JOBS FOR NATURE AKE DUNSTAN

CONCEPT PACKAG

RMM 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

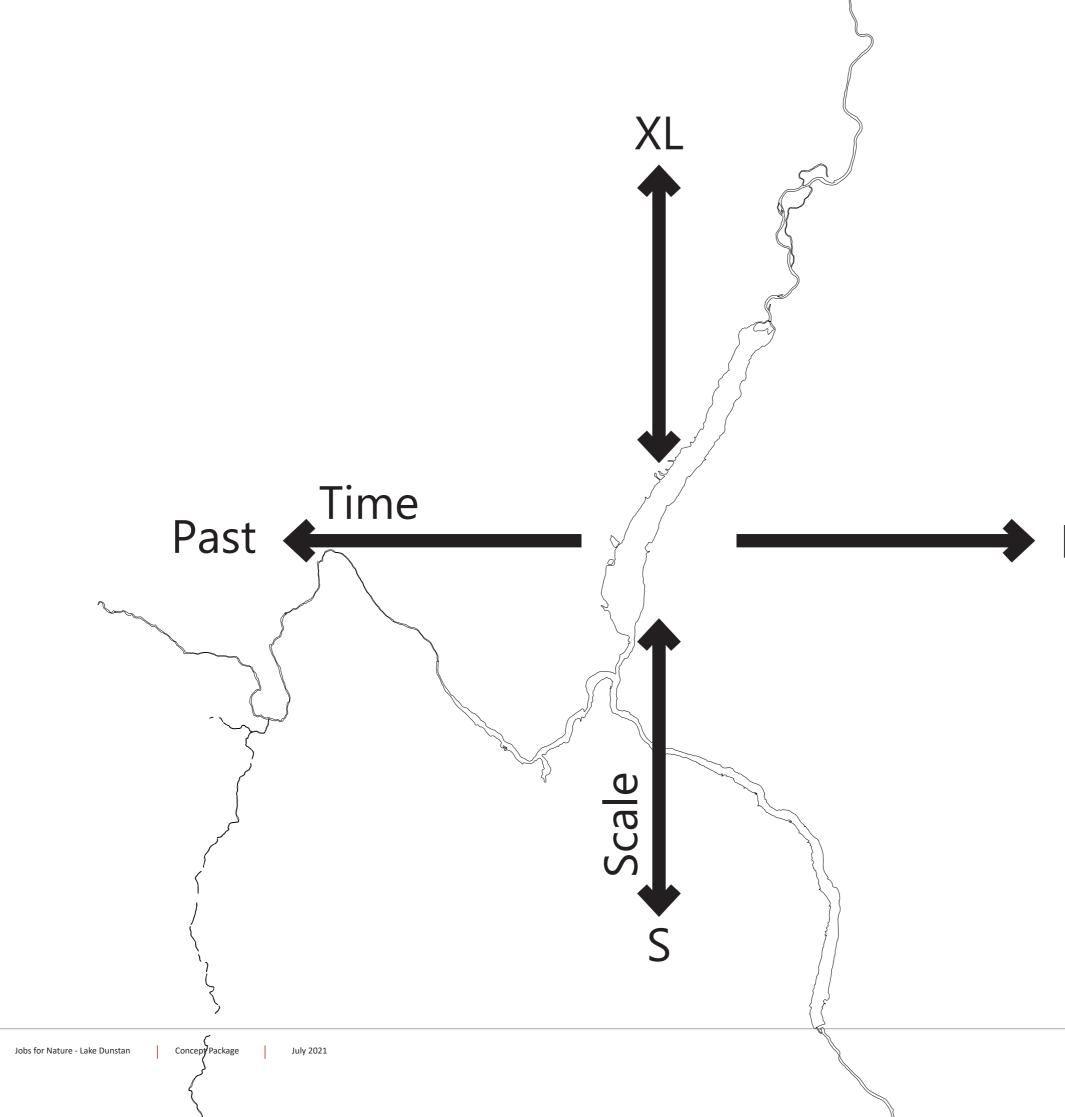
The site forms at a wide range of scales

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.

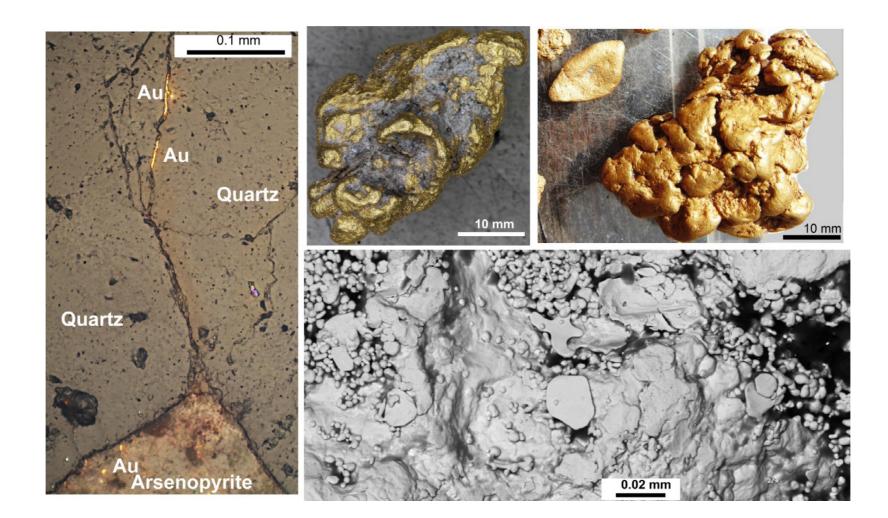


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Future

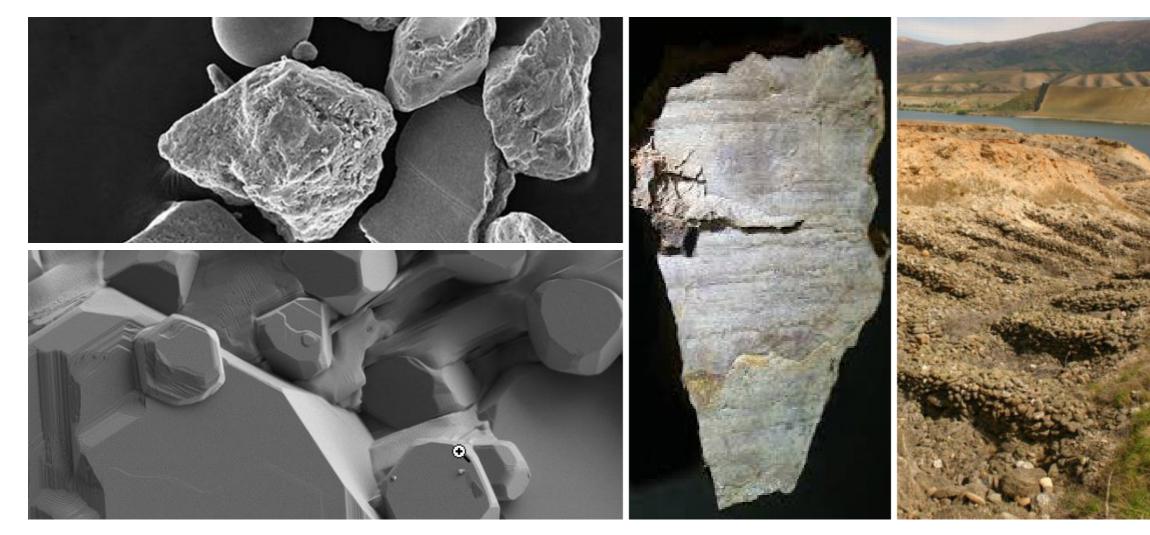
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GOLDEN SCALE Gold in the Lake Dunstan area was found in many sizes



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.





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 - AOTEAROA/NEW ZEALAND

SITE - KI UTA KI TAI/MOUNTAINS TO SEA 1:650,000



SITE - MATA-AU/CLUTHA RIVER 1:200,000



PRE HUMAN, MĀORI AND EURO/ASIAN INFLUENCE

The inhabitation of the Lake Dustan area has had a profound impact on the natural environment.

PRE HISTORIC VEGETATION

Pre human nature



Charcoal and pollen records indicated that low forest and shrublands would have dominated the intermontane basin prior to human settlement. (Walker et al 2004) Species that had been noted include 'podocarp' (*Phyllocladus alpinus, Prumnopitys taxifolia, Popdocarpus spp and Halocarpus spp*), 'beech' (*Nothofagus spp*), 'angiosprem' (*Discaria toumatou, Hebe spp* and *Hoheria spp*) and 'mānuka/kānuka' (*Leptospermum scoparium* or *Kunzea ericoides*)(Wardle 2001)





Charcoal and pollen records have shown that the majority of the original landscape and its vegetation was lost between 800-500 years ago. This coincides with the arrival of Māori and the practise of burning the land to hunt and provide easier passage around the region. Those sensitive to fire perished from the landscape which was soon recolonised by grasses and tussocks that survived in the fire-safe areas (cliffs and gullies). (McGlone1989; Andreson 1991)

ARRIVAL OF EUROPEAN & CHINESE SETTLERS

Further environmental distruction



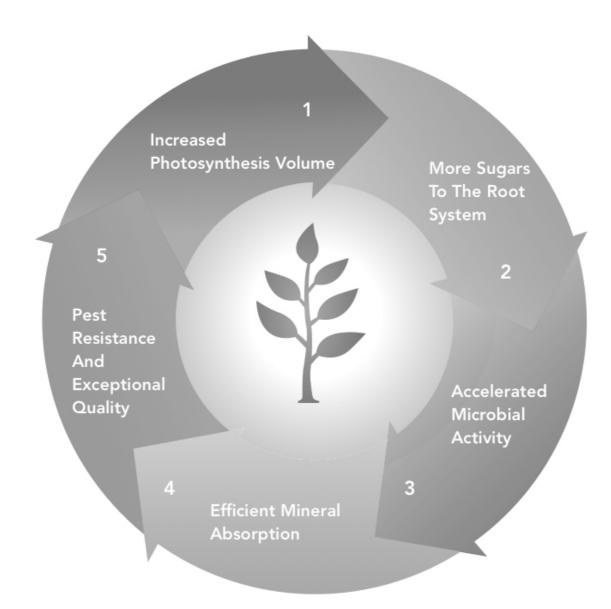
The arrival of Europeans, who further burnt the land for pastoralism and introduced grazing pests, ensured that the soil could no longer sustain the vegetation it once had. The discovery of gold and subsequent gold rush bought more European and Chinese settlers that further manipulated the natural landscape.

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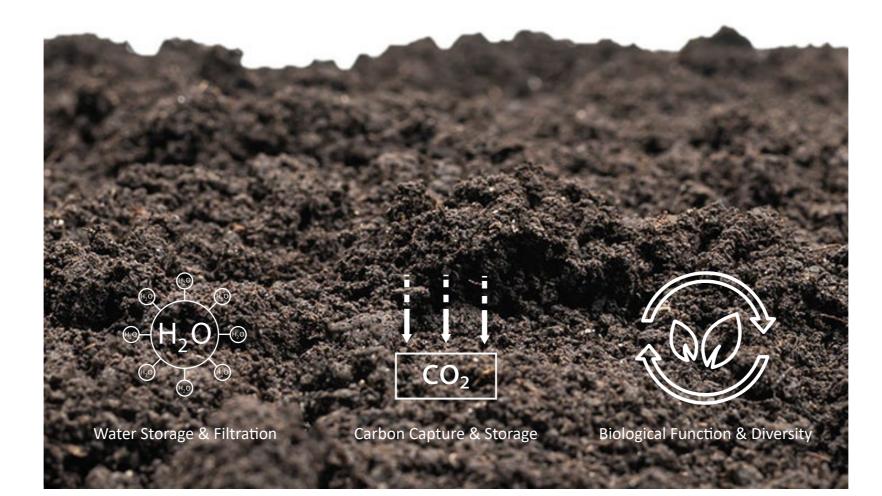
Healing the earth Increasing biodiversity, moisture retention and 'growing' soil





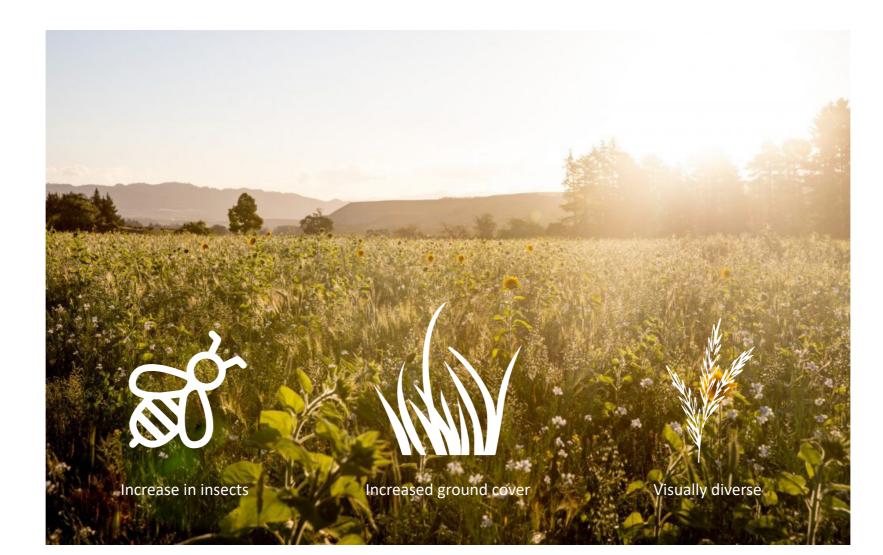
Re-generative agriculture is characterised by the significant diversification of crops, plants and animals, it has a low use of inputs, none of which are synthetic. Synthetic inputs are replaced with practices that mimic natural systems to access nutrients, water and pest control required for growth. 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.





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.

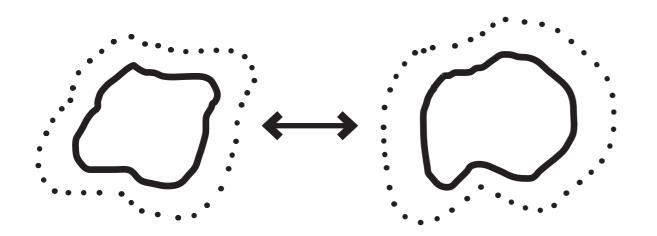


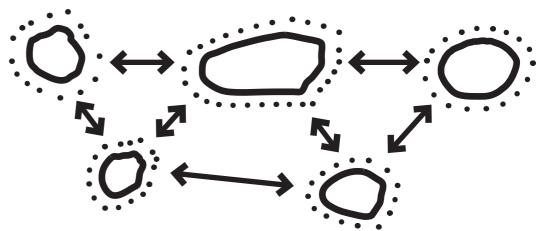


Conventional agricultural practices are generally understood to simplify agroecosystems through introduction of monocultures and eradication of diversity in soil microbial communities through chemical fertilization. In natural ecosystems, biodiversity serves to regulate ecosystem function internally, 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.

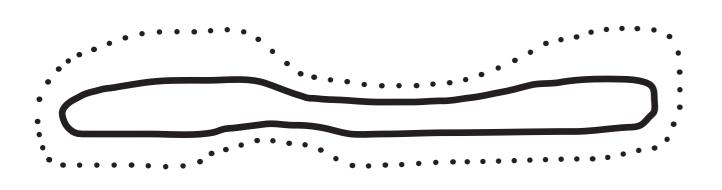
ECOLOGICAL NETWORKS

building on the foundation of succession





Stepping stones





Surrounds

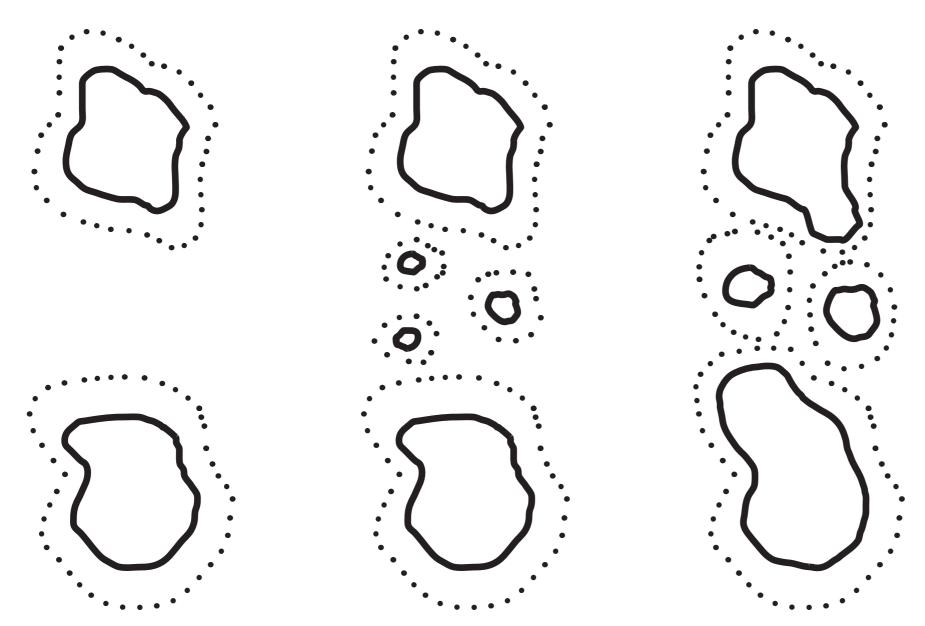
Corridors

Patches

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

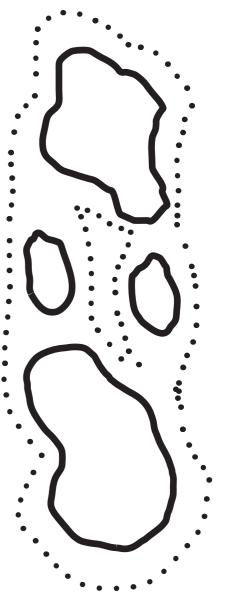
Giving nature a head start so it can do what nature does



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 maintenance 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.

Version and the second and the secon

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.



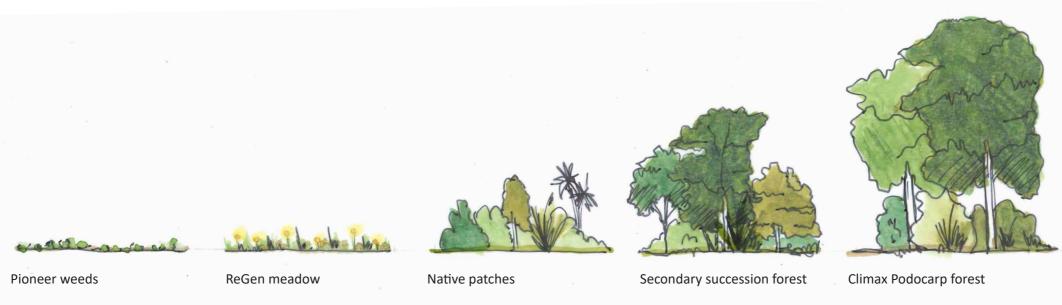
Year 30 ->

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



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Time

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 manuka and/or kanuka, 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 Stages

ReGen test areas

Stage 1 planting

Stage 2 planting

Stage 3 planting



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FEATURES OF INFLUENCE

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





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





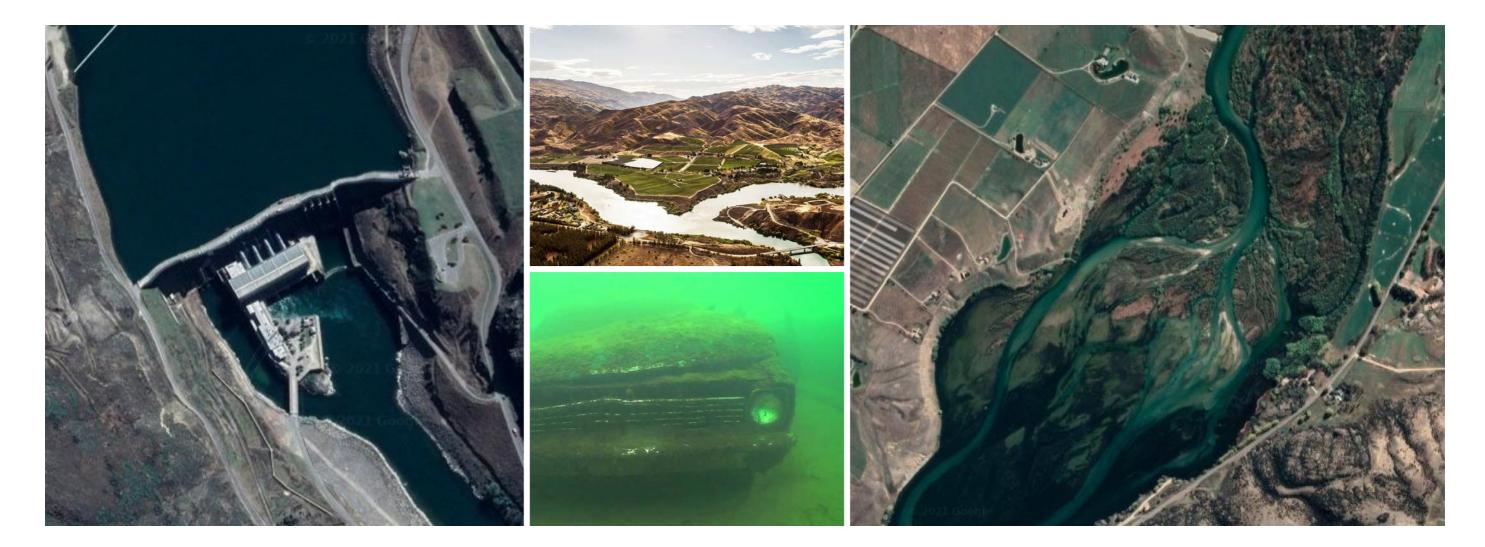
These virtually pristine remains are the result of ground sluicing; channelling water to the head of a claim and flooding the working face. Larger stones and rocks were removed and stacked, row after row in a herring bone pattern. The washed material was then directed or shovelled to a sluice channel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





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.





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.





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



Indicating key areas of thought

RECLAIMING THE FUTURE

Coming together to forge a connected future of the Lake Dunstan area

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 people.



EXPLORATION, STORY TELLING, & ENGAGEMENT

Programatic conceptual thinking





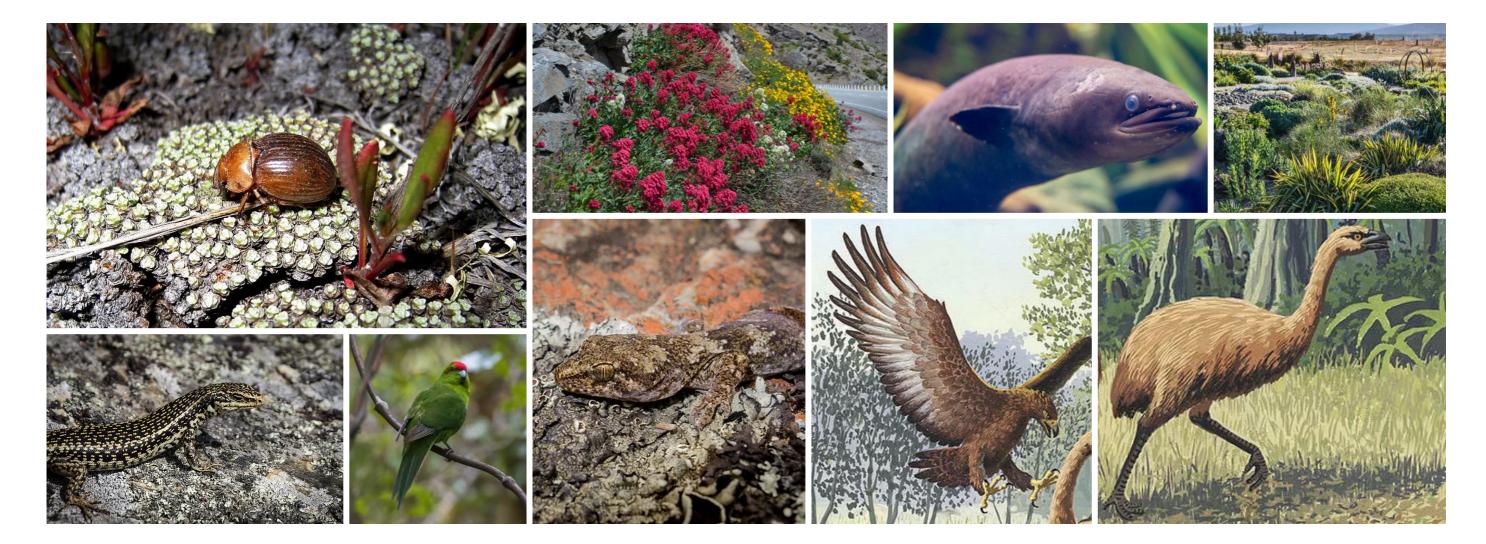
To honour Cromwell's rich cultural heritage, the trust will work with local Rūnanga to embrace the culture, traditions and stories of those who first walked this region. The identity of the region is important to ensure the teachings and celebrations are shared and continue to offer guidance to future generations. For example, the use of tī kōuka (Cabbage tree) as a traditional navigation technique through changing landscapes and the legend of Kopuwai.





The Lake Dunstan area has a deep archiological history that can be reveal, celebrated and passed on through good, meaningful design along the site.





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.





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.





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.





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.

PLAY Opportunities for the young, and young at heart



Play is the foundation of learning. By using play as a fundamental design feature the area can enhance experiences and learning throughout Lake 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.

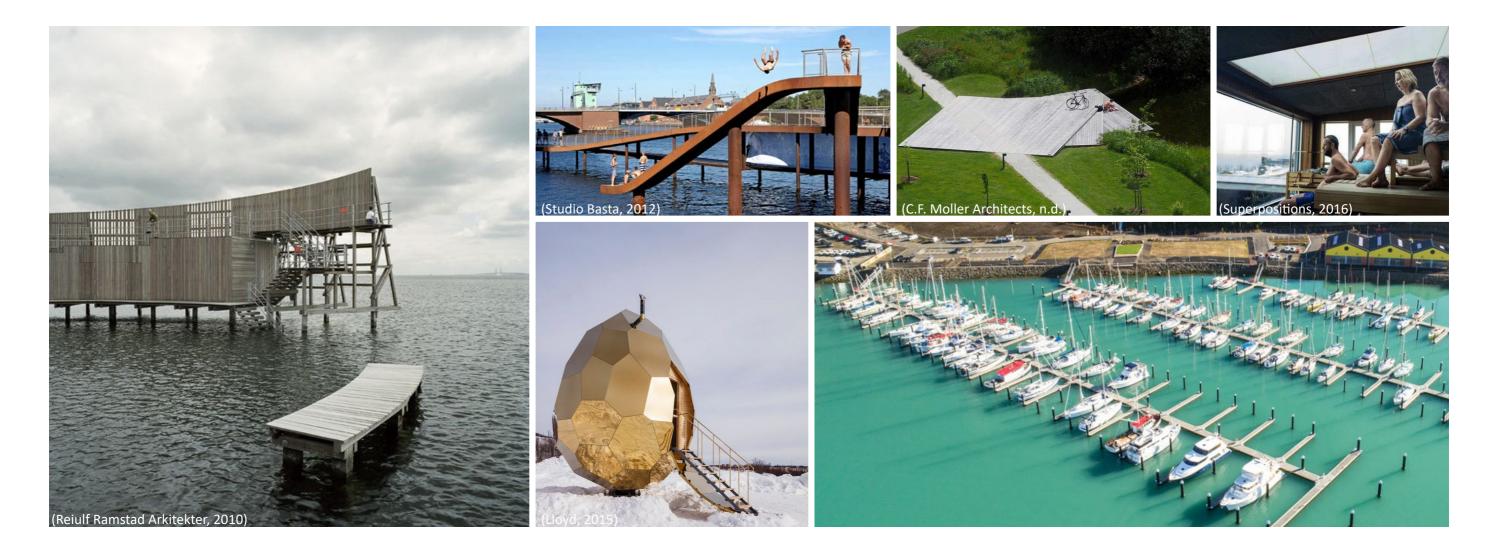




Involving locals of all ages to write, paint, and sculpt pieces for the trail deepens the genius loci and public engagement in the project. When the community gets involved in a project like this, it not only builds on community values but will also create a sense of pride and ownership of the site.

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.





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.





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





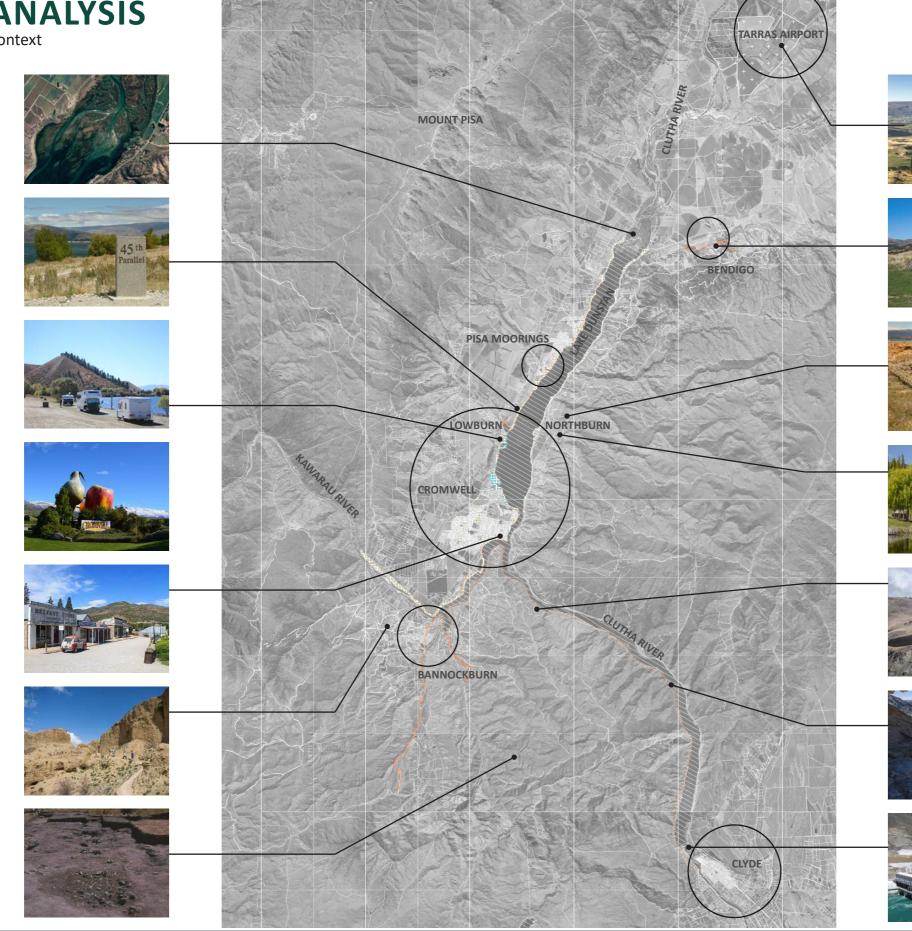
From weddings to the candid, strong imagery shared on social media sites is one of the best marketing tools that places have. With careful consideration in design and plant choice, the area can boost a number of 'gram' worthy locations.

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









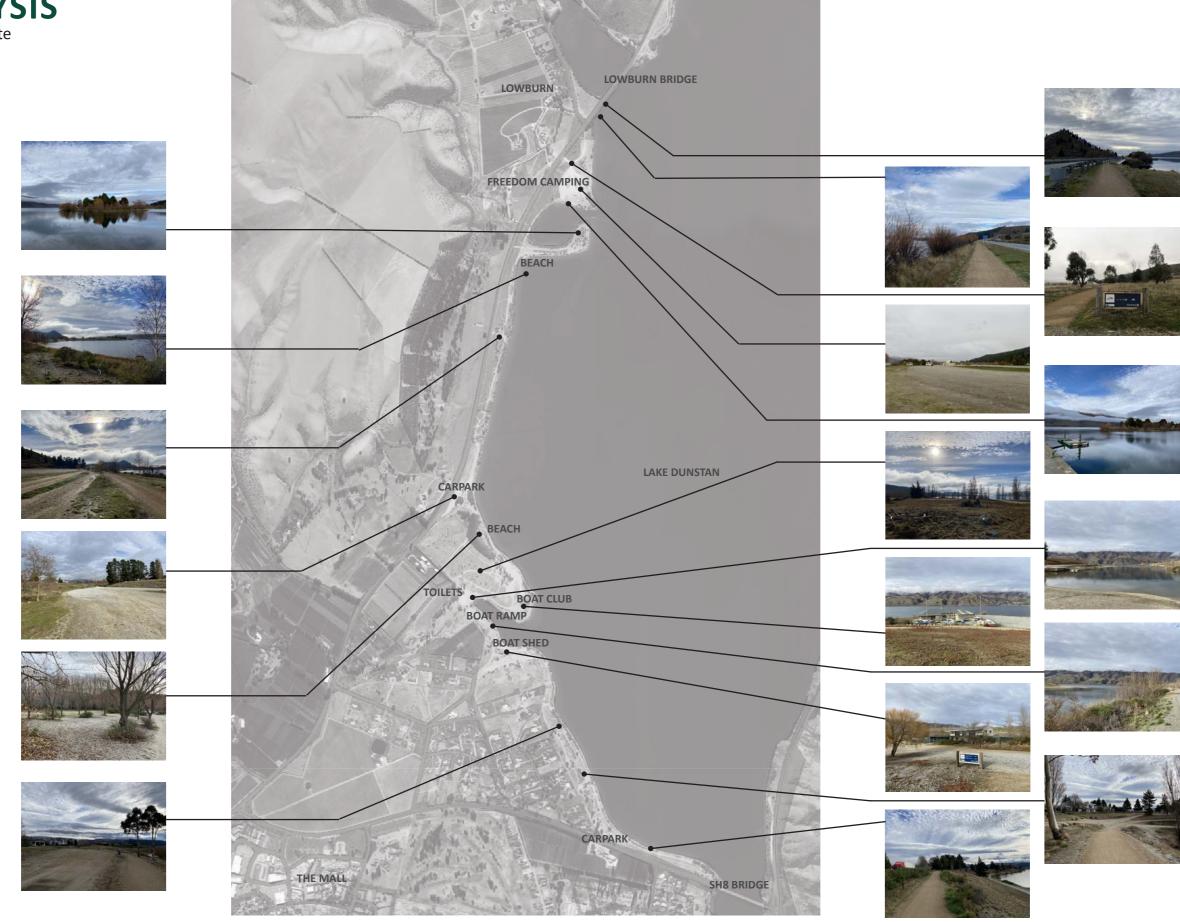














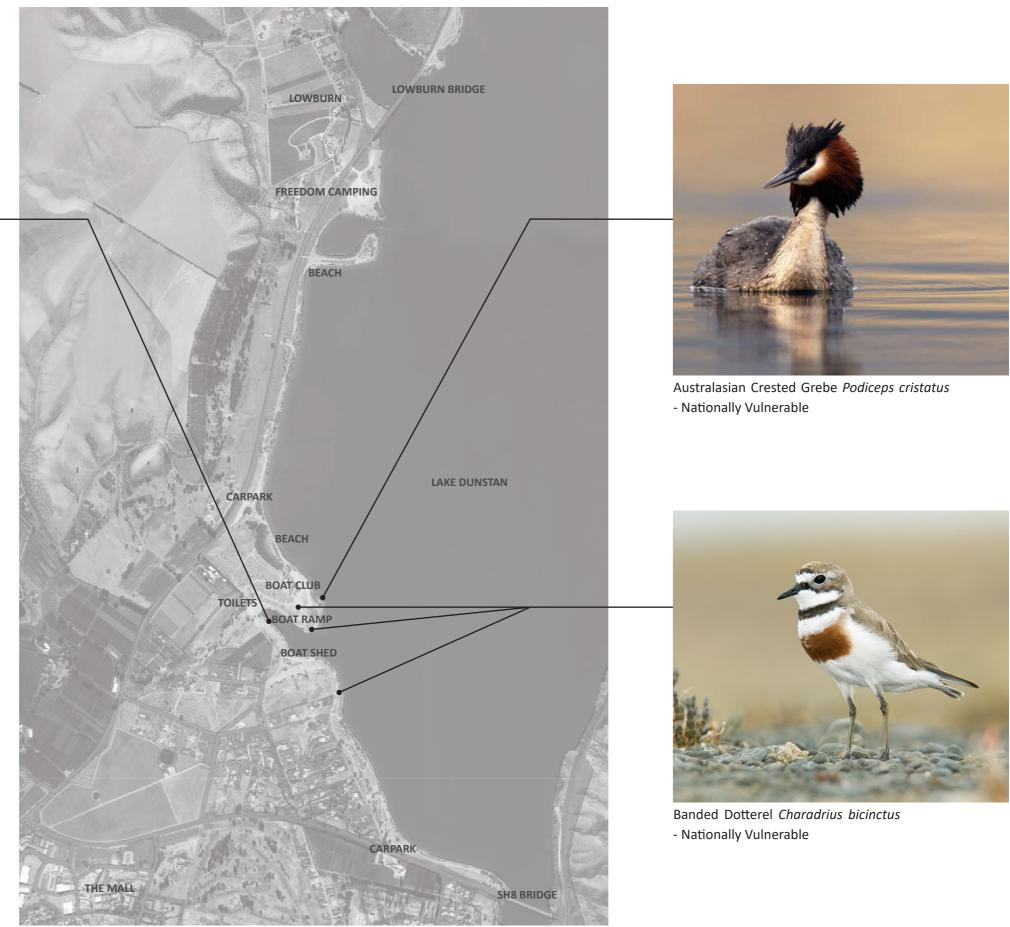
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SITE ANALYSIS

Native bird life sitings and nesting areas



Sacred Kingfisher Todiramphus sanctus



SITE ANALYSIS





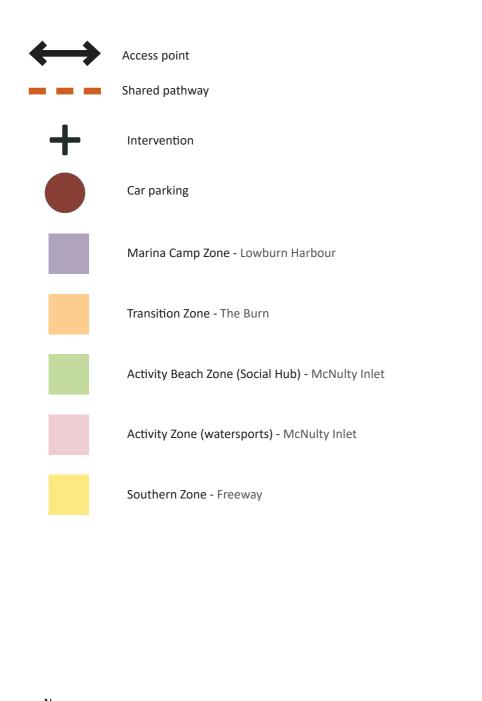
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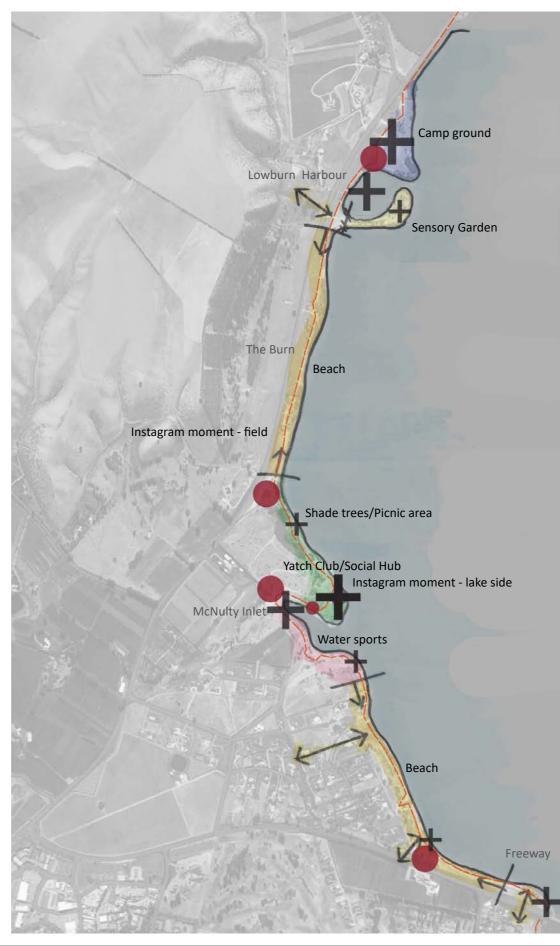


Putting concepts to practice

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.



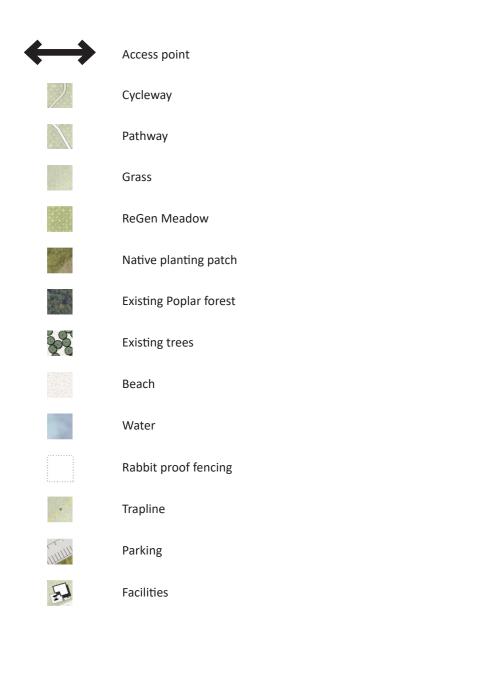






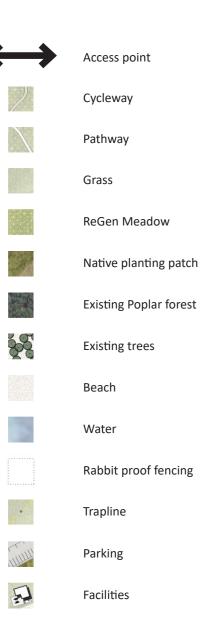
OVERALL PLAN

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.









FREEWAY PLAN



Freeway Meadows concept plan 1:5000

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MCNULTY INLET PLAN





McNulty Inlet concept plan

1:5000

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THE BURN PLAN





The Burn concept plan

1:5000



Artists impression - ReGen test area

LOWBURN HARBOUR PLAN





Lowburn concept plan 1:5000

No camping on

Lowburn Harbour

Mindfulness sanctuary

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Providing information and assisting navigation

WAYFINDING & INFORMATION

Route finding, educating and discovering



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.



Movement around the site

CIRCULATION

To reduce damage to the soil from motor vehicles, the site needs to restrict access to motorised vehicles. Adequate parking locations have been placed throughout the site to reduce inaccessibility and create a safer environment for all users of the area not just motor vehicles.



Reinforced boulders placed at access points to restrict motor vehicle access



Exisitng cycleway





Proposed carparking

Seperate walkway created on an exisitng 4WD track.





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Detailing planting

PLANT PALETTE - LOW SHRUBS



Muehlenbeckia axillaris Creeping Wire Vine

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Festuca novae-zealandiae

Fescue/Hard Tussock

Muehlenbeckia complexa Small Leaved Pohuehue



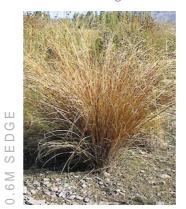
Austroderia richardii South Island Toe Toe



Anthosachne apricus Blue Wheat Grass



Carex buchananii Leatherleaf Sedge



Carex secta Tussock



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C \subset Poa colensoi Blue Tussock

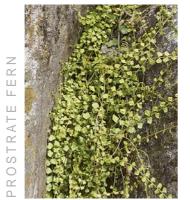


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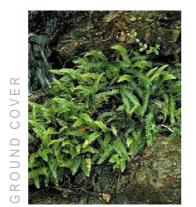


Asplenium trichomanes

Asplenium flabellifolium Necklace Fern



Blechnum penna marina Antartic Hard Fern



Cheilanthe sieberi Poison Rock Fern



Pellaea calidrupium Hot Rock Fern



















Poa cita Silver Tussock

PLANT PALETTE - MEDIUM SHRUBS



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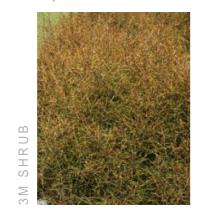
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Aristotelia fruiticosa Mountain Wineberry



Coprosma rugosa Coprosma



Corposma intertexia Coprosma



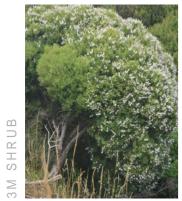
Coprosma propinqua Coprosma



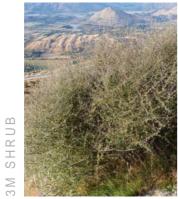
Coprosma virescens Mikimiki



Hebe salicifolia Koromiko



Olearia odorata Scented Tree Daisy



Mountain Ake Ake



Olearia avicenniifola

Black Matipo

Pittosporum tenuifolium

Melicope simplex Poataniwha



Carmichaelia compacta Cromwell Broom



Discaria toumatou Matagouri



Coprosma dumosa Coprosma









A SHRUB

Carmichaelia petriei Desert broom





PLANT PALETTE - LARGE SHRUBS AND TREES



ĸ

Cordyline australis Cabbage Tree



Leptospermum scoparium Mānuka



Kunzea serotina Kānuka



Griselinia littoralis Broadleaf / Akapuka



Podocarpus laetus Halls Totara/Montane Totara



Olearia hectorii

Tree Daisy

Olearia fragrantissima



Tree daisy

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Sophora microphylla Kōwhai



Plagianthus regius Lowland Ribbonwood



Hoheria glabrata

Lacebark



Pseudopanax ferox Toothed Lancewood / Horoeka

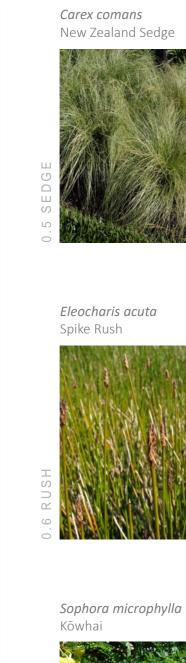


Pseudopanax colensoi Three finger





PLANT PALETTE - RIPARIAN



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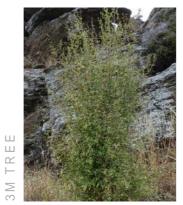
Carex flagellifera New Zealand Sedge



Hebe salicifolia Koromiko



Olearia hectorii Tree Daisy



Coprosma propinqua Coprosma



Phormium tenax Harakeke



Coprosma virescens



Cordyline australis

Cabbage Tree

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Mikimiki



Coprosma dumosa Coprosma



Leptospermum scoparium Mānuka



Melicope simplex Poataniwha



Podocarpus laetus Halls Totara/Montane Totara

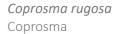


Plagianthus regius













Hoheria glabrata Lacebark



Poa cita Silver Tussock





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PLANT PALETTE - WETLAND PLANTING



Blechnum minus Fern



Carex buchananii Leatherleaf Sedge



Carex kaloides Tussock



Carex secta Tussock



Juncus gregiflorus Rush



Carex coriacea Cutty Grass



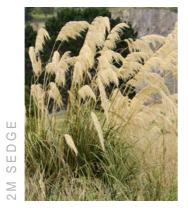
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Austroderia richardii South Island Toe Toe



Halocarpus bidwillii Bog Pine



Olearia bullata Olearia bullata



Olearia lineata

Tree Daisy

TREE 2 M

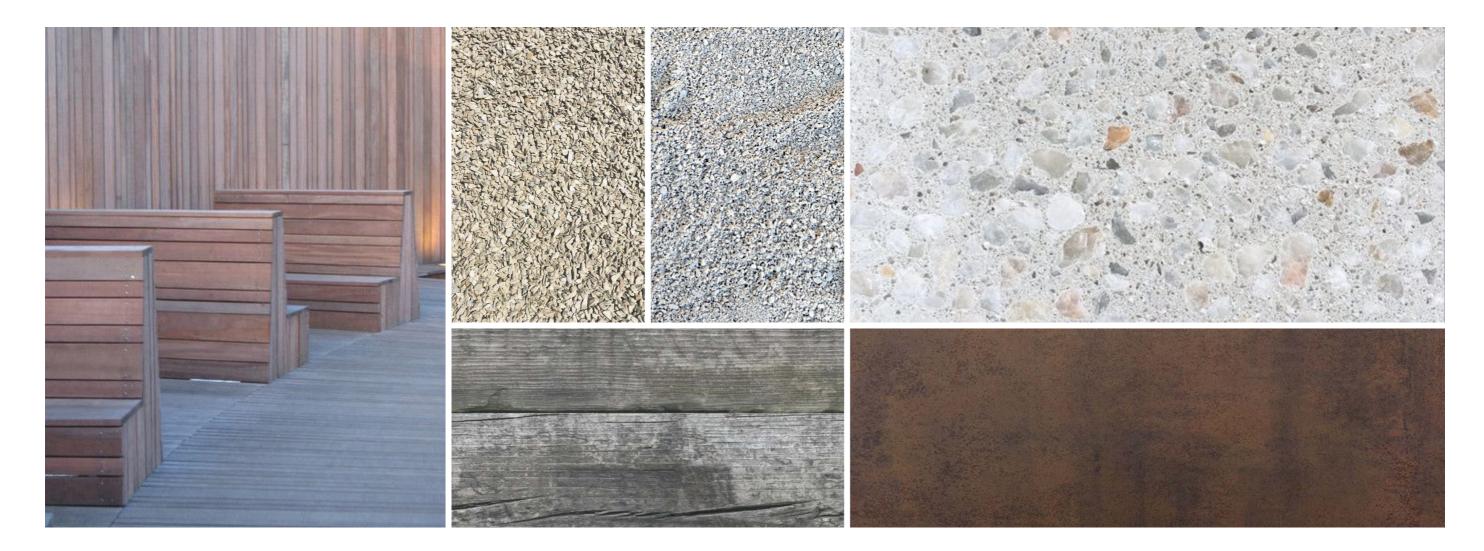




Phormium tenax Harakeke



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

RMM 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 Lake Dunstan area. **RMM** 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.

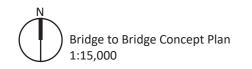
RMM came up with a strategic concept to guide the design process. This concept is about showcasing what Lake Dunstan has to offer and creating meaningful design interventions that enhance and connect these existing features.

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. **Freeway**, the southern zone is the entrance from the south, it builds on the transition from river to lake. **McNulty Inlet**, is the hub of interaction with the lake and is close to Cromwell township. **The Burn**, is the centre of healing - growing soil, one sunflower field at a time. **Lowburn Harbour**, 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 to enjoy.

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







RMM Landscape Architects