JOBS FOR NATURE
LAKE DUNSTAN

CONCEPT PACKAGE

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r+m landscape architects

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THIS DOCUMENT

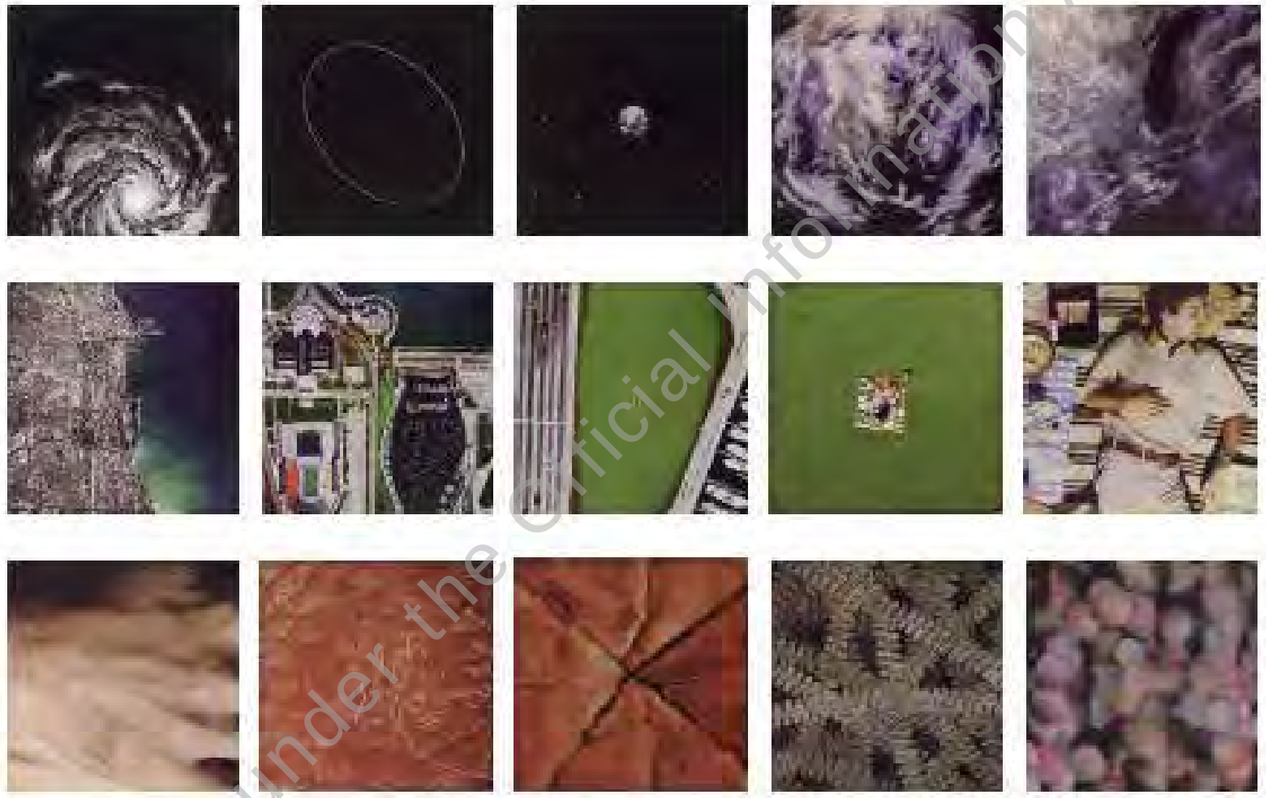
This document explores the ideas and possibilities that Lake Dunstan holds. The concepts in the package are the result of many conversations, site visits, and research to create a narrative and design interventions that strengthen and enhance the genius loci of Lake Dunstan. This concept has given consideration to the possibilities and future growth across the region before narrow-ing in on the site-scale interventions all the way through to the details of stage 1 implementation.

CREATING A NARRATIVE

The site forms at a wide range of scales

THINKING IN SCALE

Working in scales to organise large site conceptual narratives



Powers of Ten illustrates the universe as an arena of both continuity and change, of everyday picnics and cosmic mystery. It begins with a close-up shot of a man sleeping near the lakeside in Chicago, viewed from one meter away. The landscape steadily moves out until it reveals the edge of the known universe. Then, at a rate of 10-to-the-tenth meters per second, the film takes us towards Earth again, continuing back to the sleeping man's hand and eventually down to the level of a carbon atom.

XL

Time

Past

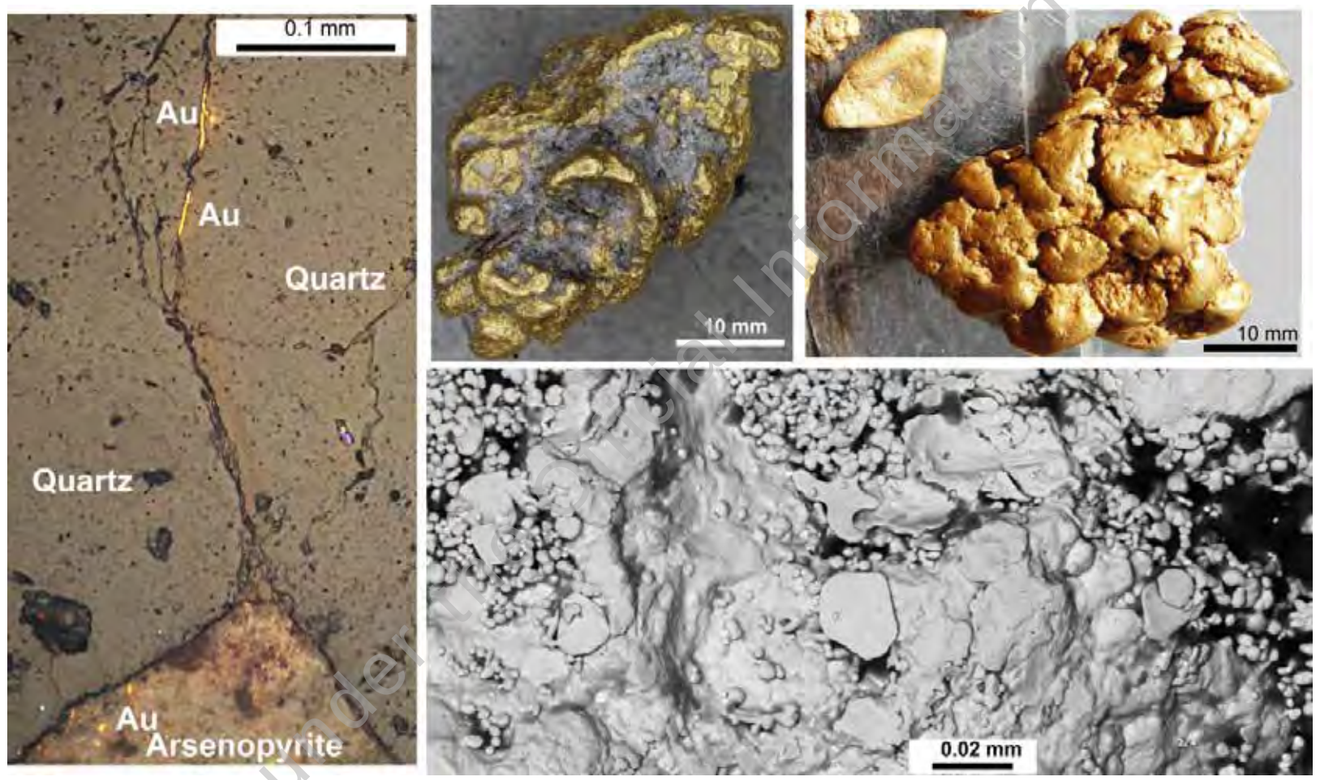
Future

Scale

S

GOLDEN SCALE

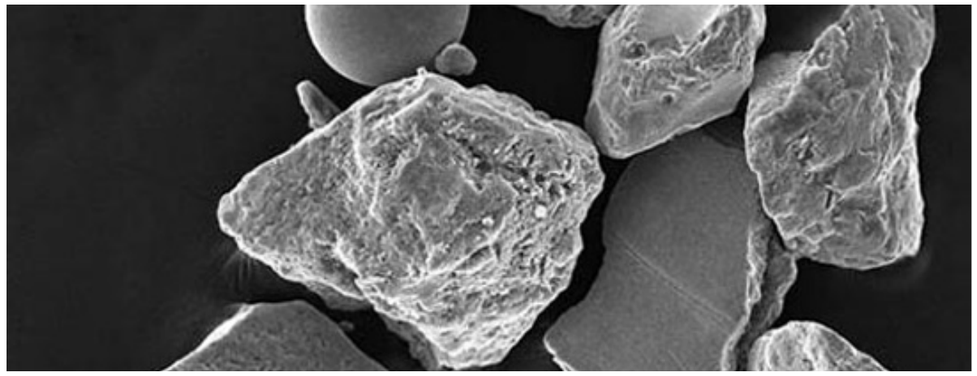
Gold in Dunstan was found in many sizes

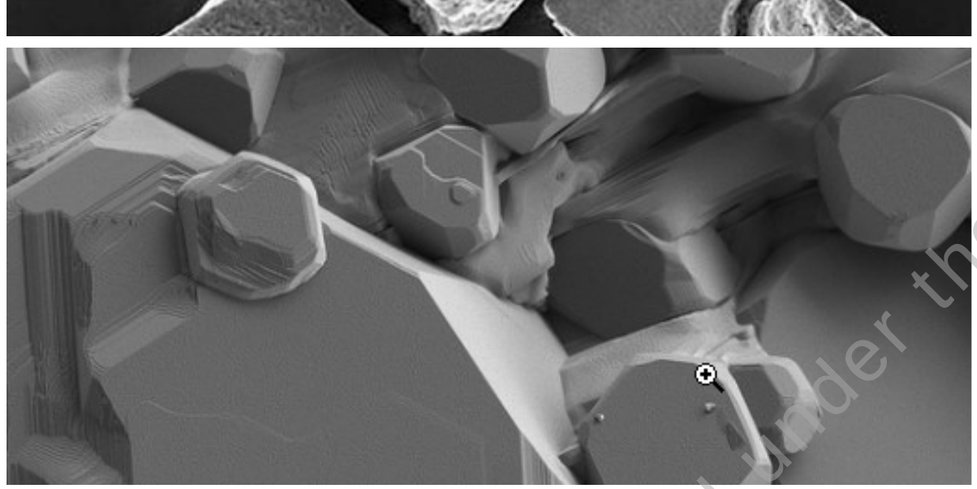


Otago is famous for its gold deposits and the European history of Otago has been closely associated with mining of that gold. The accumulation of gold in Otago involved a wide range of geological processes that initially occurred deep in the Earth's crust in the earliest stages of formation of what we now call the Otago Schist basement.

SCALE ON SITE

Scales of Quartz





From a microscopic view of a grain of Quartz sand to the herringbone forms of Quartz Reef, the perception of scale gives form and provides abstraction.

SITE

Zooming in to the site

SITE - AOTEAROA

SITE - KI UTA KI TAI
1:650,000

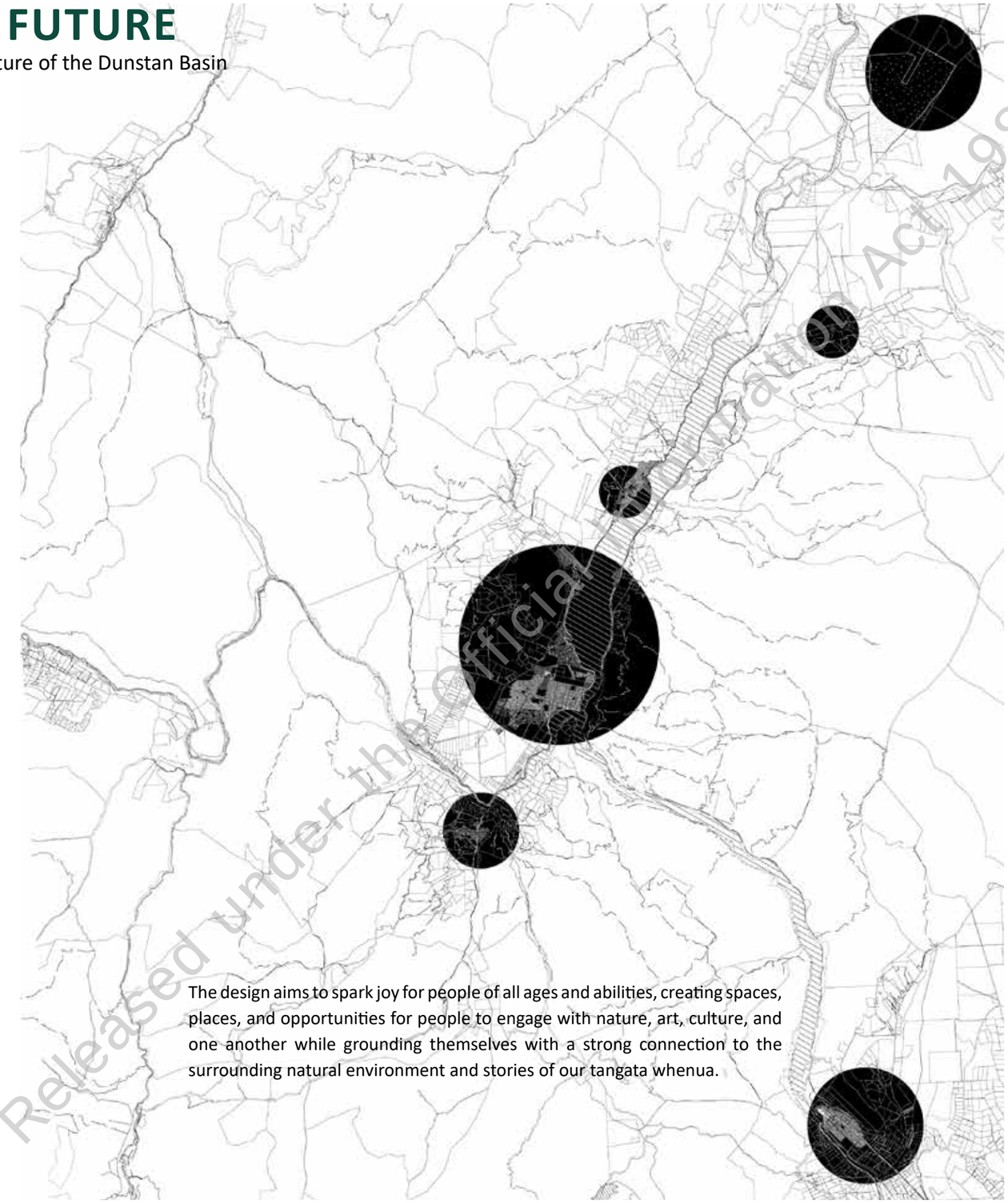
SITE - MATA-AU
1:200,000

LAYING CLAIMS

Indicating key areas of thought

RECLAIMING THE FUTURE

Coming together to forge a connected future of the Dunstan Basin



The design aims to spark joy for people of all ages and abilities, creating spaces, places, and opportunities for people to engage with nature, art, culture, and one another while grounding themselves with a strong connection to the surrounding natural environment and stories of our tangata whenua.

INTIAL CLAIM

Site one, Tīrau, the 'Bridge to Bridge' Project

REVEALING MĀORI NARRATIVES

Delving into Māori cultural principles, concepts, and stories

KAUPAPA MĀORI

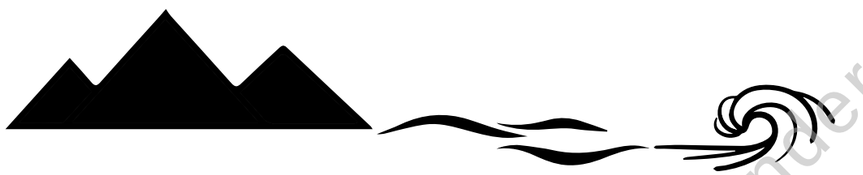
Our design seeks to be grounded within a number of core tangata whenua (people of the land) Kaupapa (values). We intend to express these values explained below at a number of levels throughout the design and interventions.

Whakapapa: Identity and connection to place.

The design is focused on providing opportunities for users to gain an understanding of local histories. In essence, the pieces that make up the Dunstan landscape and people as a place now.
Whakapapa is embedded in the landscape and is essential in understanding the relationship between Māori and the natural world. Self-awareness, spirituality, and self-respect come directly from the relationship between Māori and the whenua.

Ki uta ki tai: Whole landscape approach, understanding and managing interconnected resources/ecosystems from source to sea.

The design takes a source to sea approach to improve the physical environment and the intrinsic values of the Dunstan landscape though opportunities for connection and education.



Kaitiakitanga: Guardianship, stewardship.

The design centres on encouraging residents and visitors to become kaitiaki (guardians/ custodians) of Lake Dunstan and its surrounding landscape. To look after both the landscape its stories, and flora and fauna for future generations.

Whanaungatanga: relationship, kinship, sense of family connection.

Our approach endeavours to forge whanaunagtanga between different users, community members, and between users and the whenua.

Manaakitanga: The extension of charity, hospitality and respect to others.

Mahinga kai: The knowledge and values associated with customary food gathering places and practices.

Mana motuhake: Being able to act with independence and autonomy - being ourselves in our places.

Manaaki whenua : Caring for Land.

Manaaki Tangata : Caring for people.

(MATAPOPORE CHARITABLE TRUST, 2015)

Whakapapa

To provide a site specific design for a landscape we must first understand the landscapes past and its peoples. This is the whakapapa (genealogies/ histories) of the Dunstan, Otago area.

Rākaihautū

Rākaihautū made the first known exploration of the inner South Island as he went down the island he carved many of the big lakes with his digging stick out of the landscape. He is the founding ancestor of the Waitaha iwi.

Ārai-te-uru waka

Ārai-te-uru waka which capsized off Matakaea (shag point) on the Otago coastline. There are many versions of this legend but the essence of the story preserves an oral tradition of the arrival of kumara (sweet potato) in Aotearoa. The names of passengers and crew – including Matakaea, Puketapu, Pakihiwitahi and Hikaroroa – have been preserved in the names of hills and ranges inland all the way to Ka Tiritiri o te Moana (the Southern Alps).

Waitaha iwi

Waitaha is the first iwi to settle in the South Island, through inter marriage and conquest Waitaha and Ngāti mamoe iwi became part of Ngāi tahu.

Ngāti mamoe iwi

Ngāi tahu iwi

The local hapū of Ngāi tahu is Kati Huirapa Runka who reside on the coast at Karitane north of Ōtepoti

Kati Huirapa Runaka

RINGIHIA I TE KETENUI A TANE

All things are connected, and in the conceptual grounding of the project referencing scales. Connecting to the traditional use of stars and the importance of Matariki specifically strengthens this concept and adds depth to our cultural narrative.

Matariki: The rising of Matariki signals a new year

Matariki is the mother of a cluster of stars and encourages gathering of all people.

The Matariki cluster was used by voyaging waka to help guide them across the pacific.

Matariki, is a joyous time – to celebrate the end of the crop harvest. Harvested crops were stored for the winter and the land would not produce for several months.

Each environmental star has a male/female adjacent. Giving a masculine and feminine balance, without one, there is no other.

They're strategically placed, Waitī (freshwater) flows down from the mountains into Waitā (Saltwater) which is why the freshwater star is above the saltwater.

Waipuna-a-rangi (rain) falls from the sky but can be manipulated by Ururangi (winds).

Same can be said about Tupu-ā-rangi being above Tupu-ā-nuku.

Matariki symbolizes Māori new year under the Māramataka - Lunar Calendar (more accurate than the Gregorian Calendar).

The word Matariki comes from Ngā Mata o te Ariki, Tāwhirimātea (the eyes of the chief, Tāwhirimātea).

Tāwhirimātea (the atua of the wind) was so upset that his parents (Ranginui and Papatuānuku) were separated by Tāne Mahuta (Atua of the forest) that he tore out his eyes and threw them into the sky, creating Matariki.

Matariki was also used by early Polynesian navigators to make their way across Moana-Nui-A-Kiwa (Pacific Ocean).

Matariki celebrations are a time to come together with whānau.

The individual stars that form the cluster are know as:

Waipuna-ā-rangi
Watches the skies, rains, snows, sleets which nourishes the earth and contributes to the water cycles.

Ururangi
Is the winds of N,E,S,W.

Tupu-ā-rangi
Represents cultivation from above: forests, birds, trees.

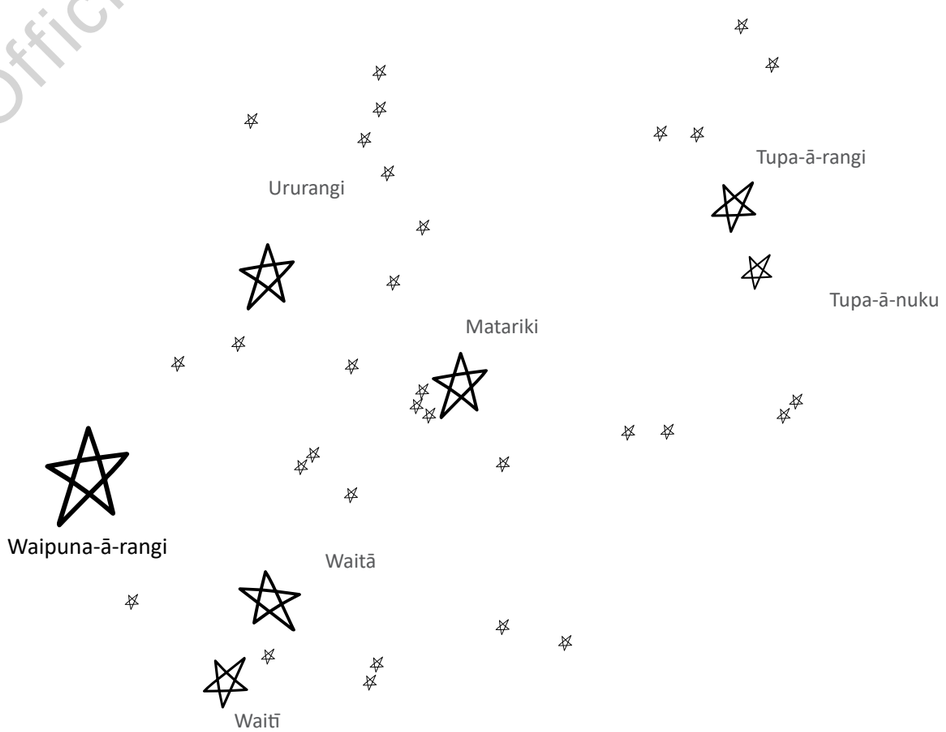
Tupu-ā-nuku
Represents cultivation from the earth: kawakawa, kumara, healthy soil etc.

Waitī
Watches over the fresh water environments and everything living in it. Creaks, rivers, lakes, springs which then flow into Waitā.

Waitā
Represents the salt waters. Seas, oceans and everything living in it.

Hiwa-i-te-rangi
Is known as the wishing star. Where you cast all your dreams and hopes for the new year.

Pohutakawa
Is the star of remembering our passed ancestors. Our family and friends who have died.



(DR. RANGI MĀTĀMUA, 2020)

NGĀ REO O TE WHENUA

The Arai Te Uru tradition is important to Otago because this coast (Te Tai o Arai Te Uru) was named after the ancestral waka atua (canoe of the gods) that foundered here in a storm on its return voyage from Hawaiiki.

The legend begins with Rokoitua, an ancestor of southern Kai Tahu, who met the Kāhui Tipua people in the Wairarapa. They gave him mamaku (tree fern) to eat but he preferred the dried kumara he carried in his belt, which he took out and soaked in a bowl of water. When the Kāhui Tipua tasted it they decided to build a canoe to try and obtain this new food from “across the sea”. When the canoe returned with the kumara the crop was planted but it failed.

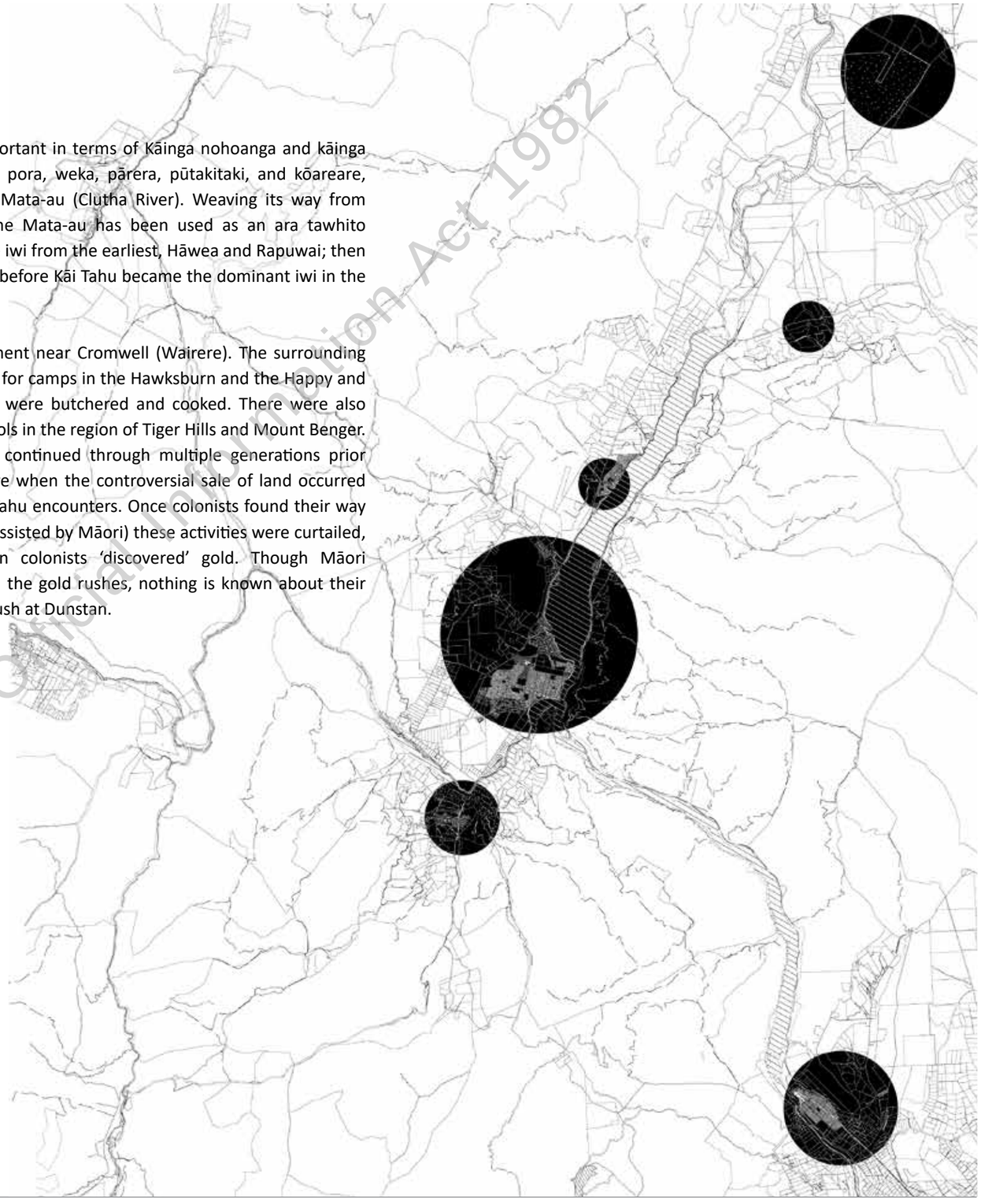
However, Rokoitua sailed to Hawaiiki on a second canoe, Arai Te Uru, and had learned the correct karakia (incantations) and tikanga (customs) connected with growing this plant. The Arai Te Uru returned under the command of Pakihiwitahi and Hapekituaraki (Hipo and Te Kohi in some versions) and eventually became waterlogged.

Some of its food baskets (kaihinaki) and water calabashes were washed overboard at Te Kaihinaki (Hampden Beach), where they were preserved in stone as the famous Moeraki boulders. More of its precious cargo of gourds, kumara and taro seed was lost on Katiki Beach and the canoe was eventually wrecked at Matakaea (Shag Point). The hull of the great waka has been preserved as a reef just off the Waihemo (Shag) River mouth. The highest part of the reef (said to represent the sternpost) is known as Hipo, who was navigator and helmsman.

There are many versions of this legend but the essence of the story preserves an oral tradition of the arrival of kumara (sweet potato) in Aotearoa. The names of passengers and crew – including Matakaea, Puketapu, Pakihiwitahi and Hikaroroa – have been preserved in the names of hills and ranges inland all the way to Ka Tiritiri o te Moana (the Southern Alps). Such traditions represent a link between the world of the gods and the present day, reinforcing tribal identity and continuity between generations.

The Dustan area was important in terms of Kāinga nohoanga and kāinga mahinga kai where tuna, pora, weka, pārera, pūtakitaki, and kōareare, were gathered from the Mata-au (Clutha River). Weaving its way from mountains to the sea, the Mata-au has been used as an ara tawhito (travel route by successive iwi from the earliest, Hāwea and Rapuwai; then Waitaha and Kāti Māmoe before Kāi Tahu became the dominant iwi in the late 18th century.

Early Māori had a settlement near Cromwell (Wairere). The surrounding moa-rich area was known for camps in the Hawksburn and the Happy and Nevis Valleys where moa were butchered and cooked. There were also quarries used for stone tools in the region of Tiger Hills and Mount Benger. These seasonal activities continued through multiple generations prior to a change in land tenure when the controversial sale of land occurred during early colonial-Kāi Tahu encounters. Once colonists found their way to the interior (ironically assisted by Māori) these activities were curtailed, especially once European colonists ‘discovered’ gold. Though Māori are known to have joined the gold rushes, nothing is known about their participation in the gold rush at Dunstan.



How?

How do we best tell theses cultural narratives?
How do we tell these stories respectfully and effectively?
We seek the guidance of Tangata Whenua as kaiārahi in design narrative.

“MĀORI HERITAGE IS A LIVING SPIRITUALITY, A LIVING MANA MOVING THROUGH GENERATIONS. IT COMES TO LIFE THROUGH RELATIONSHIPS BETWEEN PEOPLE AND PLACE.”

Māori Heritage Council 2009 in: Kawharu, M., (2009) Ancestral landscapes and world heritage from a Māori viewpoint. The Journal of The Polynesian Society, Vol 118. Polynesian Society (Inc.), Auckland, New Zealand

“ART WAS THE WAY THAT MĀORI COMMUNICATED KNOWLEDGE, IDEAS AND VALUES, RATHER THAN BY WRITTEN LANGUAGE, AND TOGETHER THE ARTS CONSTITUTED A VITAL COMMUNICATION SYSTEM.”

Paama-Pengelly as cited in Witehira, Johnson Gordon Paul., 2013. Te Hononga Toi Māori Part 3. Doctor of Philosophy in Fine Arts, Massy University, NZ.

“LANDSCAPE IS THE BEDROCK, THE BONES, THE STUFF OF MUSIC.”

Richard Nuun - Voices of the Land: Ngā Reo o te Whenua 2014 Directed by Paul Wolffram

Key concepts to be represented in Design interventions

During the progression of the design, it is important that the correct process is followed in regard to cultural engagement, collaboration, and integration of stories. **r+m** strongly recommends that a relationship is built with Kati Huirapa Runaka and/or Otakou as they are the mana whenua of the area and should be an intrinsic part of the design process.

r+m feel the overall design narrative, could help articulate the transient use of the landscape for Māori, and the use of art and stories to convey knowledge, including:

- Mahinga kai - species and values
- Whakapapa stories of the local landscape features.

FEATURES OF INFLUENCE

The surrounding landscape is laden with striking features & traces of human intervention within the landscape

VAST LANDSCAPE

Big skies and landforms

Lake Dunstan is a dominating figure in a vast landscape, filled with large landforms all basking under the huge skis of Central Otago.

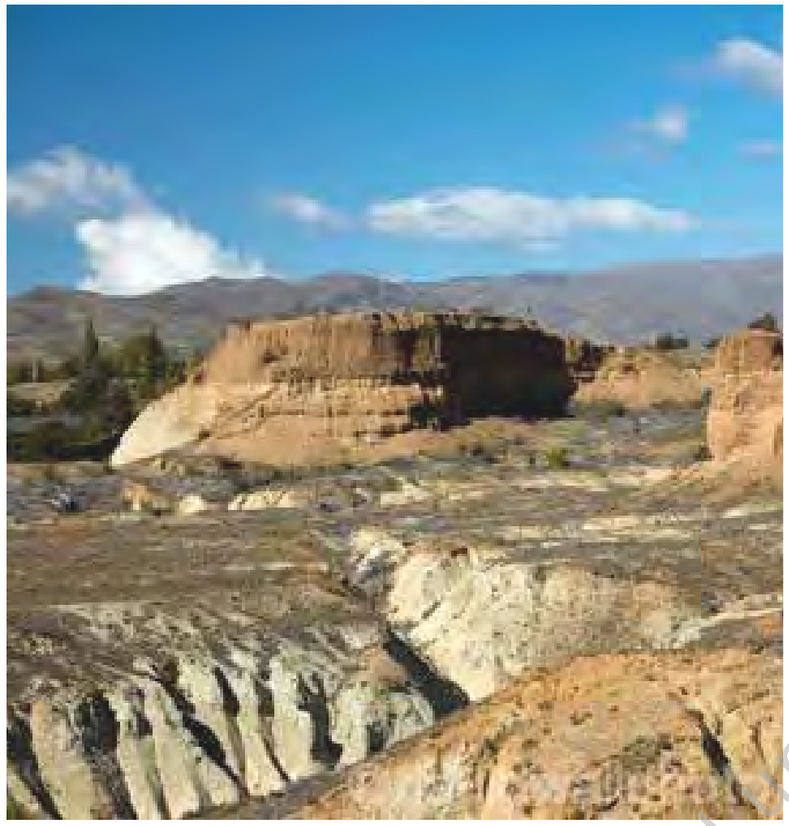
QUARTZ REEF

Herringbone rock formations

These virtually pristine remains are the result of ground sluicing; channelling water to the head of a claim and flooding the working face. Larger stones and rocks were removed and stacked, row after row in a herring bone pattern. The washed material was then directed or shovelled to a sluice channel to separate the gold from the gravel.

BANNOCKBURN

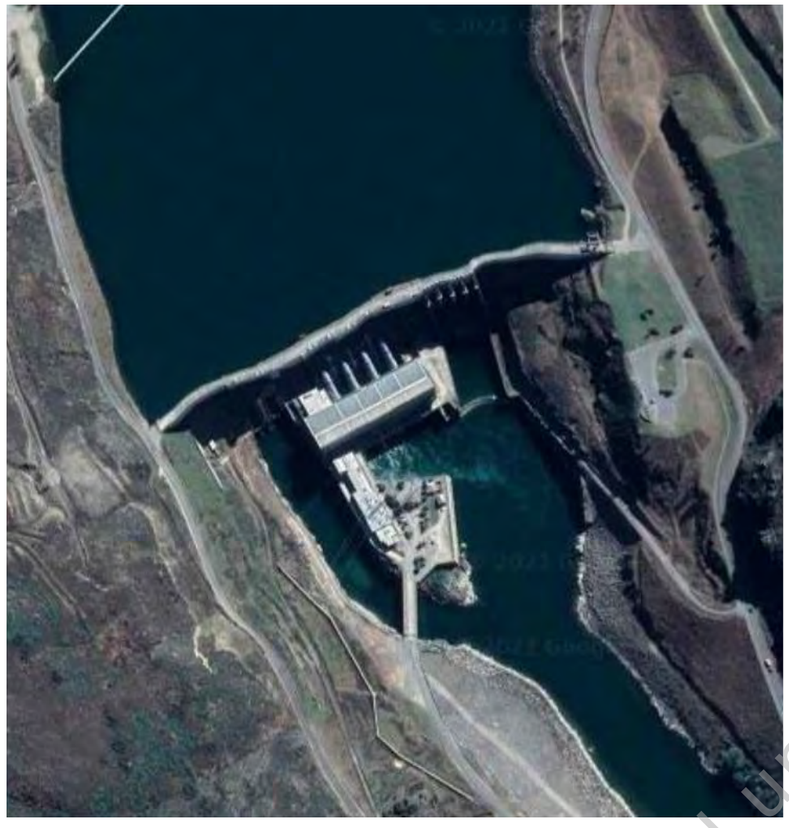
Eroded landforms erring to natural forms



This desert made by water is not a natural site, but the 150-year-old aftermath of goldminers' dreams, and a technique known as 'hydraulic sluicing' where water was blasted at the hills to release the gold.

WATER

Lake, rivers, dam, flooded history



Though the landscape is rather arid it is dominated by water, layered with history. From the sunken treasures to the formation of the Clyde Dam and the winding of the Clutha Delta.

MORDERN LAND TRANSFORMATIONS

Vineyards, orchards, quarries

The Lake Dunstan landscape is still subject to dramatic transformation with vineyards, orchards, dairy farms and quarries, filling the basin and changing the landform.

LAND ART

Artistic terra forming

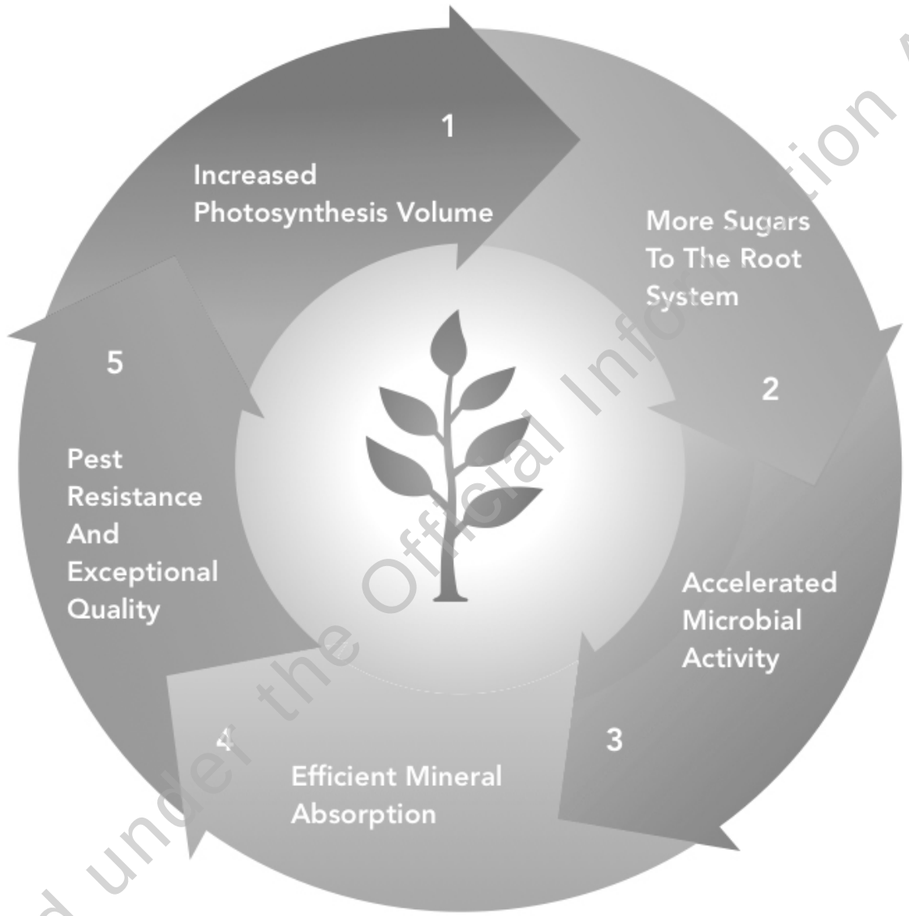
Playing on the narrative of human made forms in the landscape, the possibility arisies to create a world class piece of 'Land Art'.

REGENERATION

Increasing biodiversity, moisture retention and 'growing' soil

REGENERATION

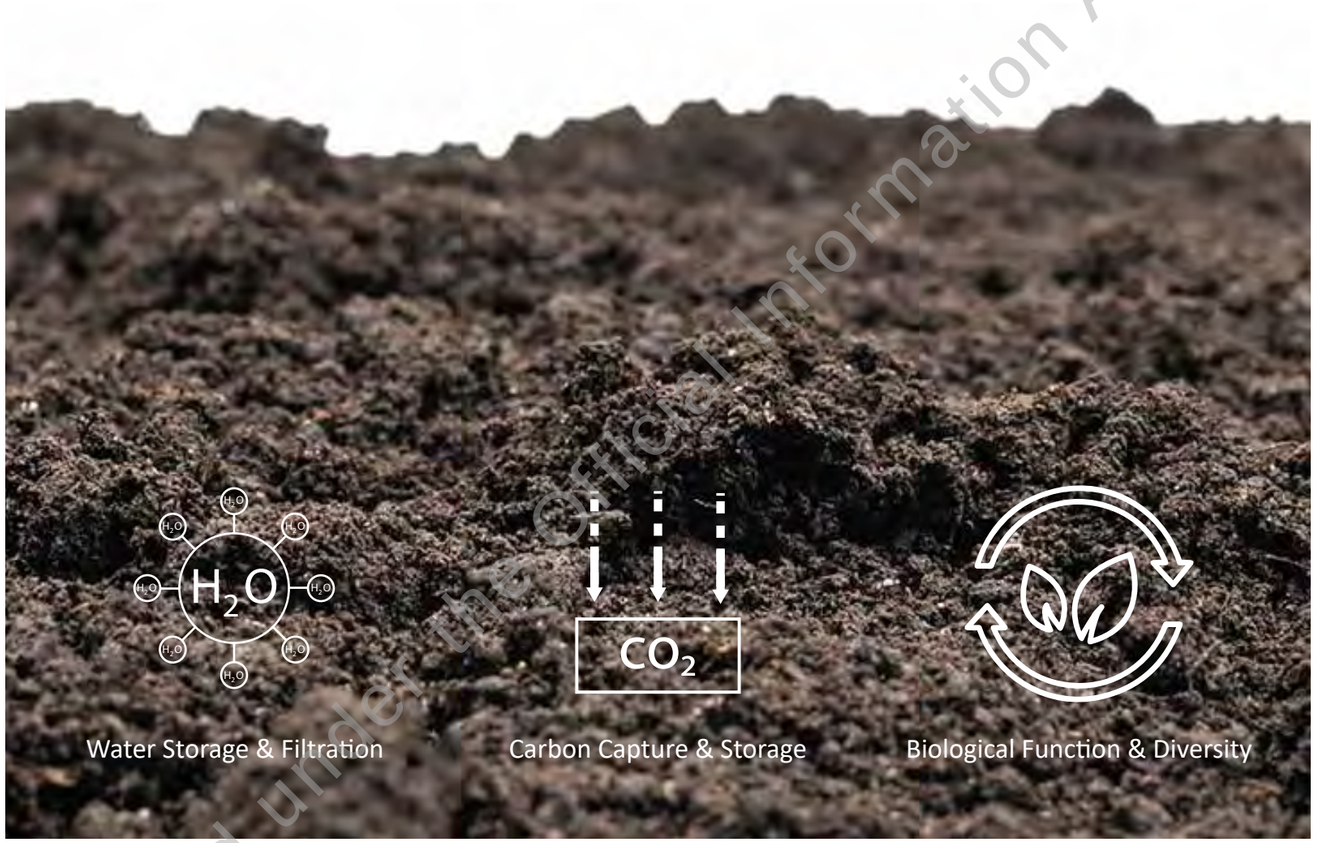
Manaaki whenua. Healing the environment from the ground up



Re-generative agriculture is characterised by the significant diversification of crops, plants and animals, it has a low use of inputs, none of which are synthetic. Synthetic inputs are replaced with practices that mimic natural systems to access nutrients, water and pest control required for growth. Common practices include: Diversification, Agro-forestry; cover-cropping/green manures, intercropping, adaptive/holistic grazing, reduced tillage. Many of these have been developed with indigenous knowledge accumulated over millennia.

SUBTERRANEAN

Healthy soil supports healthy plants



Soil is composed of weathered rock and organic matter, water and air. But the hidden "magic" in a healthy soil is the organisms—small animals, worms, insects and microbes—that flourish when the other soil elements are in balance.

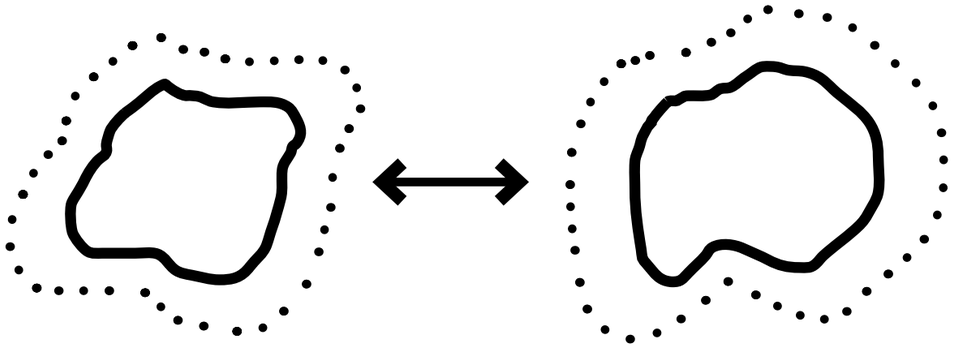
ABOVEGROUND

A striking hive of activity

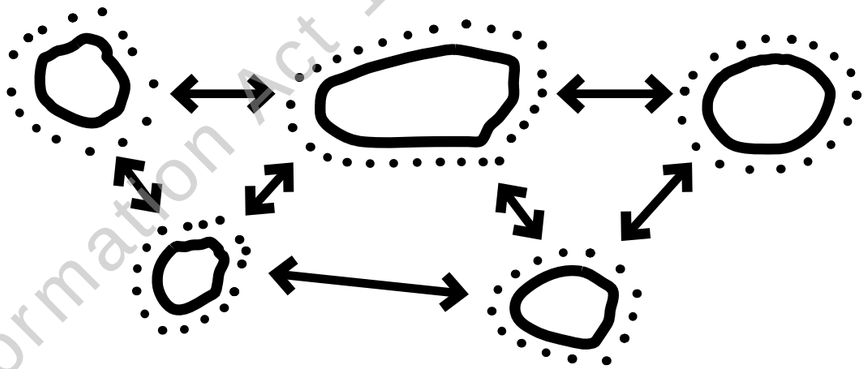
Conventional agricultural practices are generally understood to simplify agroecosystems through introduction of monocultures and eradication of diversity in soil microbial communities through chemical fertilization. In natural ecosystems, biodiversity serves to regulate ecosystem function internally, but under conventional agricultural systems, such control is lost and requires increasing levels of external, anthropogenic input. By contrast, regenerative agriculture practices including polycultures, mixed crop rotation, cover cropping, organic soil management, and low- or no-tillage methods have been shown to increase overall species diversity while reducing pest population densities.

ECOLOGICAL NETWORKS

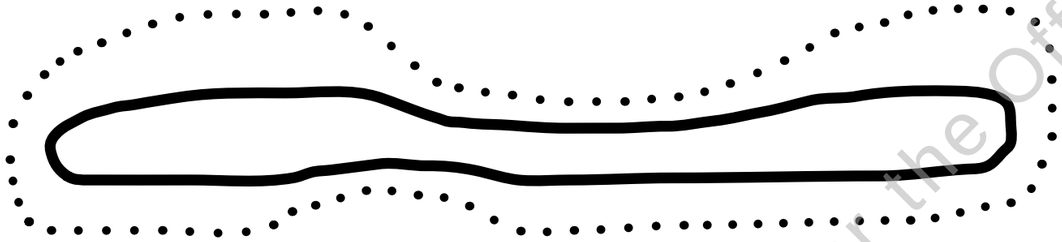
building on the foundation of succession



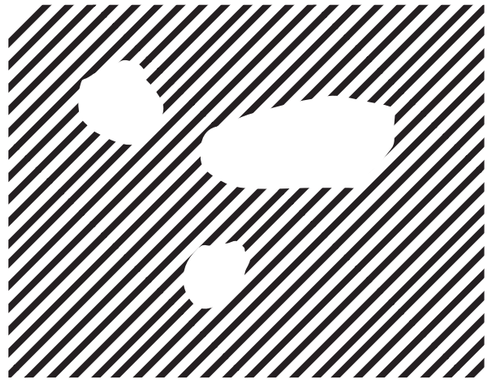
Patches



Stepping stones



Corridors

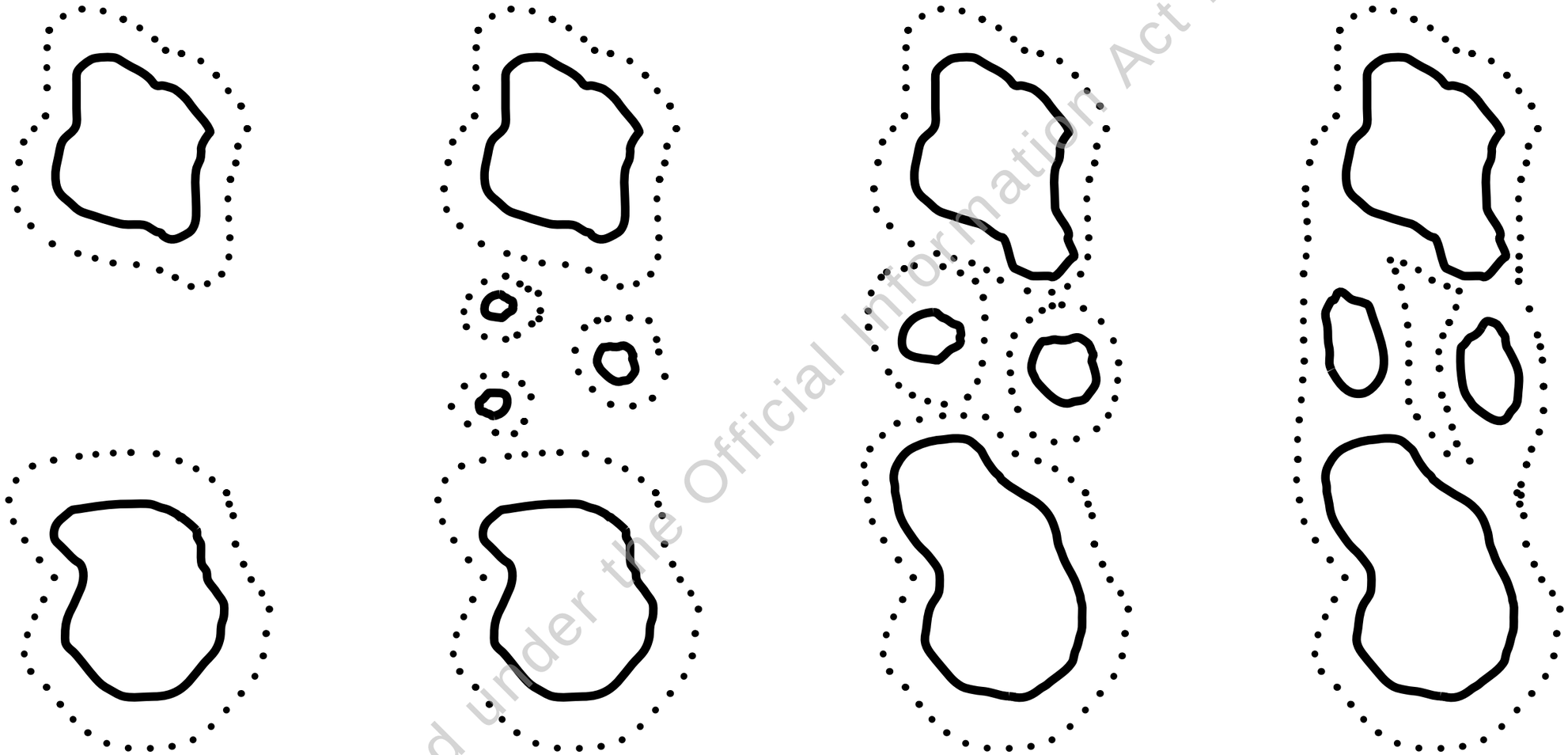


Surrounds

Patches and corridor plantings form the core of the ecological strategy. Patches provide islands of planting, they mimic the natural form and progression of succession in naturalised environments. It encourages micro-climate development using clearly-defined planting areas that facilitate monitoring and management. Use of seed and smaller materials allow cost-effective over-planting and natural thinning to account for potential plant losses. The node plantings begin to expand once established to a 'free to grow' stage. The corridors help facilitate movement of fauna and provide micro-climates for the expanding nodes, improving diversity.

ESTABLISHING AN ECOLOGICAL NETWORK

Giving nature a head start so it can do what nature does



Initially the patches appear isolated and disjointed. This layout allows us to concentrate our planting and management efforts, this is a cost effective approach that yields good results.

In the second phase we can introduce stepping stones, this increase the area of biodiversity and creates more micro-climates, encouraging greater diversity.

Natural succession and spreading begins to occur as the plants mature and begin to self seed.

Overtime the patches expand and connect. They have gone from providing local biodiversity to potentially performing as a patch or corridor on a regional scale.

A SYMBIOTIC RELATIONSHIP

reducing maintaince and disruption with curated interaction

Year 1

Patches are manually planted out. These areas become the framework and birthplace of the whole ecological system. Only the most robust of plants would be planted in year 1. The next steps of succession will be aided by planting ReGen meadows in the spaces between the patches.

Year 5-30

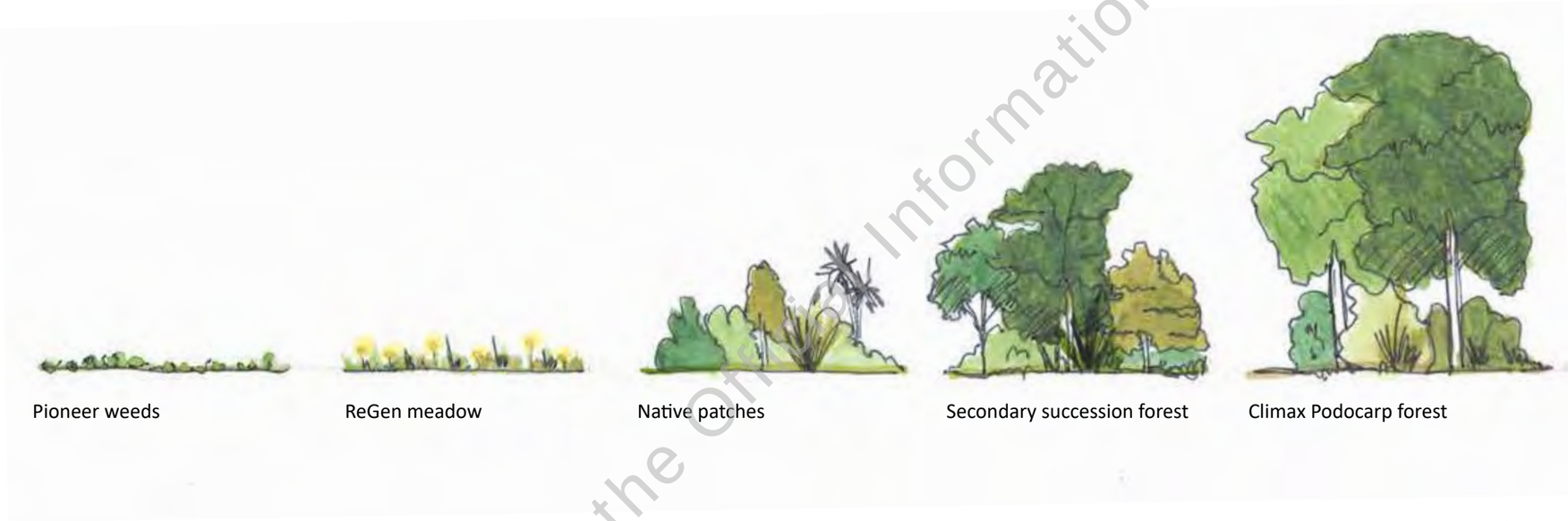
The planting has begun to establish, creating biodiversity for a more diverse range of flora and fauna. The first patches also begin to act as a seed sources, the patches will slowly expand through natural and manual processes. The process can again be speed up by planting stepping stones between patches. After 10 years the area should require minimal interference and maintenance as the patch becomes self sufficient and naturalised. Secondary succession is underway.

Year 30 ->

Succession is well underway and the patches have combined to create a connected ecological framework, in time the area will become a mature forest.

SUCCESSION

Thinking long term



Most plants can't live on a surface without soil, because they need nitrogen from the soil. Some plants can take nitrogen from the air and change it into a form they can use. These are often considered weeds, however native broom is great at this. ReGen meadows are a way of speeding up the process by fixing the soil on the microbial level.

Mānuka and kānuka are two of the most important pioneer plants in the regeneration of New Zealand forests. Their light seeds are spread by the wind and germinate readily in open areas. Dense mānuka and/or kānuka shrubland provides shelter for a ground cover of ferns and sapling trees.

After a stage of mānuka and/or kānuka, a forest can develop in many different ways, depending on the location, seed sources and the presence of browsing animals.

The mature forests in Aotearoa are dominated by large conifers (mataī, tōtara, miro, and rimu), which grow above a canopy of tawa and kāmahi. Seedling conifers grow under the kāmahi, and tawa establishes around the edges. The young conifers grow rapidly, eventually overtopping kāmahi and tawa, to complete the progression to a conifer-dominant forest.

PATCHES, REGEN & STEPPING STONES

Planting bridge to bridge in two stages

Stage 1

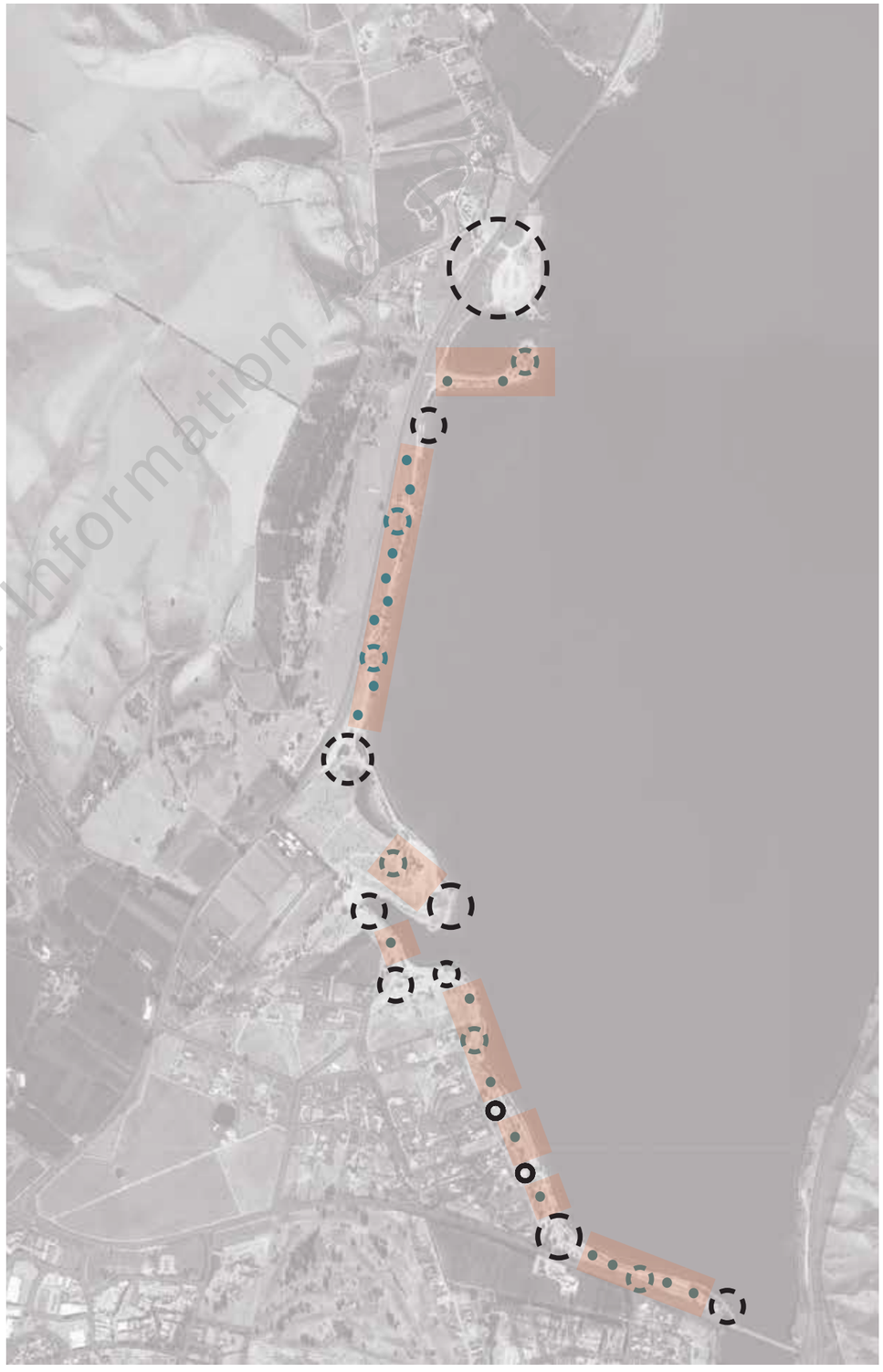
Stage 1 Native patch

ReGen Meadow

Stage 2

Stage 2 Native patch

Stage 2 Native stepping stone



EXPLORATION, STORY TELLING, & ENGAGEMENT

Programatic conceptual thinking

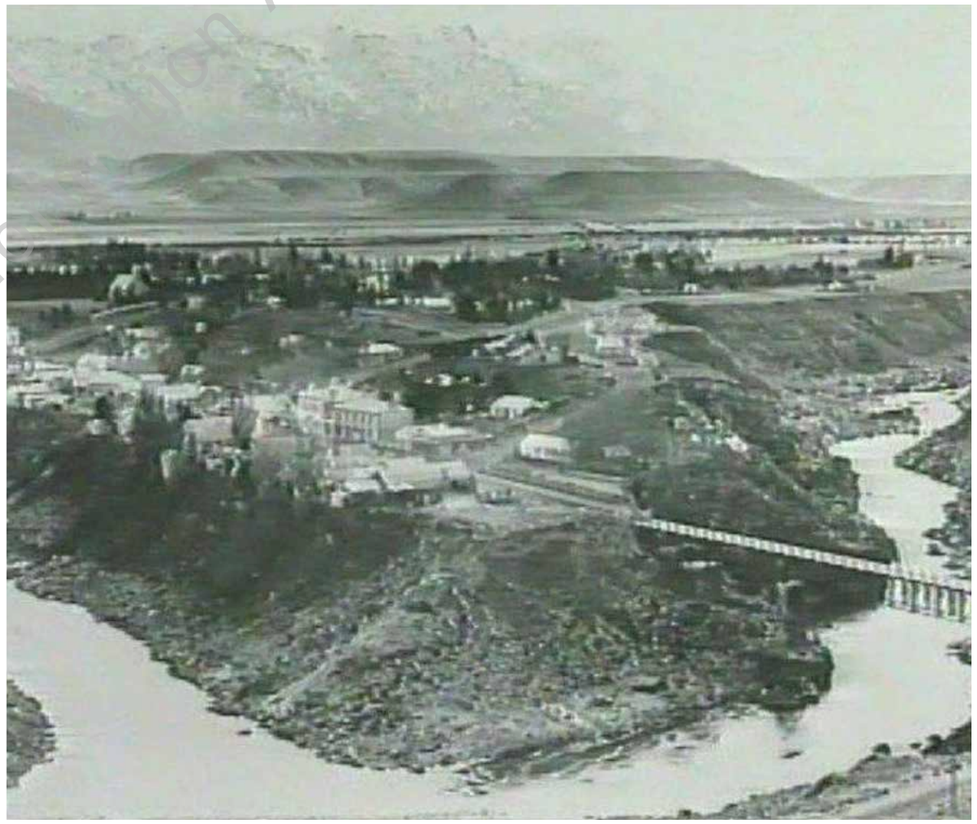
REVEAL

Local history

(Hewlings, 1874)

(Press, 1909)

(Department of Conservation, 2014)



Cromwell has a deep history that can be reveal, celebrated and passed on through good, meaningful design along the site.

REVEAL

Flora and fauna

Within the Cromwell Valley and the area the site covers, there is a variety of significant flora and fauna that makes up a diverse and unique ecology, this needs to be celebrated.

EXPLORE

Trails, woodland and places to reflect

(Hershberger Design, 2014)

(Lehmann, 2020)

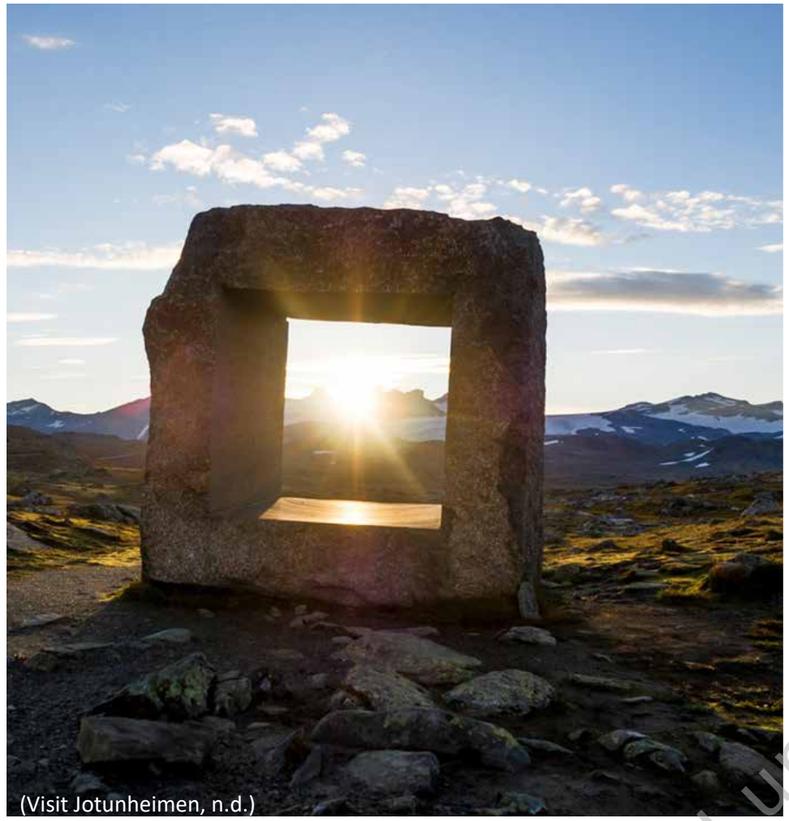
(Pierce, 2015)

(Comendador, 2014)

A pathway is capable of conveying a narrative. It can place users in the perfect place at the perfect time, creating a clear narrative through movement. Places of pause allow people to digest the experience, interpret and absorb the meaning and power of the place.

CURATE

Trails, woodland and places to reflect



(Visit Jotunheimen, n.d.)

(Tai Tapu Sculpture Garden, 2020)

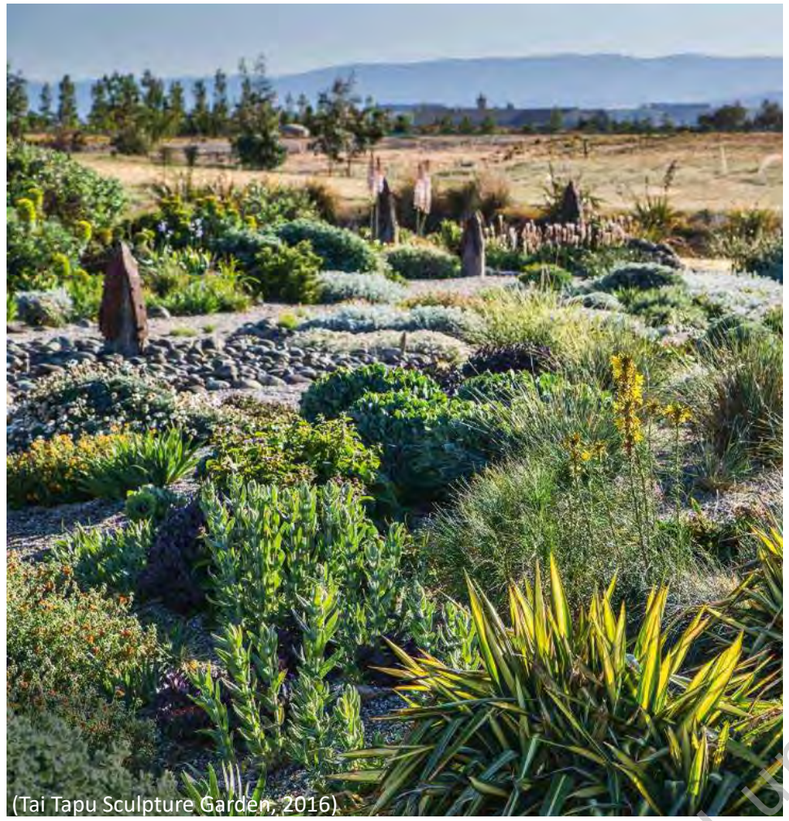
(Turenscape, 2009)

(Tai Tapu Sculpture Garden, 2015)

A pathway can be curated. These experiences can be built upon with the curation of spaces, design elements and planting along the shoreline. Enhancing and framing moments of pause adds depth to the experience.

EMBRACE

Observing the local beauty


(Tai Tapu Sculpture Garden, 2016)


(Imagining Alchemist, 2020)


(Devitt, 2019)


(Geraldine.nz, 2017)


(Tai Tapu Sculpture Garden, 2019)

Embracing the natural, native, and exotic features of the area. Celebrating the natural beauty of Lake Dunstan whilst creating intrigue and diversity in the landscape.

DISCOVER

Dive into the cultural narrative

(O'Donnell, 2018)


(Blackburn, n.d.)


(Crisp, 2015)


epartment of Conservation, 2014)


(Branko Dadich, 2007)

Telling a cultural narrative in a contemporary way. To honour Dunstan's cultural heritage, the design will look to events and stories from Māori engagement in the region. These could be bold and subtle design references, honouring the past and present, placed throughout the area. For example, the use of tī kōuka (Cabbage tree) as a traditional navigation technique through changing landscapes. Principles of Matariki, te-uru waka, the creation story, artworks and local myths.

PLAY

Opportunities for the young, and young at heart


(Burchett, 2012)


(Bogl, 2012)

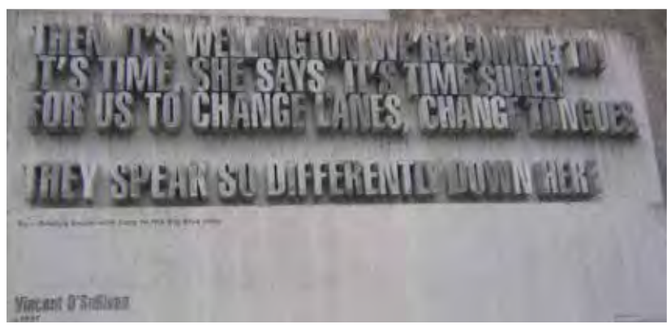

(Bogl, 2012)

Play is the foundation of learning. By using play as a fundamental design feature the area can enhance experiences and learning throughout Dunstan. This can be reinforced by the use of natural materials for traditional and non-traditional play elements which facilitate imaginative play, education and learning, allowing creativity to flourish.

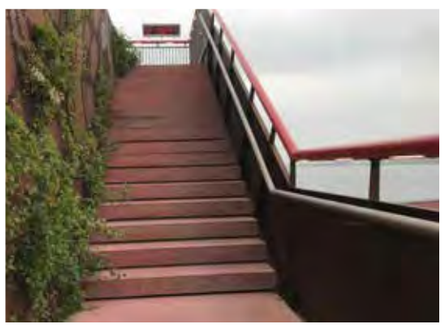
INVOLVE & ENGAGE

Bring local talent into the narrative

(Hastings, 2020)



(Esperanca, n.d.)



Involving locals of all ages to write, paint, and sculpt pieces for the trail deepens the genius loci and public engagement in the project. When the community gets involved in a project like this, it not only builds on community values but will also create a sense of pride and ownership of the site.

At various points through out the area small interventions will be incorporated into the design. These could include timers on running tracks, lines for jumping distances, and other fun interactive games for children to engage with and challenge both themselves and others.

ELEVATE

Interaction with the lake

(Reiulf Ramstad Arkitekter, 2010)

(Studio Basta, 2012)

(C.F. Moller Architects, n.d.)

(Superpositions, 2016)

(Lloyd, 2015)

The design will celebrate the lake, which is currently under-utilised and under-represented. Strong transition points between the town centre and the lake will encourage more engagement and simplify navigation for users. A series of interventions along the shores will not only encourage visitors to continue along the paths seeking additional experiences, but also provide visual amenity.

CONGREGATE

Spaces to gather and interact

(All Urban Ltd, 2019)

(Fecher, n.d.)

(Petersen, 2017)

Creating places where people can come together and meet other members of their community, cook together, play together, and celebrate together.

MOMENTS

Curating that shot


(Reiulf Ramstad Arkitekter, 2010)


(Studio Basta, 2012)


(C.F. Moller Architects, n.d.)


(Lloyd, 2015)

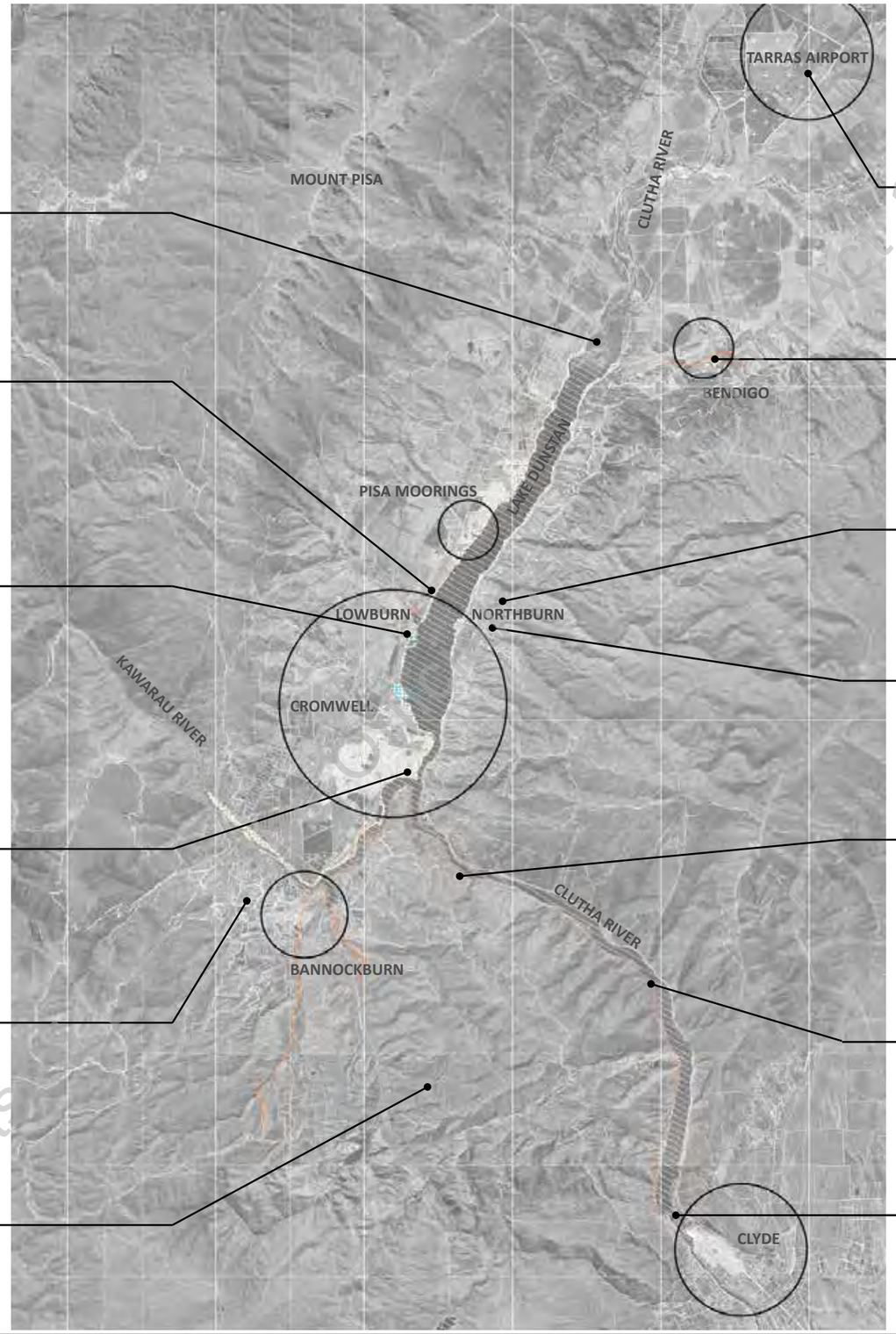
From weddings to the candid, strong imagery shared on social media sites is one of the best marketing tools that places have. With careful consideration in design and plant choice, the area can boost a number of 'gram' worthy locations.

LOCAL CONTEXTUAL ANALYSIS

Looking at Lake Dunstan and the wider area, its situation and environment, to inform and highlight possibilities for design

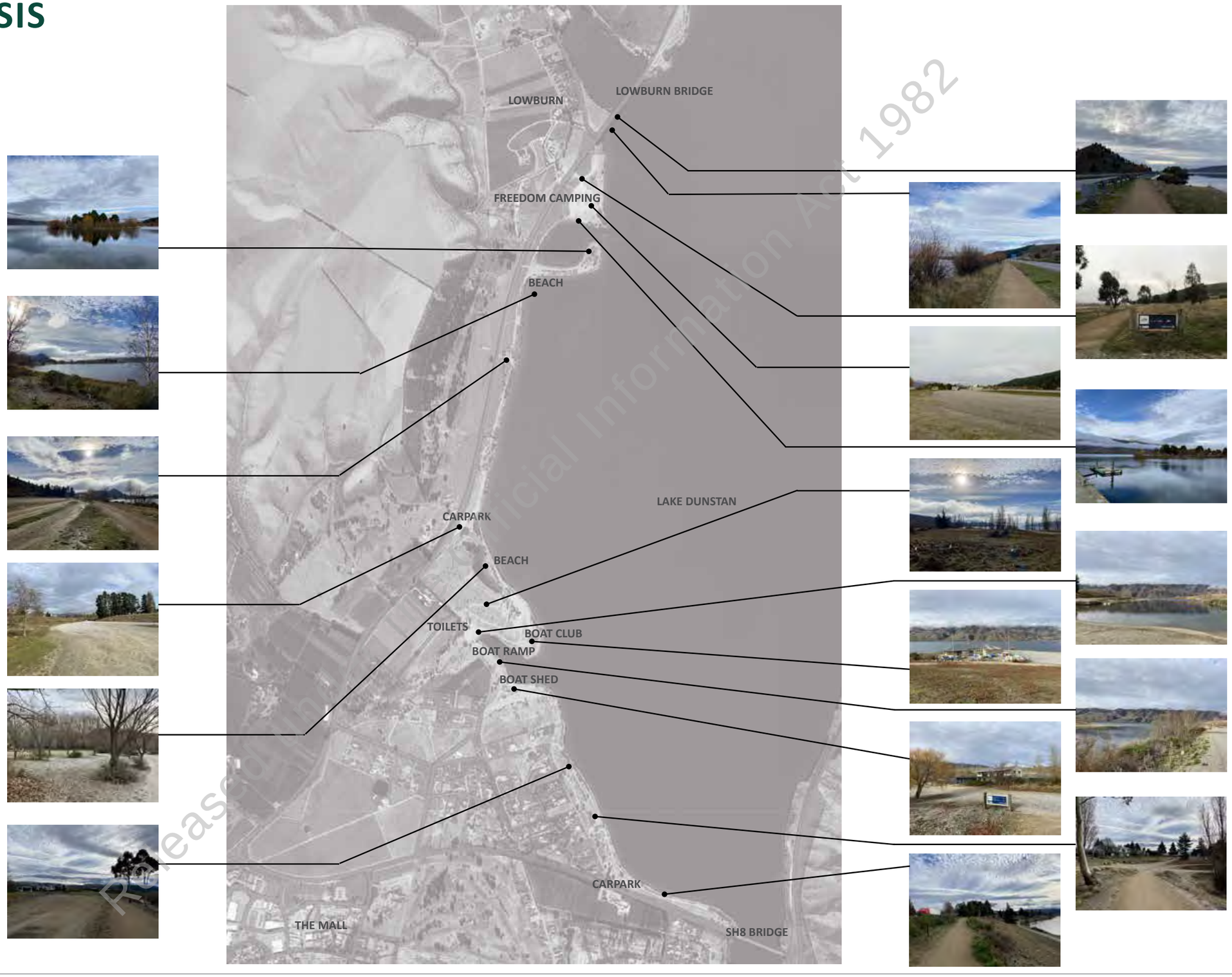
CONTEXT ANALYSIS

Existing features of the context



SITE ANALYSIS

Existing features of the site



SITE ANALYSIS

SPATIAL DESIGN

Putting concepts to practice

SPATIAL CONCEPT PLAN

Separating the site into a series of zones will provide options for people. This allows people of all ages, abilities, and time limits to enjoy what the site has to offer. Becoming a space for all.

Access point

Shared pathway

Intervention

Car parking

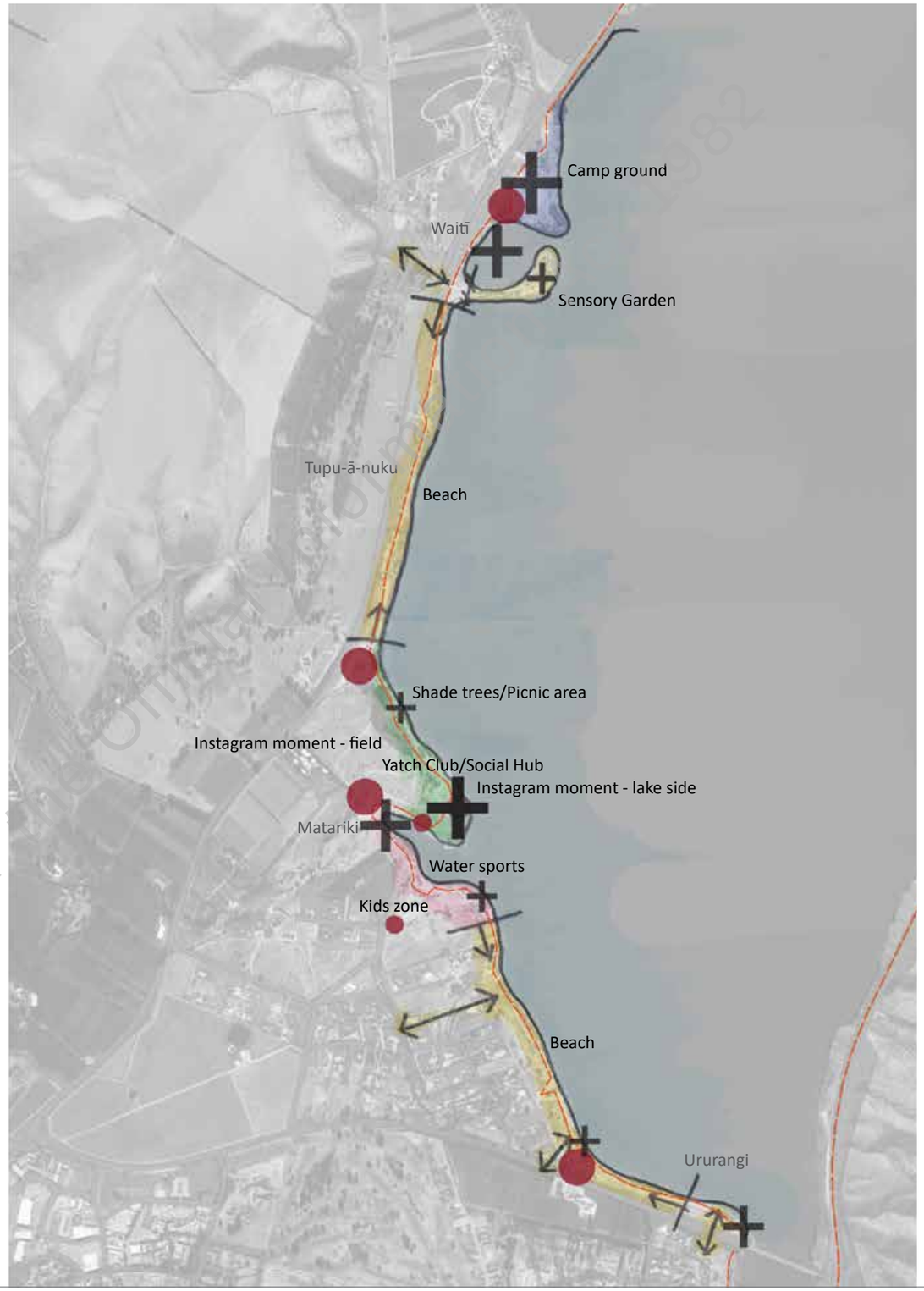
Marina Camp Zone - Waitī

Transition Zone - Tupu-ā-nuku

Activity Beach Zone (Social Hub) - Matariki

Activity Beach Zone (Kids zone) - Matariki

Southern Zone - Ururangi



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Spatial concept plan
1:15,000

OVERALL PLAN

Sowing the foundations of a native successional forest system. Limiting vehicle access to assigned parking areas. Giving form and function to existing features along the lake. Curating user experience and enhancing the lakeside experience.

- Access point
- Cycleway
- Pathway
- Grass
- ReGen Meadow
- Native planting patch
- Existing Poplar forest
- Existing trees
- Beach
- Water
- Marina/Wharf/Pontoon
- Cable Park
- Swimming Sculpture
- Parking
- Facilities

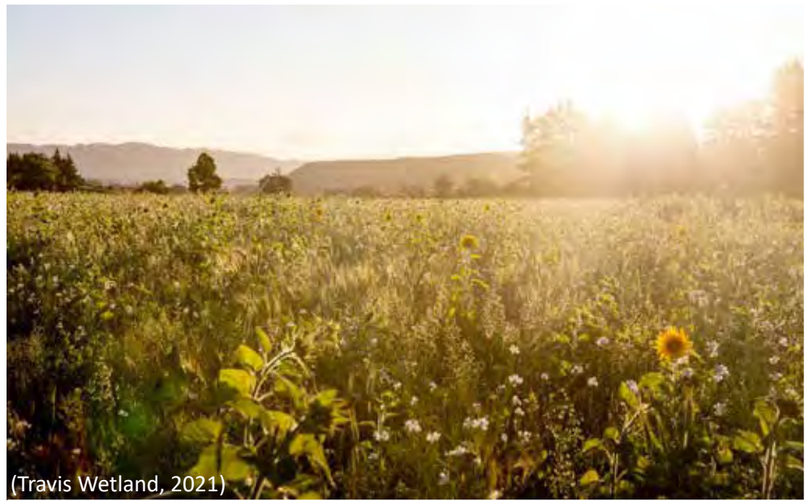
N

Overall concept plan
1:15,000

OPPORTUNITIES

Zooming in to the key design areas

URURANGI OPPORTUNITIES


(Travis Wetland, 2021)


(Andrews, 2021)


(Awesome Inventions, n.d.)


(Tunnel, 2015)


(Heltude, 2017)

OPPORTUNITIES

The Southern section of the Stage 1 - Bridge to bridge site is the introduction to Lake Dunstan for people coming from the south. The paths turn sharply at the lake and provide phenomenal views of the vast landscape with dominating features such as the lake, the sky, and the surrounding landforms. The paths then split, one staging on the lake edge the other winding up to the top of the small terrace. These two pathways meander between the town and the lake for a few kilometers.

KEY MOVES

Rabbit proofing the area to allow plant life to survive and the succession process to function.

Removing weeds from the lake edge and enhancing the shoreline. Retaining established exotic trees to keep their amenity and provide shelter while native plants grow.

Enhancing the entrance points with native planting patches providing the feeling of transition through a threshold.

Restricting vehicle access to a large car park off the main road. This already gives the plant life a huge helping hand and stops the soil from being compacted and roots from being run over.

Retaining the separate pathways so bike and pedestrians can enjoy the space safely.

Planting ReGen meadows to build soil health and speed up the succession processes, while also having lush, wonderful plant growth establish quickly.

URURANGI PLAN

- Access point
- Cycleway
- Pathway
- Grass
- ReGen Meadow
- Native planting patch
- Existing Poplar forest
- Existing trees
- Beach
- Water
- Marina/Wharf/Pontoon
- Cable Park
- Swimming Sculpture
- Parking
- Facilities

N

Ururangi concept plan
1:5000

MATARIKI OPPORTUNITIES


(Berg-Ehlers, 2018)


(Phillips, 2014)


(Petersen, 2018)


(Jack Hubhouse, 2020)

OPPORTUNITIES

Matariki is the central location for lake use close to Cromwell, there are great swimming opportunities within a sheltered cove and plenty of trees to provide shade for beach goers on the northside of the small peninsula. The boat shed provides facilities and equipment for local students to enjoy water sports, boat ramps for lake users to pull their boats in and out of the water. The boat club provides boat storage and a place for the community to come together. A small forest of established poplars provides a wonderful backdrop to the beach and a different experience for the bike path winding within.

KEY MOVES

Rabbit proofing the area to allow plant life to survive and the succession process to function.

Removing weeds from the lake edge and enhancing the lake shoreline. Creating a delightful beach area. Retaining established exotic trees to keep their amenity and provide shelter both for people from the sun and while native plants grow.

Enhancing the entrance points with native planting patches providing the feeling of transition through a threshold.

Restricting access to the boat ramp at the end of the cove to reduce motorised marine traffic within the cove so the area is safer for swimmers. The two boat ramps at the opening of the cove will remain in operation.

Proving car parking in strategic areas to maximise efficiency and minimize motorized traffic throughout the area.

Planting ReGen meadows with a wildflower mix to build soil health and provide a wonderful seasonal experience for locals and visitors. Instagram moments.

Creating a world class swimming sculpture to enhance peoples interaction with the lake, with places to dive from, sunbath, swim, pause, and relax. A sauna can also be incorporated to draw people to the lake in the colder months of the year.

MATARIKI PLAN

- Access point
- Cycleway
- Pathway
- Grass
- ReGen Meadow
- Native planting patch
- Existing Poplar forest
- Existing trees
- Beach
- Water
- Marina/Wharf/Pontoon
- Cable Park
- Swimming Sculpture
- Parking
- Facilities

N

Matariki concept plan
1:5000

Artists impression - Matariki beach

TUPU-Ā-NUKU OPPORTUNITIES


(Travis Wetland, 2021)


(Andrews, 2021)


(Andrews, 2021)


(CasedImage, 2009)


(Tunnel, 2015)


(Heltude, 2017)

OPPORTUNITIES

Tupu-ā-nuku is a transitional space between Matariki and Waitī, the bike path weaves its way between groups of trees and the lake, as it is not there is a lot of damage from vehicle movement and rabbit activity.

KEY MOVES

Rabbit proofing the area to allow plant life to survive and the succession process to function.

Restricting vehicle access to a large car park off the main road. This already give the plant life a huge helping hand and stops the soil from being compacted and roots from being run over.

Removing weeds from the lake edge and enhancing the lake shoreline. Retaining established exotic trees to keep their amenity and provide shelter while native plants grow.

Establish native planting patches starting the process of succession.

Establishing clear separate pathways so bike and pedestrians can enjoy the space safely.

Planting ReGen meadows to build soil health and speed up the succession processes, while also having lush, wonderful plant growth establish quickly. Sunflower fields.

TUPU-Ā-NUKU PLAN

- Access point
- Cycleway
- Pathway
- Grass
- ReGen Meadow
- Native planting patch
- Existing Poplar forest
- Existing trees
- Beach
- Water
- Marina/Wharf/pontoon
- Cable Park
- Swimming Sculpture
- Parking
- Facilities

N

Tupu-ā-nuku concept plan
1:5000

Artists impression - Tupu-ā-nuku

WAITĪ OPPORTUNITIES

(Comendador, 2014)

OPPORTUNITIES

Waitī is the northern section of the Stage 1 - Bridge to bridge site. A node jutting out into the lake at Lowburn. A large part of the area is currently used for freedom camping, restricting access to the lake for all but those in the campers. The other large part of the area was built to house a marina, with no marina ever being established.

KEY MOVES

Removing weeds from the lake edge and enhancing the lake shoreline. Retaining established exotic trees to keep their amenity and provide shelter while native plants grow.

Establish an organised camping ground, dividing the uses into a campervan area and a tent area, restricting camping directly on the lakefront, opening the beach up for everyone. Provide camp facilities.

Plant large patches of native planting to shelter the campground from the road and connect to the site wide ecological network.

Create Te Waitī Marina within the existing purpose-built landform, allowing long term and temporary boat storage for locals and visitors. A marina facility building will be established.

On the tip of the marina arm a mindfulness sanctuary will be created, allowing people to step away, pause and relax in this breath taking setting.

In the shelter to the south of the marina a Cable Park will be created, providing another draw card for the area being the only cable park in the South Island. A facility building will be established.

WAITĪ PLAN

- Access point
- Cycleway
- Pathway
- Grass
- ReGen Meadow
- Native planting patch
- Existing Poplar forest
- Existing trees
- Beach
- Water
- Marina/Wharf/pontoon
- Cable Park
- Swimming Sculpture
- Parking
- Facilities

N

Waitī concept plan
1:5000

TE WAITĪ

Toilets

Marina Office

Matariki Beach
14 mins

Cromwell
25 mins

Cromwell Old Town
40 mins

Artists impression - Te Waitī Marina

WAYFINDING

Providing information and assisting navigation

WAYFINDING & INFORMATION

Route finding, educating and discovering

(All Urban Ltd, 2019)

(Fecher, n.d.)

(Petersen, 2017)

Simple pictographic wayfinding signage combined with information signage with QR codes to find out more information, and the opportunity for a graphic sign illustrating what the landscape once looked like, before the dam.

STAGING

Orchestrating key design moves into steps

STAGING PLAN

Phases 1 to 3 are recomended to follow one another in quick succession. Phase 4 to follow in good time and when funding allows. Phases 5 and 6 to be established when funding allows.

Phase 1 - Rabbit proof fencing shall be established around the site and rabbits to be eradicated, by either shooting, baiting or a combination of the two. Vehicle access to site to be restricted to existing gravel parking areas.

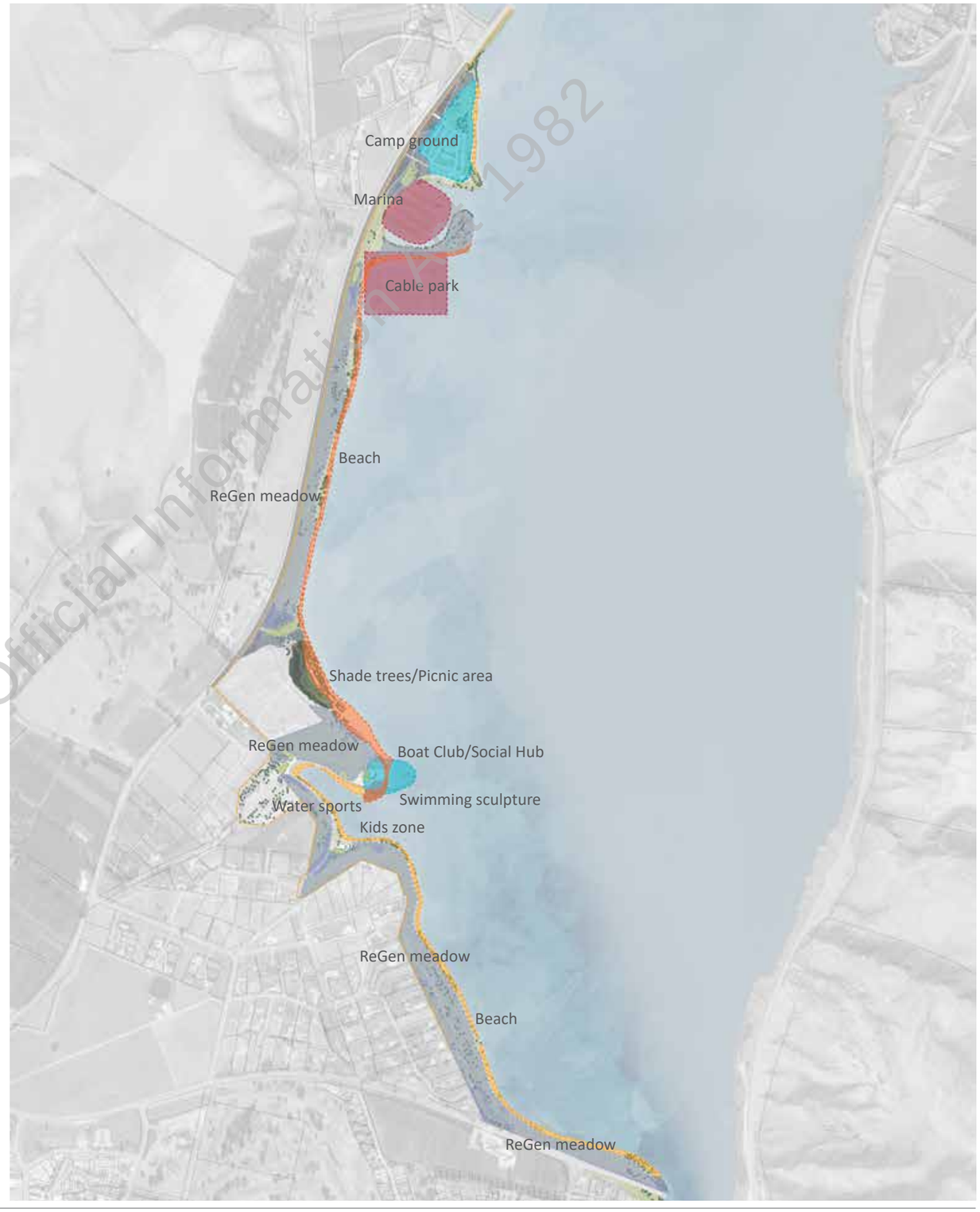
Phase 2 - Removal of ground level weed species, and revamp of beach gravel.

Phase 3 – Native planting patches established, ReGen meadows to be either seed drilled or hydroseeded.

Phase 4 – Parking areas to be formalised and planted.

Phase 5 – Renovation of existing Boat Club facilities, creating of the swimming sculpture and establishment of Te Waitī camp ground and facilities.

Phase 6 – Establishment of Te Waitī Marina, the Cable Park and facilities.



STAGE 1 DETAILS

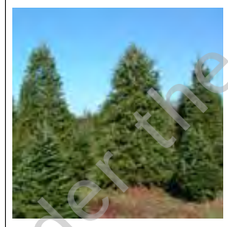
Detailing weed/pest management and planting

DOMINANT WEED AND PEST SPECIES PRESENT

GORSE *Ulex europaeus* 	**Control Method:**	
	Mature Plants	Cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
	Herbicide	Stump swab: glyphosate (250ml/L) or metsulfuron-methyl 600g/kg (2g/L) or triclopyr 600 EC (250ml/L) or a product containing 100g picloram+300g triclopyr/L (100ml/L) or picloram gel. Spray (spring-summer): triclopyr 600 EC (20ml/10L) or triclopyr 300 EC (40ml/10L). Spray (autumn-winter): metsulfuron-methyl 600g/kg (5g/10L + penetrant (knapsack) or 20g/100L + penetrant (spraygun)
	Follow-up	At least one follow up application of herbicide will be required. Gorse seeds remain dormant in the ground for many years so it is important to continue monitoring and removing seedlings from revegetation areas.

BROOM *Cytisus scoparius* 	**Control Method:**	
	Mature Plants	Cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
	Herbicide	Stump swab (all year round): triclopyr 600 EC (50ml/L) or triclopyr 120g/L (250ml/L) or metsulfuron-methyl 600g/kg (5g/L). Spray application (spring-summer): metsulfuron-methyl 600g/kg (7.5g/15L + penetrant (knapsack) or 35g/100L + penetrant (spraygun)) or a product containing 100g picloram+300g triclopyr/L (90ml/15L (knapsack) or 200-300ml/100L + penetrant (spraygun)
	Follow-up	At least one follow up application of herbicide will be required. Broom seeds remain dormant in the ground for many years so it is important to continue monitoring and removing seedlings from revegetation areas.

LUPIN *Lupinus arboreus* 	**Control Method:**	
	Mature Plants	Cut stump and treat with herbicide
	Seedlings	Dig or hand pull small plants
	Herbicide	Cut stump application: (all year round): glyphosate (200ml/L) or metsulfuron-methyl 600g/kg (1g/L) or triclopyr 600 EC (100ml/L) or triclopyr 120g/L (500ml/L) or picloram gel. Spray application: Spray (active growing period): clopyralid (50ml/10L) or triclopyr 600 EC (15ml/10L) or triclopyr 120g/L (75ml/10L)
	Follow-up	At least one follow up application of herbicide will be required. Lupin seeds remain dormant in the ground for many years so it is important to continue monitoring and removing seedlings from revegetation areas.

POPLAR *Populus spp* 	**Control Method:**	
	Seedlings	Dig out small plants
	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water
	Ongoing Maintenance	Poplar trees have invasive root systems that send suckers up to form new trees, so it is important to keep an eye out for suckers and remove/poison these if they occur.
DOUGLAS FIR AND OTHER PINES *Pseudotsuga menziesii and Pinus spp.* 	**Control Method:**	
	Seedlings	Dig out small plants
	Herbicide	Apply cut stump immediately after cutting with X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water
	Ongoing Maintenance	Seedlings are to be hand pulled.

CRACK WILLOW *Salix fragilis* 	**Control Method:**	
	Seedlings	Hand pulling. Must pull all of the plant as roots and dropped branch fragments will re-shoot.
	Herbicide	5g Escort® + 500ml glyphosate 10mL Pulse® penetrant + .5ml Landmark® dye per 1L water. Dissolve the Escort into the water before adding the other chemicals. Makes 1.5L herbicide (approx. 150 trees). Use 10ml herbicide mixture per hole within one minute of drilling.
	Ongoing Maintenance	Seedlings are to be hand pulled, and much care is to be taken with removing all the roots and dropped branch fragments as these are likely to strike and re-shoot.

FENNEL *Foeniculum vulgare* 	**Control Method:**	
	Mature Plants	Herbicide spray before flowering or at best before seeds have set.
	Seedlings	Hand pull or herbicide spray
	Herbicide	Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates.
	Ongoing Maintenance	Spot spray or hand pull as necessary
NODDING THISTLE *Carduus nutans* 	**Control Method:**	Grub, hand pull or cut with weed-eater before flowers appear on thistles. Or spot spray individual plants again before flowers appear.
	Herbicide	Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water.
	Ongoing Maintenance	Thistles produce wind dispersed seeds, it is recommended that spot spraying is done annually prior to thistles flowering, which will over time help control the spread and any localised weeds.

BRIAR ROSE *Rosa rubiginosa* 	**Control Method:**	
	Mature Plants	Cut stump and treat with herbicide
	Seedlings	Herbicide spray or hand pull small plants
	Herbicide	Cut stump application: X-Tree Basal as per label directions; Grazon 50ml/L water; Tordon BK at 100ml/L water; or Escort at 5g/L water. Spray application: Grazon, Escort or Tordon BK at label rates
	Ongoing Maintenance	At least one follow up application of herbicide will be required, as briar roses are easily re-established so it is important to continue monitoring and removing seedlings from re-vegetation areas.

RABBITS AND HARES 	**Control Method:**	
	Exclusion	Install rabbit proof fencing around the site.
	Culling	Kill rabbits and hares within fenced areas by shooting (initially, while there is no development) or ground baiting (ongoing).
	Poison	It is recommended rabbits are poisoned using Pindone in bait stations. Baiting is most effective at the end of Summer- early Autumn when food source is scarce. Poison should be handled by experienced persons only and neighbours should be alerted to it's use.
	Ongoing Maintenance	Continue to eradicate rabbits with poison or trapping as required. Continue to ensure plant protectors remain intact until plants are mature. Although mature plants and trees will not require rabbit protection, to encourage the forest to self seed and regenerate on its own, it is important to protect planted areas from rabbits.

RABBIT PROOF FENCING

* Note: Fencing plan is indicative only and shall be confirmed on site.

PLANT PALETTE - LOW SHRUBS

REVEGETATION

Muehlenbeckia axillaris
Creeping Wire Vine
1M GROUND COVER

Muehlenbeckia complexa
Small Leaved Pohuehue
2M GROUND COVER

Austroderia richardii
South Island Toe Toe
2M GRASS

Carex buchananii
Leatherleaf Sedge
0.6M SEDGE

Carex secta
Tussock
1.5M SEDGE

Poa cita
Silver Tussock
0.7M SEDGE

AMENITY

Festuca novae-zealandiae
Fescue/Hard Tussock
0.5M SEDGE

Poa colensoi
Blue Tussock
0.3M SEDGE

Anthosachne apricus
Blue Wheat Grass
0.2M SEDGE

FERNS

Asplenium trichomanes
Maidenhair Spleenwort
0.3M FERN

Asplenium flabellifolium
Necklace Fern
PROSTRATE FERN

Blechnum penna marina
Antartic Hard Fern
GROUND COVER

Cheilanthe sieberi
Poison Rock Fern
0.3M FERN

Pellaea calidrupium
Hot Rock Fern
0.5M FERN

Polystichum vestitum
Prickly Shield Fern
0.7M FERN

PLANT PALETTE - MEDIUM SHRUBS

REVEGETATION

Aristotelia fruiticosa
Mountain Wineberry

2M SHRUB

Coprosma rugosa
Coprosma

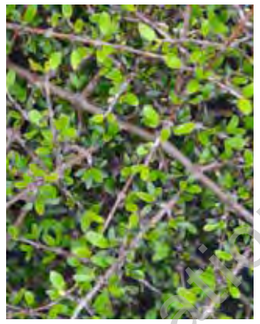
3M SHRUB

Corposma intertexia
Coprosma

2M SHRUB

Coprosma propinqua
Coprosma

5M SHRUB



Coprosma virescens
Mikimiki

3M SHRUB

Corokia cotoneaster
Wire Netting Bush / Korokio

3M SHRUB

Hebe salicifolia
Koromiko

3M SHRUB

Olearia odorata
Scented Tree Daisy

3M SHRUB

Olearia avicenniifola
Mountain Ake Ake

4M SHRUB

Pittosporum tenuifolium
Black Matipo

6M SHRUB

Melicope simplex
Poataniwha

3M SHRUB

Carmichaelia petriei
Desert broom

2M SHRUB

Carmichaelia compacta
Cromwell Broom

1.5M SHRUB

Discaria toumatou
Matagouri

5M TREE

Coprosma dumosa
Coprosma

4M SHRUB

PLANT PALETTE - LARGE SHRUBS AND TREES

REVEGETATION

Cordyline australis
Cabbage Tree
10M TREE

Leptospermum scoparium
Manuka
3M TREE

Kunzea serotina
Kanuka
6M TREE

Griselinia littoralis
Broadleaf / Akapuka
5M SHRUB

Podocarpus laetus
Halls Totara/Montane Totara
12M TREE

Pseudopanax ferox
Toothed Lancewood / Horoeka
5M TREE

Sophora microphylla
Kowhai
8M TREE

Plagianthus regius
Lowland Ribbonwood
12M TREE

Hoheria glabrata
Lacebark
10M TREE

Olearia fragrantissima
Tree daisy
12M TREE

Olearia hectorii
Tree Daisy
3M TREE

Pseudopanax colensoi
Three finger
8M SHRUB

PLANT PALETTE - RIPARIAN

RIPARIAN

Carex comans
New Zealand Sedge

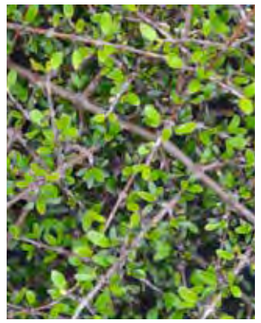
0.5 SEDGE

Carex flagellifera
New Zealand Sedge

0.5M SEDGE

Coprosma propinqua
Coprosma

5M SHRUB



Coprosma virescens
Mikimiki

3M SHRUB

Coprosma dumosa
Coprosma

4M SHRUB

Coprosma rugosa
Coprosma

3M SHRUB

Eleocharis acuta
Spike Rush

0.6 RUSH

Hebe salicifolia
Koromiko

3M SHRUB

Phormium tenax
Harakeke

2M FLAX

Cordyline australis
Cabbage Tree

10M TREE

Leptospermum scoparium
Manuka

3M TREE

Hoheria glabrata
Lacebark

10M TREE

Sophora microphylla
Kowhai

8M TREE

Olearia hectorii
Tree Daisy

3M TREE

Podocarpus laetus
Halls Totara/Montane Totara

12M TREE

Plagianthus regius
Lowland Ribbonwood

12M TREE

Melicope simplex
Poataniwha

3M SHRUB

Poa cita
Silver Tussock

0.7M SEDGE

PLANT PALETTE - WETLAND PLANTING

IN-WATER PLANTS

Blechnum minus
Fern

1M FERN

Carex buchananii
Leatherleaf Sedge

0.6M SEDGE

Carex kaloides
Tussock

0.3M SEDGE

Carex secta
Tussock

1.5M SEDGE

Juncus gregiflorus
Rush

1-2M RUSH

WET/DRY ZONE

Carex coriacea
Cutty Grass

0.3 SEDGE

Austroderia richardii
South Island Toe Toe

2M SEDGE

Halocarpus bidwillii
Bog Pine

2M SHRUB

Olearia bullata
Olearia bullata

2M SHRUB

Olearia lineata
Tree Daisy

5M TREE

Phormium tenax
Harakeke

2M FLAX

MATERIALS PALETTE

A simple mixture of materials add character here. Strengthening the vision of natural, elegant and a touch of rustic. Concrete is softened with exposed schist from the area that will anchor the material to the site, providing a rich composition of local colouring. Timber and steel offering a nod to the gold rush history of the area. and gravel in two shades provides a subtle differenciation between the walkway and the cycleway.

SUMMARY

r+m worked closely with members of the local community to create a vision of what the future of Lake Dunstan could be. The vision - to provide places, spaces and attractions that not only resonate with residents but would also draw visitors to the Dunstan area. **r+m** drew from the locals priceless knowledge, resulting in the creation of this master plan.

The first phase of this project is known as the Bridge-to-Bridge project, it is the section of trail between the State Highway 6 bridge at Lowburn and the State Highway 8B bridge east of Cromwell. This body of work focuses on establishing a site master plan and subsequent planting and weed management plans and strategies.

r+m came up with a strategic concept to guide the design process. This concept is about showcasing what Lake Dunstan has to offer and creating meaningful design interventions that enhance and connect these existing features.

At the Bridge-to-Bridge master plan level, interventions have been conceived to make use of the landscape and to think long term, laying the foundations for the eventual establishment of a native Podocarp forest in 100+ years.

The site has been divided into four zones, each named after a star within the Matariki constellation. **Ururangi**, the southern zone is the entrance from the south, it builds on the transition from river to lake. **Matariki**, is the hub of interaction with the lake and is close to Cromwell township. **Tupu-ā-nuku**, is the centre of healing - growing soil, one sunflower field at a time. **Waitī**, is a dynamic area full of activities, it is situated at the north end of the site, adjacent to Lowburn.

The project focuses on providing space for nature to thrive while providing access for people of all ages and abilities to enjoy, explore, discover, play and learn. The process of succession has begun, this is a project that we can all pass on to the future generations of kaitiaki (guardians) to enjoy.

Whatungarongaro te tangata toitū te whenua
As man disappears from sight, the land remains

N

Bridge to Bridge Concept Plan
1:15,000

APPENDICES

A1 - Planting Specification & Management Guidelines

A2 - Stage 1 Planting Plans

PLANTING SPECIFICATION & MANAGEMENT GUIDELINES

It is recommended that LDCT engages with a landscape construction company to assist in the supply, planting and maintenance of the proposed planting areas. The following specification has been set out under this assumption.

Scope

"The planting" is considered under the following items:

- Site preparation - Clearance of existing weeds, shrubs and trees and preparation of appropriate plant holes.
- Supply and Planting of new trees, shrubs and ground covers (and associated works), as indicated on the drawings and specified herein.
- Maintenance of planting works.

This shall be the responsibility of the planting contractor.

Health and Safety at Work Act 2015

The Contractor shall take all practicable steps to ensure that they and any of their staff and subcontractors are properly trained and supervised at all times so as to avoid any breach on the Health and Safety at Work Act 2015 and the Contractor indemnifies the client in respect of any such breach or breaches and consequent results including accidents and/ or harm to any persons in respect of any matters in relation to their conduct of Contract Works.

The contractor will submit a copy of their company's Health and Safety Plan and record of site specific hazard inspection prior to commencing work on site.

Accident Insurance Requirements

Employees of the Contractor and Sub-Contractors are not employees of the Principal. Accident Insurance is to be covered by the Contractor and Sub-contractors for their employees.

Protection of Existing Services

Every care shall be taken by all contractors and sub-contractors to ensure that existing and newly laid services within the extent of the works are not broken or displaced. Any damage in this respect must be completely made good at the Contractor's expense.

During the course of construction, all surface openings of underground services must be maintained clear of spoil and readily accessible at all times.

The Contractor is to undertake their own investigations to ascertain the location of all underground services. Contractor's shall not rely on the existing services shown on the drawings. The Contractor is to confirm the alignment and depth of all services prior to any excavation. It is recommended that Contractor completes potholing by hand to confirm the location of all services. (refer to NZS3910:2013, section 5.13)

Site Preparation

Clearance of all existing plant material including but not limited to willow seedlings, lupins, broom, gorse, and thistles, as identified on pages 77-79 of this document. Removal of large trees shall be undertaken by a qualified arborist.

Woody species may be chipped and mulch. Mulch can be stockpiled on site and treated so it may be used as plant mulch the following growing season. Mulch may be stockpiled for no longer than 1 year. Stump painting is required for all felled trees.

Once woody species are controlled, if necessary spot spray long grass in the planting zones (having paced out and planned each planting site based on the spacing suggested, ideally using colour coded dazzle or stakes) for at least 1m diameter around each planting site. This is usually achieved by spraying in a 'z' pattern one metre across and one metre up.

Plant Materials and Workmanship

Plant stock shall be approved by the Landscape Architect prior to planting. Plant species shall all be from the approved plant schedule and have proved hardy to the conditions of the site. Plants to be good and true representatives of their species, cultivar or variety. Substitutions shall not be permitted unless approved by the Landscape Architect.

The Contractor is responsible for sourcing their own plant stock. Plants shall be root trainer grade (or equivalent) unless specified otherwise.

All work shall be of the highest standard, performed by skilled tradesmen in accordance with sound trade practice, using tools and equipment suitable for ensuring a first-class job.

Planting Conditions

In Central Otago the planting seasons are generally considered to be March-May and Mid September – Mid December.

Delivery and Temporary Storage of Plants

The Contractor is responsible for the delivery of plant materials. Insofar as practicable the plants shall be planted on the same day as delivery.

If the plants cannot be planted immediately on delivery they shall be protected from strong winds, drying out, theft and other site works. This is the responsibility of the Contractor.

The plants shall not remain unplanted for longer than three days after delivery. The plants shall be handled only by the container or bag to protect the stem.

Plant Schedule

Refer to the Planting Plans and Schedule of Quantities

Setting Out

Plant locations shall be marked out on site as per the planting plans and schedules. The Landscape Architect shall confirm locations of plants on site prior to planting and may require minor refinement to the planting layout on site, which will require the Contractor's co-operation.

Should planting on the ground not achieve the cover using the specified number of plants and spacing i.e. meet the intention of the plan, the Planting Contractor shall advise the Landscape Architect at the time of planting so that the matter can be addressed.

Planting

Containerised plants shall be thoroughly watered the day before they are to be removed to be planted. If plants are dry, they are to be submerged in water for five minutes until all air bubbles stop rising. Allow time to drain before planting.

Balled and container plants, shall have cloth cordage or container removed immediately prior to planting. Care shall be taken to

ensure that the root ball is not disturbed during container removal or planting. Any wire containment and hessian shall be removed. Plants shall be set in their final positions with main stem vertical and at such a depth that the soil, when firmed down is at the same height as the nursery earth marks on the stem or the container soil level. Loose roots shall be spread out in a natural fashion; the soil being carefully placed under and amongst them to fill all voids and firmed in. Any major roots which become accidentally broken off or frayed shall be cleanly cut off from the plant.

If plants are slightly pot bound the roots shall be loosened, trimmed and spread out to ensure healthy growth. Roots shall not be exposed to the sun or wind.

Plants should be planted in a hole that is twice the size of the root ball and at a base-of-stem depth of 20-50mm below the soil surface (this will help direct water to the roots when it rains).

Each plant shall be watered thoroughly after planting, ensuring that the moisture has penetrated to the full depth of the root ball (initial watering is also important to settle the soil around the roots).

Maintenance

The maintenance period is yet to be confirmed, however, it is recommended that a planting project of this scale has a long term (5 year) maintenance programme.

Maintenance shall include watering, removing dead material, replanting, resettling plants to proper grades or upright positions, control of insects, fungus, and other diseases, replacing broken stakes, pinning down loose wool mulch matting, and keeping planted areas free of weeds and rubbish.

During the maintenance period, maintenance visits shall be made every 3-4 weeks September – April and every 6-8 weeks May-August.

Weed Control

Weeds/grass shall not encroach within 0.3m of the centre of any plant. Outside each individual plant area at no time shall any individual weed be larger than 500mm x 500mm x 500mm high. pulling or spraying outside of the plant area, care shall be taken to avoid damage to plants and their roots.

Use of Chemical Herbicides shall conform in every respect to the mixture required and be applied strictly in accordance with the manufacturer's instructions. Do not spray herbicide in windy conditions and ensure no drift or spray reaches water bodies/the lake. Make good any damage caused by excess spray drift.

All chemical herbicides used are to be non-toxic to human beings, birds, and animals under normal use and only those chemical herbicides registered under the Pesticides Act may be used. Where a trans-locatable herbicide such as glyphosate is used around plants in leaf, an adequate guard must be used for all sprayings.

Carefully calibrate all spraying equipment to prevent under or over dosing. Replace any plants damaged by misplaced herbicide. No herbicide containers, empty or full, are to be left on site at any time.

Pest Control

Pests shall be defined for the purpose of this specification as rodents, rabbits, possums, and other pests, such as dogs, which have the potential to cause damage to trees, shrubs and new grass.

Population densities shall be reduced to ensure no visual impacts and no obvious damage from pests to plantings, grass and ground. Control shall ensure the healthy development of plant material.

Captured vermin and carcasses shall be disposed of off-site in an appropriate and hygienic manner. The Pest Control Contractor is to liaise with local landowners in preparation of the control method. The Contractor shall prepare and submit a programme for control of pests that may include but not be limited to possum, rabbits, and rats. The programme shall detail at least the following:
Proposed method of control per pest

- General location and number of traps and/or bait stations
- Dates for activities by Contractor
- Monitoring
- Maintenance
- On-site / off-site disposal procedures
- Public safety and identification
- A log of all controls undertaken monthly shall be maintained by the Contractor.

The Contractor is expected to be aware of the level of control required and shall programme accordingly. Where pest control is required in addition to that submitted in the approved programme, the Contractor shall supply, install, monitor, and maintain additional controls to the standards of this specification and update the submitted programme at their own expense.

Monthly Reporting

An accurate and up to date monthly report, on plant condition and establishment works undertaken, shall be submitted each month. Information to be provided in this report shall include the date that works were carried out and any types of work, as noted in the above clauses, to aid establishment of landscape areas.

Unforeseen damage, for example vandalism, plant losses, shall be reported at the time of inspection. Any unreported damage or plant losses will be deemed the responsibility of the Contractor.

Site Inspections

Site inspections shall occur every 6 months, generally in April and November. The Landscape Architect may undertake additional site inspections if required.

Any plants which are found to be defective (e.g., does not show leaf or make adequate growth) during the six months inspections from any cause other than vandalism, shall be replaced. A plant may need replacing more than once and replacement works may have to be carried out during more than one season. If the original plant fails and the replacement plant fails a further replacement shall be required.

Trees damaged by vandalism, spillages of fuels and chemicals, or by vehicles, during this period shall be noted by the Contractor and shall be replaced at the appropriate schedule rates.

REV DATE NOTES

OVERALL PLANT SCHEDULE

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	658
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	236
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	4988
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	658
Ca s	Carex secta	sedge	RT	1300	356
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	567
Co co	Corokia cotoneaster	Korokio	RT	1500	658
Co du	Coprosma dumosa	Coprosma	RT	1500	658
Co i	Coprosma intertexta	Coprosma	RT	1500	658
Co p	Coprosma propinqua	Mingimingi	RT	1500	658
Co v	Coprosma virescens	Taupata	RT	1500	658
Di t	Discaria toumatou	Matagouri	RT	1500	658
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	594
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	567
Ku se	Kunzea serotina	Kanuka	RT	1500	567
Le sc	Leptospermum scoparium	Manuka	RT	1500	567
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	658
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	984
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	236
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	658
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	567
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	567
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	658
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	658
Pl r	Plagianthus regius	Ribbonwood	RT	1500	567
Po c	Poa cita	Silver Tussock	RT	800	2812
Po la	Podocarpus laetus	Montane Totara	RT	1500	567
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	567
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	567
So m	Sophora microphylla	South Island Kowhai	RT	1500	567
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	658

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OVERALL PLANTING PLAN
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:5000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	
DRAWING No.	REVISION
L 2.0	0
SERIES	
1 of 1	

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	302
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	46
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	965
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	302
Ca s	Carex secta	sedge	RT	1300	69
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	290
Co co	Corokia cotoneaster	Korokio	RT	1500	302
Co du	Coprosma dumosa	Coprosma	RT	1500	302
Co i	Coprosma intertexta	Coprosma	RT	1500	302
Co p	Coprosma propinqua	Mingimingi	RT	1500	302
Co v	Coprosma virescens	Taupata	RT	1500	302
Di t	Discaria toumatou	Matagouri	RT	1500	302
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	305
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	290
Ku se	Kunzea serotina	Kanuka	RT	1500	290
Le sc	Leptospermum scoparium	Manuka	RT	1500	290
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	302
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	190
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	46
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	302
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	290
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	290
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	302
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	302
Pl r	Plagianthus regius	Ribbonwood	RT	1500	290
Po c	Poa cita	Silver Tussock	RT	800	543
Po la	Podocarpus laetus	Montane Totara	RT	1500	290
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	290
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	290
So m	Sophora microphylla	South Island Kowhai	RT	1500	290
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	302

REV DATE NOTES

Lot 3 DP 357015 1.0540

Lot 2 DP 357015 1.4500

Lot 1 DP 531540 0.6851

Lot 2 DP 531540 1.1150

Lot 2 DP 300378 2.0590

Pt Lot 1 DP 17171 0.7125

2330.986 sq m
88-Ar f
88-Co i
88-Co p
88-Ca co
88-Co v
88-Co co
88-Ve s
88-Ol od
88-Ol av
88-Pi t
88-Me s
88-Di t
88-Co du

2008.816 sq m
82-Co a
82-Le sc
82-Ku se
86-Gr l
82-Po la
82-Ps f
82-So m
82-Pl r
82-Ho gl
82-Ol fr
82-Ol he
82-Ps co

Tent sites

1410.680 sq m
57-Co a
57-Le sc
57-Ku se
60-Gr l
57-Po la
57-Ps f
57-So m
57-Pl r
57-Ho gl
57-Ol fr
57-Ol he
57-Ps co

67.601 sq m
3-Ar f
3-Co i
3-Co p
3-Ca co
3-Co v
3-Co co
3-Ve s
3-Ol od
3-Ol av
3-Pi t
3-Me s
3-Di t
3-Co du

631.265 sq m
26-Co a
26-Le sc
26-Ku se
27-Gr l
26-Po la
26-Ps f
26-So m
26-Pl r
26-Ho gl
26-Ol fr
26-Ol he
26-Ps co

2270.948 sq m
86-Ar f
86-Co i
86-Co p
86-Ca co
86-Co v
86-Co co
86-Ve s
86-Ol od
86-Ol av
86-Pi t
86-Me s
86-Di t
86-Co du

37 carparks

2320.163 sq m
94-Co a
94-Le sc
94-Ku se
99-Gr l
94-Po la
94-Ps f
94-So m
94-Pl r
94-Ho gl
94-Ol fr
94-Ol he
94-Ps co

14 Car & Trailer parks

1461.716 sq m
55-Ar f
55-Co i
55-Co p
55-Ca co
55-Co v
55-Co co
55-Ve s
55-Ol od
55-Ol av
55-Pi t
55-Me s
55-Di t
55-Co du

711.476 sq m
27-Ar f
27-Co i
27-Co p
27-Ca co
27-Co v
27-Co co
27-Ve s
27-Ol od
27-Ol av
27-Pi t
27-Me s
27-Di t
27-Co du

173.568 sq m
7-Ar f
7-Co i
7-Co p
7-Ca co
7-Co v
7-Co co
7-Ve s
7-Ol od
7-Ol av
7-Pi t
7-Me s
7-Di t
7-Co du

757.143 sq m
28-Au r
588-Ca bu
331-Po c
28-Mu c
116-Mu a
42-Ca s

423.847 sq m
17-Co a
17-Le sc
17-Ku se
18-Gr l
17-Po la
17-Ps f
17-So m
17-Pl r
17-Ho gl
17-Ol fr
17-Ol he
17-Ps co

40 carparks

102.227 sq m
4-Ar f
4-Co i
4-Co p
4-Ca co
4-Co v
4-Co co
4-Ve s
4-Ol od
4-Ol av
4-Pi t
4-Me s
4-Di t
4-Co du

455.835 sq m
17-Ar f
17-Co i
17-Co p
17-Ca co
17-Co v
17-Co co
17-Ve s
17-Ol od
17-Ol av
17-Pi t
17-Me s
17-Di t
17-Co du

485.283 sq m
18-Au r
377-Ca bu
212-Po c
18-Mu c
74-Mu a
27-Ca s

409.194 sq m
15-Ar f
15-Co i
15-Co p
15-Ca co
15-Co v
15-Co co
15-Ve s
15-Ol od
15-Ol av
15-Pi t
15-Me s
15-Di t
15-Co du

354.088 sq m
14-Co a
14-Le sc
14-Ku se
15-Gr l
14-Po la
14-Ps f
14-So m
14-Pl r
14-Ho gl
14-Ol fr
14-Ol he
14-Ps co

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PLANTING PLAN 1
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	
DRAWING No.	REVISION
L 2.1	0
SERIES	
1 of 1	

ROUGH & MILNE LANDSCAPE ARCHITECTS LIMITED

REV	DATE	NOTES

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PLANTING PLAN 2
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	
DRAWING No.	REVISION
L 2.2	0
SERIES	
1 of 1	

REV DATE NOTES

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	238
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	102
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	2150
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	238
Ca s	Carex secta	sedge	RT	1300	154
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	198
Co co	Corokia cotoneaster	Korokio	RT	1500	238
Co du	Coprosma dumosa	Coprosma	RT	1500	238
Co i	Coprosma intertexta	Coprosma	RT	1500	238
Co p	Coprosma propinqua	Mingimingi	RT	1500	238
Co v	Coprosma virescens	Taupata	RT	1500	238
Di t	Discaria toumatou	Matagouri	RT	1500	238
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	207
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	198
Ku se	Kunzea serotina	Kanuka	RT	1500	198
Le sc	Leptospermum scoparium	Manuka	RT	1500	198
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	238
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	424
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	102
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	238
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	198
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	198
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	238
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	238
Pl r	Plagianthus regius	Ribbonwood	RT	1500	198
Po c	Poa cita	Silver Tussock	RT	800	1212
Po la	Podocarpus laetus	Montane Totara	RT	1500	198
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	198
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	198
So m	Sophora microphylla	South Island Kowhai	RT	1500	198
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	238

372.509 sq m
14-Au r
289-Ca bu
163-Po c
14-Mu c
57-Mu a
21-Ca s

1695.161 sq m
64-Ar f
64-Co i
64-Co p
64-Ca co
64-Co v
64-Co co
64-Ve s
64-Ol od
64-Ol av
64-Pi t
64-Me s
64-Di t
64-Co du

703.626 sq m
29-Co a
29-Le sc
29-Ku se
30-Gr l
29-Po la
29-Ps f
29-So m
29-Pl r
29-Ho gl
29-Ol fr
29-Ol he
29-Ps co

796.442 sq m
32-Co a
32-Le sc
32-Ku se
34-Gr l
32-Po la
32-Ps f
32-So m
32-Pl r
32-Ho gl
32-Ol fr
32-Ol he
32-Ps co

71 carparks

1172.085 sq m
48-Co a
48-Le sc
48-Ku se
50-Gr l
48-Po la
48-Ps f
48-So m
48-Pl r
48-Ho gl
48-Ol fr
48-Ol he
48-Ps co

2562.881 sq m
97-Ar f
97-Co i
97-Co p
97-Ca co
97-Co v
97-Co co
97-Ve s
97-Ol od
97-Ol av
97-Pi t
97-Me s
97-Di t
97-Co du

1290.080 sq m
52-Co a
52-Le sc
52-Ku se
55-Gr l
52-Po la
52-Ps f
52-So m
52-Pl r
52-Ho gl
52-Ol fr
52-Ol he
52-Ps co

611.514 sq m
22-Au r
475-Ca bu
268-Po c
22-Mu c
94-Mu a
34-Ca s

Lot 1
DP 23948
4.8124

Lot 52
DP 471241
0.0542

Lot 2
DP 471241
0.4002

377.677 sq m
14-Au r
293-Ca bu
165-Po c
14-Mu c
58-Mu a
21-Ca s

405.232 sq m
15-Ar f
15-Co i
15-Co p
15-Ca co
15-Co v
15-Co co
15-Ve s
15-Ol od
15-Ol av
15-Pi t
15-Me s
15-Di t
15-Co du

30 carparks

Boat Storage

198.529 sq m
7-Au r
154-Ca bu
87-Po c
7-Mu c
30-Mu a
11-Ca s

886.245 sq m
33-Ar f
33-Co i
33-Co p
33-Ca co
33-Co v
33-Co co
33-Ve s
33-Ol od
33-Ol av
33-Pi t
33-Me s
33-Di t
33-Co du

781.437 sq m
29-Ar f
29-Co i
29-Co p
29-Ca co
29-Co v
29-Co co
29-Ve s
29-Ol od
29-Ol av
29-Pi t
29-Me s
29-Di t
29-Co du

590.428 sq m
22-Au r
458-Ca bu
258-Po c
22-Mu c
90-Mu a
33-Ca s

395.639 sq r
15-Au r
307-Ca bu
173-Po c
15-Mu c
61-Mu a
22-Ca s

900.317 sq m
37-Co a
37-Le sc
37-Ku se
38-Gr l
37-Po la
37-Ps f
37-So m
37-Pl r
37-Ho gl
37-Ol fr
37-Ol he
37-Ps co

224.551 sq m
8-Au r
174-Ca bu
98-Po c
8-Mu c
34-Mu a
12-Ca s

225 carparks

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PLANTING PLAN 3
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	
DRAWING No.	REVISION
L 2.3	0
SERIES	
1 of 1	

REV DATE NOTES

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	65
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	53
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	1124
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	65
Ca s	Carex secta	sedge	RT	1300	80
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	13
Co co	Corokia cotoneaster	Korokio	RT	1500	65
Co du	Coprosma dumosa	Coprosma	RT	1500	65
Co i	Coprosma intertexta	Coprosma	RT	1500	65
Co p	Coprosma propinqua	Mingimingi	RT	1500	65
Co v	Coprosma virescens	Taupata	RT	1500	65
Di t	Discaria toumatou	Matagouri	RT	1500	65
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	13
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	13
Ku se	Kunzea serotina	Kanuka	RT	1500	13
Le sc	Leptospermum scoparium	Manuka	RT	1500	13
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	65
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	222
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	53
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	65
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	13
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	13
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	65
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	65
Pl r	Plagianthus regius	Ribbonwood	RT	1500	13
Po c	Poa cita	Silver Tussock	RT	800	634
Po la	Podocarpus laetus	Montane Totara	RT	1500	13
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	13
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	13
So m	Sophora microphylla	South Island Kowhai	RT	1500	13
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	65

850.017 sq m
32-Ar f
32-Co i
32-Co p
32-Ca co
32-Co v
32-Co co
32-Ve s
32-Ol od
32-Ol av
32-Pi t
32-Me s
32-Di t
32-Co du

271.640 sq m
10-Au r
211-Ca bu
119-Po c
10-Mu c
42-Mu a
15-Ca s

342.015 sq m
13-Ar f
13-Co i
13-Co p
13-Ca co
13-Co v
13-Co co
13-Ve s
13-Ol od
13-Ol av
13-Pi t
13-Me s
13-Di t
13-Co du

542.824 sq m
20-Ar f
20-Co i
20-Co p
20-Ca co
20-Co v
20-Co co
20-Ve s
20-Ol od
20-Ol av
20-Pi t
20-Me s
20-Di t
20-Co du

651.407 sq m
24-Au r
506-Ca bu
285-Po c
24-Mu c
100-Mu a
36-Ca s

524.426 sq m
19-Au r
407-Ca bu
230-Po c
19-Mu c
80-Mu a
29-Ca s

150.886 sq m
6-Co a
6-Le sc
6-Ku se
6-Gr l
6-Po la
6-Ps f
6-So m
6-Pl r
6-Ho gl
6-Ol fr
6-Ol he
6-Ps co

174.348 sq m
7-Co a
7-Le sc
7-Ku se
7-Gr l
7-Po la
7-Ps f
7-So m
7-Pl r
7-Ho gl
7-Ol fr
7-Ol he
7-Ps co

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PLANTING PLAN 4
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	
DRAWING No.	REVISION
L 2.4	0
SERIES	
1 of 1	

REV	DATE	NOTES
0	16/07/21	DRAFT

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	43
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	23
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	496
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	43
Ca s	Carex secta	sedge	RT	1300	35
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	37
Co co	Corokia cotoneaster	Korokio	RT	1500	43
Co du	Coprosma dumosa	Coprosma	RT	1500	43
Co i	Coprosma intertexta	Coprosma	RT	1500	43
Co p	Coprosma propinqua	Mingimingi	RT	1500	43
Co v	Coprosma virescens	Taupata	RT	1500	43
Di t	Discaria toumatou	Matagouri	RT	1500	43
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	38
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	37
Ku se	Kunzea serotina	Kanuka	RT	1500	37
Le sc	Leptospermum scoparium	Manuka	RT	1500	37
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	43
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	98
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	23
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	43
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	37
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	37
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	43
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	43
Pl r	Plagianthus regius	Ribbonwood	RT	1500	37
Po c	Poa cita	Silver Tussock	RT	800	280
Po la	Podocarpus laetus	Montane Totara	RT	1500	37
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	37
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	37
So m	Sophora microphylla	South Island Kowhai	RT	1500	37
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	43

142.740 sq m
6-Co a
6-Le sc
6-Ku se
6-Gr l
6-Po la
6-Ps f
6-So m
6-Pl r
6-Ho gl
6-Ol fr
6-Ol he
6-Ps co

79.405 sq m
3-Co a
3-Le sc
3-Ku se
3-Gr l
3-Po la
3-Ps f
3-So m
3-Pl r
3-Ho gl
3-Ol fr
3-Ol he
3-Ps co

399.578 sq m
15-Ar f
15-Co i
15-Co p
15-Ca co
15-Co v
15-Co co
15-Ve s
15-Ol od
15-Ol av
15-Pi t
15-Me s
15-Di t
15-Co du

690.628 sq m
28-Co a
28-Le sc
28-Ku se
29-Gr l
28-Po la
28-Ps f
28-So m
28-Pl r
28-Ho gl
28-Ol fr
28-Ol he
28-Ps co

94 carparks

638.903 sq m
23-Au r
496-Ca bu
280-Po c
23-Mu c
98-Mu a
35-Ca s

386.403 sq m
15-Ar f
15-Co i
15-Co p
15-Ca co
15-Co v
15-Co co
15-Ve s
15-Ol od
15-Ol av
15-Pi t
15-Me s
15-Di t
15-Co du

344.844 sq m
13-Ar f
13-Co i
13-Co p
13-Ca co
13-Co v
13-Co co
13-Ve s
13-Ol od
13-Ol av
13-Pi t
13-Me s
13-Di t
13-Co du

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PLANTING PLAN 5
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	DRAFT
DRAWING No.	REVISION
L 2.5	0
SERIES	
1 of 1	

REV	DATE	NOTES
0	16/07/21	DRAFT

Code	Botanical Name	Common Name	Grade	Spacing	Quantity
Ar f	Aristotelia fruiticosa	Mountain Wineberry	RT	1500	10
Au r	Austroderia richardii	South Island Toe Toe	RT	1500	12
Ca bu	Carex buchananii	Buchanan's Sedge	RT	700	253
Ca co	Carmichaelia compacta	Cromwell Broom	RT	1500	10
Ca s	Carex secta	sedge	RT	1300	18
Co a	Cordyline australis	Cabbage Tree/Ti Kouka	RT	1500	29
Co co	Corokia cotoneaster	Korokio	RT	1500	10
Co du	Coprosma dumosa	Coprosma	RT	1500	10
Co i	Coprosma intertexta	Coprosma	RT	1500	10
Co p	Coprosma propinqua	Mingimingi	RT	1500	10
Co v	Coprosma virescens	Taupata	RT	1500	10
Di t	Discaria toumatou	Matagouri	RT	1500	10
Gr l	Griselinia littoralis	Kapuka/Broadleaf	RT	1500	31
Ho gl	Hoheria glabrata	Mountain Lacebark	RT	1500	29
Ku se	Kunzea serotina	Kanuka	RT	1500	29
Le sc	Leptospermum scoparium	Manuka	RT	1500	29
Me s	Melicope simplex	Poataniwha/ Tataka	RT	1500	10
Mu a	Muehlenbeckia axillaris	Creeping Wire Vine	RT	1000	50
Mu c	Muehlenbeckia complexa	Scrambling Pohuehue	RT	1500	12
Ol av	Olearia avicenniaefolia	Mountain Akeake	RT	1500	10
Ol fr	Olearia fragrantissima	Scented Tree Daisy	RT	1500	29
Ol he	Olearia hectorii	Hector's Tree Daisy	RT	1500	29
Ol od	Olearia odorata	Scented Tree Daisy	RT	1500	10
Pi t	Pittosporum tenuifolium	kohuhu	RT	1500	10
Pl r	Plagianthus regius	Ribbonwood	RT	1500	29
Po c	Poa cita	Silver Tussock	RT	800	143
Po la	Podocarpus laetus	Montane Totara	RT	1500	29
Ps co	Pseudopanax colensoi	Orihou/Mountain Fivefinger	RT	1500	29
Ps f	Pseudopanax ferox	Fierce Lancewood	RT	1500	29
So m	Sophora microphylla	South Island Kowhai	RT	1500	29
Ve s	Veronica salicifolia	South Island Koromiko	RT	1500	10

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PLANTING PLAN 6
JOBS FOR NATURE
LAKE DUNSTAN
LDCT

JOB No.	21103
SCALE	1:1000 @ A1
DATE	16/07/2021
DESIGNED	EMILY-ROSE DUNN
DRAWN	EMILY-ROSE DUNN
CHECKED	GERARD O'CONNELL
STATUS	DRAFT
DRAWING No.	REVISION
L 2.6	0
SERIES	
1 of 1	