravel plains and ocean outlet is characteristic of the Canterbury Plains.
- The variable weather in the headwaters and seasonally-dependant regime of flood, fresh and low flows leads to high variability in flow.
- The bird habitat associated with the braided river and with swamps in the hinterland of the active channel are of very high ecological value.
- The wetlands associated with the river contain important native plant communities in the understorey of the willow canopy.
- The dynamic Waimakariri River mouth with Te Riu o Te Aika Kawa/Brooklands Lagoon is one of the major lagoons/ estuaries in the Canterbury Region.
- The spring fed streams along the Lower Waimakariri, such as Ōtūkaikino Stream, have high ecological value.

Sensory attributes:

The exceptional braided river landform is one of Christchurch's iconic landscape features, experienced when entering the city from the north on SH1 or by air.

The river can be experienced from a network of trails along the stopbanks, managed as part of the Waimakariri River Regional Park. Otherwise the river is generally visually separated from its surroundings by the stopbanks and willows lining it.

The Regional Park contains a variety of uses on the South Bank, most of which are however unrelated to the river itself.

The land uses, such as intensive agriculture, gravel extraction and residential development, occurring outside the stop banks of the river contrast with the unkempt character of the floodplain and swamps.

Associative attributes:

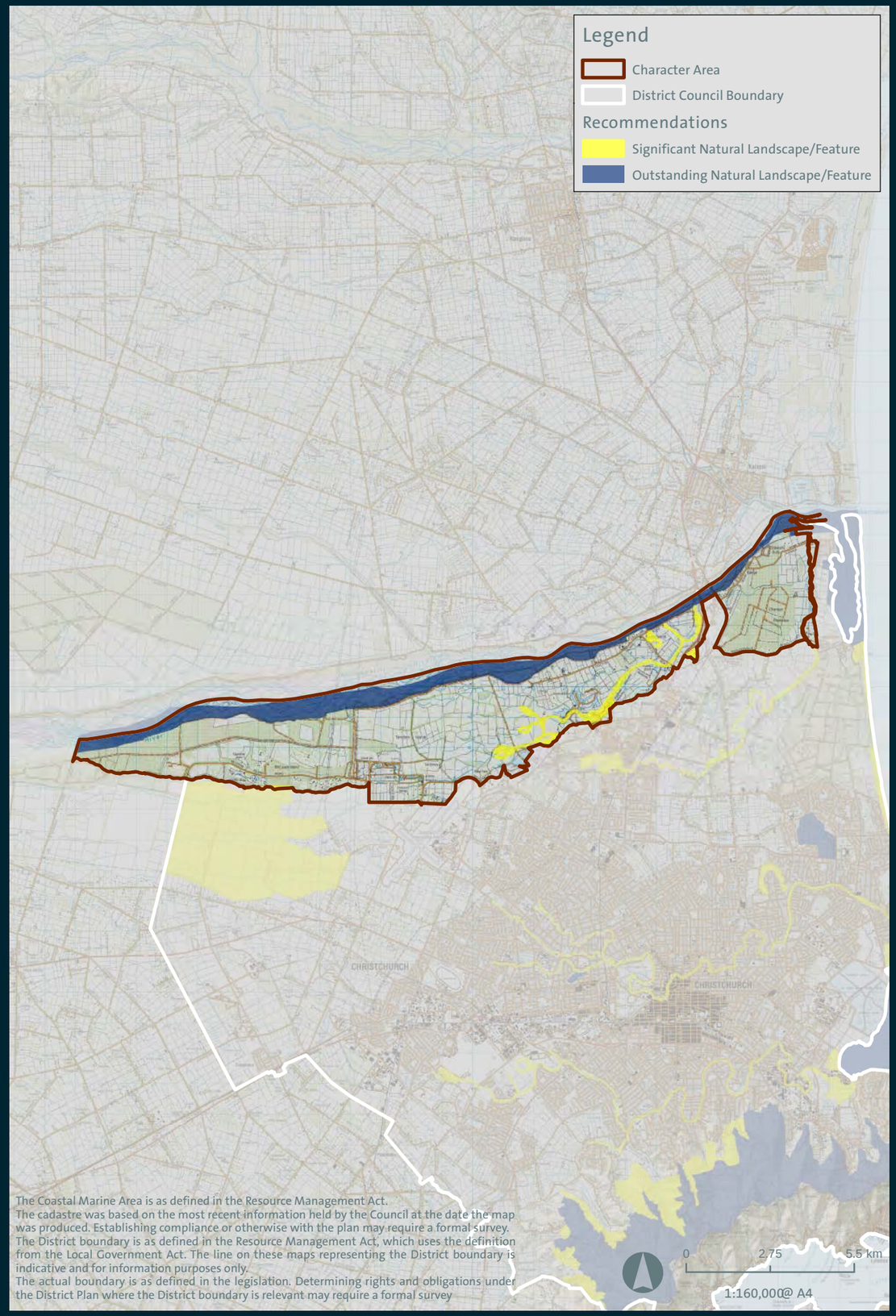
- A number of important cultural sites are located along the southern banks of the Waimakariri River, and its former southern branch, including kāinga, cultivations and mahinga kai sites, as well as urupā. This network of sites links south into the city area, east towards Te Riu o Te Aika Kawa/Brooklands Lagoon and north towards Tuahiwi and Kaiapoi Pā.
- These include: Te Rākai a Hewa, Te Rau-akaaka, Otamateraki, Taumatanui and Pukewhīnau.
- This river also plays an important role in European history, as it has always been a major threat to the city due to the associated flood risk. The construction of stop banks and subsequent cut-off of the South Branch changed the landscape of northern Christchurch substantially, providing characteristic flood buffer zones and river margin recreation areas.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the Waimakariri River Character Area all of the braided Waimakariri River and swamps within the stop banks has been identified as ONF due to their very high biophysical values, high perceptual values and high associative values.

The landscape context of the river has been substantially modified through land use change over the past decades and the south branch of the river has been cut off through flood control works on the banks. The main stem of the Waimakariri and the remnant wetlands occurring within the stopbanks still maintain very high ecological values and the braided river is an integral landscape feature of Christchurch.

The naturalness of the river bed is very high, while the weeds within the adjacent swamp lands have somewhat reduced the occurrence of natural elements. The stop banks are a distinctive man-made feature, which confines the natural patterns and processes of the river and floodplain. The ONF delineation follows the extent of the stopbanks and excludes settled areas and land that has been modified through intensive farming and forestry. The Waimakariri River mouth and saltmarsh areas along the south bank, as well as Te Riu o Te Aika Kawa/ Brooklands Lagoon and the Pūharakekenui/Styx River mouth have also been identified as an ONF (see Character Area Brooklands Lagoon). It should be noted that the district boundary with Waimakariri District Council falls within the river bed, occasionally extending towards the north bank. The parts of Te Riu o Te Aika Kawa/ Brooklands Lagoon and the Waimakariri River mouth that are located below MHWS fall outside Christchurch's district boundaries.



4.3.2 ŌTŪKAIKINO CREEK

The Ōtūkaikino is a tributary of the Waimakariri River, entering the main stream channel of the river upstream of the highway bridge. It has its origins in several springs north east of the Christchurch airport around 10 km upstream from its confluence with the Waimakariri. The Ōtūkaikino has a substantial flow for a spring fed stream and the water quality is particularly high in comparison to other rivers in Christchurch. A number of willow lined, spring-fed streams can be found in the area, often running through old river channels of the Waimakariri.

The clear water of the stream and the wetlands associated with it are of ecologically high value despite the modifications that have taken place in the vicinity. The most noteworthy wetland is Wilson's Swamp, but some small wetland areas can also be found at 'The Groynes'. The Groynes, which lies adjacent to the Ōtūkaikino, derives its name from large concrete blocks, made from concrete filled woolsacks, jutting into the Ōtūkaikino Creek. The Ōtūkaikino, also referred to as the south branch of the Waimakariri River, was separated from the main branch during the course of major works in the 1930's. The large open water, which forms part of the Groynes picnic area, is actually formed by the main stream channel of the Ōtūkaikino. The wider Groynes area covers a number of different habitat types, including lakes/ponds, the main river, other tributary waterways, some fen wetlands, willow woodlands with regenerating native forest and also dryland communities. The 13 ha freshwater wetland reserve at Wilson's Swamp has been restored and is now one of a few wetlands that were once common around Christchurch. Ōtūkaikino Wildlife Management Reserve is managed by the Department of Conservation as a Living Memorial/ Mau Mahara where New Zealand native trees are planted to commemorate the passing of a loved one. Ōtūkaikino is significant for Ngāi Tahu, as it was used for burial preparation and is designated a 'Wāhi Tapu' site and silent file area under the District Plan.

Some native species such as raupō, toe toe, tall tussock sedges, kiokio/blechnum fern, tī kouka/cabbage trees, kōhūhū and karamu survive in Wilson's Swamp reserve. Others are being restored back such as kahikatea, kanuka, tōtara, mataī, manatū/ribbonwood and horoeka/lancewood. Pākura/pūkeko, tatā/shoveller, tete/grey teal and kotoreke/marsh crake can be spotted in and around the wetland. There are also a variety of clean-water species, including tuna/longfin and shortfin eels, koukoupara/common bullies, native snails and a variety of aquatic insects. As the plantings become established, more native wildlife is being attracted back.

The Groynes was established as a recreation area in the 1960s when the landscape to the north of Johns Road was on the periphery of urban expansion and was largely rural in character, with a mixture of horticulture interspersed with dwellings. Today the Groynes reserve and picnic area are largely hidden from view behind a semi-rural periphery with increasing suburban development along the northern side of Johns Road. The park-like setting is a popular recreational destination and includes an extensive dog exercise park, a model yacht club, fishing lakes, boating opportunities, a small shop and walking a network of walking tracks. Although substantially altered by years of agricultural development and the planting of exotic species such as willows, the system of waterways and small lakes at the Groynes has ecological value with small remnants of common and rare native grasses, shrubs and other wetland plants. The adjacent Clearwater golf resort is connected via a walkway and provides open space and recreation values within a more manicured landscape character setting.

LANDSCAPE EVALUATION

Biophysical attributes:

- The Ōtūkaikino has a substantial flow for a spring fed stream and the water quality is particularly high in comparison to other rivers in Christchurch.
- A number of different habitats can be found along the Ōtūkaikino, in particular within the Groynes Reserves, and along some of the tributary streams, including open waterways, fen wetlands and willow woodlands with regenerating native forest.
- Ōtūkaikino Wildlife Management Reserve is an ecologically important area managed by DOC.
- Wilson's Swamp contains a 13 ha restored freshwater wetland reserve which is of particularly high biophysical value within Christchurch.
- The clear water and wetlands associated with the main stem of the Ōtūkaikino are of ecologically high value despite the surrounding modifications.
- The stream provides habitat for a variety of clean-water fish species.

Sensory attributes:

- The Ōtūkaikino is particularly accessible within the Groynes Reserve, where a number of walkways and recreational facilities provide for public enjoyment in a park-like setting.
- Along the majority of its course the Ōtūkaikino is located off the main roads and set back from public land, which means that it is not a prominent landscape feature despite its sizeable flow.

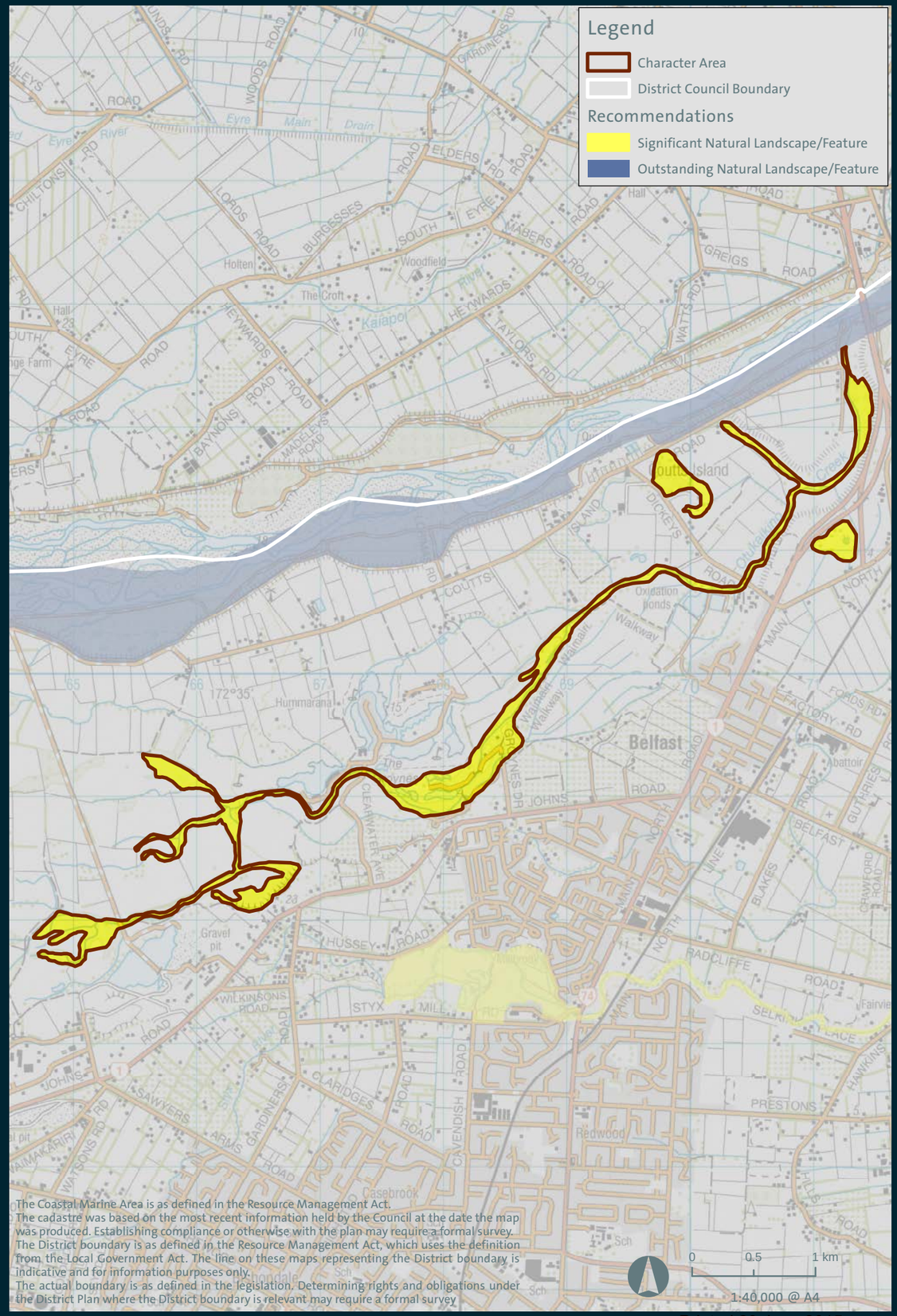
Associative attributes:

- Ōtūkaikino is significant for Ngāi Tahu, as it was used for burial preparation and is designated a 'Wāhi Tapu' site and silent file area.
- The Groynes is an established recreation area with a variety of uses.
- Similarly to the Waimakariri the Ōtūkaikino has undergone flood control measures with the Groynes area still a relic of these works.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The Ōtūkaikino Creek bed has been identified as a SF due to its high biophysical values, low sensory values and high associative values. The small scale feature provides only low aesthetic and shared and recognised values, and as such as been identified as significant rather than outstanding.

The Ōtūkaikino has relatively high ecologcial values, in particular around some of the upper tributaries, parts of the Groynes area and Wilson's Swamp. The Otukaikino system, including the wetlands in the headwaters and reserves in the mid and lower reaches, have been identified as a SF. The active springs in the upper branches, the wetlands and wildlife associated with the waterway and its high water quality are considered to be of high biophysical value. The associations of tangata whenua, which include the wāhi tapu site at Ōtūkaikino wetland reserve, also contribute to the significance of the landscape feature. The areas of high value are, however, confined to the streams and a few wetlands, which are predominantly located within reserves. Since the landscape context of the stream has been substantially modified, the SF boundaries follow the immediate banks of the stream, excluding residential areas and agricultural land use.



The Coastal Marine Area is as defined in the Resource Management Act.
The cadastre was based on the most recent information held by the Council at the date the map was produced. Establishing compliance or otherwise with the plan may require a formal survey.
The District boundary is as defined in the Resource Management Act, which uses the definition from the Local Government Act. The line on these maps representing the District boundary is indicative and for information purposes only.
The actual boundary is as defined in the legislation. Determining rights and obligations under the District Plan where the District boundary is relevant may require a formal survey.

4.4 RURAL AND GRASSLANDS CHARACTER AREAS

The rural areas of the Canterbury Plains surrounding Christchurch to the west have been captured under this character area. These rural areas differ significantly from each other in character due to their underlying formative processes and recent land cover modifications. The north-western part of this character area still shows the relatively recent fluvial processes of the Waimakariri River, which once flowed through parts of this area up to around 100 years ago. The stony, dry soils support a different vegetation to the wetter, more fertile soil in the south west. The south western part of the character area has been modified more significantly by subdivision and intensive farming than the mostly council owned land on the Waimakariri South Bank. The rural area extending between Halswell and Templeton is, therefore, described as a separate character area in this report.

4.4.1 DRY GRASSLANDS

This character area includes one of the last remnants of the dry plains grassland communities unique to the Canterbury Plains. This area is located to the west of Christchurch airport and forms part of the former Waimakariri channels, which were located to the south of the now much more confined braided river channel (see description Waimakariri Character Area). The flood protection work installed along the south bank of the river has constrained the river to the north of its original flow path and grasslands have developed on the young stony soils and sands deposited by the Waimakariri River. This open landscape to the south of the predominantly forested immediate river banks of the Waimakariri have a special landscape character that gives an indication of the original floodplains and river terraces that would have once occupied this area. Although the West Melton reserves, now managed by the Canterbury Regional Council, have not been part of the active river bed for over 100 years, the distribution of braided channels, islands, terraces and sand dunes persist in the landscape and continue to influence vegetation patterns. The underlying braided patterns can still be seen particularly well from the air, when taking off or landing at Christchurch Airport. This area includes almost exclusively grasslands, while a small area near the north eastern corner is occupied by gravel extraction, a golf club and limited rural residential development. Few shelterbelts can be found in the area and structures are very limited, apart from electricity lines in the eastern part of the character area.

A part of the Waimakariri River Regional Park extends into the grasslands area to the north of Conservators Road. The so called West Melton Reserves are a continuous block of rural and recreation leases commencing from Pound Road immediately west of the Christchurch International Airport and terminating at the West Melton Rifle Range, which forms part of the Waimakariri River Regional Park. The Christchurch City/Selwyn District boundary bisects the reserves at Chattertons Road. The leased farm land has conditions on it restricting land use changes.

Within the West Melton reserves occur some of the last remaining examples of Canterbury's dry plains native shrubland, grassland and moss-herbfield habitats. Soils of the West Melton Reserves are generally shallow, stony and well-drained, which means that they are dry through most of the year and subject to extreme summer drought. They were formed on recent alluvium deposited on the braided river floodplain, with stony channels separated by islands of deeper soil. The open grasslands in and around McLeans Island support predominantly exotic pasture species, but some areas have retained elements of their former native vegetation cover, including the threatened leafless pōhuehue (Muehlenbeckia ephedroides) and scabweed, as well as the locally rare longwood tussock, pātōtara (Leucopogon fraseri), tūmatakuru/matagouri and tī kouka/cabbage tree. One of the most striking remnant native habitats is the savannah-like dry grassland with scattered kōwhai trees which runs both east and west of Chattertons Road.

Restoration projects are being undertaken to restore a native dry shrubland community, particularly to protect and promote the regeneration of existing Olearia adenocarpa. Main factors in ensuring that the regeneration projects are successful are the control of browsing stock, and competition from introduced plants, particularly grasses, coupled with the harsh climatic conditions. Some of the open areas are leased for extensive grazing, which in some situations is beneficial for the retention of low-statured native plants that would otherwise be smothered by introduced grasses, and the suppression of fire – a serious ecological threat. Restoration planting has been going on for some time to supplement the dwindling native tree and shrub populations, and hopefully this will, in time, transform certain areas such as the 'kōwhai savannah' on both sides of Chattertons Road. Australasian harriers can frequently be seen scanning the area for prey, while kererū/native pigeons, miromiro/tomtits and pīwaiwaka/fantails can occasionally be spotted in the forest (West Melton Reserves Management Plan, ECAN).

The main culturally significant site in this area is Pukewhīnau, a mahinga kai site near Coringa (previously described). Further to the west is Ōkākea, a kāinga and mahinga kai site, with an associated urupa, near West Melton known for its potato and turnip cultivations as well as a place to gather tuna/eel, various bird species, koareare (edible rhizome of raupō) and koukoupara/bullies. There is extensive evidence of Māori occupation of the area, such as encampments and stone tool manufacturing activities. The vast majority of the archaeological sites lie close to large river channels indicating that these channels were sources of fresh water, food and were possibly transport routes. Some sites include mounds of gravel often containing charcoal or partly burnt wood. Charcoal found in the shallow stony soils is exclusively kānuka, but podocarp charcoal, such as mataī, was found in deeper soils.

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Once settlers arrived, a number of large runs along this stretch of the river was established in the mid-1800s. A series of little known quarried stone features, referred to as 'Dobson benchmarks' were set up as markers in the 1860s to measure variations in the course of the river's channels or in the height of its shingle bed. Another heritage object found in the area is the Tiptree Cottage in Harewood, which is a restored and authentically refurnished double storey cob dwelling built in the 1860s. Initially the land uses were limited to merino sheep farming and cropping, but through the development of a water race network, the area has been used widely for more intensive sheep farming. The erection of flood protection works led to the reserves being vested in the South Waimakariri River Board. Today the purpose of the reserves is to enable management of activities such that they are compatible with the natural, particularly ecological, values of the area and the maintenance of a predominantly open landscape. It is recognised that the area is largely an open and expansive landscape which, although subject to some modification, would have been typical of the plains environment prior to its settlement. The protection of the quality of the groundwater, continuation of flood protection activities and the minimisation of the risk of fire damage are also important for the area.

LANDSCAPE EVALUATION

Biophysical attributes:

- The abandoned braids of the Waimakariri River are highly legible landforms in this area that are particularly visible from the air and provide evidence of the former extent of the river with its now cut-off south branch.
- The shallow, stony and well-drained soils of the former floodplains provide rare habitat, a remnant characteristic of the former Plains environment.
- Despite the modifications of the land cover through grazing the grasslands still serve as a habitat for specialised, rare and threatened dryland plants.
- Restoration planting has helped to enhance the native dry shrubland community in this area.

Sensory attributes:

- A number of reserves in this area are managed by ECAN, but public access to the area is difficult.
- The kowhai savannah grasslands have a distinctive landscape character that is very rare along the lower reaches of braided rivers, which have generally been substantially modified by intensive agriculture. The best examples can be found on the Belfast Gun club site.
- The openness of the grasslands can be experienced along a short section of Chattertons Road where the landforms of the braided river channels are particularly legible and the grassland vegetation is dotted by mature, gnarly kowhai trees. The planting of shelterbelts in the area has impacted on the natural patterns and openness of the area.
- A number of recreational activities in the ECAN managed area, including the Waimakariri River Regional Park do not relate to the landscape values the area provides.

Associative attributes:

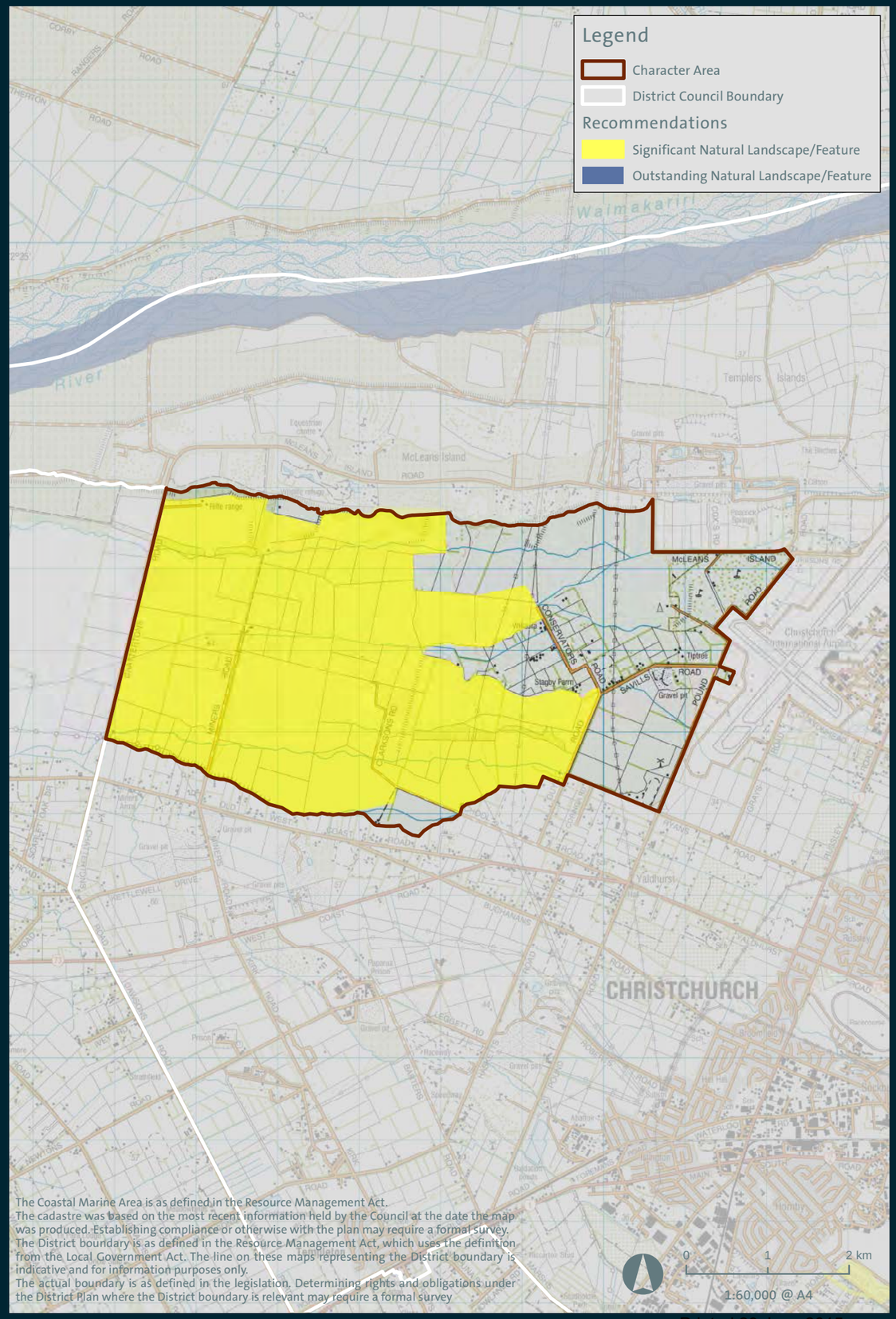
- The main culturally significant site in this area is Pukewhīnau, a mahinga kai site near Coringa. Ōkākea is another mahinga kai site, as well as being a kāinga further to the west, around West Melton.
- Extensive evidence of Māori occupation of the area includes encampments with charcoal and stone tool manufacturing remnants.
- The rich European history of the area is still visible today in the so-called 'Dobson benchmarks' along the South Bank and the Tiptree Cottage in Harewood.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Within the Dry Grasslands Character Area a large part of the West Melton Reserves have been identified as SF due to their high biophysical values, low perceptual values and high associative values.

The naturalness of this character area varies. Modifications within the area include the establishment of a variety of recreational infrastructure and grazing of these areas. Some of the grasslands, such as the open landscape adjacent to the gun club still maintain high legibility and biophysical values with unimproved pasture and kowhai trees. The majority of areas has, however, undergone intensification of land uses, which means that they do not display the same values.

The areas most visible from the road and least modified in terms of intensification of agricultural use, are located along the northern end of Chattertons Road. This least modified area within the CCC boundaries is centred around the gun club, which forms part of ECAN's Waimakariri River Regional Park. While the rarity of this ecosystem on the lower Canterbury Plains and the representativeness of this small area in terms of its geomorphological expressiveness is considered high, the area is quite confined as plantings of shelterbelts/ plantation forest can be found in the surrounding areas. A larger area, which falls within the ECAN managed West Melton Reserve to the south and east of the gunclub, have been also been identified as part of this SF. In this area the former formative processes can still be clearly seen from an aerial view, but the majority of the area seems to be more intensively farmed, which has led to a loss of legibility on the ground.



4.4.2 HALSWELL TEMPLETON RURAL AREAS

The Halswell to Templeton character area is located at the south-western boundary of Christchurch City. The low lying Hoon Hay to Halswell section of the character area forms a currently open seam of farmland skirting the edge of the Port Hills, beginning at the lower reach of the Cracroft Valley and extending southwards to Lansdowne Valley. At Lansdowne, the character area extends north westwards following the city boundary to include the semi-rural land west of Halswell and the rural land north of the satellite suburb of Templeton. The character area is somewhat disjointed and separated by areas that have been zoned for residential development. Future development has also been allocated in this area following the release of the Land Use Recovery Plan by the Canterbury Earthquake Recovery Authority. It is, therefore anticipated that the currently predominantly rural/ lifestyle character of parts of the area will change significantly in the future.

Rural land at the base of the Port Hills is characterised by a network of small waterways, originating from springs in the Templeton, Prebbleton and Halswell areas which converge to form the headwaters of the Huritini/ Halswell and Ōpāwaho/Heathcote Rivers. The area is an integral part of the Christchurch groundwater system, where large underground aquifers flow eastwards, meeting the impervious volcanic rock of the Port Hills. The Hendersons Basin flood retention area is situated at the base of Cracroft Hill between the hill suburb of Westmorland and the eastern edges of Halswell. Due to the low-lying nature of the land at the base of the hills, proximity of local springs and the restricted flow of the Heathcote River, the basin is a natural ponding area for floodwater following major rainfall events.

At Lansdowne the land is characterised by wet, heavy deep silt loams which extends from the base of the Port Hills to Prebbleton. A smaller natural flood basin lies within the Lansdowne Valley area. Like the Hendersons Basin area, many spring fed streams originate in this area, including those surrounding Knights Stream.

Historically both the Hendersons Basin and rural areas south of Halswell formed part of an extensive wetland extending along the base of the Port Hills. These wetlands were significant mahinga kai areas for Ngāi Tahu and linked together the resources of the Ōpāwaho/Heathcote River and those of the Huritini/Halswell river and beyond to Te Waihora/Lake Ellesmere. Key cultural sites in the area that have been previously described in the Kennedy's Bush-Dyers Rd Port Hills character area include: Te Tau-awa-a-Maka along Nottingham Stream, Ō-te-ika-i-te-ana in the Lansdowne Valley and Ōtawhito within Hendersons Basin near present day Westmorland. Further down the Huritini towards Te Waihora was Mānuka pā near Tai Tapu and Ahuriri Lagoon just north of present day Motukarara. Towards the Hornby area existed Te Uru Mānuka, an extensive wetland draining the headwaters of Knights Stream, long since drained by agricultural land development, and near the current Fulton Hogan subdivisions along Halswell Junction Road. Te Uru Mānuka was known as a place for the gathering of tuna/eel, manu/birds, aruhe/fernroot and kōareare/raupō. Even further north were two further sites that provided a link towards Pukewhīnau near Coringa along the southern banks of the Waimakariri. The first is the area known today as Ruapuna, near Templeton which was a mahinga kai area known for the same species as Te Uru Mānuka. Beyond this, was Ōkākea, near West Melton and described in the North West Drylands character area above.

Today, much of the remaining indigenous vegetation is fragmented and confined to stream and river banks, providing a critical wetland habitat amongst the current farmland and developing urban areas and along the flyway route between Lake Ellesmere/Te Waihora and Te Ihutai/the Avon-Heathcote Estuary. The Hendersons Basin and Southern Halswell areas have been farmed since the 19th century. Today these areas remain semi-rural in character and contain an eclectic mix of rural activity. The Hendersons Basin area is characterised by small scale pastoral landholdings, used mainly for light grazing and market gardening. State Highway 75 defines the western edge of the Basin where views can be obtained eastwards across the open paddocks towards the southern Port Hills. The southern Halswell to Prebbleton area largely comprises of pastoral grazing, remnant dairy farming activity, scattered orchards, flower/ market gardening and lifestyle blocks. The established and mixed rural land use in this area has led to a small grained landscape, characterised by shelterbelts, established trees, water races, streams and narrow roads where the silhouette of the southern Port Hills from Mt Pleasant to Gibraltar Rock can be seen.

Pockets of mixed use rural land can be found between Prebbleton and Hornby, and surrounding Templeton, before terminating at an old terrace of the Waimakariri River at Yaldhurst (see Grassland Character Area). Land use south of SH1 is comprised of largely smaller land holdings such as nurseries, cropping, chicken farms, horse stables and lifestyle blocks. The landscape has an enclosed feel due to the frequency of shelterbelts. Further north, the landscape has an open dry plains character underlain by drought prone Waimakariri soils. Land use surrounding Templeton comprises of larger land holdings supporting pastoral farming, small scale gravel extraction, exotic forestry and intermittent lifestyle blocks. The large paddocks are traversed by mature shelterbelts and transmission lines of varying height. Waterways in the area are spring fed or are part of a network of water races extending southwards from the Waimakariri River. Within the largely open landscape there are a number of nodes of built up development housing institutions, including prisons, education and health facilities. The watchtower at Paparua Prison also forms a local landmark due to its height, unusual form and contrast to the rural landscape.

LANDSCAPE EVALUATION

Biophysical attributes:

- The headwaters of the Huritini/Halswell and Ōpāwaho/Heathcote Rivers fall into this area.
- The landscape character area is an integral part of the Christchurch groundwater system, where large underground aquifers flow eastwards, meeting the impervious volcanic rock of the Port Hills.
- Hendersons Basin and Southern Halswell areas have been farmed since the 19th century, now characterised by small scale pastoral landholdings, used for grazing and market gardening.
- Native vegetation is very limited in this area dominated by agricultural and residential use.
- The remaining springs in the headwaters of the river are of high biophysical importance.

Sensory attributes:

- This landscape character area contains a mix of rural and residential land uses, which give this rural edge a pleasant, but quite modified appearance.
- The rural amenity values of openness, rural outlook and quiet have been largely compromised by the recent development in this area. Land holdings are generally small and rural lifestyle block dominate.

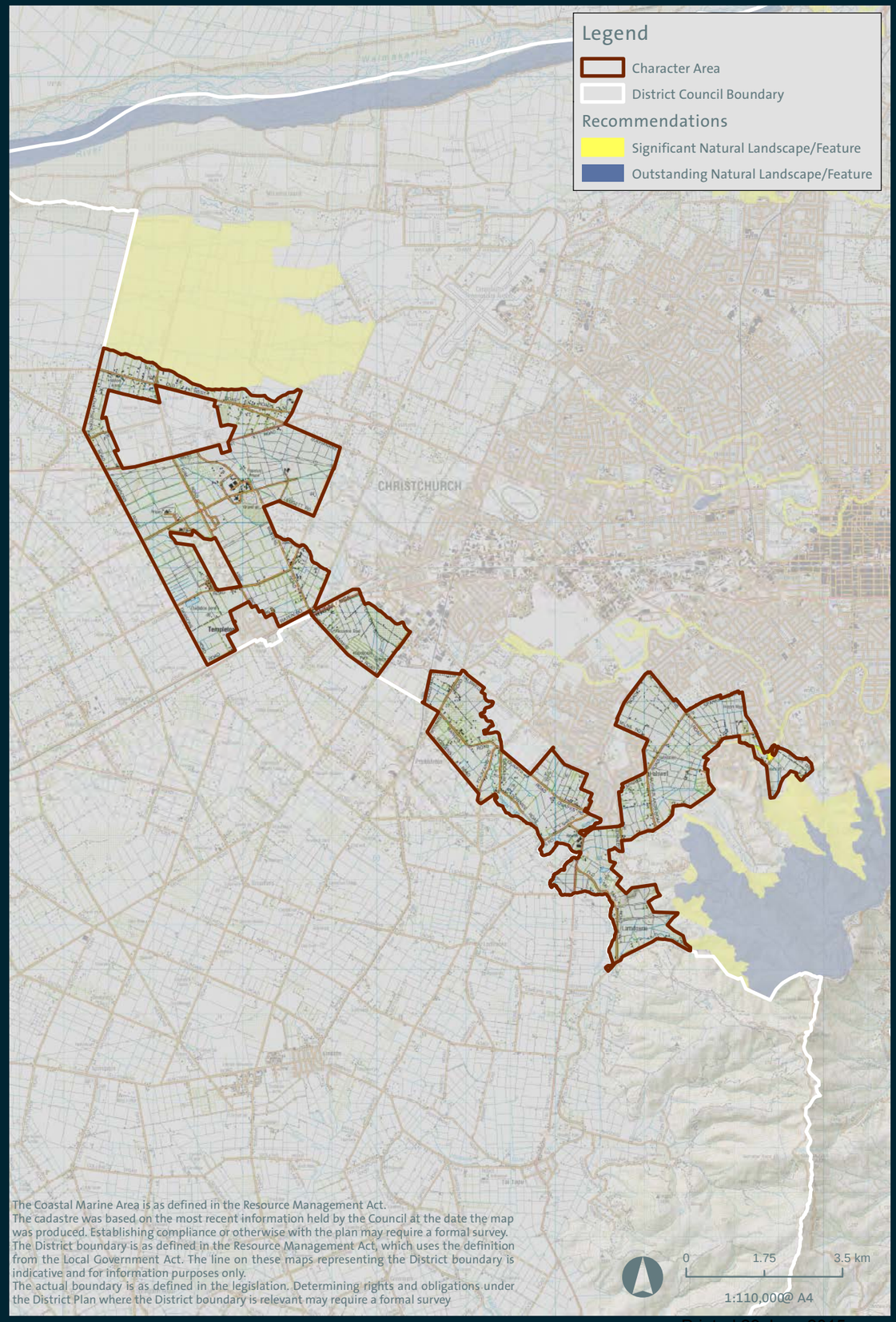
Associative attributes:

- Historically a large part of the character area formed part of an extensive wetland extending along the base of the Port Hills, which provided significant mahinga kai areas for Ngāi Tahu and linked together the resources of the Ōpāwaho/Heathcote River and those of the Huritini/Halswell river and beyond to Te Waihora/Lake Ellesmere.
- Key cultural sites in the area that have been previously described in the Kennedy's Bush-Dyers Rd Port Hills character area include: Te Tau-awa-a-Maka along Nottingham Stream, Ō-te-ika-i-te-ana in the Landsdowne Valley and Ōtawhito within Hendersons Basin near present day Westmorland.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The majority of this landscape character area has undergone substantial modification through intensive agriculture in the past. As part of the Land Use Recovery Plan large areas have been earmarked for further residential development, which means that currently existing rural amenity values and remaining naturaless will be further compromised. In Hendersons Basin a few surviving wetland areas are still present and some of the waterways where restoration planting was undertaken by CCC are of high ecological value. The salient character of this area is its hydrology with a number of springs and old channels that still define the basin. The intensive rural land use in the basin, as it occurs at the moment, is considered inappropriate for a formal identification as SF/L or ONF/L as part of this landscape study. It should be noted, however, that some areas have significant values to the City as a runoff storage area, and consequently for the landscape values that might develop from those, including open space and ecology. The tangata whenua values that are associated with these waterways would also benefit from any protection or restoration efforts.

While no other high landscape values have been identified in this sub-character area that currently lead to ONF/L identification, these areas are likely to be protected for their ecological value. The Heathcote River, including its springs, headwaters and parts of Cashmere Stream, have been identified as SF (see Heathcote River description).



4.5 LANDSCAPE FEATURES

This section of the character description captures a number of features that are too small to form landscape character areas (see Map 1 in Appendix 4). The features are mainly confined to waterways, wetlands or other ecologically important vegetation remnants that are surrounded by densely built-up urban areas. These features form an important part of the city's landscape, but due to their confined nature and intense modification in their vicinity, they do not fall into any of the landscape character areas described above.

4.5.1 PŪHARAKEKENUI / STYX RIVER

The Pūharakekenui/Styx River lies near the northern boundary of Christchurch City and, like the Ōtākaro/Avon and Ōpāwaho/Heathcote Rivers, is a small spring-fed lowland river. The river flows from the Harewood suburban area in the north west of Christchurch to the lower Waimakariri River, where it discharges into Te Riu o Te Aika Kawa/Brooklands Lagoon. Springs feed the river as it meanders north-eastwards through residential, horticultural, agricultural, and lifestyle developments as well as conservation reserves. The Styx River, about 25 kilometres long, has two main tributaries, Tao-whaka-puru/Smacks Creek and Kāpūtahi or the Kaputone Stream, as well as several other smaller waterways, both natural and constructed. The Styx River is a small, but significant river ecologically that also plays an important role for flood control for the northern part of the city.

When early Europeans settled in the area, the Styx River and its tributaries were surrounded by extensive wetlands that were used by Ngāi Tahu as mahinga kai (food gathering and production) sites. Key sites in the area include those previously described in the Te Riu o Te Aika Kawa/Brooklands Lagoon character area such as Te Kōpareōihu in the vicinity of the Styx Mill Conservation Reserve and the kāinga of Ōrauwhata, near modern day Belfast. These areas linked to the kāinga and mahinga kai resources to the north along the southern banks of the Waimakariri and to the lagoon and coast downstream.

During early European settlement the area was used for a number of purposes including sheep farming. The river itself was used to drive waterwheels and provided an important source of power for sawmills, flaxmills, and flourmills. Since then the catchment area has been extensively modified through farming and drainage practices, and in some places, by residential development. Despite this significant land use change, some of the natural values are still apparent and restoration efforts have been made along the river banks and within reserves. While there is no original wet or dry forest vegetation, native sedges and ferns are regenerating under the tall willow canopy along the river margins. Only remnants of the original vegetation still exist within the Styx River catchment, such as tiny fragments of peat mire wetlands found at Styx Mill Conservation Reserve. The Styx River supports more diverse and healthier invertebrate and fish communities than many of Christchurch's other waterways, which are more urbanised than the Styx where significant native forest restoration is taking place.

The river mouth still shows clearly natural processes and the salt marsh at the confluence with Brooklands Lagoon provides an excellent example of this type of coastal ecosystem. However, the construction of tidal gates on the Styx River, and the floodbank ridges constructed to stop the Waimakariri River cutting through to the Styx River, have confined the southern areas of this saltmarsh. The active areas of salt marsh with typical native plant species, such as three-square, New Zealand primrose and glasswort, are immediately around the mouth of the Styx River and opposite the opening to the Waimakariri River. The other successional stages of salt marsh now comprise remnant coastal ribbonwood and oioi that is being gradually invaded by land plants, especially tall fescue, and freshwater species. The aggressive pest plant cord grass (Spartina anglica) has recently been discovered as well.

In addition to the protected area at Brooklands Lagoon, two key conservation areas can be found along the banks of the Styx River, the Styx Mill Conservation Reserve (57 ha) and Janet Stewart Reserve (1.9 ha). The Styx Mill Conservation Reserve, which is an old meander of the Waimakariri River, extends along the Styx River for nearly 1.6 km and forms part of the natural river corridor associated with the Styx River. Historically, this landscape would have formed part of the Styx River floodplain covered in native vegetation, including ferns, tussock and raupō. Today, especially in the central lakes and eastern areas native wetland species have been protected and planted. In this context the community plays an important role in the enhancement of the reserve and recreational use is high. Other areas that provide increasingly high ecological values along the Styx River are Boyds Farm near the Kaputone Creek confluence, which currently contains 5.5 ha of native forest planting, Redwood Springs, Ourhuia Domain and a number of large areas of native forest planting along the Lower Styx River (downstream from Janet Stewart Reserve). The riparian willow woodlands are a dominant landscape feature that stretch along the Styx River from Styx Mill Reserve to near the mouth of the river at Brooklands.

LANDSCAPE EVALUATION

Biophysical attributes:

- Styx Mill Conservation Reserve is an old meander of the Waimakariri River.
- Styx Mill Reserve has particularly high biophysical and sensory values, as it forms part of a large area, where native planting has been restored and wildlife is protected by a predator-proof fence.
- Substantial wetland restoration areas have been established in Janet Steward Reserve, near the Kāpūtahi/Kaputone Creek confluence and downstream of this area.
- The Styx River mouth at Brooklands Lagoon has very high ecological importance (see Brooklands Character Area).

Sensory attributes:

- Styx Mill Reserve holds important sensory values, as it is an area of high naturalness in close proximity of residential areas where native vegetation, habitat and wildlife can be experienced by large numbers of locals.
- The recreation infrastructure within Styx Mill and Janet Steward Reserve provide for active and passive recreation, such as walking tracks and benches.
- The Styx River is an important waterway in the northern part of Christchurch, which contributes to the amenity values of the residential areas it meanders through.

Associative attributes:

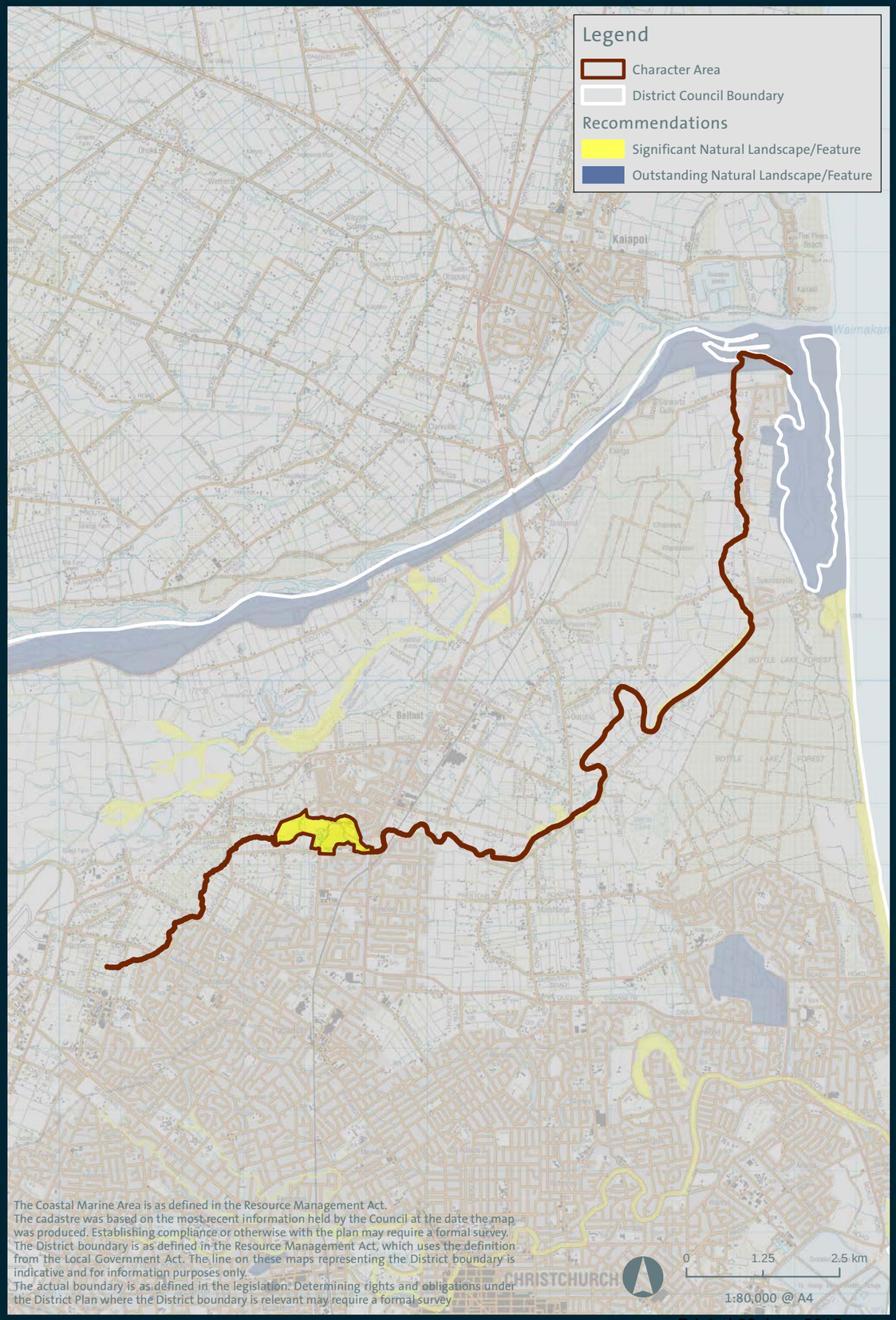
- The Styx River and its tributaries were surrounded by extensive wetlands that were used by Ngai Tahu as mahinga kai sites. Key sites include Te Kōpareōihu (in the vicinity of the Styx Mill Conservation Reserve), the kainga of Ōrauwhata (near modern day Belfast) and Te Riu o Te Aika Kawa/Brooklands Lagoon, including the Māori Reserve of Pūharakekenui.
- Early Europeans used the river to drive waterwheels for sawmills, flaxmills, and flourmills.
- The community plays an important role in the enhancement of Styx Mill and Janet Steward Reserves.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

As part of the Pūharakekenui/Styx River Landscape Feature Styx Mill Reserve has been identified as aSF due to its high biophysical values, high perceptual values and high associative values. The Lower Styx and associated reserves have also been identified as SF due to their moderate biophysical values, moderate perceptual values and high associative values.

The context of the Styx River has been substantially modified by residential development in its immediate vicinity, including the suburbs of Harewood, Redwood, and Northwood. Styx Mill Reserve Te Kōpareōihu, however, represents a coherent area that has received major ecological restoration efforts and now contains maturing wetland habitats. The naturalness of the regenerating ecosystem is considered moderately high, as the restoration is undertaken with native vegetation that would have been found originally in the swamps associated with the river. This area has biophysical and sensory values that have led to a SF identification.

The Lower Styx River and the more fragmented, restored wetlands of Janet Steward Reserve, Boyds Farm, which currently contains 5.5 ha of native forest planting, as well as Redwood Springs and Ourhuia Domain along the lower Styx have also been considered as SFs. This is due to the rarity of these wetland areas that could develop their ecological and landscape values if maintained and further improved with restoration planting.



4.5.2 ŌTĀKARO / AVON RIVER

The Ōtākaro/Avon River is a particularly important river for Christchurch, as it contributes to the city's identity and cultural and natural history. The waterway meanders its way from its spring-fed tributaries in the western and northern suburbs, through the city and out to sea via the estuary it shares with the Ōpāwaho/Heathcote River. Its central stem known today as the Waimairi, winds around 26 km from its source in Avonhead through Ilam, Upper Riccarton and Fendalton before meeting with its northern and southern tributaries, the Wairārapa and Ōrakipaoa respectively at Mona Vale. From here, the combined river known as the Ōtākaro continues through Hagley Park, the Botanic Gardens and the Central City before heading east through Avonside, Dallington and Aranui. Here it receives a number of tributaries from these north-eastern suburbs before emptying into the estuary near South Brighton. The entire Ōtākaro/Avon catchment covers about 84 square kilometres, nearly all of it urban in nature. Christchurch's history is closely linked to the Avon, as both Māori and European settlement was founded along its course and the city itself was built on the first extensive area of dry land up the river. The lower reaches of the river and estuary are under tidal influence and are described as a separate landscape character area (see Avon Heathcote Estuary / Ihutai Character Area). Bed and groundwater levels in the catchment were significantly affected by the 2010 – 2012 earthquake sequence.

Major tributaries of the Ōtākaro/Avon include the Wairārapa Stream (northern most branch), Waimaero or Waimairi Stream (middle branch), and Ōrakipaoa/ Upper Avon (the southern branch) all of which are predominantly spring-fed, albeit highly urbanised, streams. Active springs are found on the Wairārapa Stream at Jellie Park. Some tributaries themselves have significant tributaries, such as the spring fed Wai iti Stream which flows into the Wairārapa Stream in Bryndwr. However, many upper reaches are ephemeral dry channels except in rainfall events. Water quality in the upper reaches of the Ōtākaro/Avon and in particular in the Wairārapa and Waimairi Streams, is higher than elsewhere in the catchment. As the river flows through the city, water quality is more and more affected by the urban environment and stormwater inputs. As an urban river, the Ōtākaro/Avon has been significantly modified as Christchurch City has developed on its banks and hinterland. The majority of the river's banks are lined by roads, parks and private gardens that contain little native vegetation, which creates a pleasant setting with high visual amenity but comparatively low natural character. The park- like character of the river banks along the north-western Avon tributaries, in particular along Wairārapa and Waimairi Streams, is one of the key contributors to the landscape character of this part of Christchurch and gives the river banks and surroundings the "Garden City" appearance it is famous for. The Christchurch Beautifying Association played a major role in establishing these plantings on the river banks. The historic buildings of Mona Vale, set in four hectares of gardens, are one of the areas where this character is particularly well expressed and accessible to the public.

In recent times some native vegetation along the river banks has been either restored or allowed to grow along the margins, rather than be cut back. Little Hagley Park is an example of a woodland landscape character with river banks that have a more natural appearance. Additionally, the overhanging vegetation cover also provides habitat for stream invertebrates and fish, and important spawning habitat for species such as inanga. The river, and its tributaries, are home to a number of fish species including four different species of koukoupara/bully (upland, common, giant and bluegill), tuna/longfin and shortfin eels, inanga, aua/yellow eyed mullet, kanakana/ lamprey and exotic brown trout. Studies have shown that increasing amounts of fine sediment entering the Ōtākaro/Avon via stormwater inputs and settling on the river bed have reduced the quantity and quality of habitat for freshwater invertebrates and fish.

Most of the banks and landscape context of the river have been modified, which makes the few reserves along its banks even more valuable. Cockayne Reserve (3 ha) is a narrow strip of wetland bordered by the lower reaches of the Ōtākaro/Avon River approximately 2.5 kilometres upstream from the estuary. The reserve was established in the late 1800s and is one of the few native lowland wetlands remaining in Christchurch. This Reserve has been significantly affected by the earthquakes, which meant that the brackish/fresh water section has been inundated by salt water, resulting in a change in habitat and species.

Ngāi Tahu had an extensive network of both permanent settlements and more temporarily occupied mahinga kai sites along the length of the Ōtākaro. Many of these were associated with landscape features including former wetlands and river channels that have either been significantly altered or have disappeared as a result of the development of Christchurch City. Those sites and features in the upper tributaries include: Hereora (at the head of the Avon, near the airport), Wairārapa (along the northern tributary), Ōhikahuruhuru (near a previous swamp in upper Fendalton), Te Warokurī (within an old gully in Papanui), Motu-iti (near Bryndwr) and Ō-Rakipāoa (along the southern tributary). The remnant channels of the upper Waimaero/Waimairi stream, such as those within Crosbie Park and around Avonhead, are still visible today and provide an example of the extent of water that used to flow in these areas. In particular, a significant remnant channel still exists beyond Russley Road, near

the site of Hereora, and survives as the furthest visible inland extent, and original source/head of the Ōtākaro/ Avon – hence the name Avonhead. Two patches of important forest within the upper catchment included Pūtarikamotu/Riccarton Bush and its surrounding swamps as well as Tāpapanui/Papanui Bush, which no longer exists. Sites in the central city include the Waitaha pā of Puāri which was centred on the former drylands where the court buildings currently stand, and Ōtautahi, the kāinga of Tautahi, situated on the banks of the Ōtākaro near 'the Bricks' on Kilmore Street, where the former Free's Creek used to join the main steam and from which the modern Māori name of Christchurch takes its name. Further downstream is Waikākāriki/Horseshoe Lake, which included a kāinga and associated urupā, the kāinga of Ōruapaeroa near Travis Wetland and the pā of Te Kai a Te Karoro at the mouth of the river in the estuary (the latter two both previously described). A number of these sites, including Puāri, Ōtautahi and Waikākāriki were unsuccessfully claimed by Ngāi Tahu in the Native Land Court in 1868 which had the effect of Ngāi Tahu having little involvement in the protection and management of these areas, until more recent times.

The river banks of the Central City have been used for a variety of uses by Europeans. This included a flour mill with a dam, mill race and waterwheel in the late 1850s. Along Cambridge Terrace the Christchurch City Council's first swimming baths were opened in 1877. The nearby Montreal Street boat sheds were also built around that period. The park-like character of the river banks, including the plantings of rhododendrons, stems from this early European influence as well. The Christchurch Beautifying Association undertook early plantings along the river, which means that today's character of the river and its banks owes a lot to their influence. Many of the trees found along the river banks today are recorded as protected or notable trees due to their impressive age and size. Along the Central City section of the river numerous heritage buildings and structures line its banks. Buildings of particular importance include the Antigua Boat Shed, the Canterbury Provincial Council Buildings and the Town Hall with its distinctive fountains, all of which were severely damaged in the earthquakes but will be rebuilt. The bridges that cross the Avon in this section are also of historic importance, including the Bridge of Remembrance with its adjacent park. Victoria Square on the banks of the Avon, which used to be Christchurch's Market Square, is another area that is of particular importance to both European and Maori history (associated with the Waitaha settlement Puari).

Nowadays, the Avon River forms an integral part of the city along its various reaches. The character of the river and its urban context changes as it winds its way through the city. In the Central City the river has always been a focal point and a centre of activity, including the rowing facilities at Kerrs Reach. With the recent plans to design a park along the Avon River, it can be expected that the river will continue to draw attention as a feature and place to provide for recreational opportunities. The lower reaches of the Avon have experienced significant changes through the impacts of the earthquake, which has led to a red zoning of the adjacent land due to land damage. It is uncertain how this land will be developed in the future and if it will be suitable for future residential development. If the red zone is designed as a green space, the river banks may experience a significant improvement in terms of their naturalness and recreation and amenity value over time. These lower reaches of the Avon River are also important for the recreational users of the area and the river contributes to the amenity of the residential environment.

LANDSCAPE EVALUATION

Biophysical attributes:

- The vast majority of the Ōtākaro/Avon catchment is urban in nature, which has modified its natural and biophysical values significantly, although in a range of sites, particularly in the upper catchment around Avonhead, the remnant river channels remain and are important features that tell a story of the amount of water that used to flow in the river.
- Some of the wetlands adjacent to the river course, such as Bexley Wetland and Cockayne Reserve, are ecologically important.
- The river banks predominantly contain exotic trees, planted since European settlement. A high number of protected and notable trees can be found along the banks of the Avon, in particular the Central City section.
- More recently native plants have been increasingly used for plantings along the river banks, which provides habitat for fish, birds and invertebrates.
- The lower Avon River is important spawning habitat for fish species such as inanga.
- The lower river and estuary are under tidal influence (see Avon Heathcote Estuary / Ihutai).
- Springs are a primary value of the groundwater regime.

Sensory attributes:

- The river is one of the key landscape features of the city that connects a number of suburbs along its meandering course.
- Numerous walkways extend along the river, which makes it a very important recreation resource for numerous activities, including various forms of boating.
- The river and its banks form an important part of Mona Vale, Hagley Park, the Botanic Gardens and the Central City.
- The watercourse, despite its modified context and predominantly exotic vegetation along the banks still has a largely natural appearance and holds very high amenity values.
- The banks of the river, which are generally lined with trees, shrubs and grasses provide a natural foil for the densely developed residential areas in its context.
- Upper catchment remnant channels, such as those in Crosbie Park and beyond Russley Road provide a unique experience of the past size and naturalness of the river.

Associative attributes:

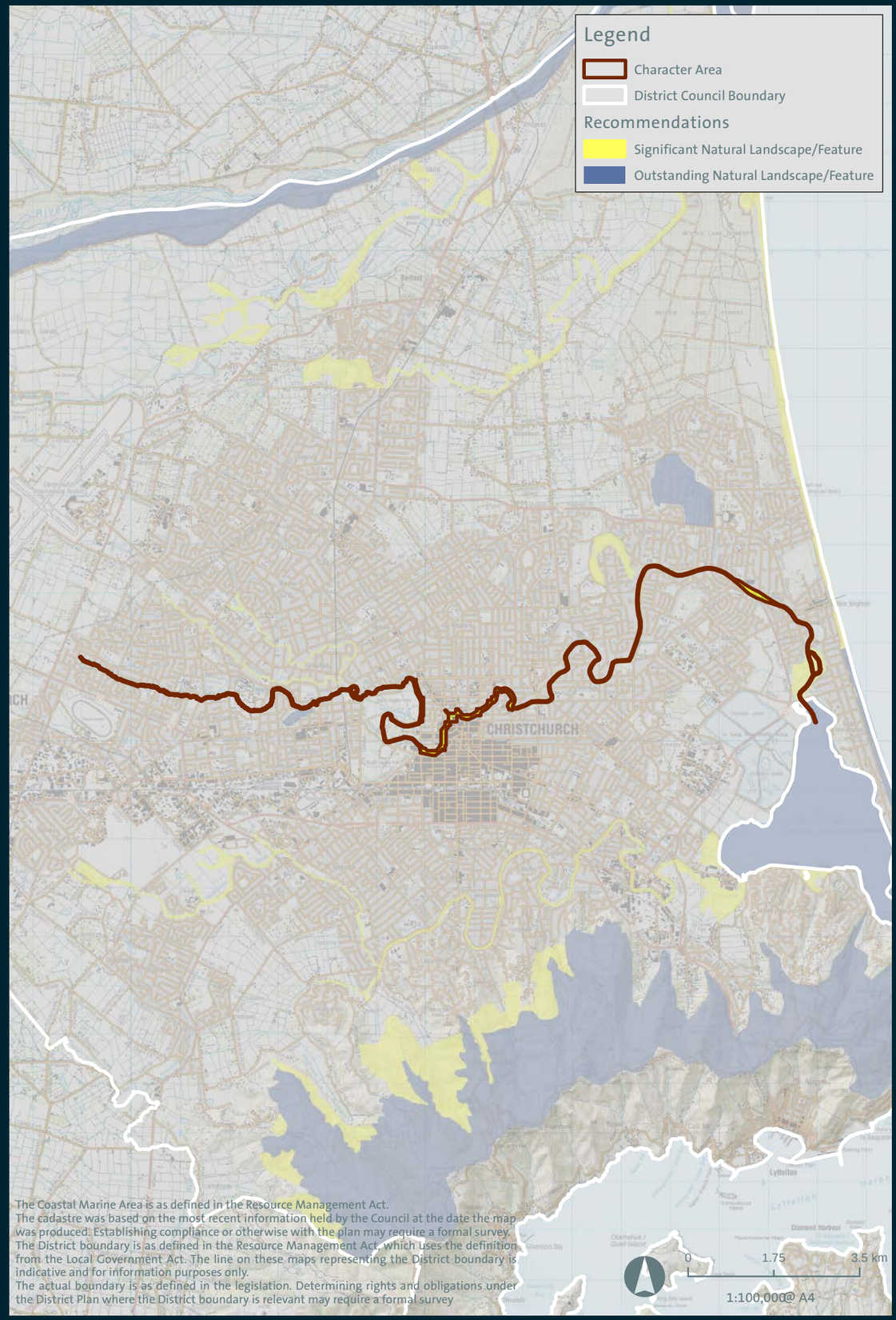
- The Ōtākaro/Avon River is a particularly important river for Christchurch, as it contributes to the city's identity and cultural, as well as natural history.
- The river is a landmark with iconic status within Christchurch City as it defines the landscape of the city that has developed along its banks.
- A number of historic buildings and bridges, which are of high importance to Christchurch's character, are located along the Avon in the Central City section.
- A network of key cultural sites dots the catchment from Hereora (near Avonhead), to Ōhikahuruhuru in Fendalton and Pūtarikamotu/Riccarton Bush, to Puāri pā and the kāinga of Ōtautahi in the central city, and Waikākāriki/Horsehose Lake and Ōruapaeroa/Travis Wetland in the lower reaches.
- The cabbage tree at Burnside High School is believed to have been a pre-European boundary marker delineating Maori usage areas of the Wairarapa Stream.
- The river banks of the Central City have been used for a variety of uses by Europeans, including a flour mill with a dam, mill race and waterwheel in the late 1850s.
- The park-like character of the river banks, including the plantings of rhododendrons and deciduous shade trees, the Botanic Gardens and Hagley Park, stem from European influence.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The Ōtākaro/Avon, including its three major tributaries, has been identified as a SF due to its moderate biophysical values, moderate to high perceptual values and very high associative values.

The river is considered to be a very important feature of Christchurch City, which serves as a landmark along its entire course. The river corridor, in particular the Central City section, has very high cultural values associated with it, in terms of tangata whenua and European heritage. The natural and dual cultural values have led to identification of the Ōtākaro/Avon River , including its three major tributaries (Avon River with Waimairi and Wairarapa Streams in Mona Vale) as a SF. Since the urban context of the river has led to a high degree of human modification, which has reduced the biophysical values and naturalness of the river, the SF boundary is confined to the river banks.

The three major tributaries of the Ōtākaro/Avon, the Wairārapa Stream (northern most branch), Waimaero or Waimairi Stream (middle branch), and Ōrakipaoa/ Avon (the southern branch), have been identified as SFs due to their high amenity values and importance to tangata whenua. Since the biophysical values and naturalness of the Ōtākaro/Avon are only moderate, a SF identification is considered appropriate. It should, however, be acknowledged that the river and all of its tributaries are of very high importance to tangata whenua, which may justify special recognition as a significant cultural feature.



4.5.3 ŌPĀWAHO / HEATHCOTE RIVER

The Ōpāwaho/Heathcote has its source just south of the suburbs of Hornby and Wigram, where large springs are located that feed the river, along with a number of streams that run off the Port Hills. The original upper tributaries formed a fork of streams that ran from where Springs Road currently is and across the area later occupied by the Wigram Aerodrome. The southern-most tributary still maintains some of its remnant channels and has been recently improved by the development of the Awatea basin, associated with the Wigram Skies subdivision as well as the riparian planting within the Aidenfield subdivision. An important spring along this tributary near Templetons Road is still active and forms a valuable and rare 'backwater' as the river flows into Canterbury Park and joins with the other remaining tributaries within the re-vegetated retention basins and riparian reserves within the park. The northern most tributary, known to Ngāi Tahu as Te Heru o Kahukura, used to flow in the vicinity of Curletts Road, meeting up with the main channel just below Canterbury Park near the former Sunnyside Hospital. Evidence of this former stream is still visible in the area and now forms part of the reserves associated with the Linden Grove subdivision bordering Curletts Road. As the river flows through Spreydon and towards Hoon Hay it is known as Waimokihi. After being joined by its largest tributary, Cashmere Stream, it meanders through the suburbs along the base of the Port Hills towards the estuary. It drains into Te Ihutai/the Avon-Heathcote Estuary from the south at the Ferrymead Bridge, and gets its name, Ōpāwaho, from the former pā site that was located near the township of Opawa. Similar to the Avon River, a number of drains enter the river along the way, but most of them are highly modified.

The character of the Heathcote River changes noticeably over its length. While it is comparatively fast flowing around Beckenham, the river becomes more uniform, deeper and slower-flowing further downstream. The substrate changes from interspersed gravel sections to predominantly muddy substrate in the downstream areas, which has negative implications for the ecological health of aquatic flora and fauna. Since many tributaries of the Heathcote River drain the Port Hills, it carries more sediment than the Avon River due to the easily eroded loess soils of the hills.

The river bed of the Heathcote River has been modified along its lower course by creating a cut (the 'Woolston Cut') to accelerate its draining capacity in flood flows. In 1986 the Woolston Cut was opened to allow water to bypass a big loop in the natural course of the river through Opawa. The Woolston Cut has changed the lower reaches of the river in terms of the salinity of the water. Due to extensive slumping and dying trees caused by increased salinity a barrage was subsequently constructed at the upstream end of the cut, so that tidal movement is returned to the original meandering river channel. Flood retention basins have been constructed in the upper reaches of the river to hold water in ponds and reduce peak flood flow in the Heathcote.

Before Christchurch developed, the Heathcote would have meandered through extensive wetlands, flaxland and sedgeland. The low-lying river corridor was located in a wet swamp and floodplain full of harakeke/flax, raupō, toetoe and tī kouka/cabbage trees. The only remnant of the marsh that remains today is the Beckenham Ponds, formed from natural springs in Beckenham Park. The early settlers established introduced trees on the riverbanks, favouring willows, especially weeping willow (Salix babylonica), alders, poplars, elms and birches. Recently some old willows and weeds have been removed to open the canopy and allow the establishment of massed planting of native riparian species. In the lower part of the river, below Woolston, and particularly near Ferrymead extensive and intact areas of native riparian vegetation still survive.

The Heathcote River corridor is an important habitat for birds. While the water bird population is dominated by the introduced mallard, native birds, such as the raipō/scaup are seen in the river and kōparapara/bellbirds can be found within the riparian vegetation. The river corridor is also important for the seasonal movement of bush birds from various forest remnants on the Port Hills.

The Heathcote River has a rich cultural history in terms of both tangata whenua and European heritage. For Ngāi Tahu, a network of settlement and mahinga kai sites spanned the river from the estuary to its headwaters and provided a link to the travelling routes over into Whakaraupō/Lyttleton Harbour as well as to the upper Huritini/Halswell River, and beyond to the plains and Te Waihora/Lake Ellesmere. Ōpāwaho is a well-known pā, situated on the banks of the river near where the current township of Opawa is. It was known as the 'outpost pā', being a key landing point for travel between the major pā of Kaiapoi in the north and with direct access to Rāpaki, via what is known today as Rapaki Track. Ohikaparuparu (previously described) is the name given to the mudflats at the mouth of the Heathcote important for mahinga kai, while further up the river beyond Ōpāwaho is a former wetland in the Cashmere area called Te Kuru, as well as another wetland and mahinga kai area, draining into the Cashmere Stream near Westmorland known as Ōtāwhito (previously described). The wetlands of Ōtāwhito are still evident, particularly in winter, with the extensive ponding of water at the base of the hills amongst the rural lands of Hendersons Basin that provide a sense of the nature and extent of these former swamps.

For Europeans the Heathcote River was important for shipping in the early days of settlement, as it presented an option for bringing goods to Christchurch from Lyttelton before the railway tunnel was opened. Due to the shape of the mouth, which was changing with the currents and tides, the travel was dangerous and navigation around the sharp bends in the river proved difficult. A towpath was built on each side of the river so that bullocks and horses could pull the ships through the most difficult sections. The towpath has recently been restored as a walkway and native plants have been restored along it. Early industry, which developed along the lower Heathcote and the Lyttelton railway line, pumped waste was into the river before the wastewater was piped to the treatment plant. Historic buildings in the area include brickworks, a flax mill and malt house.

The Ōpāwaho/Heathcote River is an important natural feature contributing to the landscape character and amenity of the southern suburbs that it flows through. The amenity of the river is particularly high where large trees form a sense of enclosure and the banks have been planted with a variety of native species. Along the serpentine course of central river sections within the suburbs of Cashmere, Beckenham, St Martins and Opawa walking and cycle paths have been installed and the visual integration with surrounding residential areas is particularly high. Those park-like stretches of the river are particularly attractive and more natural in appearance and the wide, gently sloping grassed banks, shaded by mature exotic trees are used frequently for recreational activities by the public. Add to this the development of the Awatea Basin with its restored native riparian edge and tōtara-kōwhai groves at its headwaters, along with the retention basins in and around Aidenfield and Canterbury Park and the initial restoration of native vegetated ponds in the Hendersons Basin area along Sparks Road, all of which provide further amenity and recreational opportunities, as well as recognising the former wetlands that spanned the catchment.

LANDSCAPE EVALUATION

Biophysical attributes:

- The Ōpāwaho/Heathcote River corridor is an important habitat for birds.
- Early settlers established introduced trees on the riverbanks, favouring willows.
- More recently native planting has been undertaken along the banks, and some areas, particularly in the lower catchment below Woolston have intact native riparian vegetation on the banks.
- The restoration planting and the development of retention basins near the headwaters of the river is of particular importance, as well as the occurrence of important springs.
- The only remnant of the marsh that remains today is the Beckenham Ponds, formed from natural springs in Beckenham Park.
- The ecological health of the Heathcote River is not as high as the faster flowing spring fed rivers in the north (Ōtukaikino and Pūharakekenui/Styx River) due to the high sediment input from run-off from the Port Hills.
- Extensive native planting in the river's headwaters and retention basins are ecologically valuable.
- The river mouth forms part of the Te Ihutai/Avon- Heathcote Estuary with its ecologically important tidal areas and salt marshes (see Te Ihutai/the Avon-Heathcote Estuary Character Area)

Sensory attributes:

- The river has high amenity value and is an important feature for the residential areas it flows through.
- Visually the river is well integrated with the surroundings though planting along the banks.
- The river banks provide attractive open space for recreational use and local residents.

Associative attributes:

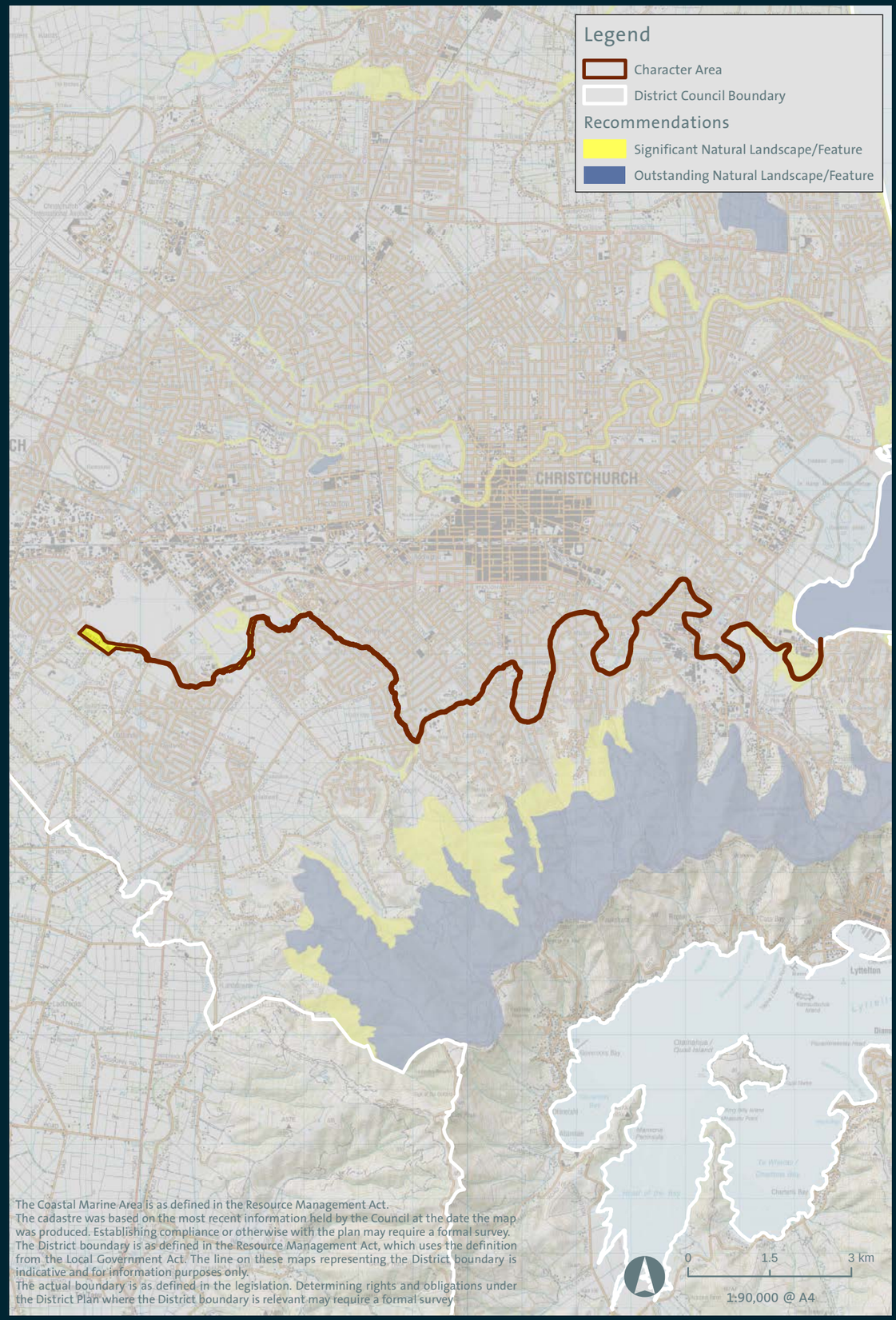
- The river was an important link for Ngāi Tahu connecting to travel routes between Whakaraupō/Lyttleton Harbour as well as to the upper Huritini/Halswell River, and beyond to the plains and Te Waihora/Lake Ellesmere
- The river gets its name, Ōpāwaho, from the former pā site that was located near the township of Opawa.
- Above Ōpāwaho is a former wetland in the Cashmere area called Te Kuru, as well as another wetland and mahinga kai area, draining into the Cashmere Stream near Westmorland known as Ōtāwhito.
- Ohikaparuparu is the name given to the mudflats at the mouth of the Heathcote important for mahinga kai.
- Early Europeans used the lower Heathcote River as a transport route to the city from Lyttelton Port as far as Radley Wharf. The towpath along the river remains from these times and is now used as a walkway.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The entire Ōpāwaho/Heathcote River, including its mouth and the Lower Cashmere Stream have been identified as SFs due to their low biophysical values, moderate perceptual values and very high associative values.

The Heathcote River does not provide particularly high biophysical values due to the high degree of modification in its urban landscape context and the high sediment load in the run-off that feeds its tributaries in the Port Hills. However, due to the important cultural values associated with the river, the Heathcote River and lower Cashmere Stream have been identified as SFs. The boundary of the SFs follows the immediate banks of the river and includes parts of some of the adjacent reserves, such as the springs in Beckenham Park. It should also be acknowledged that the river and all of its tributaries are of very high importance to tangata whenua, which may justify special recognition as a significant cultural feature.

The Heathcote River is an important landscape feature of the southern suburbs of Christchurch and contributes significantly to the amenity and identity of the residential areas along its meandering course. The SF around the Heathcote mouth between Radley Bridge and Ferrymead Bridge also includes the tidal mudflats and the tow path on the true left bank, which has important European heritage associations. The tangata whenua associations with the Heathcote River and Cashmere Stream are particularly high, which includes the former swamps around Hendersons Basin, known as Ōtāwhito. The agricultural land in Hendersons Basin has high restoration potential as a wetland area in many places, but has not been included in the SF identification due to the relatively high existing modification. However, it has to be acknowledged that these areas are of high importance from a cultural and potentially natural point of view. The areas around the springs and headwaters of the Heathcote River that received extensive restoration planting, are of high ecological value, which should also be recognised under other sections of the District Plan.



4.5.4 ŌRUAPAEROA / TRAVIS WETLAND

Travis Wetland is located in the north-east of Christchurch, in the hinterland of New Brighton in a low-lying area which is close to sea-level. The area was initially an estuary for the Ōtākaro/Avon River, but became increasingly cut off from the sea by a sand bar. Salinity decreased allowing wetland plants to take over from salt marsh species. Today Travis is the largest freshwater wetland in Christchurch City with an area of 120 hectares.

As previously described in the New Brighton character area, Ōruapaeroa is the name given to the general area surrounding Travis Wetlands, as well as the former dunes beyond to the beach. Ōruapaeroa is also the name of a kāinga and mahinga kai located near the QEII park site. Tuna (eels) and other fish, as well as ducks and other birds would have been plentiful and with a short walk over the dunes a ready supply of kaimoana (shellfish) was available. When European settlers gained crown grant of the area in the mid-19th century, it was not excluded from Kemp's Purchase as requested by Ngāi Tahu and the whare (houses) that were still present were burnt down. Subsequently the wetland was drained and used for farming until the land was destined for subdivision in the mid 1990s. At this point the Christchurch City Council bought the low-lying land and saved the area from further drainage and in-fill, and later developed the Travis Wetland Nature Heritage Park.

With very few wetlands remaining in the Christchurch area, the Travis Wetland Nature Heritage Park is an important wildlife refuge for large numbers of indigenous birds and important fish species such as native shortfin eels and the Canterbury mudfish. The swamp, though it was once severely modified and degraded, has been rehabilitated with pond and waterway creation, extensive native planting and natural regeneration and expansion of wetland plants. Green corridors to the Avon River were created as part of residential development and road construction in the past. Following the earthquakes, large parts of Bexley have been red zoned and it is uncertain if these areas will be used for residential development or returned to green space in the future.

LANDSCAPE EVALUATION

Biophysical attributes:

- The wetland has an interesting geomorphological and biological history as it was increasingly cut off from the estuary of the Ōtākaro/Avon River to become a freshwater swamp.
- Travis is the largest remaining freshwater wetland in Christchurch with particularly high ecological values.
- Intensive restoration efforts, including native planting and pest and weed control has dramatically improved its ecological functions after extensive drainage and degradation through farming use.
- The wetland is an important wildlife refuge for large numbers of indigenous birds and important fish species.
- Travis wetland is a nearly prefect example of a progressive wetland soil gradation from deep peats to mineral soils (Landcare Research, 1995).

Sensory attributes:

- The Travis Wetland Nature Heritage Park provides an excellent opportunity for the public to enjoy the walkways in this area.
- Bird hides allow for bird watching and the impressive wildlife values can be experienced around the edges of the wetlands, including a lookout tower.
- Provides and important educational experience and opportunity to understanding and appreciated what Christchurch was like.

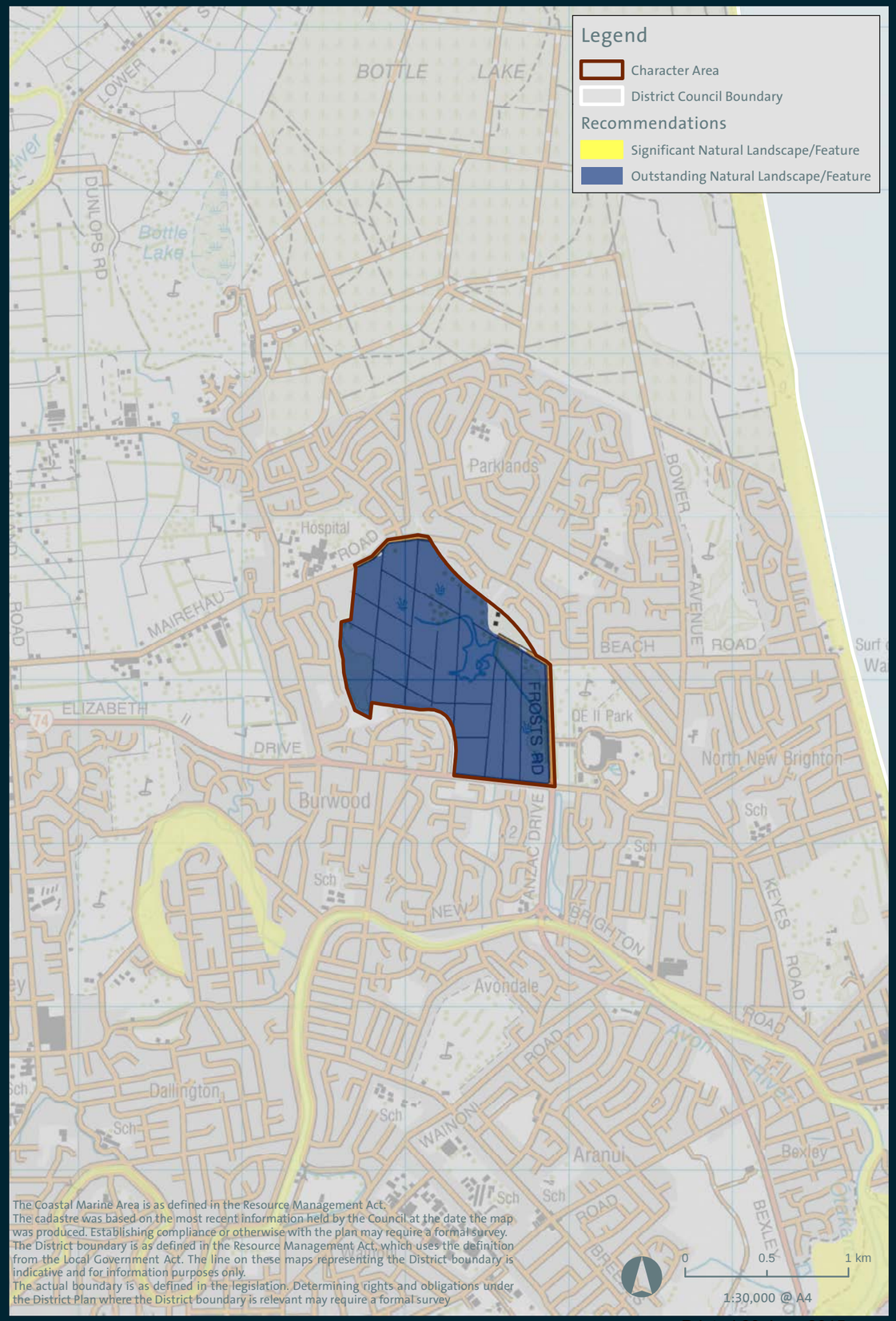
Associative attributes:

- Ōruapaeroa is the name given to the general area surrounding Travis Wetlands, as well as the former dunes beyond to the beach and is also the name of a kāinga and mahinga kai located near the QEII park site.
- Travis Wetland Nature Heritage Park created by CCC ensures the future protection of the wetland.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The entire Ōruapaeroa/Travis Wetland reserve area has been identified as ONF due to its high biophysical values, high perceptual values and very high associative values.

It is considered the best example of its kind within Christchurch City and provides a unique opportunity for the public to experience a low-land wetland landscape within the context of the city. The restoration of the wetland has been undertaken progressively and is still ongoing. Some areas now contain maturing wetland habitats of high ecological value. The naturalness of the regenerating wetland is considered moderately high, as the stages of restoration vary throughout the site, with some areas reverting to highly natural wetland communities.



The Coastal Marine Area is as defined in the Resource Management Act.
The cadastre was based on the most recent information held by the Council at the date the map was produced. Establishing compliance or otherwise with the plan may require a formal survey.
The District boundary is as defined in the Resource Management Act, which uses the definition from the Local Government Act. The line on these maps representing the District boundary is indicative and for information purposes only.
The actual boundary is as defined in the legislation. Determining rights and obligations under the District Plan where the District boundary is relevant may require a formal survey

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4.5.5 WAIKĀKĀRIKI /HORSESHOE LAKE

Horseshoe Lake in the east of Christchurch lies in proximity to the Ōtākaro/Avon River and was probably once a meandering arm of the river before it found a more direct route to the sea. Today the remnant wetland, located between the suburbs of Shirley and Burwood, is a grove of introduced willows with native wetland plants in its understory.

The Ngāi Tahu name for Horseshoe Lake is Waikākāriki. It was the site of a pā, including an urupā as well as being an important mahinga kai. The wetland area of Waikākāriki would have provided a plentiful supply of tuna (eel), other fish and waterfowl as well as a variety of plants including tī kouka, harakeke, raupō and tutu. The stream at Waikākāriki was known as Whaka-ao-maraki. Due to its importance, the area was claimed by Aperehama Te Aika in the Native Land Court in 1868, but was dismissed due to the land already been sold by the Crown. Subsequently, as with many other sites within the city, particularly wetlands, it was drained for farming and within little input from Ngāi Tahu.

As early as 1880, however, one of the early European owners gifted the land south of the lake for a reserve. Planting of the dominant willow canopy then commenced in the early 1900s and a wild fowl sanctuary was declared.

Today the City Council is managing the 32 ha reserve and, while the surrounding wetland has been largely drained, Horseshoe Lake is still a small remnant of the wetlands. With Shirley Golf Course adjacent to the area and Travis Swamp only around a kilometre away, the reserve continues to fulfil important open space and ecological functions.

While introduced willows visually dominate the canopy of the wetland, thick undergrowth of indigenous plants such as karamu, tī kouka/cabbage trees, tussock sedges and ferns can be found. Tuna/eels, perch and trout inhabit the water whilst pākura/pūkeko, ducks and other waterfowl, kotare/kingfishers and numerous woodland birds can be seen at various times. No. 2 Drain, which flows into Horseshoe Lake, is an important habitat for bluegill bullies, as it was rehabilitated particularly for this species a number of years ago.

The walkway, which has been heavily damaged by the earthquakes, was a major recreational facility within the reserve offering a close glimpse of a preserved wetland along the inner curve of the lake. The walkway on the outer edges of the reserve continues to be a popular attraction. A large area of the residential development in the suburb of Horseshoe Lake has been red-zoned due to the ground damage from the earthquake.

LANDSCAPE EVALUATION

Biophysical attributes:

- Horseshoe Lake is a legible landscape feature, formed in an old meander of the Avon River.
- The wetland is one of the few remaining low-land swamps in the Christchurch area.
- While introduced willows visually dominate the canopy of the wetland, thick undergrowth of indigenous plants can be found.
- The lake and wetland area is an important bird habitat.

Sensory attributes:

- The wetland is located amidst intensive residential development and is an important natural feature for the surrounding residents.
- The red zoned residential land on the inner bend of the lake is currently unused with a potential to revert back to swamp, as houses are being cleared from the land.
- Some of the walkways, in particular the ones on the outside of the lake are still an important recreation resource despite the earthquake damage.

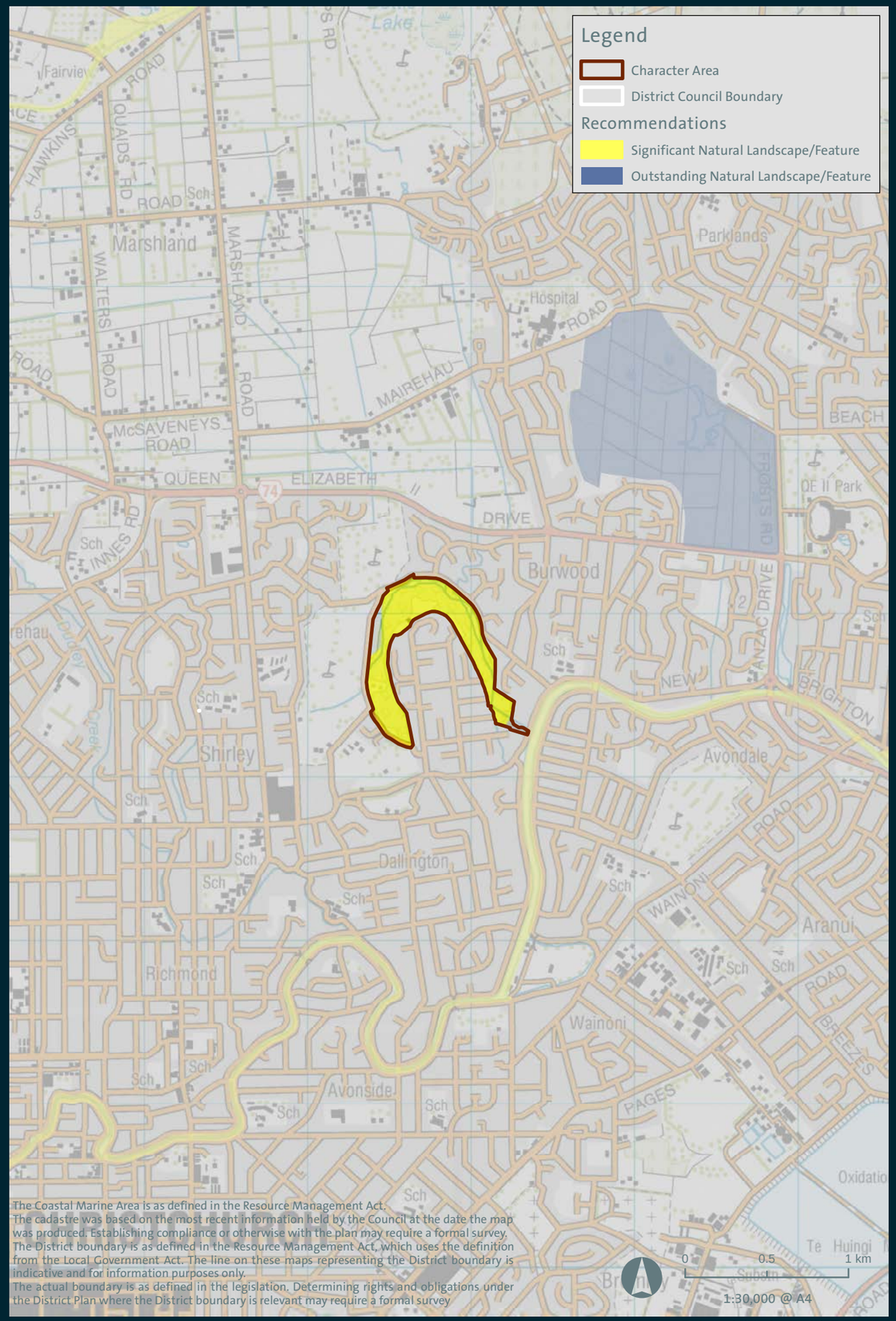
Associative attributes:

- The Ngāi Tahu name for Horseshoe Lake is Waikākāriki.
- The area included a pā site, including an urupā as well as being an important mahinga kai.
- The stream at Waikākāriki was known as Whaka-ao-maraki.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

The Waikākāriki/Horseshoe Lake wetland area has been identified as an a SF due to its moderate to high biophysical values, moderate perceptual values and very high associative values.

The naturalness of the feature has been compromised to some extent by the introduction of weeds to the wetland and its urban context, which results in this feature not quite meeting the threshold for an ONF. Due to the remaining ecological and cultural values of this remnant wetland the feature is, however, considered significant in the context of Christchurch where wetlands are rare. The remnant landform of this former oxbow lake/wetland is particularly legible as its geomorphology displays the formative processes that shaped the feature in the past. Waikākāriki/ Horseshoe Lake is representative of the fluvial processes that have created the wetland which are particularly recognisable. The SF recognition of Waikākāriki/ Horseshoe Lake also takes the significant cultural values of this feature into account, in particular those relating to Ngāi Tahu associations. Due to this the wetland could also be considered separately as a feature of cultural significance.



4.5.6 PŪTARIKAMOTU / RICCARTON BUSH

Riccarton Bush, also known to Ngāi Tahu as Pūtarikamotu is a significant remnant lowland podocarp forest located adjacent to the southern-most branch of the upper Avon River (known as Ōrakipāoa) in the suburb of Riccarton. The surviving part of Pūtarikamotu/Riccarton Bush, less than 50% of its pre 1850 extent, was protected by the Deans family in the early years of Christchurch settlement, then gifted by them to the public of Christchurch and declared a public reserve in 1914 to preserve this remnant native forest. This makes it one of the oldest protected natural areas in the country. Its several large kahikatea date from about 1400AD and are the oldest living things in Christchurch. This small area of native forest is a valuable reminder of what the Canterbury Plains would have looked like before human settlement. The reserve (total area of 12 ha) is renowned for its stand of kahikatea forest as well as matai and tōtara trees, comprising of a 6.5 ha area of native forest, as well as areas of parkland and historic buildings. The bush is the last remainder of its kind in an urban landscape and is bounded by a grove of introduced tree species, planted to grow fruit and to create an English park-like setting. The adjacent grounds of Riccarton House have the oldest known European tree in Canterbury, a pear, planted in the 1840's.

Pūtarikamotu is of immense cultural significance to both Ngāi Tahu as well as early European heritage. For Ngāi Tahu, Pūtarikamotu was the site of a pā as well as a valuable mahinga kai. The forest and its surrounding wetlands offered an abundant and diverse range of foods not available in other locations in the area. This included the timber, berries and bark of forest trees such as, whīnau, matai, pōkākā, tōtara and kahikatea, as well as forest birds such as kererū, kākā, kōkō (tui/parson bird) and kōparapara (bellbird). Other species gathered from Pūtarikamotu include mohotatai (banded rail), tuna (eel), kanakana (blind eel) and aruhe (fernroot). The Deans, the first permanent settlers on the site of Christchurch, established their farm in the area in 1843. One of the original Deans' dwellings remains on the edge of the Riccarton Bush, along with the substantial house which the Deans built in the 1850s. Farm buildings from the later 19th century still stand on the grounds of Christchurch Boys' High School. While the Deans worked strenuously to maintain the forest, early settlers relied on firewood for cooking and heating as well as timber for building houses. This resulted in about half of Riccarton Bush, which was gifted to the Canterbury Association by the Deans, and all of nearby Papanui Bush (around 200 acres) being cut down in the earliest years of settlement. With half of the bush being saved, it was later given to the city by the Deans family, and subsequently administered by a Trust. Timber was also obtained from the remnant forests on the Port Hills, Banks Peninsula and the Oxford foothill forests, which led to significant reduction in forest cover in those areas.

Today the trees in the reserve are the remnants of the original podocarp forest and is dominated by kahikatea (between 400 and 600 years old – reaching around 30 metres in height), tōtara, matai and other native species, such as kōhūhū/black matipo or Pittosporum, tarata/lemonwood, karamu, houhi/narrow leaved lacebark, māpou, kāpuka/broadleaf, kōwhai, horoeka/lancewood and whauwhaupaku/five finger. An under-storey of small trees and shrubs such as five-finger, mikimiki/Coprosma, kōhūhū/Pittosporum and māhoe grow vigorously beneath the larger trees. Native climbing plants and a wide range of ferns, sedges and mosses are also found there. These plants are part of a community that provides important habitat for a multitude of birds and insects. Birds at Riccarton Bush include the pīwaiwaka/fantail, riroriro/grey warbler, tauhou/waxeye, kōparapara/bellbird, and kereru/woodpigeon. Recently a predator-proof fence was erected around the perimeter of Riccarton Bush to protect native species from exotic predators. A project to introduce the Canterbury tree weta has also been taking place over recent years.

LANDSCAPE EVALUATION

Biophysical attributes:

- Riccarton Bush is one of the best examples of low-land forest in the Lower Plains Ecological District, which gives it particularly high ecological value.
- The reserve is renowned for its stand of kahikatea forest as well as matai and tōtara trees.
- The trees in the reserve are the remnants of the original podocarp forest and have very high ecological value as a seed source for locally sourced native plants.
- The diverse native forest provides important habitat for a multitude of birds and insects.

Sensory attributes:

- The reserve provides an outstanding opportunity for the public to enjoy a native forest setting, where the trees and plants in the understory can be explored up close to the tracks.
- The area includes not only native forest, but also areas of parkland and historic buildings which contribute to the depth of experience and visual diversity.
- The calm and quiet setting of the forest is a calm retreat within the bustling city context. The cool, enclosed space provides a rare chance to get away from the stresses of everyday life.

Associative attributes:

- Pūtarikamotu is of immense cultural significance to both Ngāi Tahu as well as early European heritage.
- For Ngāi Tahu, Pūtarikamotu was the site of a pā as well as a valuable mahinga kai.
- Pūtarikamotu/Riccarton Bush was declared a public reserve by the government as early as 1914 to preserve this remnant native forest.
- One of the original Deans' dwellings remains on the edge of the Riccarton Bush, along with the substantial house which the Deans built in the 1850s.
- Riccarton Bush is a highly valued recreation and education resource, which represents the last example of its kind in the now urban environment.

IDENTIFICATION OF OUTSTANDING NATURAL LANDSCAPES

Pūtarikamotu/Riccarton Bush has been identified as an ONF in its entirety due to its very high biophysical values, very high perceptual values and very high associative values. Riccarton Bush has developed into a highly valued recreation and education resource, which represents the last example of its kind in the now urban environment. The integration of the native forest with the surrounding parkland and historic buildings makes this area not only a well-recognised ecological feature, but also a landscape feature that stands out in terms of its aesthetic and heritage values.

The naturalness of this confined feature is largely intact, as it contains primary forest. Altough surrounding land uses have some influence on perceptual apsects of naturalness, the ecological values of Riccarton Bush are particularly high. While the heritage building within the reserve represents a node of man-made development, it holds important cultural values, which contribute to the importance of the setting overall.

APPENDIX 1

BIOPHYSICAL VALUES

GEOMORPHOLOGICAL VALUES

The division of geomorphological and biological values allows for a considered analysis of each aspect, where both are analysed separately. The Environment Court described 'Natural Science Values' in the Queenstown decision[19] as "the geological, topographical, ecological and dynamic components of the landscape". Natural science values were considered important if a landform (including geology and soils) and/or land cover (in particular native vegetation communities, wildlife and ecosystems) displayed particular representativeness or rarity within the region or district. Representative natural features and landscapes are clearly and recognisably characteristic of the area, district or region. The key components of the landscape will be present in a way that more generally defines the character of the place. Natural features in a good state of preservation are representative and characteristic of the natural geomorphological processes and diversity of the region or district. Natural features are unique or rare in the region or nationally, if few comparable examples exist. Natural features may be a landscape feature such as Horseshoe Lake or an element/component of the landscape such as the Port Hills.

In the past century, almost all areas protected in New Zealand have been identified for aesthetic or biotic values. While this has resulted in the protection of a large number of earth science sites of significance, it has also resulted in considerable bias in what has been preserved. New Zealand has a unique and extremely diverse natural landform, geological and soil heritage. This is a result of its long and complex geological history, its climate and location on a volcanically and deformationally - active boundary between two of the world's major crustal plates. The Geopreservation Inventory lists information on all the internationally, nationally and many of the regionally important earth science sites throughout New Zealand.

The overriding objective of geological conservation in New Zealand should be to ensure the protection of the integrity of the best representative examples of the broad diversity of geologic features, landforms, soils sites and active physical processes, so that we can understand the unique geological history of New Zealand, development of its landforms and evolution of its biota.

Another aspect to geomorphological values lies in its 'readability' or 'how legible' the landscape is. It refers to the expressiveness of the landscape, how easy it is to understand all its subtleties in terms of past events - both natural and cultural. Past processes are often clearly understandable, and present geological activity, such as volcanoes, glaciers or rock slides, are clearly evident in many places. Legibility need not necessarily relate to 'attractiveness', but clarity of natural and cultural processes is important.

Under the Amended Pigeon Bay factors, 'Legibility' is a stand-alone criterion and is considered to be an essential quality of a landscape. For this landscape study, the study team have incorporated its main essence under geomorphological values, while mindful that other values are also interrelated with legibility. The Environment Court described this criterion as "how obviously the landscape demonstrates the formative processes leading to it"[20] , in other words the degree to which the processes (geomorphological, hydrological, climate, vegetation, coastal and cultural) are actively displayed in the landscape. Some landscapes (or natural features) clearly express past natural and cultural processes. However, landscapes or features which are significant in terms of their geomorphological values, may not be expressive of these processes, whilst those which are highly expressive may not have a specific geomorphological value. Natural features and landscapes that exemplify the particular processes that formed them may also have strong historical connotations and a distinctive sense of place.

BIOLOGICAL AND ECOLOGICAL VALUES

Christchurch City has a number of small protected areas, in particular reserves along the Port Hills. Information available from the City Plan on Ecological Heritage Sites (Volume 3, Part 4 Rural Zones, Appendix 2), as well as the CCC Biodiversity Strategy (2008-2035) and management plan documents for DOC and ECAN conservation areas, such as the Waimakariri river Region al Park, was used to inform the study team about biological values in the region. Several other publications (see references) provided valuable information about flora and botanical values, freshwater resources, and wildlife and CCC staff (A. Shadbolt) assisted with advice on specific ecological values and restoration programmes within the study area.

Another aspect of Biological values relates to a landscape's transient nature. Transient values describe the contribution which wildlife, climate and hydrological processes make to landscape. A landscape may gain significance due to the way in which wildlife seasonally (or at times in the day) gathers or occupies a specific area. Similarly, locations that benefit from the rising or setting sun, time of day and seasons of the year may be elevated in value due to this 'transient characteristic'. Transient values have associations with sensory and associative values.

19. Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59

20. Pigeon Bay Aquaculture Ltd v Christchurch Regional Council [1999] NZRMA 209; Wakatipu Environmental Society Inc v Queenstown Lakes District Council [2000] NZRMA 59

Outstanding Test: For a feature or landscape to score highly for Biophysical Values, the feature or landscape will need to contain exceptional and/or very high geological or ecological/ biological values, as described above. The intactness and legibility of a landform and its wider setting will be considered when assessing geological values, particularly in terms of its ability to represent or convey those geological features or processes that make it significant, such as volcanic activity or coastal/ riverine processes. The intactness of the ecology of an area, including its level of biodiversity, and its representativeness and rarity have been considered as part of the decision process.

SENSORY VALUES

AESTHETIC VALUES

The aesthetic value aspects considered by the Environment Court were described in the Amended Pigeon Bay criteria as "including memorability and naturalness". This decision included some discussion of the adequacy of this description. It was of the view that traditional scenic and visual considerations may be underplayed. It noted that considerations such as pleasantness raised in the RMA amenity definition with reference to Section 7(c) are also relevant. The concept of vividness and visual coherence are also often used in relation to aesthetic values. The definitions of all these terms show that they are interrelated:

Memorability: This term describes the way in which a landscape remains in the memory. Highly memorable landscapes comprise a key component of a person's recall or mental map of a region or district. This is also often related to a landscape's legibility and beauty.

Naturalness: Natural features and landscapes appear largely uncompromised by modification and appear to comprise natural systems that are functional and healthy. Naturalness describes the perception of the predominance of nature in the landscape. A landscape may retain a high degree of aesthetic naturalness even though its natural systems may be modified. Similarly landscapes that have high ecological values may not necessarily display high qualities of visual naturalness.

Vividness: Vivid landscapes are widely recognised across the community and beyond the local area and remain clearly in the memory; striking landscapes are symbolic of an area due to their recognisable and memorable qualities, including their landform.

Coherence: Natural systems are intact and aesthetically coherent and do not display significant visual signs of disharmony. The patterns of land cover and land use are largely in harmony with the underlying natural pattern of the landform of the area and there are no significant discordant elements of land cover or land use; Coherence describes the way in which the visual elements or components of any landscape come together. Landscapes with high levels of coherence will have their visual elements in harmony and reinforcing each other. They will have unity, whilst they may be either visually diverse or relatively simple in terms of their elements. They work together in terms of their composition.

TRANSIENT VALUES

The common occurrence of transient features (for example the seasonal changes with snow on the hills tops and browning off in summer or particular weather patterns and cloud formations) contribute to the character, qualities and values of the landscape. Some landscapes are widely recognised for their transient features and the contribution these make to the landscape. Natural features and landscapes are generally characterised by their landform and their land cover. However, the experience of some landscapes is significantly influenced by other, sometimes ephemeral characteristics, which can include flooding of waterways and tides in coastal areas. Where these characteristics occur regularly, they become a recognised and integral part of the landscape such as seasonal wildlife concentrations and breeding areas.

The Oxford English Dictionary (2002) defines 'aesthetic' as 'concerned with beauty or the appreciation of beauty; of pleasing appearance'. This appreciation of beauty encompasses not only the visual aspects of a landscape, but also other sensory experiences, such as sound, smell and touch. Many scientific studies have been undertaken to examine and quantify scenic beauty of landscapes[21] . A number of researchers[22] found that both a landscape's intrinsic physical properties (natural beauty) and/or cultural elements (relating to human creation) can result in aesthetic landscape quality. Areas identified as outstanding landscapes, generally contain these favoured characteristics. However, significant visual signs of human modification, intervention or manipulation often detract from the visual 'wholeness' and the aesthetic qualities of a landscape.

21. Landscape Quality Assessment of South Australia, Andrew Lothian, Dissertation for Doctorate of Philosophy, Department of Geographical & Environmental Studies, University of Adelaide, 2000

22. Eg Zube, Sell and Taylor (1982) analysed 160 published papers and found that the physical elements, compositional construction, locational context, naturalness, man-made elements, and gestalt were the key characteristics that were considered in landscape quality assessments.

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 1 | DESCRIPTION OF LANDSCAPE ATTRIBUTES FOR EVALUATION

OTHER SENSORY VALUES

Sensory elements of a landscape can extend beyond visual or aesthetic values. For instance, a landscape can portray auditory and odour stimuli that are just as important as the landscapes appearance. There is usually a congruence or coherence between sound, smell and visual stimuli that excite the senses, such as the experience of being in natural setting. Sensory values can be highly transient; from the morning chorus of waking birds in the bush to the fragrance of a meadow on a summers evening. Weather patterns, seasons, tidal movements and time of day all stimulate our senses and are integral when assessing the sensory aspect of a landscape.

Outstanding Test: For a feature or landscape to score highly for Sensory Values, the feature or landscape will need to contain exceptional and/or very high aesthetic values (and may include non-visual sensory values), as described above. The integrity of an area will include reference to the level of visual coherence, the condition of its physical 'fabric', and the extent to which all components necessary for maintaining the aesthetic qualities of the area are included, such as the way in which a scenic body of water is linked to the qualities of the wider water catchment.

ASSOCIATIVE VALUES

SHARED AND RECOGNISED VALUES

Certain natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to a sense of place. This leads to a strong community association with or high public esteem for the place. The presence of existing protected sites is a key indicator of shared and recognised values. This specific value is closely associated with Cultural Heritage and Tangata Whenua values described below.

Research has shown that many professional landscape assessments have reflected fairly accurately the views of the general public. Nonetheless, it is fully accepted that in some circumstances the expert's perceptions may be different. Public perception exercises are often extremely costly and not always feasible as part of a landscape study. In many such studies there is no consensus between members of the public or different stakeholder groups.

The shared and recognised values for the Port Hills also include writings (eg Mary Ursula Bethell) and music, as well as many paintings and drawings. In simple practical terms paintings are made using colour, shape, form and tonality. This combined with 'observation' and 'perception' of the landscape by artists has the potential to transform the viewer's own perception of 'time' and 'place', exposing a meaningful insight about ourselves relevant to the environment. The importance of sense of place (genius loci) is apparent. Artists often articulate the scenic qualities of a place in terms such as patterns, rhythms, space, horizon, sky, weather, diversity, barren, empty, raw, sculptural, vivid, harsh.

While artists' views of the landscape are important considerations and often representative of public perception, the day-to-day use of the landscape by the local population and their appreciation of its features are also highly relevant. Therefore, conservation areas and popular recreation opportunities within them have been considered under this set of values. The City Council manages a number of reserves throughout the city and on the Port Hills, which are highly valued by locals and visitor alike for their recreation and sightseeing opportunities. This includes the central city, where the Avon River forms a distinctive feature that defines the city which gives its almost 'iconic' status. In a broader sense the monetary value of residential land can also be viewed as a reflection of scenic and amenity qualities of the environment, such as the park-like setting of the Avon tributaries that contributes to the visual amenity of the suburb of Fendalton.

CULTURAL AND HERITAGE VALUES

Cultural legibility is a vital component of many overseas landscapes where many centuries of human endeavour can be unravelled through study of the present landscape. In New Zealand this aspect of landscape has received only limited and belated attention. Ōtautahi/Christchurch with its rich history and a multitude heritage layers includes both Māori and European history, as well as more recent multi-cultural influences such as those from Polynesia, Asia and Africa. Māori heritage values are often associated with significant natural features, that are in many cases now highly modified, such as former wetlands and swamps, as these places were important for mahinga kai (traditional food species and gathering) and supported associated kāinga (villages) and pā (fortified villages). The methodology for gathering information relating to these values are described further below. European heritage values includes numerous historic buildings, protected/ notable trees and a multitude of associations and histories relating to the Christchurch 'Garden City' setting. A number of sources has been used to inform the European heritage aspect of the landscape, such as the Historic Places Trust and Archaeological Association records, heritage sites listed in the operative City Plan and numerous literature references. Original survey maps, old sketches and photographs and historical aerial images has also been helpful in understanding and describing the various changes in landscape form, vegetation and character over time. A team of heritage experts within CCC (A Ohs and G Wright) has also provided review and input into this report.

Armagh Street, Christchurch

Item link: http://natlib.govt.nz/records/22343733

Caption: Seager, Edward, fl 1924. Armagh Street, Christchurch. Ref: 1/2-022719-F. Alexander Turnbull Library, Wellington, New Zealand.

The developing awareness of complexity of the 'indigenous cultural landscape' of Tangata Whenua is covered under the Tangata Whenua evaluation criterion below. This increased understanding of the value of landscape as a living record of social change, adds to the increasing significance attached to the legibility of our landscapes.

TANGATA WHENUA VALUES

There are a variety of natural features and landscapes that are clearly special or widely known and influenced by their connection to tangata whenua and the associated Māori values inherent in these places. These landscapes (or the parts of them that remain) have been identified as having particular regional importance to tangata whenua. This input has been provided by Craig Pauling of BML in close co-operation with Ngāi Tahu, since these values can only be appropriately addressed by tangata whenua. To identify values and/or sites of cultural landscape significance to tangata whenua within Christchurch City, a desktop review of relevant planning and historical documents and sources was undertaken that included:

- various iwi environmental planning documents (including the Mahaanui Iwi Management Plan and Te Whakatau Kaupapa);
- existing and previous district plan maps and information;
- reports prepared to assist the development of Christchurch City planning documents (including the South West Area Plan and Christchurch Central Recovery Plan); and
- available tribal manuscripts and trusted reference material/information (eg. Herries Beattie).

Information within the Mahaanui IMP includes information on sites and values derived from other sources including the New Zealand Historic Places Trust, New Zealand Archaeological Association, silent files and sites related to the Ngāi Tahu Claims Settlement Act 1998.

From these sources a draft list of cultural sites and values was drafted and discussed and reviewed by both Mahaanui Kura Taiao staff and Papatipu Rūnanga representatives on the Rūnanga Working Focus Group as well as with the cultural mapping team of Te Rūnanga o Ngāi Tahu and Associate Professor Rawiri Te Maire Tau of the Ngāi Tahu Research Centre, University of Canterbury. Following this, information from these lists were used to inform the Landscape Assessment and identify particular cultural values that could be considered as contributing to the identification of outstanding or significant natural landscape features or areas.

Outstanding Test: For a feature or landscape to score highly for Associative Values, the feature or landscape will need to contain exceptional and/or very high shared and recognised and cultural (including tangata whenua) and heritage values, as described in the Methodology section in detail (refer to section 2.5.2). There is a difference between an acknowledged area of value such as a reserve, and an association with an area due to it having been written about or painted. Therefore, the measure of integrity is useful to differentiate those landscapes that currently demonstrate shared and recognised values through various forms of functioning protection and management such as legislative or voluntary systems. For heritage values, the measurement and extent to which the landscape has been modified with consideration to whether the key characteristics of the historic period have been retained will be crucial. In terms of tangata whenua values, integrity refers to the manner in which the area fully embodies their culture and beliefs and in particular the spiritual connection between the Maori community and their environment.

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APPENDIX 2

A Geographic Information System (GIS) has been used throughout all stages of this Landscape Study. GIS is essentially a powerful tool for visualising, analysing, querying and mapping geographic data. GIS systematically organises geographic data to enable a person reading an electronic map to select or deselect specific information about the area under review.

GIS information can come from a variety of sources, which can be integrated it into a series of layers and used over a standard base map or aerial photo. Government departments, including Regional and District councils and the Department of Conservation for example, hold digital geographic data for their area of concern that is GIS compatible. GIS therefore is interactive and allows the user to select and view specific layers, such as Conservation layers, for a district which is then overlaid on a topographic base map or aerial photo. The user can zoom in and out of the map and change the nature of the information displayed on the map to suit the particular task at hand. For example, for this study, it became important to overlay data-sets onto one another (such as the land cover, zoning and conservation layers) which assisted in better understanding particular landscapes. It must be stressed that the scale of the information provided that forms a GIS layer must be of sufficient detail to enable its practical usage.

The full list of the landscape-related data used in GIS and its sources is listed below. The delineation of landscape values (such as ONF/Ls and SF/Ls) were primarily based on land cover patterns. However, variations in landcover/ use were taken into account as a secondary factor. This information was sourced from aerial photographs, Google Earth and other GIS related information, such as the LCDB (Land Cover Data Base). The following data was used for the preparation of this study:

National GIS data provided by BML:

- Topo Maps (LINZ)
- Digital contour information 20 metre intervals (LINZ)
- Land Cover Database III (Landcare Research, based on SPOT 5 satellite imagery acquired 2006- 2008)
- Geopreservation sites and areas, as indicative points(Kenny & Hayward, 1998)
- Archaeological Sites (New Zealand Archaeological Association NZAA)
- Canterbury Landtyping (Ian Lynn)
- DOC conservation units
- Land Resource Inventory (NZLRI Landcare Research)
- River Environment Classification (NIWA)

Data provided by CCC, ECAN, CERA and NZHPT

- Current georeferenced orthophotos (ECAN, Canterbury Maps).
- Parks (CCC)
- Coastline MHWS (ECAN, Canterbury Maps)
- Watercourses and Pipes (CCC)
- Regional Parks (ECAN, Canterbury Maps)
- Springs (CCC)
- Authority Boundaries (CCC)
- Archaeological Sites (CCC)
- Zoning maps (CCC)
- Sacred Sites (tangata whenua) (CCC)
- Parcel boundaries (CCC)
- Port Hills vegetation (CCC)
- Heritage Setting (CCC)
- Banks Peninsula ONL, CNCL, VAL (CCC)
- Heritage Sites and Objects (CCC)
- Technical Category Zones (CERA)
- Protected Trees (CCC)
- Heritage data (NZHPT)

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 2 | GEOGRAPHIC INFORMATION SYSTEM (GIS)

APPENDIX 3

Photo 1: The plantation forest that covers part of the Western Port Hills can be seen on the spurs to the right of Te Pohue Sugarloaf (centre). The backdrop of the Port Hills skyline is a very important landscape feature of the southern suburbs.

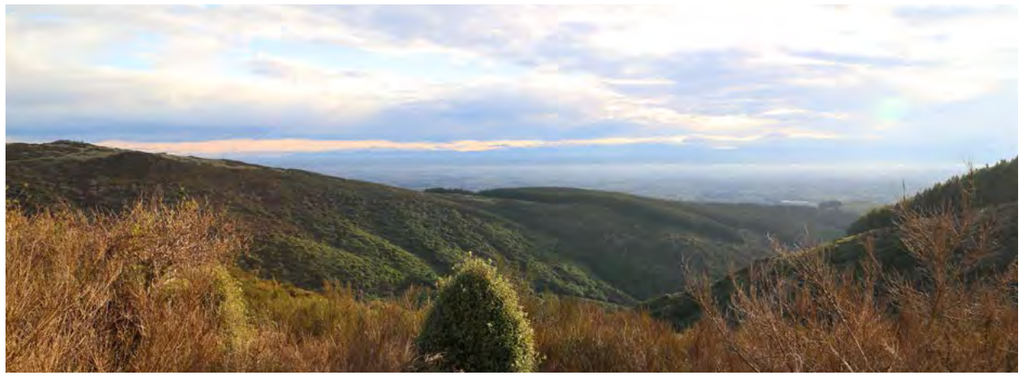

Photo 2: The head of Hoon Hay valley contains large areas of regenerating bush. Associative values for tangata whenua relate to various distinctive landforms of the peaks and passes.

Photo 3: Hoon Hay Valley provides an arcadian rural landscape character, which led to its identification as a Significant Landscape, similar to areas on Banks Peninsula.

Photo 4: Dry Bush contains an important small forest remnant, as well as planting and now regenerating native hardwood forest, located in the gully on the eastern side of upper Huntsbury Spur.

Photo 5: The Eastern Port Hills with their legible spurs are particularly impressive. Te Ahi a Tamatea/Rapaki Rock is one of the most legible examples of volcanic rock outcrops along the crater rim and of high cultural importance.

Photo 6: Victoria Park on the spur below Te Pohue/ Sugarloaf is an important recreation resource in the central part of the Port Hills with numerous walking and biking tracks.

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 3 | PHOTOGRAPHIC ATTACHMENT

Photo 7: The eastern tip of Awaroa/Godley Head allows for impressive views out onto the ocean and contains a number of WW2 related structures.

Photo 8: The WW2 gun emplacements and associated buildings are of historic importance. The cliffs of Adderley Head, which forms the other side of the Lyttelton Harbour entrance, are visible on the right.

Photo 9: The quirky baches along Taylors Mistake provide a distinctive sense of place for the popular beach. The enclosed beach area, surrounded by volcanic cliffs has particularly high shared and recognised values.

Photo 10: At Spencer/ Seafield Park visitor infrastructure, such as viewing platforms, allows for views into the southern part of Brooklands Lagoon.

Photo 11: The tidal salt/ mud flats are of particular importance to birds and specialised plant life. Brooklands Lagoon and the lower Waimakariri River and mouth are important mahinga kai sites, both traditionally and contemporarily.

Photo 12: The Styx River flows into northern Brooklands Lagoon, while the Waimakariri has been diverted to a course north of the lagoon as part of its flood protection works.

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 3 | PHOTOGRAPHIC ATTACHMENT

Photo 13: The dunes are generally covered in Marram grass for stablisation , but some areas have been revegetated with the native sandbinder Pingao.

Photo 14: The windswept, rugged beach along the eastern side of Bottle Lake plantation forest is visually separated from the more modified hinterland by a distinctive foredune.

Photo 15: Few wetlands, which originally would have formed extensive swamp areas behind the dunes originally, remain in the Bottle Lake Forest area. Waitakiri wetland is a former mahinga kai site of high importance to tangata whenua.

Photo 16: North New Brighton/ Waimairi shows a typical cross-section of the vegetated dunes (on the left) and residential development on the right side of Marine Parade.

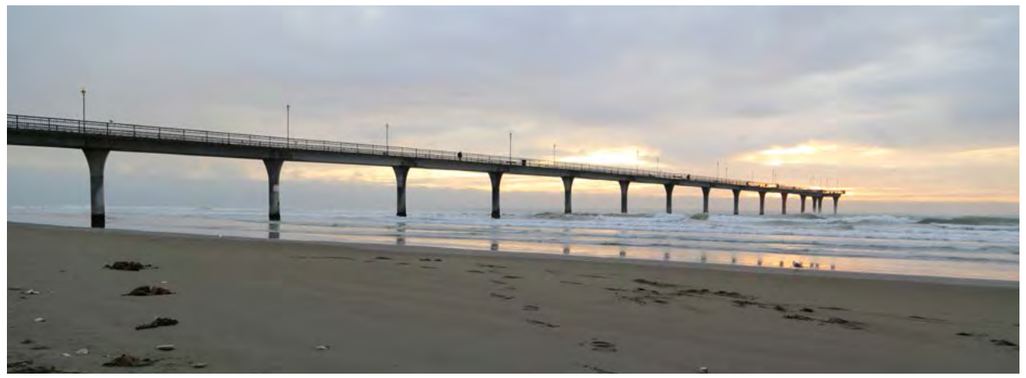

Photo 17: New Brighton Pier is one of the man-made landmarks along the southern part of Pegasus Bay. This central part of New Brighton is very popular for walking, fishing and surfing.

Photo 18: The geomorphologically interesting sandspit of South Brighton provides important bird habitat. Its landscape and visual qualities are also widely recognised, as it confines the narrow entrance of the estuary.

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 3 | PHOTOGRAPHIC ATTACHMENT

Photo 19: Extensive mud flats can be found on the northern and eastern side of the estuary where the Avon River enters the tidal waters.

Photo 20: The highly productive estuary provides very important habitat for birds searching for food on the exposed tidal flats. Te Ihutai is of high importance for Maori history, settlement, occupation and use as a major mahinga kai.

Photo 21: Rapanui/ Shag Rock, which has suffered damage through the earthquakes, still forms an important visual landmark on the Sumner side of the entrance to the estuary. It is also of very high cultural importance.

Photo 22: Extensive stopbanks have been erected along the lower Waimakariri River to reduce the flood risk for Christchurch. They form a demarcation for the river and its associated swamps. Adjacent farmland differs in character.

Photo 23: The Waimakariri road bridge is the main connection to the northern part of Canterbury. When crossing into Christchurch, the river marks the arrival within the district as a landmark within the region.

Photo 24: The braids of the river are typical in their transient nature, as they shift regularly during flood flows.

Ōtautahi / Christchurch | CITY LANDSCAPE STUDY | APPENDIX 3 | PHOTOGRAPHIC ATTACHMENT

Photo 25: In the Groynes reserve, some areas of native swamp can be found where spring fed streams emerge from the ground.

Photo 26: The lower Otukaikino flows through farmland and alongside some areas of residential and industrial development. The water quality of the stream remains high compared to other Christchurch waterways.

Photo 27: As the Otukaikino Creek enters the Waimakariri River the difference in water colour distinguishes the spring fed stream from the flood waters of the snow fed river that originates in the Southern Alps.

Photo 28: The stony soils of the former floodplains hold very little moisture, which leads to specialised vegetation.

Photo 29: At the gunclub (ECAN managed land) the savannah grassland is still very legible with a number of kowhai trees.

Photo 30: While the former braids can still be seen in the undulating landform, the land cover has been modified through farming. The landforms are particularly legible from the air.

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Photo 31: Halswell Quarry provided rock for many historic buildings in Christchurch. The area is now widely planted with native vegetation and provides recreation opportunities.

Photo 32: The rural areas around Halswell have traditionally been used for farming, but more recently new subdivisions have been developed with additional areas allocated for future development.

Photo 33: Hendersons Basin at the base of the Western Port Hills contains many low-lying wet areas. The area used to contain extensive swamps that were a valuable resource for mahinga kai.

Photo 34: Styx Mill Reserve has undergone extensive restoration planting and a predator proof fence has been erected around the boundary. Apart from the ecological values it is also popular with walkers and runners.

Photo 35: Janet Steward Reserve in the mid section of the Styx contains large areas of native planting as well as recreation areas for picnics and walking.

Photo 36: The Lower Styx is lined with willows on the northern bank and generally open parkland along the Spencerville side. Formerly the Styx River and its tributaries were surrounded by extensive wetlands that were used by Ngai Tahu as mahinga kai sites.

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Photo 37: Mona Vale marks the point where the major tributaries of the upper Avon tributaries converge. The historic parkland has high associative values.

Photo 38: The waterwheel is commemorative of a flour mill on this site. It is one of many historic structures and buildings found along the central section of the Avon, which contribute to the identity of Christchurch.

Photo 39: The lower Avon is predominantly channelized between stop banks to reduce the flood risk of surrounding residential areas. It still maintains visual and recreational amenity values and is of high cultural importance.

Photo 40: The upper and mid Heathcote River flows through residential areas and despite its narrow channel it contributes significantly to the residential amenity of the suburbs at the base of the Port Hills.

Photo 41: Radley Wharf had high historic importance as it was used to transport goods by ship from Lyttelton to Christchurch before the rail tunnel was established. The river and its swamps were also very important for mahinga kai.

Photo 42: The mouth of the Heathcote River above the Ferrymead Bridge has tidal influence through its connection with the estuary. Industrial development occurs in close proximity, but the former towpath - used to tow ships upstream by horse- is now a walkway planted with native vegetation.

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Photo 43: While it has been severely modified by farming in the past, the extensive swamp areas of Travis wetland have been planted with numerous native plants in an effort to restore the area as close as possible to a natural state.

Photo 44: Travis wetland contains areas of open water, as well as vegetation, which provides cover for birds, making it an important habitat. Mahinga kai was important in this area and the kainga of Oruapaeroa was located nearby.

Photo 45: Pukekos can be found in large numbers in the paddocks surrounding the wetlands.

Photo 46: The abandoned oxbow of the Avon River, which formed Horseshoe Lake, is still a very legible landform and of geomorphological interest.

Photo 47: The majority of the inner wetland is covered in dense stands of willows, but the understorey is dominated by native wetland plants. The Waikakariki area included a pa site and urupa, as well as being an important mahinga kai.

Photo 48: The outer walkways are popular for recreation, while the recreation infrastructure on the inner bend of the swamp has been severely damaged by the earthquakes.

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Photo 49: Riccarton Bush is the most accessible remnant of low land forest found in Canterbury.

Photo 50: Due to protection by the Deans Family impressive old kahikatea trees can still be found in the reserve today. Putarikamotu is of immense cultural significance to both Ngai Tahu as well as early European heritage.

Photo 51: The Deans Cottage (left) and Homestead (right) are of high historic importance and contribute to the overall landscape character and value of the setting.

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APPENDIX 4

Printed 29 June 2015

Waimakariri River South Bank
Otukaikino River
Brooklands Lagoon
Bottle Lake
Styx Mill
Styx River
Dry Grasslands
Travis Wetland
Horseshoe Lake
New Brighton Coast
Halswell Templeton
Avon River
Riccarton Bush
Avon-Heathcote Estuary
Heathcote River
Halswell Templeton
Eastern Port Hills
Godley Head
Western Port Hills

The Coastal Marine Area is as defined in the Resource Management Act.
The cadastre was based on the most recent information held by the Council at the date the map was produced. Establishing compliance or otherwise with the plan may require a formal survey.
The District boundary is as defined in the Resource Management Act, which uses the definition from the Local Government Act. The line on these maps representing the District boundary is indicative and for information purposes only.
The actual boundary is as defined in the legislation. Determining rights and obligations under the District Plan where the District boundary is relevant may require a formal survey.

Legend

- Western Port Hills
- Eastern Port Hills
- Coast Godley Head
- Coast Bottle Lake
- Coast Brooklands
- Coast New Brighton
- Avon-Heathcote Estuary
- Waimakariri
- Dry Grasslands
- Halswell Templeton
- Features

0 4 km
1:100,000 @ A3

Sources:
Sourced from Topo50 Map Series. Crown Copyright Reserved

Projection:
NZGD 2000 New Zealand Transverse Mercator

DRAFT FOR NOTIFICATION

MAP 1
CHRISTCHURCH CITY
LANDSCAPE STUDY

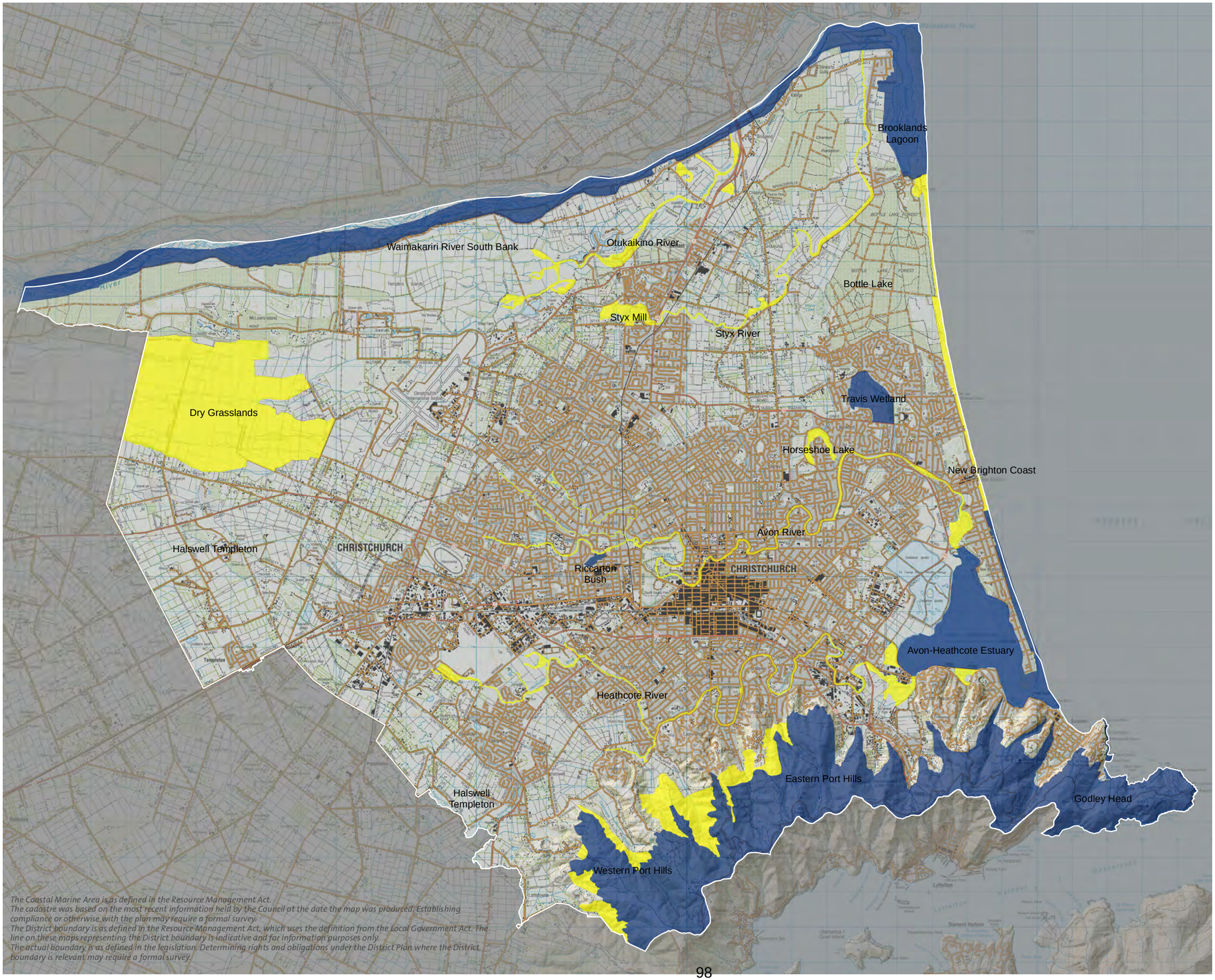
Landscape Character Area

Date: 12 March 2015
Revision: 2

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager: Yvonne Pfluger
Drawn: BMc | *Checked:* YP

Boffa Miskell
www.boffamiskell.co.nz



The Coastal Marine Area is as defined in the Resource Management Act.
The cadastre was based on the most recent information held by the Council at the date the map was produced. Establishing compliance or otherwise with the plan may require a formal survey.
The District boundary is as defined in the Resource Management Act, which uses the definition from the Local Government Act. The line on these maps representing the District boundary is indicative and for information purposes only.
The actual boundary is as defined in the legislation. Determining rights and obligations under the District Plan where the District boundary is relevant may require a formal survey.

Legend

Recommendations

- Significant Natural Landscape/Feature
- Outstanding Natural Landscape/Feature

0 4 km

1:100,000 @ A3

Sources:
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MAP 2
CHRISTCHURCH CITY
LANDSCAPE STUDY

Landscape Evaluation – Outstanding (Significant) Natural Features/ Landscapes

Date: 12 March 2015
Revision: 5

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager: Yvonne Pfluger
Drawn: BMc | *Checked:* YP

Boffa Miskell

Waimakariri/Brooklands Lagoon

Coast Bottle Lake

South New Brighton

Avon-Heathcote Estuary

South Brighton Spit

Godley Head

CHRISTCHURCH

Legend

- District Plan Coastal Environment

Natural Character Evaluation

- Outstanding
- Very high
- High

0 4 km

1:100,000 @ A3

Sources:
Sourced from Topo50 Map Series. Crown Copyright Reserved

Projection:
NZGD 2000 New Zealand Transverse Mercator

DRAFT FOR NOTIFICATION

MAP 3
CHRISTCHURCH CITY
LANDSCAPE STUDY

Coastal Environment Identification Natural Character Evaluation

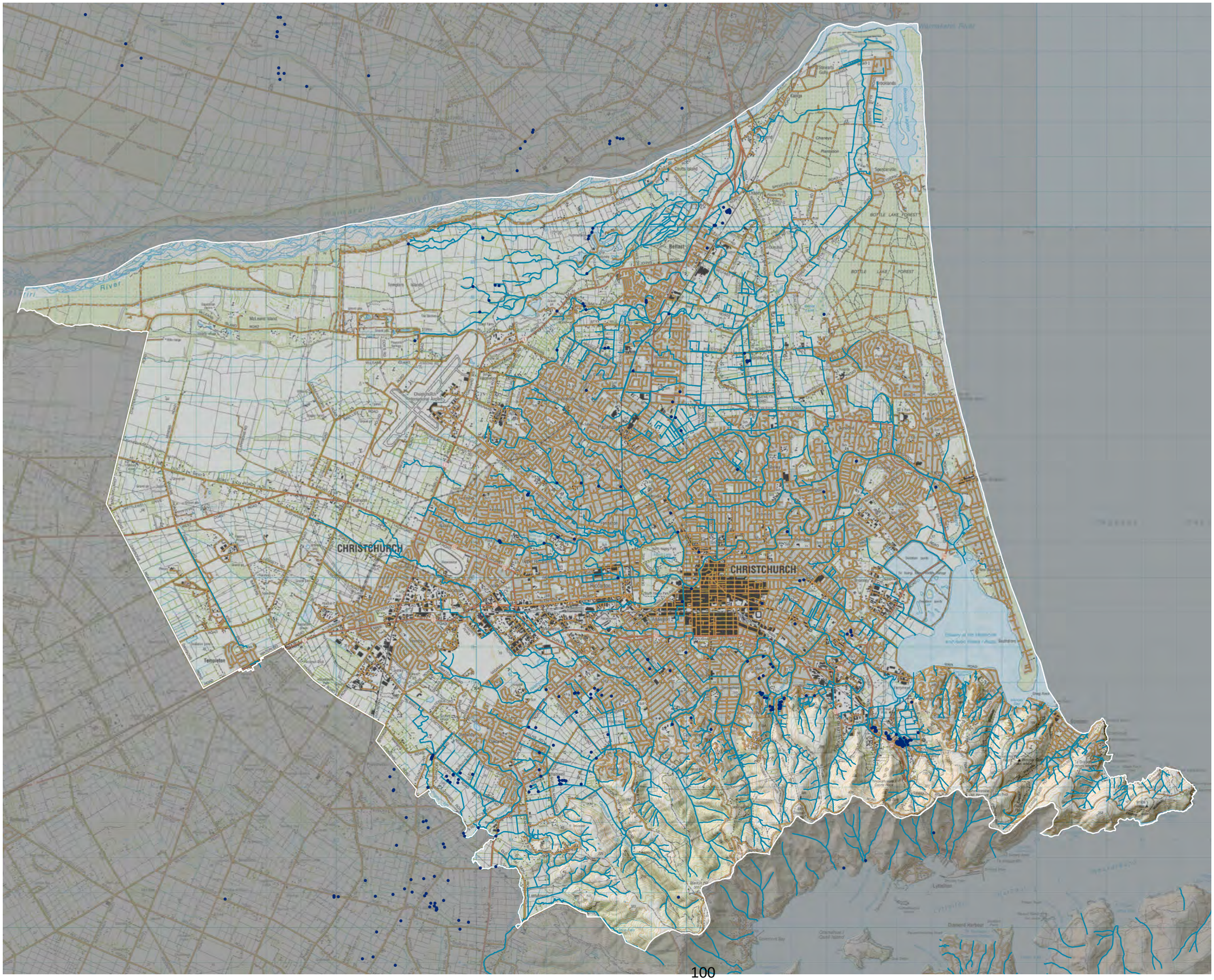
Date: 12 March 2015
Revision: 1

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager: Yvonne Pfluger
Drawn: BMc | *Checked:* YP

The Coastal Marine Area is as defined in the Resource Management Act.
The cadastre was based on the most recent information held by the Council at the date the map was produced. Establishing compliance or otherwise with the plan may require a formal survey.
The District boundary is as defined in the Resource Management Act, which uses the definition from the Local Government Act. The line on these maps representing the District boundary is indicative and for information purposes only.
The actual boundary is as defined in the legislation. Determining rights and obligations under the District Plan where the District boundary is relevant may require a formal survey.

Boffa Miskell



Legend

- Watercourse
- Springs

0 4 km

1:100,000 @ A3

Sources:
Topo map - LINZ, Crown Copyright Reserved.
Springs - Canterbury Maps.

Projection:
NZGD 2000 New Zealand Transverse Mercator

MAP 4
CHRISTCHURCH CITY
LANDSCAPE STUDY

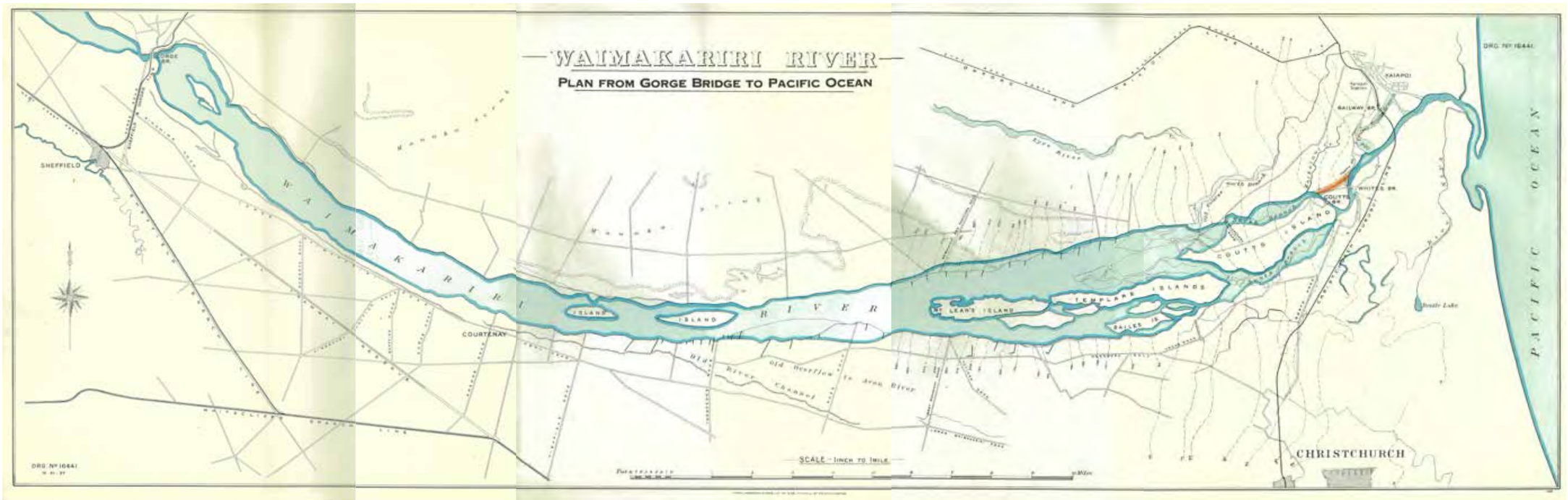
Spring and Waterways of Christchurch

Date: 25 July 2014
Revision: 1

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager: Yvonne Pfluger
Drawn: BMc | *Checked:* XXx

Boffa Miskell



Legend

Sources:
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MAP 5
CHRISTCHURCH CITY
LANDSCAPE STUDY

Waimakariri River
Historic Map 1927

Date: 25 July 2014

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager: Yvonne Pfluger

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www.boffamiskell.co.nz

Printed 29 June 2015

Pegasus Bay

CHRISTCHURCH

Estuary of the Heathcote and Avon Rivers / Ihutai

Lyttelton Harbour / Whakaraupō

Ōhikuparuparu

Rapanui / Shag Rock

Tuawera / Cave Rock

Te Iringa o Kahukura

Te Tihi o Kahukura / Castle Rock

Ō Kete Ūpoko

Tauhinu Kōrokio

Te Ahi o Tamatea

Ōtaranui

Te Poho o Tamatea / Mahuraki

Taputwaeharuru / Evans Pass

Ōtokitoki

Awaroa / Godley Head

Mahoenui

Ōtūmatua / Kitcheners Knoll

Puke Atua

Te Pohue / Sugarloaf

Ō-Rongomai / Cass Peak

Ō-Mawete / Coopers Knob

Sumner

Lyttelton

Diamond Harbour

Governors Bay

Charteris Bay

Purau

Port Levy

Legend

- CCC boundary

Cultural Sites of Significance

- Maunga/puke/rae mountains/hills/headland
- Tarahaka - saddle / pass
- Trails

0 2.4 km

1:60,000 @ A3

Sources:
Topo map sourced from LINZ Topo50 Map Series. Crown Copyright Reserved

Projection:
NZGD 2000 New Zealand Transverse Mercator

DRAFT FOR NOTIFICATION

MAP 6
CHRISTCHURCH CITY LANDSCAPE STUDY

Features of Cultural Importance in the Port Hills

Date: 10 March 2015

Plan Prepared for CCC
by Boffa Miskell Limited

Project Manager:
craig.pauling@boffamiskell.co.nz
Drawn: GWh | *Checked:*

Boffa Miskell

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