





VIEWPONT 1

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:05pm 15 October 2024
Altitude: 344.7m



VIEWPONT 2

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:06pm 15 October 2024
Altitude: 344.7m





VIEWPONT 3

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:07pm 15 October 2024
Altitude: 344.7m



VIEWPONT 4

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:10pm 15 October 2024
Altitude: 344.7m





VIEWPONT 5

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:15pm 15 October 2024
Altitude: 344.7m



VIEWPONT 6

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:18pm 15 October 2024
Altitude: 344.7m





VIEWPONT 7

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:21pm 15 October 2024
Altitude: 344.7m



VIEWPONT 8

NOTE:
All images taken at a focal length of 50mm with a field of view of 124°
Time of Day: 1:23pm 15 October 2024
Altitude: 344.7m





VIEWPONT 9

NOTE:

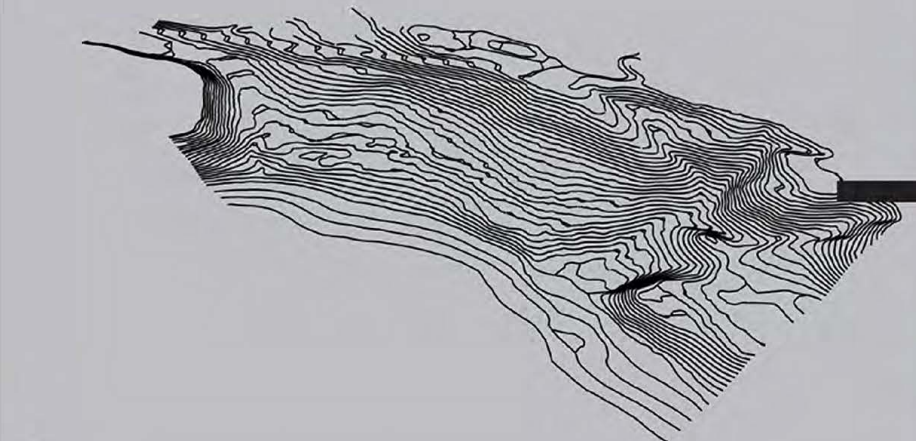
All images taken at a focal length of 50mm with a field of view of 124°

Time of Day: 1:28pm 15 October 2024

Altitude: 344.7m

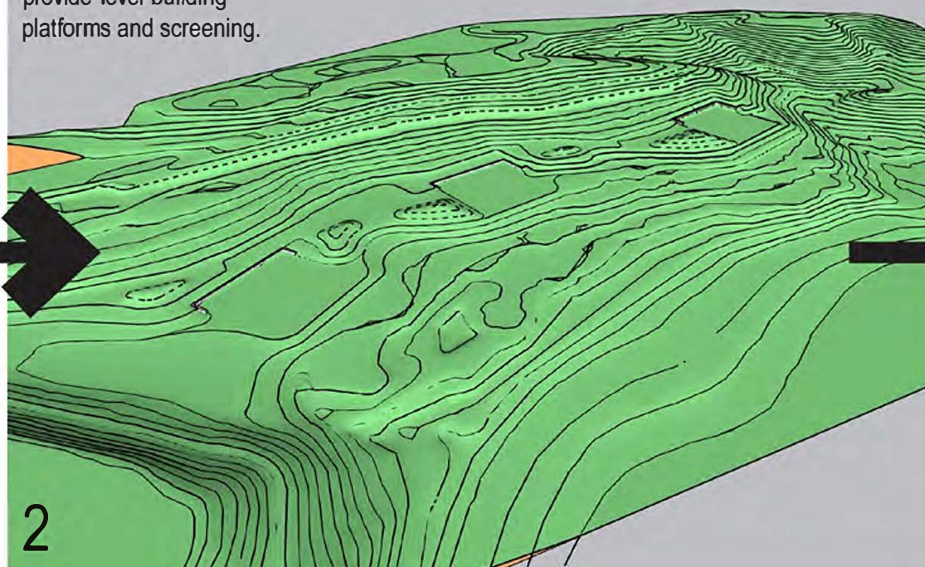


Existing contour data is converted into 3D data.



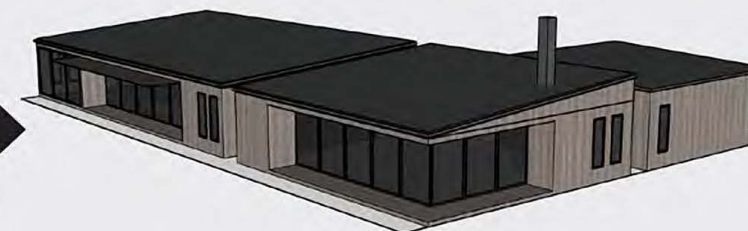
1

Proposed earthshaping is applied to the site to provide level building platforms and screening.



2

A 'typical' dwelling is designed in accordance to the proposed design controls.



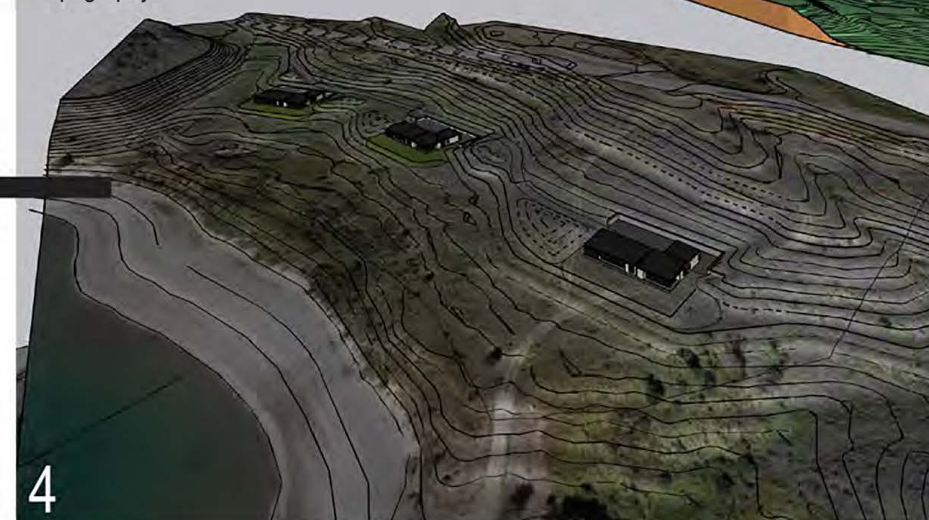
3

The location of the camera and lens type is aligned in CAD before being sent to a rendering engine to create realistic material properties. Finally, additional vegetation is added in Photoshop.



5

The lots are placed on building platforms onto topography



4



Eastern Elevation

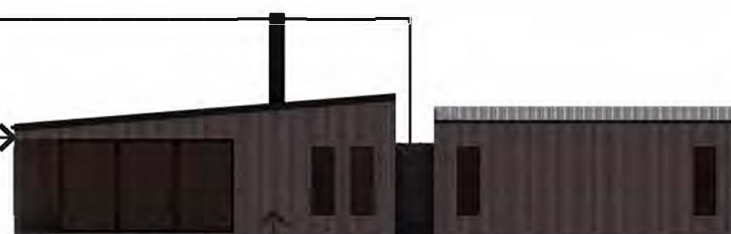


Flats between buildings to be clad in mild steel panels

Floor to ceiling glazing inset into building

Reduced glazing on western, eastern and southern elevations

Northern Elevation



Western Elevation

Roof slopes from a maximum height of 3.8m to 3.0m

Overhang above glazing to reduce potential reflectivity

Vertical timber cladding with dark stain to recess built form into landscape

Flat roof garage





FIGURE A: Existing view from Lake Hawea

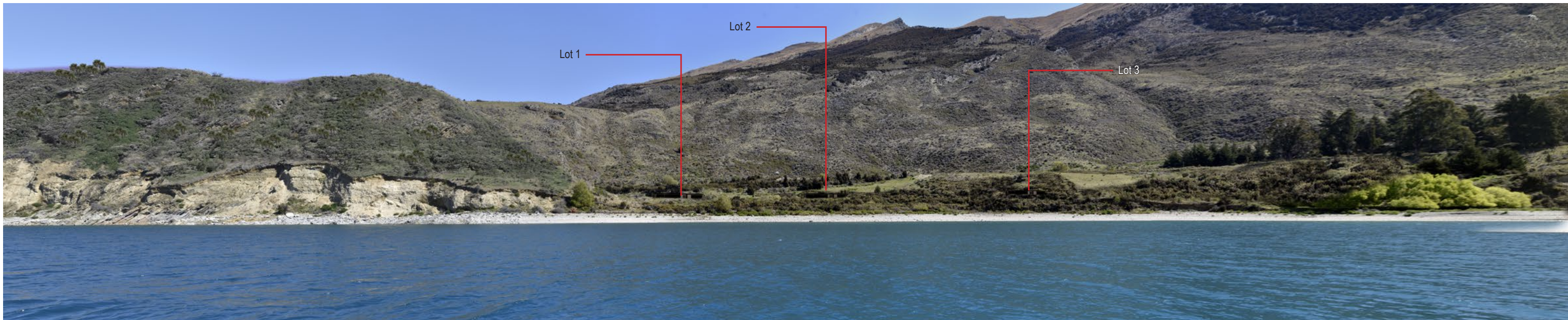


FIGURE B: Digital Render showing proposed dwellings, earthworks and landscaping shown 3 years after planting





FIGURE A: Existing view from Lake Hawea

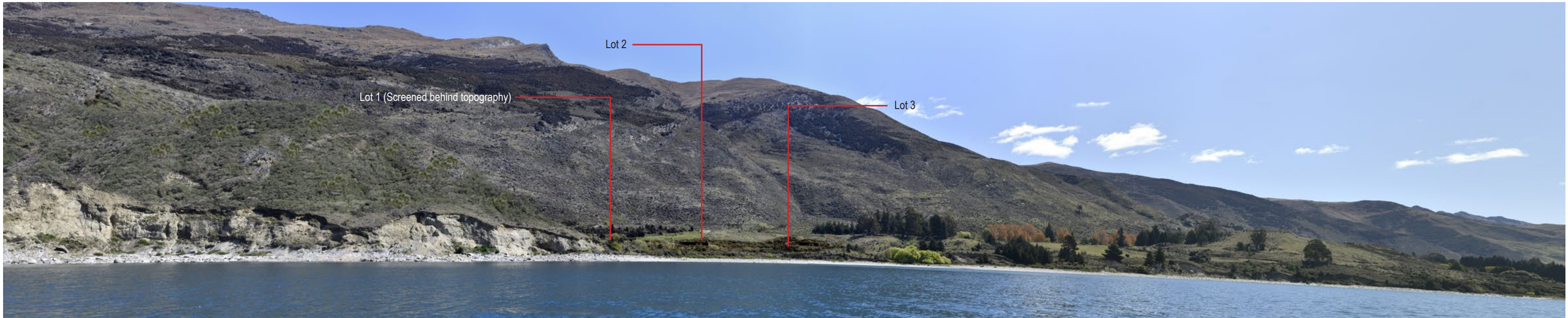


FIGURE B: Digital Render showing proposed dwellings, earthworks and landscaping shown 3 years after planting



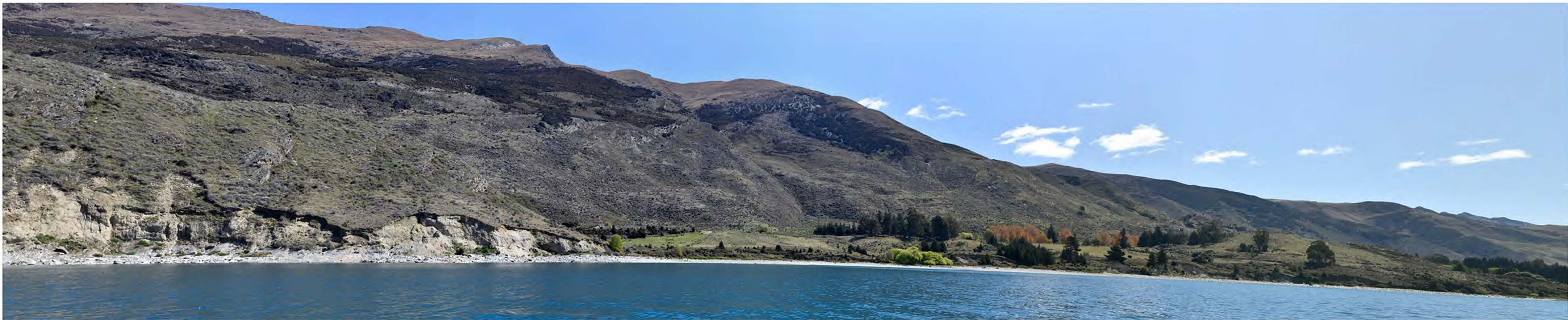


FIGURE A: Existing view from Lake Hawea

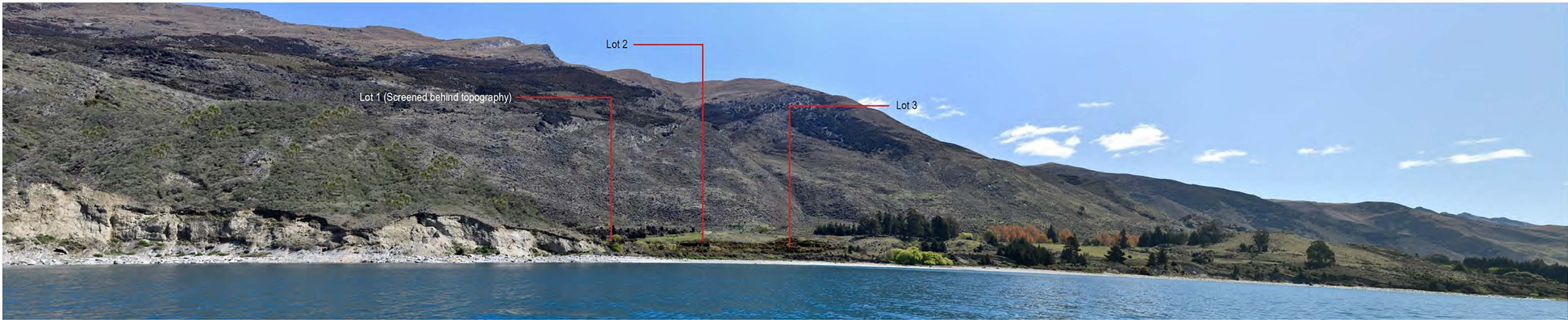


FIGURE B: Digital Render showing proposed dwellings, earthworks and landscaping





FIGURE A: Existing view from Lake Hawea

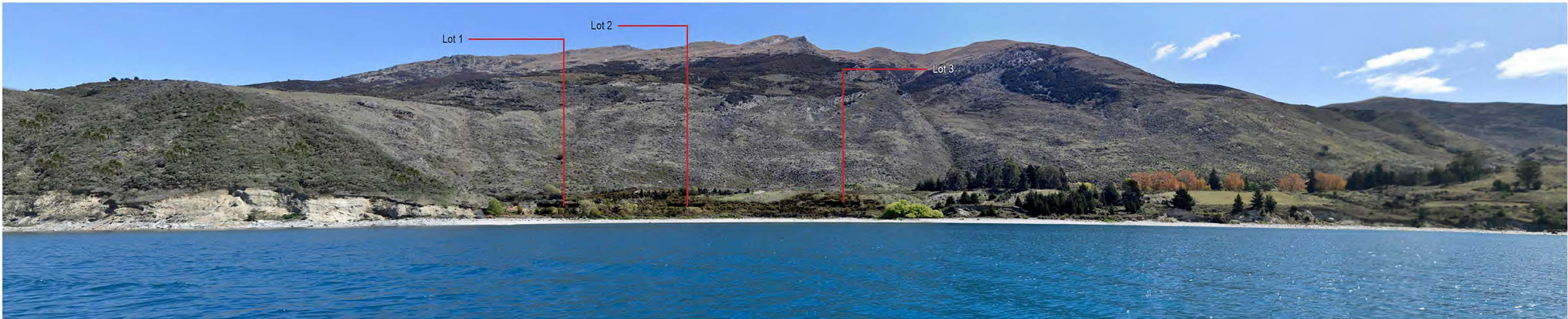


FIGURE B: Digital Render showing proposed dwellings, earthworks and landscaping





FIGURE A: Existing view from Lake Hawea

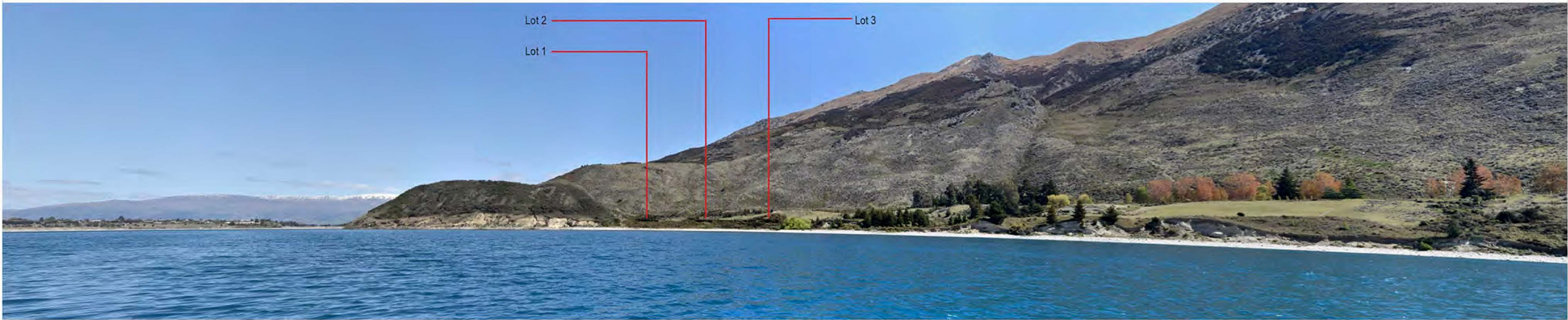


FIGURE B: Digital Render showing proposed dwellings, earthworks and landscaping



LANDSCAPE AND VISUAL EFFECTS ASSESSMENT

THE DENE - PROPOSAL TO CREATE
THREE RURAL LIVING LOTS VIA
SUBDIVISION

vivian+espie
resource management and landscape planning

INTRODUCTION & DESCRIPTION OF THE PROPOSAL

- 1 This report identifies and evaluates the landscape and visual effects likely to arise from a proposal to subdivide a 38ha lot so as to create three rural living lots and two balance lots. The three rural living lots are each to contain a building platform, one balance lot is to contain an existing established dwelling and accessory buildings and the other balance lot is to comprise of open space. The site is legally described as Lot 1 DP396356 and is known as The Dene. It is a farming block that is run in conjunction with Glen Dene Station, a large farming operation that adjoins the site to the north and west.
- 2 The proposed layout of activities is shown on Appendix 2 to this report, which is a proposed Vegetation Plan. The site is a hummocky, rolling strip of north-south oriented land that fronts Lake Hāwea to the east and adjoins State Highway 6 (**SH6**) along its western edge. The site is located in the Rural Zone and an Outstanding Natural Landscape (**ONL**) pursuant to the Proposed District Plan (**PDP**).
- 3 The details and layout of the proposed activities are set out in the resource consent application and its various appendices. Two of those appendices consist of a set of design controls and a graphic document prepared by Baxter Design. Reference to those documents is helpful to the understanding of this report. I will not repeat the details of the proposal here, other than to make the following summary points that are relevant to an assessment of landscape issues.
 - The southern end of the site (proposed Lot 5 of 7.7ha) takes the form of a rounded, glacially-formed hill, known locally as Round Hill. The proposal involves registering a covenant with the QEII Trust to protect this hill from any development or modification in perpetuity. It is also proposed to provide for a walking trail up to an elevated lookout point on Round Hill. The proposal involves creating an easement in favour of the public over this trail alignment such that it will connect to a public walking route that connects in a southerly direction to Hāwea township. While the QEII covenant and the formation of a walking trail are part of the applicant's overall vision for the land, these elements are progressing separately from the resource consent application.
 - Three proposed rural living lots are situated in the amphitheatre-like bay to the immediate north of Round Hill. The lots range between 1.4 and 1.6ha and each lot contains a 390m² building platform. Curtilage within each lot is controlled by way of the specified proposed

lawn, service and vehicle courtyard areas. A specific relative level (**RL**) is given for each building platform and a maximum building height plane is set at 3.8m above the RL.

- Future built form within the building platforms will be subject to the provisions of the Rural Zone as well as the specific set of design controls that relate to things such as external cladding and roofing, deep eaves over all windows, and restricting fencing.
- Earthworks are proposed to form vehicle access to the three building platforms and to form the platform areas and create rolling landforms to separate and partially screen future buildings. All cuts and batters are proposed to be fully re-grassed and/or revegetated.
- The proposed balance lot is to be of 25.4ha and will take in most of the site including the existing dwelling and accessory buildings. It will continue to be run as a farming block in conjunction with Glen Dene Station.
- The proposal involves volunteered conditions of consent that require an Ecological Management and Enhancement Plan (**EMEP**) to be submitted to the QLDC for approval. The EMEP shall give details of the implementation of the ecological work recommended by the Ecological Assessment Report that accompanies the application¹. This work will incrementally remove wilding-prone exotic vegetation from the site and create large areas of native revegetation over the southern half of the site. This revegetation involves ecological enhancement over a very considerable area of the site. Some of the areas of proposed vegetation will also visually soften future dwellings and tie them into a complex visual pattern created by the proposed and existing vegetation. Revegetation work will also include rehabilitating all ground disturbed by earthworks.

METHODOLOGY

4 The methodology for this assessment has been guided by:

- The Te Tangi A Te Manu, Aotearoa New Zealand Landscape Assessment Guidelines (**TTatM**)².
- The landscape-related provisions of the PDP.

¹ "Ecological Assessment – The Dene – Lake Hāwea"; prepared by Biodiversity Solutions Ltd, 25 November 2022.

² Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022 (**TTatM**).

- 5 When describing effects, we will use the hierarchy of adjectives given in the bottom row of the table below. The top rows show how the adjectives that we use can be related to specific wording within the RMA³.

SIGNIFICANT						
LESS THAN MINOR	MINOR	MORE THAN MINOR				
VERY LOW	LOW	LOW-MOD	MODERATE	MOD-HIGH	HIGH	VERY HIGH

RELEVANT STATUTORY CONTEXT

- 6 The most relevant provisions from Chapter 3 of the PDP are:

STRATEGIC OBJECTIVES

- 3.2.5.1 *The District's Outstanding Natural Features and Outstanding Natural Landscapes and their landscape values and related landscape capacity are identified.*
- 3.2.5.2 *Within the Rural Zone, new subdivision, use and development is inappropriate on Outstanding Natural Features or in Outstanding Natural Landscapes unless:*
- a. *where the landscape values of Priority Areas of Outstanding Natural Features and Outstanding Natural Landscapes are specified in Schedule 21.22, those values are protected;*

- 7 The site is part of the Hāwea South North Grandview Priority Area. Strategic Policies 3.3.28 to 3.3.31 then set out that the landscape values⁴ and the related landscape capacity of each Priority Area⁵ shall be identified and set out in a Schedule in the PDP (Schedule 21.22) and that these values shall be protected. Schedule 21.22.23 identifies and describes the values and capacity of the Hāwea South North Grandview Priority Area. The consideration of the landscape values and related landscape capacity of the subject landscape is relevant in relation to Strategic Objective 3.2.5.2, which is set out above.

- 8 The most relevant provisions from Chapter 6 are:

³ Ibid.

⁴ TTatM define landscape values at paragraph 5.6 and the glossary as "the reasons a landscape is valued – the aspects that are important or special or meaningful" and note that "values are embodied in certain attributes". Also, at paragraph 5.55, it is helpfully notes that "hybrid terms such as 'visual amenity', 'rural amenity' and 'natural amenity' are shorthand for 'landscape values that contribute to amenity values'".

⁵ Policy 3.3.44, as per the above Environment Court Decision, makes it clear that Priority Areas are prioritised in terms of scheduling, not in terms of their landscape merit, sensitivity or importance.

6.3.3.1 Recognise that subdivision and development is inappropriate on Outstanding Natural Features or in Outstanding Natural Landscapes unless:

- a. landscape values are protected; and
- b. in the case of any subdivision or development, all buildings and other structures and all changes to landform or other physical changes to the appearance of land will be reasonably difficult to see from beyond the boundary of the site in question.

6.3.3.5 Maintain the open landscape character of Outstanding Natural Features and Outstanding Natural Landscapes where it is open at present

EXISTING LANDSCAPE

9 As well as the Priority Area Schedules themselves, the variation that created the Schedules included a Methodology Statement, which states:

“ The PA Landscape Schedules work is not required to address the merits or otherwise of the PA ONF, ONL, and RCL spatial mapping itself, as these have been set by the Environment Court. Further, the mapped extent of a priority area is not necessarily a ‘landscape’ in its own right, and typically forms part of a broader landscape”⁶.

10 In my opinion, the above statement particularly applies to the Hāwea South North Grandview Priority Area, as mapped in the notified variation. It is not a single, complete or coherent landscape. The Grandview Mountains part of the Priority Area is quite separate from the Lake Hāwea part of the Priority Area. The Priority Area mapping separates the southernmost part of Lake Hāwea and its catchment from the remainder of the lake. This is not necessarily a problem in itself, since the Priority Areas do not propt to be complete landscapes, but this issue needs to be borne in mind when applying the Objectives and Policies set out above, since they require the protection of the values of the ONLs, not of the Priority Areas.

11 Momentarily leaving aside the mapped Priority Area and associated Schedule; in the following paragraphs, I set out my own commentary regarding the ONL landscape of which the site is a part (which I shall call the Lake Hāwea Landscape).

12 Strategic Policies 3.3.37, 3.3.38 and 3.3.43 set out how the existing landscape is to be assessed in order to arrive at a description of its values and capacity. This accords with the methodology set out in TTatM. This assessment has effectively been done in arriving at the Priority Area

⁶ ONF, ONL and RCL Priority Areas Landscape Schedules, Methodology Statement, Bridget Gilbert, Isthmus, Helen Mellsop, May 2022, paragraph 1.7.

Schedules. In subsequent paragraphs, I set out my own findings from an assessment of the existing landscape, while taking into account Schedule 21.22.23.

Physical Attributes⁷

13 Strategic Policy 3.3.43 lists physical attributes as:

- i. geology, geomorphology and topography;*
- ii. ecology;*
- iii. vegetation cover (exotic and indigenous);*
- iv. the presence of waterbodies including lakes, rivers, streams, wetlands, and their hydrology;*
- v. land use (including settlements, buildings and structures)*

14 The subject site and its context can be seen on Appendix 3 of this report. The area of the Dene and Glen Dene Station is part of a vast mountain-and-lakes landscape that is categorised as an ONL by both the ODP and the PDP. In physical terms, this landscape is dominated by the extensive flat lake surface, allowing very long views, and the dramatic, steep, enclosing mountain ranges that act as a backdrop. The length of views and the height of the surrounding mountains lead to a very large-scale landscape.

15 In terms of topography, the Lake Hāwea landscape can be divided into two parts:

- the southern arm of the lake, running south from The Neck and Silver Island to Hāwea township; and bounded by Mount Maude, Mount Burke and Isthmus Peak to the west and Breast Hill, Dingle Peak and Maungatika to the east. The southern arm is broad, being generally around 5km across the lake surface (east to west). The Hāwea South North Grandview Priority Area is a sub-area of this part of the landscape⁸.
- the northern arm of the lake, running north from The Neck and Silver Island to the delta of the Hunter River, and bounded by Sentinel Peak, Terrace Peak, Triplet Mountain and

⁷ TTatM define physical attributes as "both the natural and human-derived features, and the interaction of natural and human processes over time", at paragraph 4.23.

⁸ PDP Policy 3.3.44 makes it clear that the Priority Areas are not landscapes within themselves and are not elevated above other areas of landscape in terms of their values. They are prioritised in terms of the timing of having their values identified, not prioritised in terms of merit.

Mount Patriarch to the west and Mount Jones, Mount Arnold and Leaning Mount to the east. The northern arm is narrower, being generally around 2.5km across the lake surface.

- 16 The valley in which Lake Hāwea sits is glacially formed. The convex lower slopes and jagged ridges of the surrounding mountains speak of the vast valley glaciers that once occupied this space. The glaciations receded, leaving the valley and its lake, fed by the Hunter River and drained by the Hāwea River, which cuts through the rounded terminal moraine landform that underlies Hāwea township.
- 17 The Hāwea river then continues south through the expansive, flat Hāwea Flats. These flats are one of the very few areas of deposited geomorphology surrounding the lake. For most of its perimeter, upthrust mountain slopes continue down to the lake's edge.
- 18 In understanding the topography of the landscape, a key factor is that the lake level was raised by 20 metres in 1958 as part of the Clutha Valley hydroelectric power scheme. Prior to that, the lake was considerably smaller. The lake is managed with a controlled level between 338masl and 346masl. Its surface level fluctuates seasonally but mean level is approximately 343masl. In numerous places, the raised lake perimeter has resulted in instances of erosion at the lake edge. Slips and areas of exposed steep ground often meet the waters' edge.
- 19 In terms of land use, there are only a few locations around the perimeter of Lake Hāwea where human occupation exists. These are locations such as Hāwea Township, Gladstone, Dingleburn Valley, Hunter Valley Station homestead and Kidd's Bush, as well as the Glen Dene home paddocks area. In the southern arm of Lake Hāwea, Gladstone and Hāwea township occupy the moraine area where the lake meets the Hāwea Flats. A long, north-south running area of deposited terrace/fan geomorphology form the home-paddocks part of Glen Dene Station. This extends from Round Hill (the southern end of the subject site) to Craig Burn and takes the form of improved, verdant pasture and contains the homestead and farm infrastructure of Glen Dene Station (including The Dene). A similar area of pasture on fan geomorphology exists on the opposite side of the lake between Timaru River and Bushy Creek but is less improved and is unoccupied paddock-land.
- 20 Apart from the above areas of occupation and home paddocks, the mountain slopes that contain the southern arm of Lake Hāwea are extensively grazed farmland within Glen Dene, Lake Hāwea and Dingleburn Stations. As such, they take the form of open, rugged, brown-top and

tussock mountain faces, with areas of bracken fern in less managed locations and pockets of remnant native shrubland in steeper gully areas that have not been actively farmed. This type of vegetative cover leads to a landscape that appears visually open and relatively legible. The ecological report prepared by Biodiversity Solutions Ltd that forms part of the resource consent application gives further information.

- 21 Regarding land use and vegetation, the northern arm of Lake Hāwea is similar to the southern in that there are a few areas (the home paddocks area of Hunter Valley Station and Dingleburn) where improved pasture is prominent, while elsewhere the landscape is dominated by the short, rugged vegetation of the extensive grazing of high country stations.
- 22 In summary, the physical attributes of the Lake Hāwea landscape (most relevantly the southern arm part of that landscape) are those of a vast high-country lake set amongst steep, rugged, extensively-farmed mountain faces that contain it. The lake has been very significantly raised and has an expansive surface, making for a large-scale landscape with high, jagged, ice-weathered peaks and ridges forming the skylines and relatively little human occupation.

Associative Attributes⁹

- 23 Strategic Policy 3.3.43 lists physical attributes as:
- i. whether the identified physical and perceptual values are shared and recognised;*
 - ii. cultural and spiritual values for Tangata Whenua;*
 - iii. historical and heritage associations;*
 - iv. recreational values.*
- 24 Nohoanga sites exist on the edges of Lake Hāwea at the Hāwea campground, the mouth of Timaru Creek and Bushy Point, although I understand that the traditional locations of these sites are in fact under the lake surface. I understand that the Lake Hāwea area was part of pre-European travel routes associated with seasonal migration, food gathering and pounamu sourcing.

⁹ TTatM define associative attributes at paragraph 4.23 as "the intangible things that influence how places are perceived – such as history, identity, customs, laws, narratives, creation stories, and activities specifically associated with a landscape".

- 25 A number of pastoral runs surrounded Lake Hāwea from the 1850s and the land has been continually farmed since that time. The homestead areas of Glen Dene, Hunter Valley, and Dingle Burn Stations accommodate various remnants of early colonial high-country farming. For some observers, the engineering aspects of the Lake Hāwea Control Dam and the associated raising of the lake surface also add interest and meaning to the landscape.
- 26 Queenstown Lakes District residents and visitors to the area associate the Lake Hāwea landscape with recreation. Lake Hāwea township is a popular summer holiday location and camp sites at Hāwea and Kidd's Bush are busy during summer months.
- 27 DOC land and associated walking tracks allow extensive access through the landscape, enabling its wildness and grandeur to be experienced, both in relation to the northern arm and southern arm areas. Breast Hill Track on the eastern side of the southern arm forms part of the Te Araroa Trail as it winds from Ohau to Wanaka; and the Isthmus Peak and Glen Dene Ridge Tracks allows commanding views from the peaks that define the western edge of the southern arm. Very large areas of DOC land cover the mountains on both sides of the northern arm of Lake Hāwea, providing access for seasonal hunters and particularly intrepid trampers.
- 28 Lake Hāwea is used recreationally via boats, jet-skis, kayaks, etc. It is popular over the summer holiday period for fishing and general recreational boating. There is a boat ramp at the southwestern corner of the lake adjacent to The Camp and another at Gladstone. I am told that, other than for perhaps 6 weeks around Christmas and New Year, boat use of the lake is low¹⁰. The lake is windy and exposed with minimal beaches due to its level being significantly raised from its natural state. As such, I understand that the degree of boat use of Lake Hāwea is a small fraction of the boat use of Lake Wanaka .
- 29 In summary, the associative attributes of the Lake Hāwea landscape are such that people are likely to have some knowledge and appreciation of colonial high-country history and perhaps pre-European travel. Many will associate the area (at least in part) with seasonal recreation, being it holidaying, tramping, hunting or swimming/boating.

¹⁰ The resource consent application documentation includes a survey of boat movements on the relevant part of Lake Hāwea.

Perceptual Attributes¹¹

- 30 Strategic Policy 3.3.43 uses the term “sensory (or experiential) attributes”. TTatM uses the term “perceptual attributes”, noting that mental interpretation occurs simultaneously with sensory intake. Strategic Policy lists these attributes as:
- i. legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;*
 - ii. aesthetic values including memorability and naturalness;*
 - iii. wild or scenic values;*
 - iv. transient values including values at certain times of the day or year;*
 - v. experiential attributes, including the sounds and smells associated with the landscape;*
- 31 The physical attributes of the landscape are set out above. As discussed, the landscape that takes in Lake Hāwea and its surrounding mountains is largely the result of glacial weathering of upthrust bedrock mountains. Post-glacial alluvial processes are also relevant but have had much less of an influence than glacial processes. To a trained eye, the formative processes are readily legible. Even to an untrained eye, the rugged, jagged skylines and more rounded lakeside landforms perhaps communicate the actions of ice to the viewer. As mentioned, the artificial raising of the lake surface is a key factor in the formation of the present-day landscape. This aspect of the landscape’s formation is likely to be more known to locals (or at least New Zealand visitors) rather than international visitors. For many observers, this aspect of the landscape’s formation will not be legible; the observers will take Lake Hāwea for an entirely natural formation.
- 32 The Lake Hāwea landscape rates highly in terms of aesthetics. Long views across a vast lake surface to towering, rugged mountain slopes and peaks are reminiscent of a classically sublime landscape. High natural character, infinitely varied elevation and terrain, relative emptiness, remoteness and wildness all contribute to a landscape that is likely to be very memorable to visitors and locals alike. Transient characteristics in terms of light, weather and atmospheric conditions, throughout the day and throughout the year are likely to be an important part of the

¹¹ TTatM define perceptual attributes at paragraph 24.3 as being “both sensory experience and interpretation. Sensory appreciation typically occurs simultaneously with interpretation, knowledge, and memory”.

appreciated aesthetics. Whether it is experienced from SH6, the lake surface, Hāwea township or one of the less-used roads (such as Timaru Creek Road or Hunter Valley Road), an observer feels they are looking out over a relatively untamed and wild expanse of majestic landscape. A sense of mystery and remoteness is part of the perceptual experience. This is likely to lead to a high degree of memorability and I consider that the appreciation of these high aesthetic values of this landscape is likely to be recognised and shared by practically all observers of this landscape, whether locals or visitors.

- 33 In relation to the southern arm and the western side of the lake in particular (where the subject site is located), Round Hill acts as a southern book-end to the flatter improved pasture land that extends north to Craig Burn. This land use sits on deposited terrace/fan topography that is distinguishable from the steeper mountain slopes. As is common in the Queenstown Lakes District, the terrace lands have deeper soils and have traditionally been more intensively farmed, in this case as the home paddocks of Glen Dene Station. They have a land use pattern of improved farm pasture lands as opposed to the extensively farmed, rugged high-country pattern of the mountain slopes. The Glen Dene farm base area (including the existing house of The Dene) sits toward the southern end of this area.
- 34 I consider that, in terms of aesthetics, experiential attributes and wild/scenic attributes, while a part of the dramatic overall landscape, these areas of more improved pasture are recognisable as such. I consider that observers will recognise the aesthetic pattern of more managed farming over this part of the landscape; the experience of driving on SH6 through the Glen Dene Station home paddocks is somewhat different to the experience of driving on SH6 north of Craig Burn.
- 35 In summary, the Lake Hāwea landscape is of high aesthetic value. The physical attributes lead to a very expansive landscape of dramatic, sublime aesthetics. The few areas that are characterised by more legible human influence, in the form of improved pasture, are recognisable as such, and are part of the overall majestic landscape.

Landscape Values¹²

- 36 Via both the ODP and the PDP, the community have recognised the Lake Hāwea landscape as an ONL. I consider that this demonstrates that its landscape character¹³ (and the attributes that

¹² TTatM define landscape values at paragraph 5.6 and the glossary as “the reasons a landscape is valued – the aspects that are important or special or meaningful” and note that “values are embodied in certain attributes”. Also, at paragraph 5.55, it is helpfully notes that “hybrid terms such as ‘visual amenity’, ‘rural amenity’ and natural amenity’ are shorthand for ‘landscape values that contribute to amenity values’”.

combine to form that character) are valued by the community above the non-ONL landscapes of the district.

37 To be more specific, the values of this landscape stem from its attributes as described above. The more dramatic, unique and eminent attributes are the ones that lead to this landscape being valued. Drawing from the analysis above, I consider that the values of the Lake Hāwea landscape (with emphasis on the southern arm area) are:

- Its vastness, openness and relative emptiness.
- Its generally apparently minimally modified character when assessed as a whole, i.e. a dominant land use of extensive farming and conservation, leading to considerably intact natural biophysical / ecosystem patterns and processes, geomorphological processes and the fact that the vast majority of the lake's margins are unoccupied. This is however tempered by the fact that the outflow and level of Lake Hāwea are controlled and the lake level is significantly higher than its natural, as is demonstrated in a physical and perceptual sense by lack of beaches and the presence of eroded lakeside areas. A dominant physical and aesthetic attribute of the landscape is man-made.
- Its dramatic and sublime aesthetic attributes, particularly very long views across the lake surface to dramatic surrounding mountain ranges, peaks and skylines. These aesthetic attributes stem from the physical structure and scale of the landscape.
- The relative legibility of formative processes.
- Constantly changing and dramatic transient attributes (largely aesthetic) associated with the seasons, changing light throughout the day, atmospheric and climatic conditions.

Landscape Capacity¹⁴

38 Schedule 21.22.23 records landscape capacity for rural living as follows:

¹³ TTatM define landscape character at paragraph 5.4 as "each landscape's distinct combination of physical, associative and perceptual attributes".

¹⁴ Provision 3.1B.5(b)(i) of the PDP defines landscape capacity in relation to an ONL as "the capacity of a landscape or feature to accommodate subdivision and development without compromising its identified landscape values".

Rural living – limited landscape capacity for activities that are located on the lower-lying terrain and are: designed to be of a modest scale, have a low-key rural character and are located to take advantage of screening and/or filtering benefit of natural landscape elements; integrates landscape restoration and enhancement (where appropriate); and enhance public access (where appropriate).

39 Additionally, the PDP notes:

The landscape capacity ratings and associated descriptions are high level, and are not intended to describe the relevant capacity of specific sites within a Rural Zone Priority Area. These descriptions are not a replacement for any relevant policies, rules or standards in the District Plan, and are intended to provide guidance only.

Landscape capacity is not a fixed concept and it may change over time as development occurs or landscape characteristics change. In addition, within each Rural Zone Priority Area there is likely to be variation in landscape capacity, that will require detailed consideration and assessment through future resource consent applications.

40 The above text reminds us that rating landscape capacity over a large area is necessarily a generalisation. This report assesses the specific proposed activities and sets out findings regarding the effects of the proposed activities on the identified landscape values.

THE SUBJECT SITE AND ITS IMMEDIATE VICINITY

41 Within the above broad landscape context and with reference to Appendix 3, The Dene takes the form of a long, roughly rectangular parcel of land between SH6 and Lake Hāwea, approximately 1.9km north of the Lake Hāwea dam and outlet to the Hāwea River. The site is approximately 38ha in area. At the southern end of the site sits Round Hill; a rounded, glacially-formed knoll. A similar knoll sits near the northern end of the site and the existing dwelling is located on its eastern side, facing the lake (this is marked as the northern rounded hill on Appendix 3). Between these two knolls, a relatively gently sloping, weathered, glacially-formed, narrow fan/terrace of deposited till that sits at the toe of Mt Maude makes up most of the subject site. SH6 has been aligned to sit at the toe of the mountain slopes with the deposited fan/terrace land on its eastern side.

42 One existing creek bisects the site perpendicular to the site's north-south orientation and drains into Lake Hāwea. Four ephemeral gullies also drain into the lake in a west-east direction. The location of the creek and gullies divides the site into a number of smaller terraces at reasonably

regular intervals. The glacial and fluvial formation of the site is clearly expressed in the glacial knolls, terraces and gullies.

- 43 Land on the western side of SH6 rises steeply to Mt Maude. Wide to narrow stony beaches of greywacke and schist form the lake edge. The terrace formation between Mt Maude and Lake Hāwea continues south the site (and south of Round Hill) to the Lake Hāwea dam and north to Craig Burn. The fan/terrace land to the south of the site accommodates The Camp, a commercial campground operation, comprising of approximately 25 buildings including the office, accommodation domes, cabins, cottages, ablutions blocks, kitchens, gravel roads, etc. The fan/terrace land to the north of the site accommodates the Glen Dene homestead (comprising of numerous buildings and associated activities) and home paddocks of Glen Dene Station that also include a wool shed, implement shed, sheep yards, deer yards, cattle yards, and workers cottages. Due to these and other developments, the lake terraces and the margin on either side of the lake are least natural parts of the ONL.
- 44 The Dene's existing house is approximately 700m² in footprint area and sits on a 900m² building platform. The gardens surrounding the house include mountain beech, golden Totara and pittosporums. A mature conifer shelter belt marks the northern boundary of the site.
- 45 The topography of the site and stock management regime has resulted in varied vegetation patterns. The vegetation cover of the site is mixed grazing land, large areas of predominantly bracken and occasional groups of regenerating natives. Eucalyptus trees planted in groups on the SH6 boundary date from the time of the Roads Board, as do some of the conifers. Isolated willow trees at the top and bottom of the gullies appear to be wildings. Mixed Bracken, regenerating kanuka and briar also occur in the gullies. Wilding lupins present on the site were introduced to the area when the Lake Hāwea Dam was built in the 1950s. Overall, there is a mosaic of vegetation patterns as a result of management; easily accessible land is grazed while steep escarpments and gullies which are less accessible have been colonised by wilding and weed species. In recent years, grazing has been reduced to an intermittent level resulting in bracken fern spreading from the gullies and steeper slopes onto the more gently sloped land.
- 46 The broad-scale landscape of which the site is a part is described in the previous section of this report. Within that landscape, The Dene sits on part of the fan/terrace formation that has been managed by more intense farming occupation than the more unkempt mountain slopes, which are the main terrestrial component of this landscape.

ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS

VISUAL CATCHMENT AND VIEWING AUDIENCES

47 Appendix 3 shows the subject site in its context and also shows viewpoints from which photographs (shown in Appendix 4) have been taken. In topographical terms, the proposed activities sit in a self-like way on the terrace land of the site to the east of (and below) SH6 but west of (and above) the lake surface. Distance plays a part in the visibility of changes to the landscape that will be enabled by the current proposal, as will be expanded upon. There is some degree of potential visibility from:

- SH6;
- The lake shore and margins;
- Close viewpoints on the lake (up to 1.5km from the proposed building platform);
- Distant viewpoints on the lake (over 1.5km from the proposed building platform);
- Distant landward viewpoints.

EFFECTS ON VIEWS AND VISUAL AMENITY

48 Visual effects are:

“effects on landscape values as experienced in views. They are a technique to help understand landscape effects. They are a subset of landscape effects. ... A proposal that is in keeping with the landscape values, for example, may have no adverse visual effects even if the proposal is a notable change to the view. Conversely, a proposal that is completely out of place with landscape values may have adverse effects even if only occupying a portion of the view.”¹⁵

49 With reference to paragraph 3, the actual changes to the landscape that will be enabled by the current application can be briefly summarised as:

- Round Hill at the southern end of the site will be retired from farming and will be protected from modification. Natural vegetation combined with proposed cluster planting¹⁶ will result in the emergence of more varied visual colours and textures in a

¹⁵ TTatM, paragraphs 6.25 and 6.27.

¹⁶ Refer to Ecological Assessment by Biodiversity Solutions Ltd that forms part of the resource consent application.

natural configuration. The formation of a future walking trail (subject to future resource consent, if required) will enable public access to a lookout location allowing views to the northeast, east and southeast (i.e. not over the area of proposed development).

- Three future dwellings will appear on the three building platform locations, subject to the proposed design controls and restrictions. Dwellings will be of low height and hence will be of horizontal forms when seen from the east. Outdoor living activities will be confined to defined areas around the dwellings.
- A vehicle track will be formed as shown on the relevant plans. The surface of the track will sit in a bench-like position. Relatively minor and gentle cut and fill batters will be created and these will be re-grassed or revegetated in native species.
- The existing dwelling and curtilage on Lot 4 will remain as it is. Light grazing land use will continue over the flatter parts of The Dene site.
- Ecological management and enhancement will mean that Areas A to F¹⁷ incrementally revegetate to become dense areas of high native forest or shrubland. From part of SH6 as it passes the site, this will bring an instance of vegetative enclosure for a road user. As seen from the east, this burgeoning vegetation will result in horizontal banding of the varied forms, textures and colours of dense native vegetation.

50 At the time of conducting my fieldwork, profile poles were erected on the corners of each building platform, depicting the maximum height of enabled built form.

51 Appendix 1 of this report gives comments in relation to the relevant PDP assessment matters, some of which relate to effects on views and visual amenity. In this section of my report, I set out my overall findings in relation to views and visual amenity. Appendices 3 and 4 show the site in its context and provide photographs from a number of relevant locations. The Baxter Design graphic document is also important to an understanding of visual effects as discussed below.

State Highway 6

52 The relevant part of SH6 connects Hāwea to Makarora, and on to the West Coast. For northbound travellers, the experience is of leaving the Hāwea Flats and Hāwea township

¹⁷ Refer to Appendix 2 to this report and the Ecological Assessment by Biodiversity Solutions Ltd.

behind, passing The Camp and its associated activity and then gaining open country and long lake views as they approach and pass Round Hill. At the southern end of the northern rounded hill within proposed Lot 4 (i.e. to the immediate west of the site's existing dwelling) is a considerable stand of high eucalypts. These combine with the many trees around the Glen Dene farm base area to create an instance of mature enclosure. Once past the Glen Dene farm base area, the open home paddocks of the station adjoin both sides of the road and a farming character forms the foreground of views, with a majestic lake-and-mountains backdrop. Once past Craig Burn, the paddocks disappear and a SH6 road user has a wilder experience of being in an untamed landscape.

- 53 A southbound traveller has the reverse experience of the above. Coming from Makarora via The Neck, a remote, wild visual experience is had, although distant views to the southern end of the lake and the buildings of Hāwea Township reveal that a populated area is being reached. Then the home paddocks of Glen Dene Station are gained; then the farm base area. After the farm base area, views to Hāwea Township become more plain and soon The Camp and the township itself are arrived at.
- 54 For approximately 2km, SH6 immediately adjoins the subject site. Existing mature eucalyptus trees, conifer trees and dense bracken-dominated vegetation on the property boundary considerably screen views into the site itself. Often, topography drops away from SH6. Meaning that only a small roadside strip of the site is seen. The site's existing house and gardens are not visible from SH6.
- 55 With reference to paragraph 49 above, as a SH6 user passes the subject site, Round Hill and the uppermost roadside parts of the site are plainly seen. The changes to the landscape that will be apparent will be the extensive native planting in the western parts of Vegetation Areas A and B and in Areas D and E (shown on Appendix 2), as well as the more passive revegetation over Round Hill. The existing roadside bracken-dominated vegetation to the immediate west of Area D very largely screens views into the east-facing amphitheatre-like part of the site in which the three building platforms are proposed. This vegetation is to be retained and will incrementally passively revegetate, and the areas of plantings (primarily Areas D and E) will sit immediately beyond this roadside vegetation.
- 56 Within approximately 5 to 7 years, the beech-dominated planting within Areas D, E and the northern parts of A and B will begin to be prominent in the visual experience of a SH6 user as

they pass the site. Beyond approximately 7 years, these planting areas will become an instance of dense native bush that will spread between Round Hill and the northern hill within proposed Lot 4. This will be an instance of lakeside enclosure akin to the location where the Queenstown Glenorchy Road passes through Twelve Mile Bush on the northern edge of Bob's Cove.

- 57 In the shorter term, before plantings reach any maturity, the road access point will be apparent as a SH6 user passes it. Occasional vehicles on the very first part of the driveway will be visible but this stretch of driveway itself will be behind the strip of bracken-dominated vegetation that is immediately adjacent to the road boundary.
- 58 Also in the short term, a particular point on SH6 at the northern end of Round Hill (approximately 60m south of the proposed vehicle access point to the site) allows a very brief glimpse to upper parts of the building profile poles for the Lot 1 building platform. The northern part of the Area E beech forest planting will negate this brief visibility once trees are in a juvenile state (after approximately 4 to 5 years).
- 59 Overall, of the proposed activities, extensive native revegetation will be the most noticeable change, once it reaches a degree of maturity such that it becomes visually evident (again, after approximately 4 to 5 years). The appearance of the road entrance formation and a very brief glimpse to part of one building platform will be evident.
- 60 The visual amenity that is currently experienced is described above. In the short term, road access formation and planting work will be evident. If the proposed Lot 1 owner builds particularly quickly after gaining consent, small parts of that activity may be available as a very brief (and easily missed) glimpse. In this short-term period, I consider that effects on SH6 users' visual amenity are likely to be neutral or perhaps adverse to a very low degree; access point formation and planting work bringing temporary detraction.
- 61 In the longer term (after approximately 5 to 7 years), the native vegetation will become a prominent element as seen from the relevant stretch SH6; and instance of leafy, indigenous enclosure between the two rounded glacially-formed hills; providing broken views to the lake before passing the Glen Dene farm base area and gaining the unobstructed vast lake views. I consider that this instance of native vegetation on the lakeside journey will bring a positive effect on visual amenity. It will be a briefly experienced but memorable addition to the highway experience such that the positive effect will be of a low-moderate degree.

The lake shore and margins

- 62 As discussed, Lake Hāwea is a controlled lake with a level that fluctuates in response to management associated with power generation. It has a mean level of approximately 343masl. With reference to Appendices 2 and 3, the gravel beach area adjacent to the subject site which appears to be occasionally affected by lake action, is entirely within public land. The part of the public land that is not occupied by the gravel beach itself is covered in regenerating bracken fern.
- 63 There is public access to the lake shore available from SH6 at a number of points along the western side of Lake Hāwea. Access is available south of Round Hill. Access to the particular part of the shore that is adjacent to the subject site is impossible, except via boat. Areas of lakeside erosion and a relatively steep stony bank would mean that landing a boat here is inconvenient at best.
- 64 With reference to Appendices 3 and 4, the Viewpoint D photograph is taken approximately 200m from the lake edge (this is similar to Viewpoints 7 and 8 of the Baxter Design graphic document). An observer that is in the beach area will be able to look to the west, over the bracken fern vegetation and see the upper parts of the three proposed building platforms. Again, future dwellings will be of horizontal forms and visually recessive colours and finishes. The proposed plantings on Area C (kowhai and native shrub vegetation) will bring more visual screening over time. Clumps of beech planting will also break up views and provide a vegetated backdrop to any visible built form.
- 65 For members of the public that visit this particular section of gravel beach (which seems unlikely), the most expansive and impressive views are those to the northeast round to the southeast, across the lake surface to the distant mountain peaks and skylines. The landward area to the west is much less dramatic. I consider that observers on the relevant stretch of beach will be visually aware of a new built form. After all, they will have come via the lake to this specific location while seeing that the dwellings are there. While on the lake, they are likely to have also seen The Camp, the existing dwelling on the site and the various buildings of the Glen Dene Station farm base area. I consider that they will recognise that this particular part of the lake's perimeter is an occupied part and the current proposal will increase the intensity of this existing visual effect. The observers will also recognise the incremental revegetation that will visually demonstrate a more natural landscape character than the current situation.

66 Observers that come to this particular stretch of beach are likely to be very few. They would have to deliberately come to a stony shore location at one of the very few occupied parts of the lake's perimeter. While in this particular location, the presence of three buildings will be part of an observer's visual experience, making the experience less remote than it otherwise would be, although burgeoning native vegetation will incrementally reduce this effect. I consider this to be an adverse detractor from visual amenity to a low-moderate degree for these particular observers.

Close viewpoints on the lake

67 Lake Hāwea is used recreationally via boats, jet-skis, kayaks, etc. It is popular in summer months for fishing and general recreational boating. There is a boat ramp at the southwestern corner of the lake adjacent to The Camp.

68 The approximate Zone of Theoretical Visibility¹⁸ of future buildings within the three proposed building platforms is shown on Appendix 3. The northeast-facing amphitheatre-like landform of the location of the proposed building platforms and the presence of Round Hill to the immediate south constrain visibility somewhat, but a large expanse of lake surface allows views to the relevant location. Viewpoints D to H represent lake surface viewpoints that are within 1.5km of the proposed building platforms (as do all of the Viewpoints of the Baxter Design graphic document). Photographs from these viewpoints are found in Appendix 4.

69 Any observer on the lake surface takes in 360° panoramas of broad, majestic, sublime landscape scenes characterised by extremely long views up and down the surface of the lake and by rugged, infinitely varied steep mountain slopes and peaks with a jagged skyline. Atmospheric and light conditions can vary widely. The photographs of Appendix 4 were taken on a calm and relatively clear day. A lake user is, of course, generally mobile. Views of one particular vicinity of lakeshore are somewhat fleeting; any given area is only viewed temporarily as the lake user moves on. The relevant photographs do not attempt to show the variety and breadth of views that are available; they are focused on the subject site and the proposed activities.

¹⁸ TTatM, paragraph 6.54. An indicative viewshed or visual catchment from which the proposed elements are within a line-of-sight. This is a theoretical, desk-top indication and is intended to assist assessment but not be definitive.

- 70 Viewpoint Photographs D to H give a good impression of the degree to which the site, its context and the proposed activities will be visible to viewers that are within 1.5km of the proposed building platform (as do the Viewpoints of the Baxter Design graphic document). The site's existing dwelling is visible, depending upon the exact location of the viewer, as are the Glen Dene farm base buildings. With reference to Viewpoint Photographs D and E (for example), the area of the proposed building platforms currently appears as roughly improved pasture with regenerating vegetation in front of, and behind it.
- 71 Mitigation aspects of the proposal have been set out previously. Future dwellings will be visually recognisable in these views, depending upon light conditions. The site's existing dwelling and the Glen Dene homestead dwelling are useful comparisons but are larger and higher than the proposed building platforms would allow. The future dwellings enabled by the current proposal will be more visually recessive in terms of colour and finishes, will be more backed by immediate vegetation, and will be more visually blended into their context by the horizontal bands of emerging native vegetation stretching across the site.
- 72 In these closer lake views as represented by Photographs D to H, I consider that future dwellings enabled by the current proposal will be discernible and recognisable; from the closer viewpoints they will not be reasonably difficult to see. However, they will be set within the context of an occupied vicinity. Observers that travel up this part of Lake Hāwea will recognise the treed and occupied node of activity that includes the site's existing dwelling and the Glen Dene Station farm base area and will notice an additional nearby group of three dwellings in the amphitheatre-like bay contained by Round Hill to the south, again, depending upon light conditions. These dwellings will add to the existing scene, intensifying occupation, meaning that this part of the lakeside land becomes more modified (i.e. less natural) than currently, but with the visibility of dwellings mitigated as described. After perhaps 5 to 7 years, observers will also notice significantly increased native vegetation. In these views, the gully area to the immediate north of Lot 3 will become forested in beech. Similar native vegetation will form a band behind and in front of the dwellings, not screening them from view but visually tying them into a complex mosaic of native vegetative patterns such that the area between the aforementioned gully and Round Hill becomes a relatively densely vegetated area, with three dwellings set within it (as can be seen on the Baxter Design graphic document). For these individual observers in this particular part of the lake adjacent to the site, the three dwellings will represent a reduction to natural character and an increase in human modification/occupation; while the extensive

revegetation will read as a considerable area of native bush within a majestic lakeside setting. Overall, I consider that the increased human occupation will result in a net adverse effect on the visual amenity of these particular observers, but given the specific location and contextual factors, and given the vegetation that will emerge, I consider that this adverse effect will range up to a moderate degree (at most) depending upon distance and conditions. The ONL will be more modified by human activity but only in this particular location and the effect will be offset to a considerable degree by a visually apparent increase in natural character.

Distant viewpoints on the lake

- 73 Viewpoints I and J are lake surface viewpoints that are 4.7km and 6.3km from the proposed building platforms respectively. Existing mature trees at the top of the site's gully and around the Glen Dene Station farm base and home paddocks area are clearly recognisable.
- 74 Again, any observer on the lake surface takes in very broad 360° panoramas of a dramatic landscape of vast scale. For observers that are out in this central and eastern part of the lake surface, the vicinity of the subject site is much less influential on their visual amenity experience, compared to viewers that are closer to the site. The farm base buildings of Glen Dene Station are barely recognisable in these views, although the pattern of verdant paddocks and shelterbelts that characterises the home paddocks part of the station is legible along the terrace lands to the north of the subject site. Again, the relevant photographs (I and J) are focused on the vicinity of the site, not on the rest of the broad panorama that makes up a viewer's visual amenity experience. From these viewpoints, the expansive views up the lake and the skylines and peaks of Breast Hill and Corner Peak are the dominant elements.
- 75 In Photograph I, the existing dwelling on the subject site is visible (with difficulty). In Photograph J, it is also visible, as are some of the Glen Dene Station homestead and farm base buildings. Given the distance and the breadth of views, I consider that these existing buildings are reasonably difficult to see from these viewpoints. While somewhat dependent on light and atmospheric conditions, I consider that approximately 2km from the proposed building platforms is a threshold at which it is accurate to say that built form will become reasonably difficult to see, even in good light conditions.
- 76 As has been described, the degree of potential visibility of future dwellings on the three proposed building platforms will be reduced by the size and external appearance of the buildings themselves and also by surrounding vegetation. I consider that they will be less visible than the

site's existing dwelling and the Glen Dene Station dwelling. From Viewpoints such as I and J, it is likely that buildings enabled by the current proposal will be only noticeable to a viewer that consciously and carefully focusses on them. For most lake users moving through this central and eastern area of the lake, this appears unlikely.

77 The vegetative patterns that will emerge as proposed revegetation matures will visually break up and reduce the current visual simplicity of the open rough pasture area on which the three proposed building platforms will sit. The patterns will appear more natural, more visually complex and less the result of human intervention, visually blending future dwellings into their backdrop.

78 Overall, from the central and eastern parts of the lake and more distant parts, I consider that the proposed activities will be reasonably difficult to see and will have no effect on the visual amenity enjoyed by a lake user.

Distant landward viewpoints

79 Viewpoints K to M are between the eastern end of Hāwea town and Bushy Creek. These viewpoints are between 5.3 and 6km from the proposed building platforms. Round Hill can be seen, as can the treed areas of Glen Dene Station and the verdant home paddocks.

80 From Viewpoints K and L, the northern two building platforms are within a line of sight. Profile poles were visible with binoculars (with considerable difficulty). With the naked eye, they were not discernible. Additionally, the site's existing dwelling (which is in a full line-of-sight) was not discernible with the naked eye.

81 While some parts of future dwellings on proposed Lots 2 and 3 may be in a line-of-sight from Viewpoints K and L, I consider that in effect, they will not be discernible and will certainly be reasonably difficult to see. For users of the lakeside spaces in the vicinity of Viewpoints K and L, I consider that there will be no effect on visual amenity.

82 Viewpoint M is on public lakeside land near Bushy Creek. A viewer in this location is 6km from the proposed building platforms and the platforms are exposed to a line-of-sight, as is the site's existing dwelling. Neither this existing dwelling nor the building platform profile poles were visible to the naked eye. In practical terms, I consider that future buildings enabled by the current

proposal will not be visible. I consider that the visual amenity of observers in locations such as this will not be affected.

Summary regarding visual effects

- 83 The activities that the proposal will ultimately bring will be three dwellings with associated curtilage and a significant area of beech-dominated native revegetation. The results of the revegetation will be broadly visible as time goes on. The dwellings and associated activity will only be potentially visible from the north-northeast round to the southeast, as shown approximately on Appendix 3. From viewpoints that are more than 2km from the subject site, the proposed activities will be (at least) reasonably difficult to see, and often practically invisible.
- 84 Potential observers that may be affected by future domestic activity in a visual sense will be on the surface of the lake within 2km of the site or on the lake edge gravel beach adjacent to the site.
- 85 An observer that is in the beach area will have relatively easy visibility of the upper parts of future dwellings. Dwellings will be of low, horizontal forms and will be of dark, visually recessive finishes and will be blended into their context by horizontal bands and patches of varied native vegetation. Observers that come to this particular stretch of beach are likely to be very few. While in this particular location, the presence of three buildings will make the experience less remote than it otherwise would be. I consider this to be an adverse detracting from visual amenity to a low-moderate degree for these particular observers
- 86 For observers on the lake surface within 2km of the subject site, I consider that future dwellings enabled by the current proposal will be discernible and recognisable. These observers will also recognise the treed and occupied node includes the site's existing dwelling and the Glen Dene Station farm base area. Three additional dwellings will add to the existing human occupation. Observers will also notice significant native vegetation over time and the dwellings will sit within this. Overall, I consider that there will be a net adverse effect on the visual amenity of these particular observers that will range up to a moderate degree for closer viewpoints in good light conditions.
- 87 For lake surface and landward observers that are more than 2km from the subject site, I consider that there will be no effect on visual amenity.

LANDSCAPE EFFECTS

- 88 *“A landscape effect is a consequence of changes in a landscape’s physical attributes on that landscape’s values. Change is not an effect: landscapes change constantly. It is the implications of change on landscape values that is relevant. To assess effects, it is therefore necessary to first identify the landscape’s ‘values’ – and the attributes on which such values depend”¹⁹.*
- 89 Again, Appendix 1 of this report gives comments in relation to the relevant PDP assessment matters, which are relevant to the consideration of landscape effects. In this section of my report, I set out my overall findings in relation to landscape effects.
- 90 A description of the relevant existing landscape character and values is set out above in paragraphs 13 to 37. In summary, the Lake Hāwea landscape rates highly in terms of aesthetics and natural character and is a valued ONL. These values stem primarily from physical and perceptual attributes. Nodes of more intense human management and occupation around the perimeter of the lake are legible but are well separated and discrete. Unusually, despite highly valued aesthetics and character, the landscape has been significantly modified by human endeavor; specifically, the raising of the lake surface by 20m, creating the current lake.
- 91 The changes that will occur as a result of the proposal have also been described. They involve three future dwellings and associated curtilage and access and considerable areas of native revegetation. The domestic activity will be recognisable to viewers to the east of the site that are within approximately 2km.
- 92 In relation to landscape character, the changes that the proposal will bring will mean that domestic occupation is increased in a specific part of the landscape, being the southwestern part of the perimeter of Lake Hāwea, between Hāwea township and the Glen Dene Station farm base area. As has been discussed, this part of the perimeter of Lake Hāwea is (at least in part) characterised human modification (in the form of improved pasture and home paddocks areas) and human occupation (the dwellings of the Glen Dene farm base area and The Camp). In this regard, the landscape character change that the proposal will bring will amount to an intensification of human occupation, rather than the introduction of human occupation to a currently unoccupied part of the lake perimeter.

¹⁹ TTatM, paragraphs 6.1 and 6.2.

- 93 In terms of spatial distribution (and with reference to Appendix 3), the home paddocks area of Glen Dene Station represents a northerly extension from Hāwea township; something of a feathering out of human influence as one moves north. The proposed new elements in the landscape will accord with this pattern and (as set out in relation to visual effects) will only be perceivable when seen from the lake surface. The proposal includes various measures (building height restrictions, size and location/elevation of building platforms, etc.) that have been formulated to reduce the potential impact of future buildings and occupation on landscape character.
- 94 The proposed vegetation and ecological enhancement aspect of the proposed activities will also have some effect on landscape character. With reference to Appendix 2, the southern half of The Dene landholding will significantly increase in natural character over time. Round Hill will be retired from farming, protected from modification and native cluster planting and natural revegetation will increase native vegetative character. The sizable planting areas A to F will become dense areas of high native forest or shrubland. Over time, The Dene site as a whole will become an instance of natural character representing pre-human native vegetative patterns in this southwestern part of the Lake Hāwea perimeter. This instance of natural vegetative character will be easily recognisable from SH6.
- 95 The walking trail public easement will increase public access adjacent to the lake shore and will connect to existing public land such that recreational associations will be improved.
- 96 With reference to the discussion of the existing landscape and its values set out previously, I consider that the positive aspects of the proposal (ecological management and revegetation, the protective covenant on Round Hill, improved public access) are important. However, the intensification of human occupation in this southwestern part of the Lake Hāwea perimeter will amount to an increase in human modification within a natural landscape and will be a detraction from the relatively empty character of this vast, open landscape. In relation to this adverse effect on landscape character, I consider that the location of the proposed building platforms (in a contained, east-facing bay that sits between Hāwea township and the Glen Dene Station farm base area, in the most occupied part of the Lake Hāwea perimeter) and the visual inconspicuousness of the future dwellings and occupation (only perceivable from relatively close parts of the lake surface) are important factors. Ultimately, because of these factors, I consider that adverse landscape effects of the proposal will be of a low degree.

CONCLUSIONS

- 97 The Dene is a 38ha farming property on the western edge of Lake Hāwea, close to Hāwea township. The property contains an existing dwelling and it is proposed to subdivide in order to create three rural living lots. Sizable areas of ecological restoration are also proposed.
- 98 The site is part of the Lake Hāwea landscape, which is an ONL. The values of this landscape stem from its vastness, openness, emptiness, its dramatic and sublime aesthetics and from its generally apparently minimally modified character when assessed as a whole. However the apparent naturalness is tempered by the fact that the lake has been very significantly raised and expanded in the past, which is evidenced by areas of lakeside. The southwestern part of the lake perimeter, which includes the subject site, is one of the few modified and occupied parts.
- 99 The northeast-facing amphitheatre-like topography of the small bay in which the three proposed building platforms are located, means that future built form will only be visible from the east, in any practical sense. The incrementally maturing native vegetation that the proposal will bring will be visible and recognisable as a stand of native bush, from both the lake and SH6.
- 100 In terms of effects on views and visual amenity:
- From SH6, development enabled by the proposal will not be seen, other than the road entrance and areas of native vegetation. The vegetation will (after perhaps 5 to 7 years) become an instance of indigenous enclosure, sitting between the two glacially-rounded hills of the site. This will bring a positive effect on the visual amenity of a highway user of a low-moderate degree.
 - From close locations to the east of the site (i.e. on the lake within approximately 2km of the site), three future dwellings will be discernible and recognisable. The dwellings will add to currently apparent human occupation. Native revegetation will also be recognisable and will visually tie the three low-profile, recessively finished buildings into a broader complex pattern of vegetation. In terms of net effect, natural character and remoteness aspects of amenity will be reduced. Adverse effects will range up to a moderate degree for particular viewpoints.
 - From locations further east on the lake and its surroundings, the proposed activities will be difficult to see and will have no effect on amenity.

- 101 In terms of landscape effects on the whole, domestic occupation will be increased in the southwestern part of the perimeter of Lake Hāwea, between Hāwea township and the Glen Dene Station farm base area. Additionally, the southern half of The Dene landholding will significantly increase in natural character over time, as the sizable areas of ecological enhancement gain maturity. In relation to the values of the Lake Hāwea ONL, the intensification of human occupation in this southwestern part of the Lake Hāwea perimeter will be a detracting from the relatively empty and natural character of this vast, open landscape. As has been discussed, this effect on landscape character will be mitigated by a number of factors and will not be widely visible. In an overall appraisal, I consider there will remain a net adverse effect on landscape character and values of a low degree.
- 102 When these effects are considered in the context of the Lake Hāwea ONL as a whole, I consider that the values of the ONL will be protected if the current proposal proceeds.

Ben Espie

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24 July 2025

THE DENE – LANDSCAPE REPORT – ESPIE – APPENDIX 1:
COMMENTS IN RELATION TO RELEVANT PDP ASSESSMENT MATTERS

ASSESSMENT MATTER	ASSESSED EFFECTS
21.21.1.1 Landscape values	
For the implementation of relevant policies including SP 3.3.2, SP 3.3.21, SP 3.3.23, SP 3.3.29, SP 3.3.30, SP 3.3.31, SP 3.3.43, SP 3.3.45, SP 3.3.46, SP 3.3.49, SP 3.3.51, 6.3.2.7, 6.3.3.1 and 6.3.3.2, 6.3.3.3, 6.3.3.5, 6.3.4.8, 21.2.1, 21.2.1.1, 21.2.1.2, 21.2.1.3, 21.2.1.7, 21.2.1.11, 21.2.9, 21.2.9.1, 21.2.9.2 and 21.2.9.3, in considering a subdivision or development proposal, the Council will have regard to:	a. the landscape values identified in Schedule 21.22, where relevant;
	b. the landscape values identified in accordance with SP 3.3.43 and SP 3.3.45; The Schedule is relevant in this instance since part 21.22.23 of the Schedule describes the Hāwea South North Grandview Priority Area, within which the site is located. The landscape values set out in that Schedule are discussed in the body of this report. Landscape values have been identified in accordance with this methodology and are set out in the notified Schedule 21.22.23. Notwithstanding the Schedule, I have assessed and considered the landscape values of the relevant ONL and set this out in the body of this report. In physical terms, this landscape is dominated by the extensive flat lake surface, allowing very long views, and the dramatic, steep, enclosing mountain ranges that act as a backdrop. The length of views and the height of the surrounding mountains lead to a very large-scale landscape. In terms of land use, there are only a few locations around the perimeter of Lake Hāwea where human occupation exists. These are locations such as Hāwea Township, Gladstone, Dingleburn Valley, Hunter Valley Station homestead and Kidd’s Bush, as well as the Glen Dene home paddocks area. In the southern arm of Lake Hāwea, Gladstone and Hāwea township occupy the moraine area where the lake meets the Hāwea Flats. A long, north-south running area of deposited terrace/fan geomorphology form the home-paddocks part of Glen Dene Station. This extends from Round Hill (the southern end of the subject site) to Craig Burn and takes the form of improved, verdant pasture and contains the homestead and farm infrastructure of Glen Dene Station (including The Dene). Apart from the above areas of occupation and home paddocks, the mountain slopes that contain the southern arm of Lake Hāwea are extensively grazed farmland within Glen Dene, Lake Hāwea and Timaru Creek Stations. As such, they take the form of open, rugged, brown-top and tussock mountain faces, with areas of bracken fern in less managed locations and pockets of remnant native shrubland in steeper gully areas that have not been actively farmed.

		In understanding the topography of the landscape, a key factor is that the lake level was raised by 20 metres in 1958 as part of the Clutha Valley hydroelectric power scheme. Prior to that, the lake was considerably smaller. The lake is managed with a controlled level between 338masl and 346masl. Its surface level fluctuates seasonally but mean level is approximately 343masl. The Lake Hāwea landscape rates highly in terms of aesthetics. Long views across a vast lake surface to towering rugged mountain slopes and peaks are reminiscent of a classically sublime landscape. High natural character, infinitely varied elevation and terrain, relative emptiness, remoteness and wildness all contribute to a landscape that is likely to be very memorable to visitors and locals alike. Transient characteristics in terms of light, weather and atmospheric conditions, throughout the day and throughout the year are likely to be an important part of the appreciated aesthetics. The degree of human influence in this landscape is similar to many of the relatively remote ONLs within the District. Human influence is present and recognisable but is not dominant; it is overwhelmed by natural characteristics. At a broad scale, farming and management is evident, particularly at lower altitudes; fences, pasture, farm tracks and occasional buildings form part of the visual amenity that is experienced. Views to the upper altitudes are of steep rugged slopes that are visually much less managed and more varied in terms of natural textures and colours. Nodes of more intense human management and occupation are legible but are well separated and discrete around the perimeter of the lake. These take the form of Gladstone, Dingleburn Valley, Hunter Valley Station farm base area, Kidd's Bush, the Glen Dene farm base area and the larger Hāwea Township. A long and narrow fan/terrace toe at the base of the Mount Maude Range takes in The Dene site and all of the Glen Dene Station land to the east of SH6 and a considerable area west of it as well. The terrace lands are easily distinguishable from the steeper mountain slopes when on site or examining a topographic map. The terrace lands have deeper soils and have traditionally been more intensively farmed as the home paddocks of Glen Dene Station. The Dene landholding was traditionally part of this home paddocks area of Glen Dene Station. These terrace lands (including The Dene site) have a land use pattern of improved farm pasture as opposed to the extensively farmed, rugged high-country pattern of the mountain slopes. The area that takes in the farm base of Glen Dene Station and the existing dwelling on The Dene site (i.e. the subject site) is the most intensively modified and used part of the above-described terrace lands.
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		Via both the ODP and the PDP, the community have recognised the Lake Hāwea landscape as an ONL. I consider that this demonstrates that its character is widely valued. Additionally, as alluded to above, I consider that both locals and visitors will recognise and appreciate the dramatic aesthetics of the landscape and its naturalness, and (to some degree) appreciate its formative processes. I also consider that it will be widely recognised that the fan/terrace toe land that takes in the improved pastureland of Glen Dene Station and The Dene is more managed and less natural than the dominant and rugged mountain slopes. The use of the landscape surrounding Lake Hāwea for farming since the colonial period adds a layer of meaning and romance to the rugged landscape in the eyes and minds of many observers. The high-country stations that surround the lake are likely to be more known to locals (or at least New Zealand visitors) rather than international visitors. For some observers, the engineering aspects of the Lake Hāwea Control Dam and the associated raising of the lake surface by 20 metres in 1958 add interest and meaning to the landscape.
	c. whether, and to what extent, the proposal will protect Tangata Whenua values, including Tōpuni or nohoanga. <i>Note: The Council acknowledges that Tangata Whenua beliefs and values for a specific location may not be known without input from iwi.</i>	Nohoanga sites exist on the edges of Lake Hāwea at the Hāwea campground, the mouth of Timaru Creek and Bushy Point, although I understand that the traditional locations of these sites are in fact under the lake surface. The proposal will not affect these locations. I understand that the Lake Hāwea area was part of pre-European travel routes associated with seasonal migration, food gathering and pounamu sourcing. I have no other knowledge or expertise in relation to tangata whenua cultural and spiritual values.
21.21.1.2 Visibility		
For the implementation of relevant policies including SP 3.3.23, SP 3.3.31, SP 3.3.43, SP 3.3.45, SP 3.3.46, 6.3.2.7, 6.3.2.8,	a. unformed legal roads in the vicinity of the proposal will or are likely to be used for vehicular and/or pedestrian, cycling, equestrian and other means of access;	There are no unformed legal roads in the vicinity of the proposal.

6.3.3.1, 6.3.3.5, 6.3.4.8, 21.2.1, 21.2.1.1, 21.2.1.3, 21.2.1.11, 21.2.9, 21.2.9.1, 21.2.9.2 and 21.2.9.3, in considering a subdivision or development proposal, the Council will have regard to the extent to which:	b. the proposal will detract from public or private views of and within Outstanding Natural Features and Outstanding Natural Landscapes;	Aspects of the proposed activities that have the potential to detract from views are future buildings on the proposed building platforms, curtilage activities (contained within the identified curtilage areas), disturbance associated with the proposed access road and the incremental native revegetation of Round Hill and the areas of active planting. The degree of visibility of these elements is discussed in detail in the body of this report. From SH6, only the burgeoning native vegetation that the proposal will bring will be realistically visible, bringing a positive effect on visual amenity. From viewpoints on the lake surface that are within approximately 2km of the proposed building platforms, future buildings will be discernable and recognisable for what they are; they will sometimes not be reasonably difficult to see (with reference to Policy 6.3.3.3). After approximately 5 to 7 years, the native planting areas within the site will also be recognisable. From points on the lake surface that are further than approximately 2km, the proposed activities will be reasonably difficult to see, as will be the case with distant landward viewpoints. The degree to which this visibility will detract from views is set out in detail in the body of this report. In summary, there will be no relevant detraction from views and visual amenity (in fact, in some cases there will be a positive effect), other than in relation to observers who are on the lake surface and within approximately 2km of the proposed building platforms. For these individual observers in this particular part of the lake adjacent to the site, the three dwellings will represent a reduction to natural character and an increase in human modification/occupation, while the extensive revegetation will read as a considerable area of native bush within a majestic lakeside setting. Overall, the increased human occupation will result in a net adverse effect on the visual amenity of these particular observers, but given the specific location and contextual factors, and given the vegetation that will emerge, this adverse effect will range up to a moderate degree (at most) depending upon distance.
	c. mitigation is provided by elements that are in keeping with the protection of landscape values;	The elements that will serve the purpose of reducing or filtering visibility of future buildings are natural topography, existing vegetation and proposed vegetation. All of these elements are part of, and in keeping with, the existing character of the landscape. As discussed, they will bring considerable positive effects in terms of landscape character.

	d. structures will break the line and form of any ridges, hills and slopes;	Future dwellings that are built in accordance with the details of the application will sit on the rolling terrace of the relevant part of the subject site. They will only be visible from the east and northeast. In all instances, future built form will be backed by landform and increasingly by native vegetation.	
	e. any roads, access, lighting, earthworks and landscaping are visible from beyond the boundary of the site of the proposal;	The proposed access road involves cut and fill resulting in gentle batters on the lake side of the road. Some steeper batters will be created on the uphill side of the access road. All batters will be re-grassed, and the majority of batter areas will be covered in proposed vegetation areas in any event. The proposed native shrub vegetation will considerably screen the driveway formation and visually blend it into a vegetated backdrop. Areas of vegetated land-shaping are proposed closer to the proposed building platforms such that separation and screening of building platform areas is achieved and platforms will sit on shelf-like formations. Once revegetated, I consider that there will be no significant effect on visual amenity; vegetation will cover all earthworked areas and will incrementally enhance natural character as growth proceeds. Outside lighting is proposed to be considerably restricted by proposed conditions of consent. Currently, lights at night are visible from the east in relation to the Glen Dene homestead dwellings, the subject site's dwelling, and, sometimes, some of the working buildings of the Glen Dene Station farm base area. Any light from future dwellings as proposed will be seen as up to three more points of light. These will only be visible from the east; i.e. the lake or the far side of the lake. The landscaping that is proposed takes the form of broad sweeps of mixed native revegetation. In views from the lake, the proposed revegetation will appear as dark colour and varied texture in a configuration that follows natural landform and replicates pre-human patterns. Leaving aside ecological and bio-diversity benefits, I consider that the vegetative patterns that will result from the proposal will be positive in a visual sense in that it will create an area of visually recognisable natural character.	
	f. if the proposal would be located within a landscape that exhibits open space or has an open character, it:	i. will maintain open space or open character when viewed from public roads and other public places;	The visibility of the site and its characteristics is set out in detail elsewhere in this report. Public views are limited to certain parts of the surface of Lake Hāwea. As has been discussed, while visible, the changes that will be brought by the proposed activities will visually interrupt the openness of the landscape to a low degree.
		ii. is situated on a site that is within a broadly visible	From parts of the lake surface, the site is within a broadly visible expanse of open landscape.

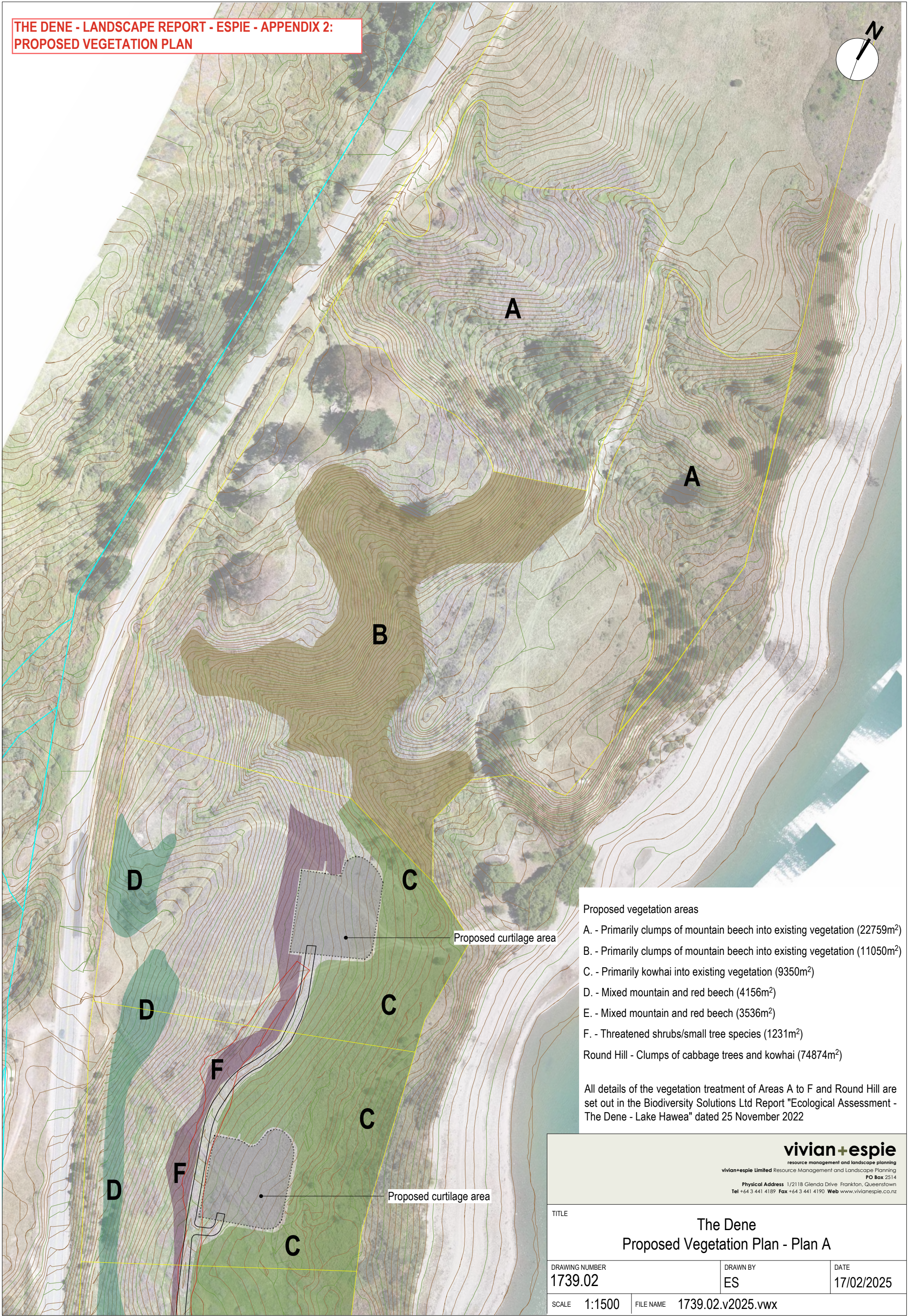
		expanse of open landscape when viewed from any public road or public place;	
		iii.is likely to affect open space or open character values with respect to the site and the surrounding landscape;	As above and explained in detail elsewhere, when seen from the relevant locations, a small change to open character will occur. Part of this will come from the natural patterns of burgeoning native vegetation areas.
		iv. is situated on a site that is defined by natural elements such as topography and/or existing vegetation which may contain and mitigate any adverse effects associated with the proposal;	Certainly, natural topography serves to visually contain the location of the proposed building platforms such that they are within an east-facing amphitheatre-like landform. This contains potential effects such that they may only be perceived from the east.
	g. the visibility of the proposal will contribute to adverse cumulative effects on the landscape values identified in Schedule 21.22, or identified in accordance with SP 3.3.45.	This issue is discussed in relation to matters 21.21.1.2 (b) regarding visual effects, matter 21.21.1.3(e) regarding design and density and matter 21.21.1.4 (c) regarding cumulative effects, and in the body of this report.	
21.21.1.3 Design and density of development			
For the implementation of relevant policies including SP 3.3.23, SP 3.3.31, SP 3.3.43, SP 3.3.45, 3.3.46, 6.3.2.1, 6.3.2.7, 6.3.2.8, 6.3.3.1, 6.3.4.8, 21.2.1,	a. the proposal, including access, is designed and located in response to the identified landscape values;	As is set out in the body of this report the configuration of the application including its layout (including access), restrictions and design controls and vegetation regime has been designed so as to respond to the identified values of the landscape.	
	b. opportunities have been taken to aggregate built development in order to utilise common access ways.	The proposal uses an existing road access point off SH6 and shares one access road between the three proposed building platforms.	

21.2.1.1, 21.2.1.2, 21.2.1.3, 21.2.1.11, 21.2.9, 21.2.9.1, 21.2.9.2 and 21.2.9.3, in considering a subdivision or development proposal, the Council will have regard to the extent to which:	including roads, pedestrian linkages, services and open space (i.e. open space held in one title whether jointly or otherwise);	As is set out elsewhere in this report, design opportunities regarding open space and public access have been taken by the proposal. A QEII covenant is to be registered over Round Hill, which will preserve a prominent area of open space. An easement in favour of the public is proposed to provide pedestrian access to a lookout point on Round Hill.	
	c. there is merit in clustering any proposed building(s), building platform(s) and associated physical activity including roading, access, lighting, landscaping and earthworks within areas that are least sensitive to change;	This premise has been a main driver of the design of the proposal. As has been discussed, the three building platforms are spaced relatively closely together in a contained, east-facing bay such that the platforms are hidden from SH6 and have Round Hill to their immediate south, providing containment, shelter and screening from a southerly direction. This location is the most hidden within The Dene property. In a broader sense, the development location is within the terraced landform that accommodates the improved pasture that runs between Hāwea township and the Glen Dene Station farm base area. I consider that the proposed activities are located in an area that is least sensitive to change, when we consider the ONL as a whole.	
	d. any proposed new or modified boundaries will give rise to artificial or unnatural lines in the landscape (such as planting and fence lines) which are inconsistent with identified landscape values;	The new boundary lines at the northern and southern ends of the proposed rural living lots (i.e. the northern boundary of Lot 3 and the southern boundary of Lot 1) follow existing lines in the landscape, being the northern end of Round Hill (which is already fenced) and the line of the gully at the northern end of proposed Lot 3. The other proposed boundary lines (i.e. the boundaries of Lot 2) follow, in part, existing fence-lines. A proposed condition of consent requires any new fencing to be of post-and-wire only.	
	e. the design and density of the proposal contributes to adverse cumulative effects on landscape values.	The proposal will enable three additional dwellings to the landscape as has been described. In this sense the proposal will cumulatively add domestication to the Lake Hāwea landscape. The design involves visually recessive dwelling locations that are hidden from SH6 and the proposal also includes considerable native revegetation. For all of the reasons discussed in this report, I consider that the degree to which the proposed activities will combine with the existing elements in the landscape to create an adverse cumulative effect will be of a low degree overall, and will only be experienced by a few particular observers.	
21.21.1.4 Cumulative effects			
For the implementation of relevant policies including SP 3.3.23, SP 3.3.29, SP	aa. the soundness of the methodology applied for the	i. whether the assessment applies measurable spatial or other limits to inform its	The location of the proposed activities is separated from Hāwea / The Camp and from any developed area further north. As discussed, the site contains an existing dwelling (at its northern end) and

3.3.31, SP 3.3.43, SP 3.3.45, SP 3.3.46, 6.3.3.1, 6.3.2.7, 6.3.3.5, 21.2.1, 21.2.1.1, 21.2.1.11, 21.2.9, 21.2.9.1, 21.2.9.2 and 21.2.9.3, in considering a subdivision or development proposal, whether located within or outside any Outstanding Natural Feature or Outstanding Natural Landscape, the Council will have regard to:	consideration of cumulative effects on landscape values including as to:	conclusions concerning those effects (including matters of location, quantity, density and design treatment);	immediately further north is the Glen Dene Station homestead and farm base area. All effects of the proposed activities are discussed in the context of the receiving environment and all elements of this receiving environment are taken account of, as is set out in this report. Appendix 3 to this report illustrates this context.
		ii. how it accounts for contribution to those effects from existing, consented or permitted development within the relevant landscape character area;	Existing development that forms part of the site context is described in detail in the body of this report. It is made clear that existing development/modification/occupation in this particular part of the perimeter of Lake Hāwea is important. Again, the effects of the proposed activities have been considered with full account being taken of all aspects of the existing environment.
	a. the outcome of an assessment of landscape capacity undertaken in accordance with SP 3.3.29 and SP 3.3.45 that is relevant to the proposal being considered;	Schedule 21.22 has been prepared in accordance with SP3.3.29 and 2.3.45. The relevant capacity is then set out in Schedule 21.22.23. In relation to Rural Living, the Schedule describes capacity as limited.	
	b. the contribution existing, consented or permitted subdivision or development (including unimplemented but existing resource consents that are likely to be implemented) makes to landscape capacity; and	Existing development and modification mean that the character of this particular part of the ONL is more modified and occupied, such that the proposed development will be less out-of-character than it would be in the vast majority of locations within this landscape.	
	c. the effect the proposal would have on landscape values and landscape capacity.	In short, the actual changes to the landscape that will occur as a result of the proposal will be three future dwellings and associated curtilage and access and considerable areas of native revegetation. The domestic activity will be recognisable to viewers to the east of the site that are within approximately 2km. In relation to landscape character, the changes that the proposal will bring will mean that domestic occupation is increased in a specific part of the landscape, being the southwestern part of the perimeter	

		of Lake Hāwea, between Hāwea township and the Glen Dene Station farm base area. This part of the perimeter of Lake Hāwea is (at least in part) characterised human modification. The proposed vegetation and ecological enhancement aspect of the proposed activities will significantly increase the natural character of The Dene site over time. Round Hill will be retired from farming, protected from modification and native cluster planting and natural revegetation will increase native vegetative character. The sizable planting areas A to F will become dense areas of high native forest or shrubland. This instance of natural vegetative character will be easily recognisable from SH6. The walking trail public easement will increase public access adjacent to the lake shore; recreational associations will be improved. In relation to effects on landscape values, the positive aspects of the proposal (ecological management and revegetation, the protective covenant on Round Hill, improved public access) are important. However, the intensification of human occupation in this southwestern part of the Lake Hāwea perimeter will amount to an increase in human modification within a natural landscape and will be a detraction from the relatively empty character of this vast, open landscape. The location of the proposed building platforms (in a contained, east-facing bay that sits between Hāwea township and the Glen Dene Station farm base area, in the most occupies part of the Lake Hāwea perimeter) and the visual inconspicuousness of the future dwellings and occupation (only perceivable from relatively close parts of the lake surface) are important factors. Ultimately, because of these factors, I consider that adverse landscape effects of the proposal will be of a low degree. Overall, I consider that the proposal will appropriately maintain the values of the landscape. Notwithstanding that, the proposal is likely to mean that the remaining capacity to absorb development in this part of the ONL becomes reduced.
21.21.3 Other factors and positive effects, applicable in all the landscape categories (ONF, ONL and RCL)		
21.21.3.1 For the implementation of relevant policies including 6.3.2.5, 6.3.2.6, 21.2.1.1, 21.2.1.6 and 21.2.9.3, in considering a subdivision or development proposal, the Council will have regard to the extent to which indigenous biodiversity values, in particular the habitat of any threatened species, or environments identified as chronically or acutely threatened on the Land Environments New Zealand (LENZ) threatened environment status, are protected or enhanced.		The current proposal involves significant ecological vegetative enhancement, as has been described. The southern half of The Dene landholding will significantly increase in natural character over time. Round Hill will be retired from farming, protected from modification and native cluster planting and natural revegetation will increase native vegetative character. The sizable planting areas A to F will become dense areas of high native forest or shrubland. Over time, The Dene site as a whole will become an instance of natural character representing pre-human native vegetative patterns in this southwestern part of the Lake Hāwea perimeter.

21.21.3.2 For the implementation of policy 21.2.1.16, in considering a subdivision or development proposal, the Council will have regard to whether easements for public access such as walking, cycling or bridleways or access to lakes, rivers or conservation areas would be provided for.	Legal public access along the lake shore between Hāwea township and The Camp (the Hāwea motor camp), and then north to the southern edge of Round Hill currently exists. Practical access does not extend beyond this point. The proposal includes the creation of a public easement to provide for a walking track up to a lookout point on Round Hill. The net result of these factors is that a walking track will exist along the lake edge, running north from Hāwea township to a lookout point that would allow broad views back towards Hāwea township and the outlet. In relation to conservation, the most prominent and recognisable part of the site is Round Hill, which is a legible landform from the lake, the highway and Hāwea township. The proposal involves registering a QEII covenant over Round Hill to protect it and to manage its vegetation. The proposed native revegetation work, QEII covenant and public walking easement will act as a compensatory measures in that they will bring positive effects in relation to natural character, visual amenity and recreation
21.21.3.3 For the implementation of policy 6.3.2.6, in considering a subdivision or development proposal, the Council will have regard to the extent to which any marginal farming land is to be retired and reverted to indigenous vegetation.	The location of the proposed development, including Round Hill, is a part of The Dene landholding that is minimally farmed and is of marginal agricultural use in a practical sense. The proposal involves retiring this area from farming and puts considerable resources into actively and passively revegetating it to an indigenous vegetation cover. As discussed, this will be a significant positive effect in relation to natural character over a large area.
21.21.3.4 For the implementation of policy 21.2.5.6, in considering a mineral extraction proposal where adverse effects cannot be avoided, mitigated or remedied, the Council will have regard to the merits of any proposed environmental compensation.	Mineral extraction is not proposed.



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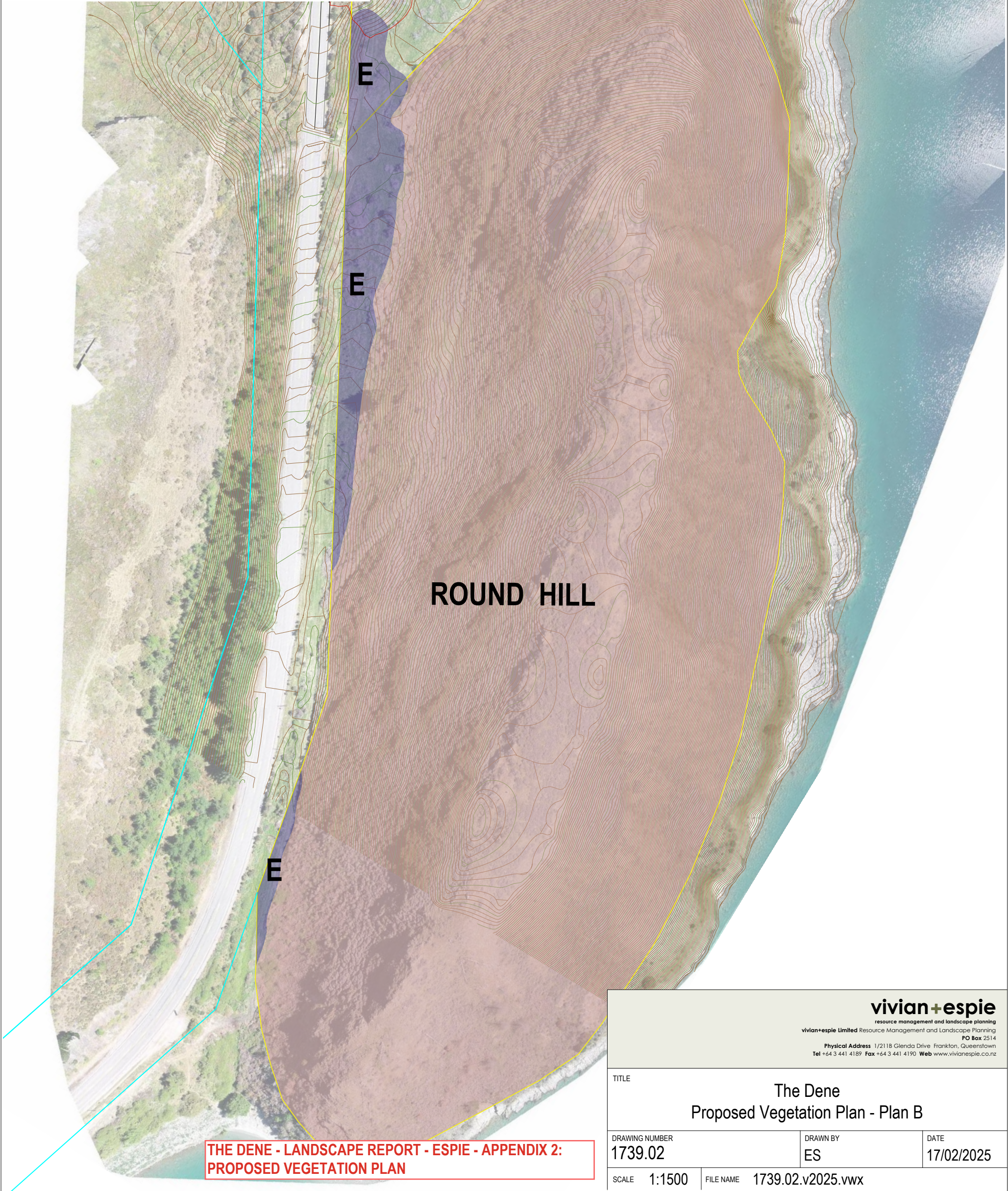
TITLE
**The Dene
Proposed Vegetation Plan - Plan A**

DRAWING NUMBER 1739.02	DRAWN BY ES	DATE 17/02/2025
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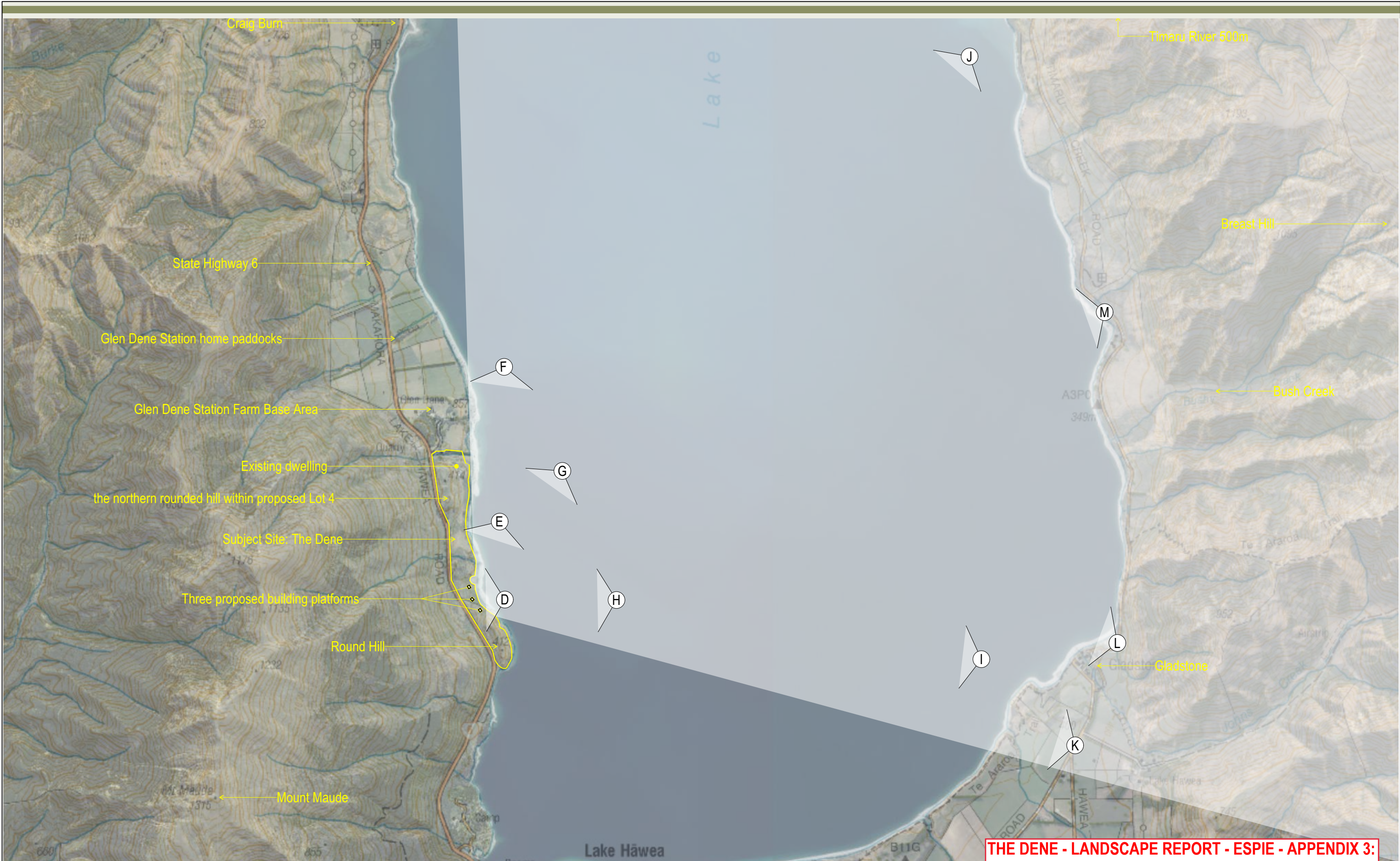
- Proposed vegetation areas
- A. - Primarily clumps of mountain beech into existing vegetation (22759m²)
 - B. - Primarily clumps of mountain beech into existing vegetation (11050m²)
 - C. - Primarily kowhai into existing vegetation (9350m²)
 - D. - Mixed mountain and red beech (4156m²)
 - E. - Mixed mountain and red beech (3536m²)
 - F. - Threatened shrubs/small tree species (1231m²)
- Round Hill - Clumps of cabbage trees and kowhai (74874m²)

All details of the vegetation treatment of Areas A to F and Round Hill are set out in the Biodiversity Solutions Ltd Report "Ecological Assessment - The Dene - Lake Hawea" dated 25 November 2022



THE DENE - LANDSCAPE REPORT - ESPIE - APPENDIX 2:
PROPOSED VEGETATION PLAN

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TITLE The Dene Proposed Vegetation Plan - Plan B		
DRAWING NUMBER 1739.02	DRAWN BY ES	DATE 17/02/2025
SCALE 1:1500	FILE NAME 1739.02.v2025.vwx	



THE DENE - LANDSCAPE REPORT - ESPIE - APPENDIX 3:
THE SITE IN ITS CONTEXT

- The Zone of Theoretical Visibility of the future buildings is shown as a lighter shade.
- Viewpoints are shown as letters D-M. Viewpoints A-C are within the subject site. Precise GBP coordinates are recorded and available for these viewpoints.



REF: 1739-01 Context Plan
DATE: 2.12.22
SCALE: 1:30,000 @ A3

Context Plan The Dene

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Viewpoint A - On the Lot 1 building platform.



Viewpoint B - On the Lot 2 building platform.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



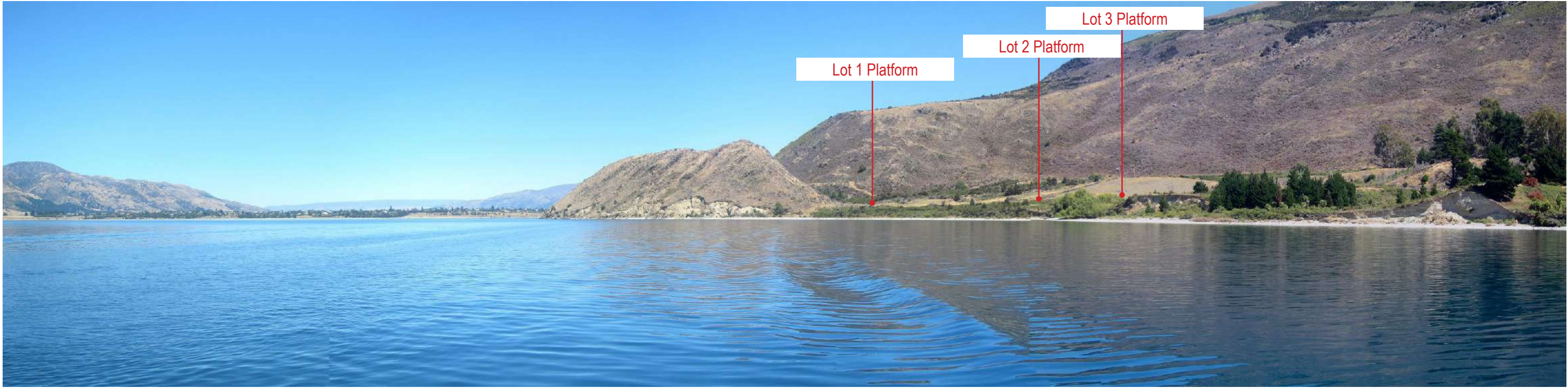
Viewpoint C - On the Lot 3 building platform.



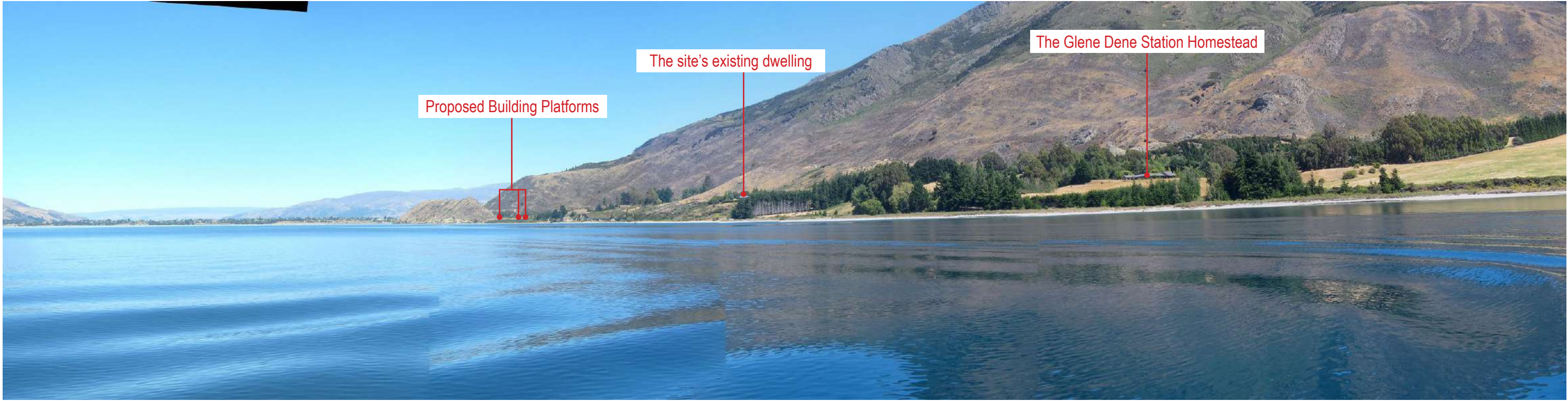
Viewpoint D - On the lake 200m from the boundary. Building profile poles have been used to depict approximate building envelopes in this image.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Viewpoint E - On the lake, 230m from the site boundary.



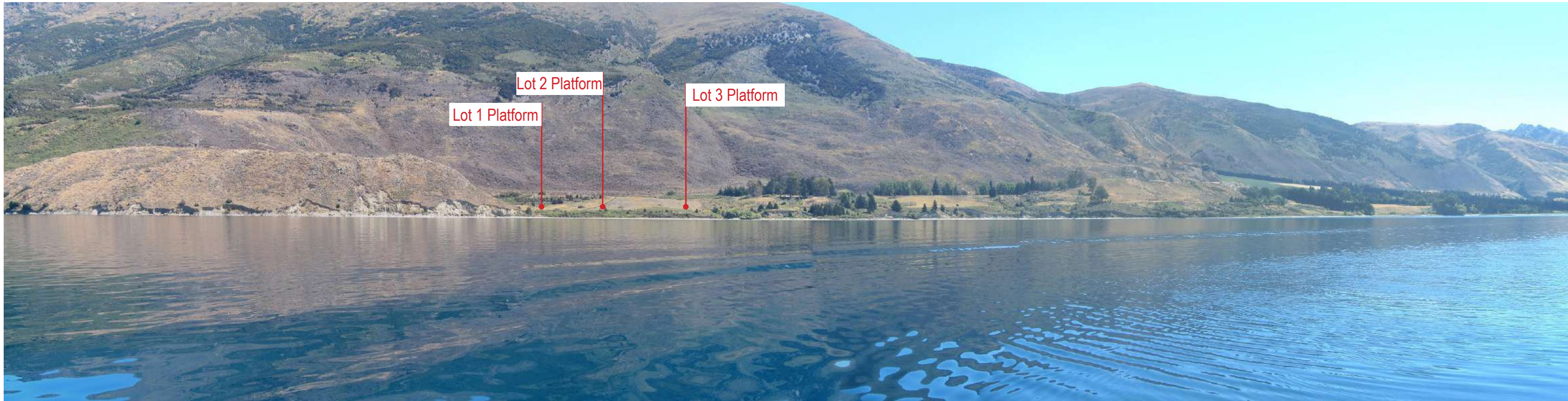
Viewpoint F - On the lake, 760m from the site boundary.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Viewpoint G - On the lake, 760m from the site boundary.



Viewpoint H - On the lake, 925m from the site boundary.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Viewpoint I - On the lake, 4.6km from the site boundary.



Viewpoint J - On the lake, 5.5km from the site boundary.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Viewpoint K - On Timaru Creek Road close to the intersection of Gladstone and Hāwea Back Roads, approximately 5km from the subject site.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Proposed building platforms

Viewpoint L - In John's Creek Reserve at Gladstone, approximately 5.3km from the subject site.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.



Viewpoint M - On public lakeside land near Bushy Creek, approximately 5.6km from the subject site.

THE DENE - LANDSCAPE REPORT – ESPIE– APPENDIX 4: PHOTOGRAPHS

Photographs were taken with a fixed focal length of 50mm. Photographs are intended to illustrate points made in this report. If this sheet is printed at A3 size, the photographs are not at full size so as to replicate the full-scale field of view as taken in by the human eye.

Architectural (*refer Baxter Design – Plan: 4550-SK05*)

1. All buildings must be located within the building platform, with the exception of the retaining wall along to the rear of the courtyard and service / storage area which may be up to 2m in height.
2. All buildings facing the lake (east) shall be in monopitch form, must have a maximum height of 3.8m (from the specified FFLs) and all roof forms shall slope towards the lake (east). The lower end of the monopitch form (that facing the lake – east elevation) shall have a maximum height of 3m above the specified FFL.
3. All floor to ceiling glazing is to be recessed into wall profiles a minimum of 250mm.
4. Any northern and east facing glazing shall have an eave overhang of a minimum width of 1.2m extending over past glazed portions of the elevations, and shall be a continuation of the roof form.
5. Garages shall be located to the rear (west) of the principal lake facing elevation, must have a flat roof and shall not exceed 3.8m in height from the same specified FFL as the dwelling
6. All timber wall claddings must be stained or painted and claddings shall not be left to ‘silver off’ or weather naturally.
7. All buildings shall be clad in flat / flush vertical or horizontal timber only, in a dark stain or painted in greys or blacks only (with an LRV of less than 20%). Any connecting galleries or flats between buildings shall be clad in the same cladding or, if glazed, shall be subject to the eave requirements described above (Condition 4 above).
8. All roofing on the dwelling form shall be in steel tray in Colorsteel “Flaxpod” only or in a similar colour, if in other products.
9. All spouting, downpipes and window and door joinery shall be steel or aluminium in a colour finish to match the roof (Flaxpod) colour, including all ventilation, extractor ducts etc. that penetrate the roof. No plastic spouting or downpipes are permitted.
10. Chimneys may exceed the maximum height by 1.2m and shall be clad in powder-coated steel in the same cladding and colour as the roof.
11. The maximum glazing along the elevation fronting the lake (eastern elevation) shall be restricted to 80% of that elevation. Glazing on the western, eastern and southern elevation shall be restricted to 60%.
12. All exterior lighting shall be located within the building platform and restricted to down lighting only at a maximum height of 1.2m only.

13. All exterior lighting not fixed to a building shall be no more than 1.2m in height and directed downward.
14. Light sources are to be LED, incandescent, halogen or other “white light” only.

Lawn Area (*refer Baxter Design – Plan: 4550-SK05*)

15. There shall be no domestic elements, structures or fencing located or constructed within the lawn area. This is to be maintained as mown lawn only. (*note: lawn area is that defined as ‘curtilage area’ on the above plan*).
16. Lawn areas described on the plans refer to the maximum area of lawn permitted. The lawn area may be planted in plant species from the approved list

Service / Storage Area

17. All external service areas are to be located within the area referred to as the ‘service area’ in the plan (refer Baxter Design - 4550-SK05) and appropriately screened with a timber screen fence matching the cladding of the dwelling and shall be located within the area referred to on the plans.
18. No air conditioning units, or any other unit shall be mounted on the roof.
19. All site utilities such as gas supply, electrical supply, stormwater piping, sewer, telecommunications shall be underground or contained within the building.
20. Water tanks shall be buried to 2/3rds of their height, in a dark grey colour and screened from all lake views by way of planting.
21. None of the utilities / services described above shall be located in a location where they may be visible from any point on the surface of Lake Hawea

Vehicle Courtyard

22. The courtyard (referred to as the ‘vehicle area’ on plan *Baxter Design - 4550-SK05*) shall be formed in schist stone flagstones, gravel or exposed aggregate only.

Landscape: (*refer Baxter Design – Plan: 4550-SK05*)

23. Fencing is permitted for the purpose of containment and pest control only and, if required, shall be in traditional 7-wire farm fencing only (netting and rabbit mesh permitted), shall be located with 10m of

the building platform and lawn area only and shall be screened from views from any point on the surface of Lake Hawea by way of planting.

24. No boundary fencing is permitted.
25. Any non-indigenous planting for the purpose of growing herbs/ vegetable gardens must be located within the vehicle courtyard and / or the service storage area, shall not exceed 1.5m in height, shall not exceed 15m² in plan size and shall not be visible from any point on the surface of Lake Hawea.

Ecological Assessment

The Dene Lake Hāwea



Report prepared by:

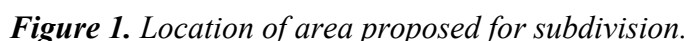
Emeritus Professor David Norton, Biodiversity Solutions Ltd., Lake Hāwea

Updated 26 March 2026

Assessment summary

- This report presents an assessment of the ecological values of the site and provides advice on potential ecological enhancement opportunities.
- The current vegetation is dominated by three plant communities – pasture, bracken fernland with regenerating shrubs and sprayed bracken fernland. In addition, there are small areas of rock outcrops and two minor wetlands. The composition and extent of these communities are described.
- Thirty-one species of native vascular plant were recorded from the site including four ferns, 16 shrubs, trees and climbers, three herbs, and eight grasses, sedges and related plants.
- While the three sites proposed for houses are located within areas of pasture that have had bracken cleared off them and are clearly not significant, I have, for completeness undertaken a significance assessment of the whole site against the criteria in Chapter 33 of the Queenstown Lakes District Plan.
- Based on these criteria it is my opinion that the whole site does not meet the criteria for ecological significance within the plan.
- One of the wetlands is a natural wetland in terms of the NPC-FM and its values will be enhanced through the restorative management proposed here.
- Notwithstanding this lack of ecological significance, I believe that the site presents considerable opportunities for ecological enhancement. I recommend that ecological restoration is undertaken in three areas on the property and that an ongoing woody weed control programme is undertaken.

Consent is being sought for a four-lot subdivision with three building platforms on a 38 ha parcel of freehold land (The Dene) on the western side of Lake Hāwea (Figure 1). The land lies between SH6 and the lake, with Glen Dene Station to the north and a mix of unallocated Crown land managed by LINZ, Recreation Reserve and freehold land occupying the thin strip between SH6 and the lake to the south.



As part of the resource consent application, I have been asked to undertake an assessment of the ecological values of the site and to provide advice on the potential ecological enhancement opportunities associated with the subdivision.

This report is based on a site visit on Monday 21 February 2022 when I was able to have a good look around the site (I spent three hours traversing the site in good weather). I also visited the site again on 14 March 2026. In addition, I draw on my broader ecological experience across a range of sites around Lake Hāwea.

The site comprises ice-scoured bed rock mapped as “variable schistose to non-schistose quartzofeldspathic sandstone interbedded with mudstone” with some “undifferentiated till”¹. Geomorphologically the site comprises a gently sloping terrace primarily comprising the undifferentiated till, and a small prominent roche moutonnée at the southern end. The terrace slopes down from SH6 towards the lake, before dropping more steeply into the lake. Three small streams draining off the slopes of Mt Maude are slightly incised into this. The roche moutonnée of ‘Round Hill’ (Pt 412) rises approximately 60 m above the lake and is some 500 m long and 200 m wide.

Based on existing remnants, fossil records and pre-human mapping of potential vegetation cover², the pre-human vegetation likely comprised tawai/beech forest on the slopes (mainly mountain beech), with a more diverse mixed species forest adjacent to the lake. Kōwhai would have been common in this mixed forest, but other species may have included putaputawētā/marbleleaf, kāpuka/broadleaf, karamū, tī kōuka/cabbage tree, kōhūhū, orihou/three finger, horoeka/lancewood, koromiko, kānuka, māpou/red matipo, kauheke/mountain lacewood, kōtukutuku/tree fuchsia, and harakeke/flax along the lake shore. Thin-bark tōtara and perhaps mataī may also have been present. ‘Round Hill’ likely supported a stunted vegetation cover reflecting its rocky nature with thin soils and greater exposure to the prevailing northwest winds. However, taller vegetation would have been present on lee slopes and in areas with deeper soils.

Polynesian settlement of New Zealand is thought to have occurred about 1280 AD and was followed by widespread fire removing most of the forest in the eastern South Island³. Detailed data on this deforestation is available from Diamond Lake and Glendhu Bay on the southern edge of Lake Wānaka and Dingle Burn on the opposite side of Lake Hāwea⁴. Charcoal records suggest a period of intense fire activity with several distinct fires between 1280 and 1600 AD. The pollen data from Diamond Lake suggest four large-magnitude fire events between A.D. 1320 and 1560. These fires resulted in the existing forests being replaced by bracken and grasses (tussocks) within a very short time.

These pre-historic fires would have been catastrophic and at a scale not seen since and were almost certainly accidental, spreading from Māori campfires or fires lit to clear walking routes, and were likely facilitated by strong winds and drought and would have impacted very large areas. After these initial fires, ongoing burning likely maintained the vegetation as a mosaic of tussock, bracken and regenerating shrubland. Historical records suggest that early Europeans encountered a landscape dominated by open vegetation⁵ and any shrubland that was present was likely removed by deliberately lit fires at that time. Early European explorers

¹ Turnbull IM, compiler. 2000 Geology of the Wakatipu area. GNS 1:250,000 geology map 18.

² Wardle P 2001. Distribution of native forest in the upper Clutha district, Otago, New Zealand. *New Zealand Journal of Botany* 39, 435-446.; Wardle P 2001. Holocene forest fires in the upper Clutha district, Otago, New Zealand. *New Zealand Journal of Botany* 39, 523-542.;

<https://maps.org.govt.nz/OtagoViewer/?map=f11442f65b1b454ba3f3ade3e8a4ade8#>

³ McWethy DB et al. 2009. Rapid deforestation of South Island, New Zealand by early Polynesian fires. *The Holocene* 19, 883-897; McWethy DB et al. 2010. Rapid landscape transformation in South Island, New Zealand, following initial Polynesian settlement. *Proceedings of the National Academy of Sciences* 107, 21343-21348

⁴ McWethy DB et al. 2014. A high-resolution chronology of rapid forest transitions following Polynesian arrival in New Zealand. *PloS ONE* 9(11): e111328.

⁵ Wardle P 2001. Holocene forest fires in the upper Clutha district, Otago, New Zealand. *New Zealand Journal of Botany* 39, 523-542.

regularly lit such fires. The first people to farm the western shores of Lake Hāwea apparently encountered dense (head-high) bracken fern.

The site under consideration here has been farmed continuously, although not intensively, since 1859. Over this time the area has been subject to a mix of livestock grazing, fertiliser application (since 1978), burning, mulching and more recently herbicide spraying, which has induced the current vegetation pattern described in the next section.

Overview of existing vegetation

There are three main vegetation types at the site – pasture, bracken fernland (with regenerating shrubs), and sprayed bracken fernland. Two small wetlands are also present and there are also small rock outcrops. I now provide brief descriptions of each vegetation type.

Pasture (Figure 2): Pasture is widespread over the more gently sloping parts of the site. Browntop, sweet vernal and chewings fescue are dominant, but blue wheat grass⁶, cocksfoot, annual poa, catsear, hawkweeds and several other exotic pasture species are also present. The native hard tussock is sparse, and the only other native species seen, aside from bracken, was pōtōtara, both of which occurred mainly in sites with shallow soils and a more open grass sward. Some of the pasture areas, especially around the proposed house sites, have had the regenerating bracken physically scrapped off leaving pasture and bare ground with sparse exotic vegetation present. Bracken appears to be regenerating vigorously across pasture areas, and I think without grazing, fire or mulching, bracken will quickly take over pasture. As is the case more widely around Lake Hāwea, tree lupin appears to be expanding in disturbed areas.



Figure 2. Looking north across exotic pasture.

⁶ I refer here to the exotic blue wheat grass *Anthosachne scabra*.

Bracken fernland (Figure 3): This community has a strong ground layer of bracken but includes a range of native shrub species including two species of mingimingi, mānuka, kānuka and tī kōuka. This vegetation type is widespread across the site, especially in the stream gullies and along the lake faces, although it also occurs across some of the more level areas. Bracken is usually dominant, but there are variable amounts of shrubs with mānuka more common on more gentle sites and kānuka more common on steeper sites. Tī kōuka appears to mainly be present in the gullies (Figure 4). Wilding conifers (many felled), sweet briar and tree lupin are also common through this vegetation type, and there are also patches of the native climbing plants pōhuehue and tārtarāmoa/bush lawyer. There are also several restoration plantings along the edges of the bracken fernland including mountain beech, red beech, thin-barked tōtara, kōhūhū amongst others. Some of the planted mountain beech are 6-8 m tall after 10-years growth.

Bracken plays an important role in succession from grassland back to forest in this area, providing sheltered microsites for woody seedlings to establish. In time, bracken fernland will transition into regenerating native forest so long as seed sources are present and browsing pressure is controlled. However, bracken fernland also provides suitable establishment sites for wilding conifers.



Figure 3. Bracken fernland with mānuka and kānuka.



Figure 4. Tī kōuka amongst dense bracken.

Analysis of aerial photos taken in 2006 and 2018 suggests that the current extent of bracken across the site is relatively recent, (Figure 5), presumably reflecting less intensive management inputs in more recent years – for example, the site has had no superphosphate applied for the last 20 years.



Figure 5. 2006 (left) and 2018 (right) aerial photos of the central part of the site.

Sprayed bracken fernland (Figure 6): This is a relatively diverse community located on ‘Round Hill’ that includes more open grassland areas and would have had marked aspect differences (between west and east facing sides of the hill as is evident in the 2018 aerial imagery; Figure 7). Almost all of ‘Round Hill’, except a small area in the southwest, has been sprayed in the last ten years which has killed bracken, sweet briar, matagouri, tree lupin, wilding conifers and a small area of European broom. While the spraying does seem to have been quite effective, there is now reasonable regeneration of sweet briar, tree lupin and bracken across much of the site. There has also been felling of large wilding conifers near the southern summit of ‘Round Hill’ (predating the spraying) and close to the lake at the southern end of the site.

Wetlands (Figure 8): Two small wetlands are present, one adjacent to SH6 at the southern end of the site and a second along one of the streams coming down from Mt Maude. The SH6 wetland was dominated by exotic pasture grasses and monkey musk, with no native wetland plants present. The second wetland although small (< 100 m²) did include the common cutty grass or rautahi (*Carex coriacea*), as well as a few plants of swamp sedge/pukeo (also called puriri) and one plant of kiokio. The significance of these wetlands is assessed against the Freshwater Management National Policy Statement below.



Figure 6. *Sprayed flanks of ‘Round Hill’ with Lake Hāwea township in the distance.*

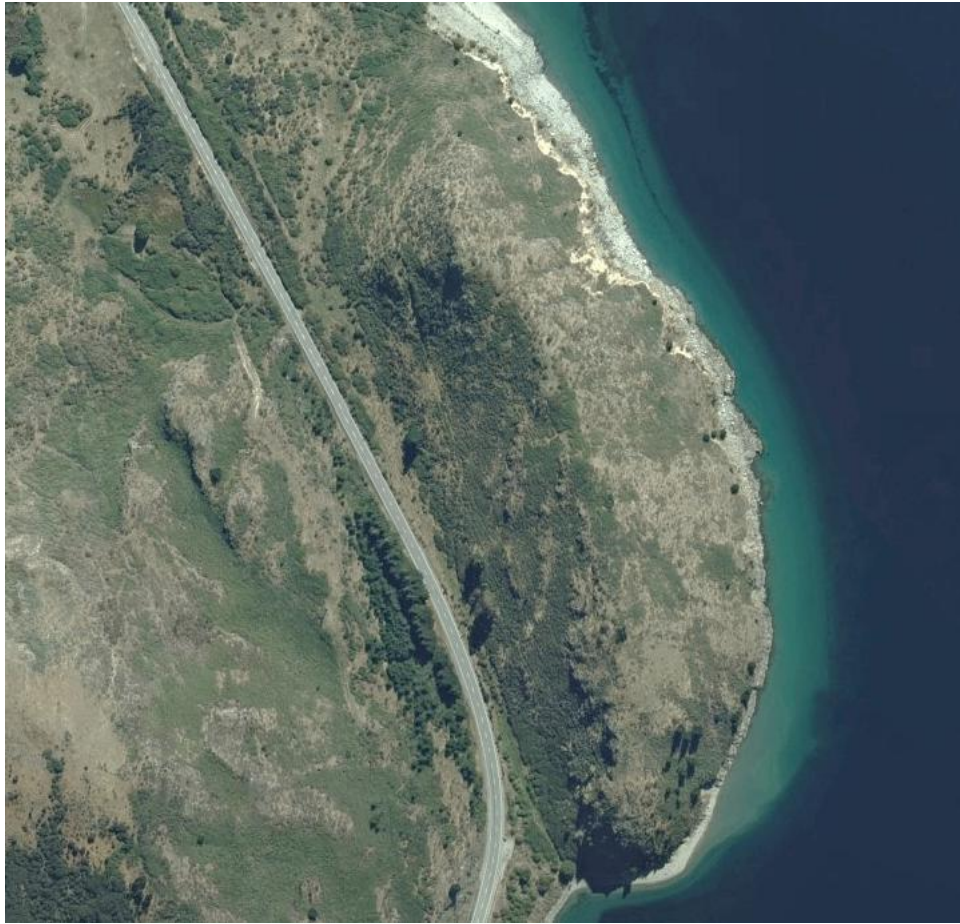


Figure 7. *Marked pre-herbicide application vegetation contrast between west facing and east facing sides of 'Round Hill' in 2018 aerial imagery.*



Figure 8. *Small stream with a wetland fringe. Note restoration plantings.*

Rock outcrops (Figure 9): ‘Round Hill’ is characterised by several small rock outcrops that support a few plants typical of rocky sites, although this habitat has likely been impacted by herbicide spraying and exotic plants are dominant. Of note on the dry west-facing rock outcrops was the small fern *Pellaea calidirupium* as well as necklace fern and bristle grass, while *Coprosma dumosa* was occasionally present. On the moister west facing outcrops, necklace fern was common and there was, in places, small areas of blue tussock. However, this flora is quite depleted compared to comparable sites, for example in the Gladstone Conservation Area on the opposite side of Lake Hāwea.



Figure 9. Small rock outcrops on ‘Round Hill’.

A list of the native vascular plants seen on the site is provided in Appendix 1. 31 species were recorded including four ferns, 16 shrubs, trees and climbers, three herbs, and eight grasses, sedges and related plants. Only one plant species found at the site is included in the latest report on the national conservation status of New Zealand indigenous vascular plants⁷. The small fern *Pellaea calidirupium* was recorded from crevices in sunny rock outcrops on ‘Round Hill’ and is ranked as At Risk – Naturally Uncommon.

No formal assessment of fauna was undertaken. However, based on my experience from living at Lake Hāwea township and spending considerable time in this general area, it is likely that several common native birds will be present including pīwakawaka, riroriro, tauhou and korimako. Tuī and kereru are occasional visitors in this environment, while both kāhu and kārearea are also present in the wider landscape. ‘Round Hill’ is likely to support one or more lizard species including Kawareau gecko and McCanns skink. Lizards are less likely to be present through developed pasture. Lizards are addressed below as part of restoration management.

Significance assessment

The Queenstown Lakes District Plan (Chapter 33) sets out as Policy 33.2.1.1 to:

⁷ de Lange PJ et al. 2024. Conservation status of New Zealand indigenous vascular plants 2023. NZ Threat Classification Series 43, Department of Conservation.

Identify and protect the District's Significant Natural Areas and schedule them in the District Plan, including the ongoing identification and protection of Significant Natural Areas through resource consent applications, using the criteria set out in Policy 33.2.1.8.

These criteria are:

a. Representativeness

Whether the area is an example of an indigenous vegetation type or habitat that is representative of that which formerly covered the Ecological District, including degraded examples if they are some of the last examples remaining; OR

b. Rarity

Whether the area supports;

- i. indigenous vegetation and habitats within originally rare ecosystems;*
- ii. indigenous species that are threatened, at risk, uncommon, nationally or within the ecological district;*
- iii. indigenous vegetation or habitats of indigenous fauna that has been reduced to less than 20% of its former extent, regionally or within a relevant Land Environment or Ecological District; OR*

c. Diversity and Pattern

Whether the area supports a highly diverse assemblage of indigenous vegetation and habitat types, and whether these have a high indigenous biodiversity value including:

- i. indigenous taxa;*
- ii. ecological changes over gradients; OR*

d. Distinctiveness

Whether the area supports or provides habitats for indigenous species:

- i. at their distributional limit within Otago or nationally;*
- ii. are endemic to the Otago region;*
- iii. are distinctive, of restricted occurrence or have developed as a result of unique environmental factors; OR*

e. Ecological Context

The relationship of the area with its surroundings, including whether the area proposed to be cleared:

- i. has important connectivity value allowing dispersal of indigenous fauna between different areas;*
- ii. has an important buffering function to protect values of an adjacent area or feature;*
- iii. is important for indigenous fauna during some part of their life cycle.*

The three sites proposed for houses are located within areas of pasture that have had bracken cleared off them and are clearly not significant. However, for completeness I have undertaken a significance assessment of the whole site against these criteria:

- **Representativeness:** The site is not representative as the vegetation is highly degraded and there are many examples of similar vegetation in much better condition elsewhere around Lake Hāwea. However, I do note that it lies within LENZ unit Q2.2b which although having more than 30% of the vegetation naturally (historically) associated with this unit remaining, it is under-represented within the protected area networks (<10% under formal protection). However, this proposal confers protection (through the QEII covenant) and enhancement (through restoration of native forest) that was not previously the case.
- **Rarity:** Only one threatened or at-risk plant or animal species was recorded as resident on the site, the small fern *Pellaea calidirupium* (At Risk – Naturally Uncommon) which was present in crevices in sunny rock outcrops within the QEII National Trust Open

Space covenant on 'Round Hill'. Kārearea (Nationally Vulnerable) is present within the wider landscape (including Lake Hāwea township) and will occasionally fly across the site. However, both these species will not be impacted by the proposed subdivision. One natural inland wetland is present, but it is my understanding that it will not be impacted by the proposed houses and that enhancement (restoration) will improve its values (see discussion below).

- Diversity and Pattern: The area does not support a highly diverse assemblage of indigenous vegetation and habitat types as described.
- Distinctiveness: The area does not meet this criterion.
- Ecological Context: The area does not provide connectivity or buffering, nor is it important for indigenous fauna.

It is therefore my opinion that the three sites proposed for houses are not ecologically significant. Further, it is my opinion that the whole site also does not meet the criteria for ecological significance within the Queenstown Lakes District Plan.

I also assess if the two wetlands present met the definition of a natural wetland under the National Policy Statement for Freshwater Management (NPS-FM):

"natural wetland means a wetland (as defined in the Act) that is not:

(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or

(b) a geothermal wetland; or

(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50%."

The Resource Management Act (the *Act* referred to above) defines a wetland as "*permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions*".

Further the NPS-FM requires that:

"Every regional council must identify and map every natural inland wetland in its region that is:

(a) 0.05 hectares or greater in extent; or

(b) of a type that is naturally less than 0.05 hectares in extent (such as an ephemeral wetland) and known to contain threatened species."

The wetland beside SH6 has formed because of construction of the road so likely does not meet this definition. Both wetlands do not contain any threatened plants, and both are <0.05 ha. The second wetland (illustrated in Figure 8) is a natural wetland but is not impacted by creation of the three building platforms and through the restoration programme outlined below, will likely be enhanced by this proposal.

Notwithstanding this current lack of ecological significance across the site proposed for subdivision, I outline a programme to enhance the ecological values that are present in the next section. This together with the QEII covenant on 'Round Hill' will substantially enhance the biodiversity values of the site.

Ecological enhancement

Restoration plantings: This site presents considerable opportunities for ecological enhancement through establishing restoration plantings. As discussed above, the natural environment at this site has been substantially impacted by 800-odd years of human impacts and the site is now highly degraded. Notwithstanding this, the strong regeneration of bracken and some native woody species (mingimingi, mānuka, kānuka, tī kōuka etc) and the good performance of mountain beech restoration plantings suggests that there is considerable opportunity for ecological restoration.

It is therefore recommended that ecological restoration is undertaken in three areas on the property (Figure 10 – Areas A-C) comprising approximately 3.6 ha. In addition, it is also recommended that some limited planting is undertaken on Round Hill. It is proposed that this work be spread over a ten-year period. Appendix 2 outlines the approach to planting.

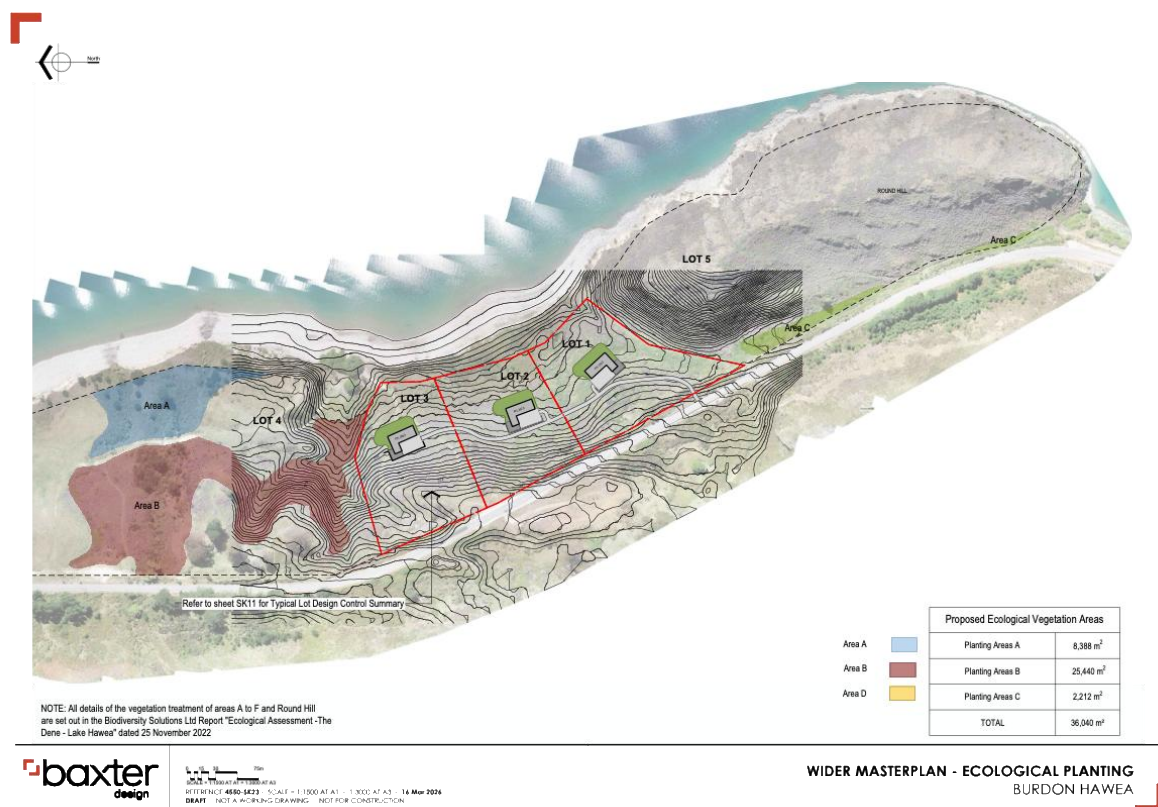


Figure 10. Map of site showing areas proposed for restoration plantings.

Areas A (0.8 ha) – this area is dense bracken with regenerating kānuka. The focus of planting here is to initiate development of a mixed-species native forest typical of what might have occurred around the lake in the past. This will involve planting kōwhai primarily, but also lesser amounts of putaputawēta, kōhūhū, tī kōuka, mānau, narrow-leaved houhere, narrow-leaved tree daisy, kauheke/mountain lacewood, mikimiki, koromiko, kāpuka and fierce lancewood. It is also proposed to establish a few mataī and thin-bark tōtara. The planting approach will involve clusters of 5 plants at 1.5 m spacing on an approximate 10 m grid in

areas of bracken (avoiding existing kānuka). Each planting should include one kōwhai and a mix of the other species.

Areas B (2.5 ha) – this area is mainly dense bracken and has some native woody regeneration. The focus is on initiating a mountain beech forest by planting mountain beech at ca. 2 m spacing within bracken, avoiding the native woody regeneration. Silver beech (in gullies), putaputawēta, kōhūhū, kāpuka can be included as a minor component in these plantings. A small wetland occurs near the top of Area A (the wetland in Figure 8) and the margins of this should be planted in pūrei and harakeke at 1 m spacing along the edge of the wetland, with a mix of tī kōuka, mānuka, koromiko planted at 1.3 m spacing outside of these.

Area C (0.2 ha) – this is a sheltered and relatively damp area that runs down beside and below the road and should be planted up in mountain beech at 1.5 m spacing and will have both amenity and ecological values.

‘Round Hill’ – it is recommended that small clusters of either 3 tī kōuka or 3 kōwhai are planted across the hill at 50-100 m spacing, with a focus on planting into pockets of deeper soils. The aim of these plantings is to introduce ecological and amenity/cultural values to this site. However, plantings will be located away from rock outcrops so as not to shade lizard habitat.

Woody weed control: Several exotic woody weed species, including species that are listed as potential wilding species in Chapter 34 of the Queenstown Lakes District Plan, are present on the site. Species seen during the site visit include Douglas fir, European larch, pine (species not confirmed), crack willow and birch. It is therefore proposed that all species listed as problematic wilding exotic trees in Chapter 34 of the Plan, and other potential woody weed species such as birch, are removed from the site within 5 years of titles being issued and an ongoing programme of exclusion is undertaken recognizing the potential for reinvasion from adjacent areas.

Appendix 1: List of native vascular plant species seen

Ferns

Asplenium flabellifolium (necklace fern) – crevices in rock outcrops

Parablechnum (*Blechnum*) *novae-zelandiae* (kiokio) – wetland in the main stream draining across site

Pellaea calidirupium – crevices in sunny rock outcrops (At Risk – Naturally Uncommon)

Pteridium esculentum (aruhe/bracken) – widespread across site

Trees, shrubs and climbers

Carmichaelia arborea (native broom) – rare amongst bracken

Coprosma dumosa – common across a range of habitats

Coprosma propinqua (mingimingi) – common across a range of habitats

Cordyline australis (tī kōuka/cabbage tree) – scattered across site with mature plants in gullies and closer to lake

Coriaria arborea (tutu) – a few plants along the main stream draining across site

Coriaria sarmentosa (small tutu) – rare only seen once

Discaria toumatu (matagouri) – common

Fuchsia excorticata (kōtukutuku/tree fuchsia) – rare only seen once in the main stream draining across site

Helichrysum lanceolatum – seen once on Round Hill

Kunzea ericoides s.l. (kānuka) – more common in gullies and close to lake

Leptospermum scoparium (mānuka) – more common of flatter sites

Muehlenbeckia australis (pōhuehue) – abundant through shrubland

Muehlenbeckia complexa (pōhuehue) – present on higher slopes of Round Hill

Pimelea oreophila (native daphne) – a few plants on rock outcrops, southern end Round Hill

Rubus schmidelioides (tārtarāmoa/bush lawyer) – common through shrubland

Styphelia nesophila (*Leucopogon fraseri*) (pātōtara) – abundant in depleted grassland

Herbs

Dichondra cf. *repens* (Mercury Bay weed) – rare on rock outcrops

Hydrocotyle moschata – seen once on shady rock outcrop

Raoulia tenuicaulis (mat daisy) – a few plants in open areas on Round Hill

Grasses, sedges and related plants

Ausatroderia fulvida (toetoe) – seen once above lake

Carex coriaceae agg (sedge) – wetland in the main stream draining across site

Carex secta (purei) – wetland in the main stream draining across site

Dichelachne crinita (plume grass) – occasional in grassland

Festuca novae-zelandiae (hard tussock) – occasional in grassland

Luzula rufa (woodrush) – only seen once on shady rock outcrops Round Hill

Poa colensoi (blue tussock) – on shade slopes, especially around rocky areas.

Rytidosperma gracile (bristle grass) – on rock outcrops

Appendix 2 – Restoration approach and planting species choice

A2.1 Introduction

This appendix provides more detail on the restoration planting proposed in this report. The general approach and requirements for planting are first described and then a list of recommended species is included. However, it is important that the approach to planting is adaptative in terms of species choice and planting densities. This is necessary as planting should be informed by success to date and will obviously also be influenced by the availability of planting material (species and numbers).

All planting should follow best practice methods⁸. Ideally, all sites would need to be fenced – ideally with rabbit netting, and active possum control would need to be undertaken. Plants should be eco-sourced from the Lake Hāwea area, and all plants should be inoculated with appropriate mycorrhiza in the nursery prior to planting. Grazing, clearance and spraying will be excluded within the planting areas (except where associated with establishing restoration plantings), with the goal of natural, long-term, successional revegetation supplemented by the active restoration plantings.

It is proposed that planting is spread across ten years as follows:

Year 1 – contract plant nursery and start collection of eco-sourced seeds.

Year 2 – plant wetland in Area B.

Year 3 – year 1 planting in Area A, B and C.

Year 4 – complete Area C and year 2 planting in Area A and B.

Year 5 – Complete Area A and year 3 planting in Area B.

Year 6 – Year 4 planting in Area B and start planting Round Hill.

Year 7 – Year 5 planting in Area B and continue planting Round Hill.

Year 8 – maintenance of all plantings.

Year 9 – maintenance of all plantings.

Year 10 – maintenance of all plantings.

A2.2 Initiation of lake front forest in Area A

The focus here is on initiating the development of a mixed-species native forest typical of what might have occurred around the lake prior to human arrival. It is proposed to focus on kōwhai as the primary planted species, but with lesser amounts of other species. Plantings will be clusters of 5 plants, with clusters at ca. 10 m intervals (ca. 60 clusters in total). Each cluster will have one kōwhai and four other (secondary) species planted at approximately 1.5 m spacing. All plantings will be in areas of bracken (avoiding existing kānuka). Guards will

⁸ Norton et al. 2018. Upscaling restoration of native biodiversity: A New Zealand perspective. *Ecological Management and Restoration* 19, S1, 26-35.

be used to protect plants from rabbits and hares. In addition, at least 20 plants each of mataī and thin-bark tōtara will be planted through this area. All plants will be PB2 grade, except mataī and thin-bark tōtara which will be PB3 grade.

Table A2.1. Recommended plant species for Area A.

<i>Species</i>	<i>Life form</i>	<i>Number of plants</i>
Primary planting species		
<i>Sophora microphylla</i> (kōwhai)	Tree	60
Secondary planting species		
<i>Coprosma virescens</i> (mikumiki)	Shrub	20
<i>Cordyline australis</i> (tī kōuka)	Tree	20
<i>Griselinea littoralis</i> (kāpuka)	Tree	20
<i>Hebe (Veronica) salicifolia</i> (koromiko)	Shrub	20
<i>Hoheria angustifolia</i> (narrow-leaved houhere)	Tree	20
<i>Hoheria lyallii</i> (mountain lacebark)	Tree	20
<i>Myrsine australis</i> (red matipo)	Small tree	20
<i>Olearia lineata</i> (tree daisy)	Small tree	20
<i>Pittosporum tenuifolium</i> (kōhūhū)	Tree	20
<i>Plagianthus regius</i> (mānātu)	Tree	20
<i>Pseudopanax colensoi</i> (three finger)	Small tree	20
<i>Pseudopanax ferox</i> (fierce lancewood)	Small tree	20
Native conifers		
<i>Podocarpus laetus</i> (thin-barked tōtara)	Tree	20
<i>Prumnopitys taxifolia</i> (mataī)	Tree	20

A2.3 Initiation of mountain beech forest in Area B

The focus is on initiating a mountain beech forest by planting mountain beech within bracken and avoiding native woody regeneration. Putaputawēta, kōhūhū, kāpuka, horoeke and silver beech (in gullies) will be included as a minor component in these plantings. Restoration will involve planting mountain beech saplings at approximately 2 m intervals through the bracken. All plants (PB2 grade) will require guards. Several additional species will be planted on an approximately 1:5 ratio (additional species : mountain beech).

Table A2.2. Recommended plant species for Area B.

<i>Species</i>	<i>Life form</i>	
Primary planting species		
<i>Fuscospora cliffortioides</i> (mountain beech)	Tree	4000
Secondary planting species		
<i>Carpodetus serratus</i> (putaputawēta)	Small tree	200

<i>Species</i>	<i>Life form</i>	
<i>Griselinia littoralis</i> (kāpuka)	Small tree	200
<i>Lophozonia menziesii</i> (silver beech)	Tree	200
<i>Pittosporum tenuifolium</i> (kōhūhū)	Small tree	200
<i>Pseudopanax crassifolius</i> (horoeaka)	Small tree	200

A2.4 Wetland in Area B

A small wetland occurs near the top of Area B with restoration being used to develop a buffer around this. It is proposed to plant pūrei and harakeke at 1 m spacing along the edge of the wetland, with a mix of tī kōuka, mānuka, koromiko planted at 1.3 m spacing outside of these. All plants (PB2 grade) will require guards.

Table A2.3. Recommended plant species for wetland in Area B.

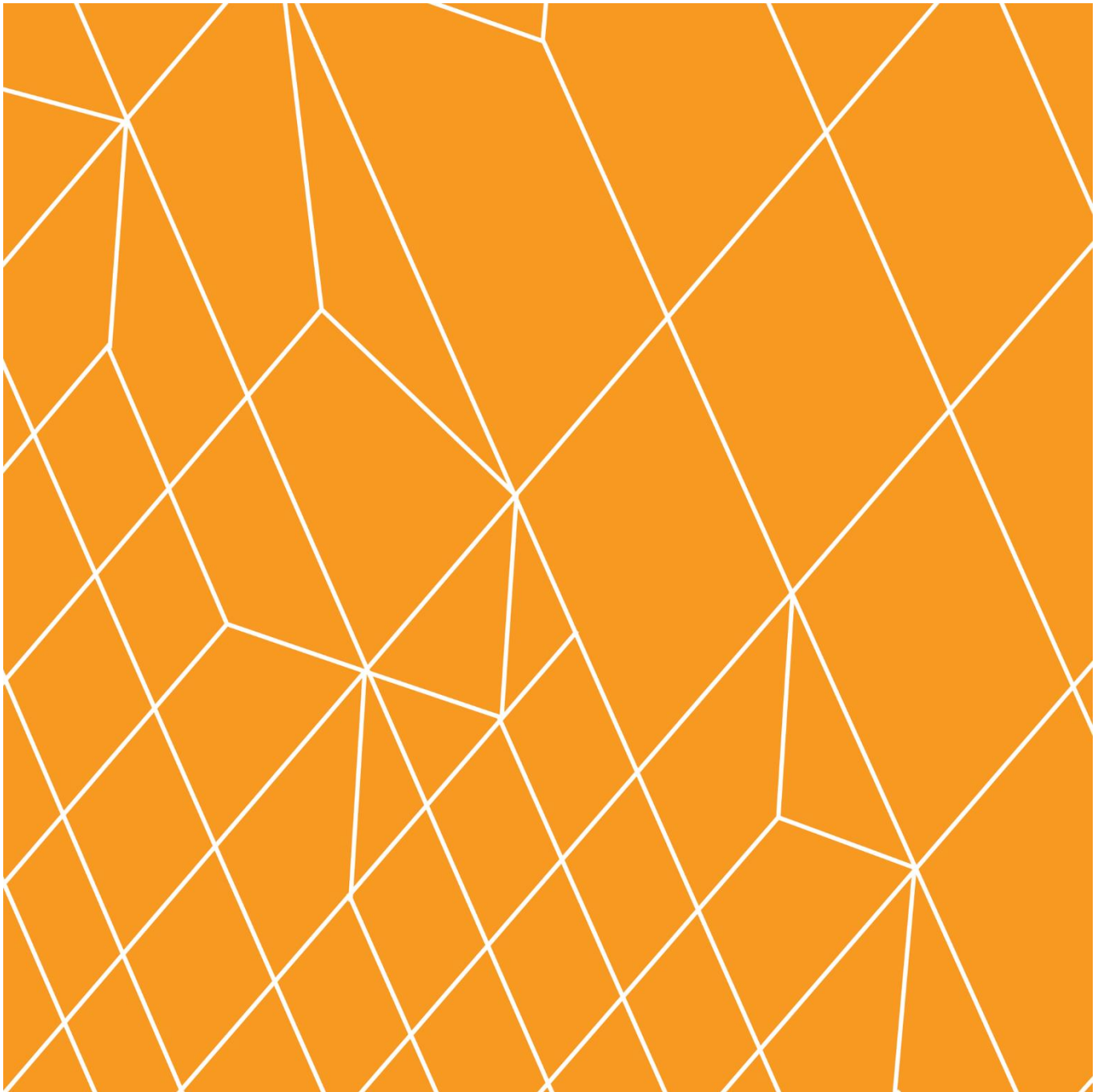
<i>Species</i>	<i>Life form</i>	
<i>Carex secta</i> (purei)	Sedge	100
<i>Phormium tenax</i> (harakeke)	Large herb	50
<i>Cordyline australis</i> (tī kōuka)	Tree	25
<i>Leptospermum scoparium</i> (mānuka)	Small tree	25
<i>Hebe (Veronica) salicifolia</i> (koromiko)	Shrub	25

A2.5 Amenity planting east of SH6 in Area C

It is proposed to establish mountain beech through this site at 1.5 m spacing. All plants (PB2 grade) will require guards. The site is approximately 400 m long and there is room for planting 2-3 plants wide at the northern and southern end, so suggest about 500 plants in total.

A2.6 Round Hill

It is recommended that small clusters of either 3 tī kōuka or 3 kōwhai are planted across the hill at 50 m spacing, with a focus on planting into pockets of deeper soils. The aim of these plantings is to introduce ecological and amenity/cultural values to this site. However, plantings will be located away from rock outcrops so as not to shade lizard habitat. Total plant numbers here are likely to be around 100 of each species.



Infrastructure Report The Dene Subdivision

State Highway 6
Hāwea – Makarora section of State Highway 6
Central Otago

Report



Australia Netherlands New Zealand USA

Revision 3
8 December 2022
139751.51



GridAKL, Level 5, 12 Madden Street
Wynyard Quarter
PO Box 90745
Auckland 1010
holmesanz.com

Report

The Dene Subdivision

Prepared For:
Lesley and Jerry Burdon

Date: 8 December 2022
Project No: 139751.51
Revision No: 3

Prepared By:

A handwritten signature in black ink, appearing to read "Leanne", written over a light blue horizontal line.

Leanne Wong
GRADUATE ENGINEER
Holmes NZ LP

Reviewed By:

A handwritten signature in black ink, appearing to read "Gerhard", written over a light blue horizontal line.

Gerhard Fourie
SENIOR PROJECT ENGINEER
Holmes NZ LP



Report Issue Register

DATE	REV. NO.	REASON FOR ISSUE
01/04/2020	1	Draft Resource Consent Report
01/05/2020	2	Resource Consent
08/12/2022	3	Updated Resource Consent Report

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1 INTRODUCTION

Holmes NZ LP have been engaged by Brown & Company Planning Group on behalf of the Clients, Jerry and Lesley Burdon, to produce an infrastructure report for a 5-lot subdivision at Makarora – Lake Hāwea section of State Highway 6, Central Otago. Lot 1, 2, and 3 are intended to be developed for individual building platforms. Meanwhile, Lot 4 contains an existing residential unit, and Lot 5 will remain as an open space.

2 SCOPE OF WORK

The scope of this report will include the following:

1. Outline three waters infrastructure requirements;
2. Assessment of access and roading requirements;
3. Provisioning letter for power and telecommunication.

3 LIMITATIONS

Findings presented as a part of this project are for the sole use of Jerry and Lesley Burdon and Queenstown Lakes District Council (QLDC) in its evaluation of the subject properties. The findings are not intended for use by other parties and may not contain sufficient information for the purposes of other parties or other uses.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

4 ASSUMPTIONS

Our assessment is based on:

- Updated Subdivision Scheme Plan by Clark Fortune dated 29 March 2022 (shown in Appendix C)
- Infrastructure Servicing Feasibility Report by Paterson Pitts Group dated 12 October 2015
- Geotechnical Hazards – Preliminary Assessment by GeoSolve Ltd dated September 2015
- Correspondence between Waka Kotahi and Brown & Company Planning Group dated November 2022 (shown in Appendix E)
- Updated Earthworks Plan by Clark Fortune dated 31 October 2022 (shown in Appendix D)

5 SITE DESCRIPTION

The site is located between State Highway 6 and the south-western shore of Lake Hāwea, at approximately two kilometres north of the Lake Hāwea township. The site is approximately 2 km long and 200 m wide and generally slopes at 5-10° to the lake. The site is currently occupied by pastoral farmland with some light scrub and scattered trees along with an existing house located in the northwest corner.



Figure 1. Proposed location of 5-lot subdivision

As per the geotechnical assessment by GeoSolve, the site soils generally comprise gently sloping glacial deposits.

6 NATURAL HAZARDS

According to GeoSolve's Geotechnical Hazards report, the current QLDC and ORC mapping does not identify any natural hazards within the site area. However, there is a chance that this may not be identified in the database because it has not been studied. We recommend that this site is assessed prior to building consent.

7 WATER SUPPLY

The nearest available water reticulation network is 2.5 km to the south of the site at the town of Lake Hāwea. With no formal water reticulation close to the development, it is proposed that a surface water take be established from one of the spring fed creeks that cross the site. Figure 2 below shows the current resource consents for surface water takes in the area. There is an existing surface water take consent for irrigation purposes from Creek No. 4 which crosses the site. This existing surface water take consent confirms that this creek as an established water source. It is therefore proposed that a similar water take be developed for the domestic use of this development. The detail regarding the abstraction location, sustainable yield, water treatment and storage must be investigated during the design stages.

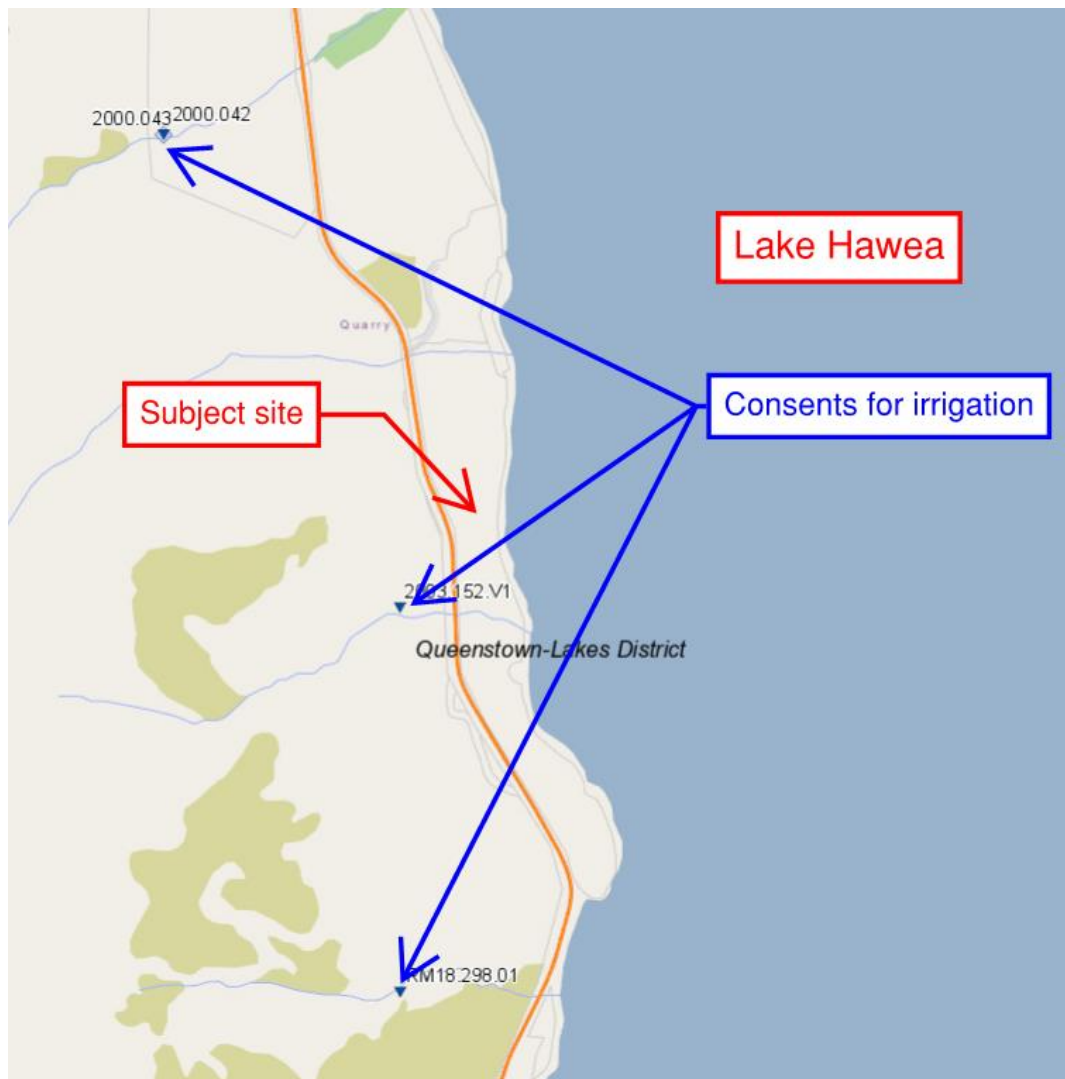


Figure 2. Current consents for surface water take from creeks

An alternative option would be for a communal bore to be installed and used as the domestic supply to the development. According to the ORC Regional Plan, excavation, drilling or other disturbance of land, other than in the bed of any lake or river, for the purpose of creating a bore is a controlled activity (14.1.1.1). This means that a resource consent is required but always granted.

The Geotechnical Report does indicate that the site soils generally consist of glacial deposits, and it is also noted that the majority of runoff is absorbed by these deposits. Therefore, the development of a bore is likely to provide sufficient water for domestic purposes. If this option is pursued, it is recommended that information such as bore yield, proposed location and water quality are investigated in more detail by the Geotechnical Engineer prior to the design phase to guide the detail design and bore installation.

7.1 Water Demands

The proposed development was assessed in accordance with Section 6 of the QLDC Land Development and Subdivision Code of Practice 2020 (LDSC). The following parameters were used to calculate the future residential flows for the proposed site:

- Daily consumption of 700 L/person/day
- 4 bedrooms per house
- 6-7 people per residence

Since a single residential house will be allocated to Lot 1, 2 and 3, it is assumed that the occupancy for each lot is the same. Although QLDC LDSC states that a single residence is equivalent to 3 people, we found it more appropriate to allow for 6-7 people if each house will have 4 bedrooms as per AS/NZS 1547:2012.

With the above parameters we calculate the daily demand for each unit to be 4900 litres/day. This means that approximately 14,700 litres/day must be supplied from the water-take to service the subdivision. Below shows a summary of the water demand:

Table 1. Daily water demand for each residential unit

Demand (litres/person/day)	# of dwellings per lot	People per dwelling	Volume per day (litres/day)
700	1	7	4900

We assume that this approach is conservative and accounts for seasonal peaks and garden irrigation. The daily volume is less than 25,000 litres/day and is therefore a permitted activity in accordance with 12.1.2.1 and 12.2.2.1 of the ORC Regional Plan.

7.2 Distribution and Storage

A distribution system must be developed to connect the abstracted water to the corresponding lots. It is proposed that each of the lots have its own water storage tank, although communal storage can also be considered during the design stage. Combined on-site domestic and firefighting water storage would need to be carefully designed to ensure water quality is not compromised considering potential low average daily turnover.

It is proposed that each house will have its own booster pump to provide sufficient pressure from their storage tanks and as appropriate to the minimum pressure requirements. Backflow prevention should also be provided, and it must be suitable for the hazard rating of the system.

7.3 ORC requirements

Surface Water (Creek)

Under the clause 12.1.2.1 of the ORC Regional Plan, it summarises that the taking and use of surface water for domestic needs or the needs of animals for drinking water is a permitted activity providing that the take volumes in less than 25000 litres/day, the rate of take is less than 1 litre/second and the take has no adverse effects on the environment.

Groundwater

The ORC Regional Plan clause 12.2.2.1 state that abstracting and using groundwater for domestic use or the needs of animals for drinking water is a permitted activity providing that the volume is less than 25000 litres/day and the take has no adverse effects on the environment. The groundwater abstracted from the bore must not be from within 100 metres of any wetland, lake or river. With the subject site located to border Lake Hāwea, the bore location must adhere to these conditions.

With the daily water demand estimated to be less than 25000 litres/day, both the water take from a spring fed creek and bore is a permitted activity. With no evidence that there is sufficient groundwater available for water take to be via a borehole, it is recommended that water supply is provided from spring water at Number 4 Creek.

Water quality shall be considered during the detail design to ensure the potable water quality standards are achieved in accordance with NZ Drinking Water Standards. It should be noted that the standards have been recently updated and commenced on 14 November 2022.

7.4 Firefighting Water Supply

The proposed water supply must also take into account water required for firefighting purposes. Table 1 of the NZS PAS 4509:2008, indicate that the housing will have a FW1 water supply classification in the case that they are sprinklered and FW2 if they are not. Based on past experience, the Fire and Emergency New Zealand (FENZ) recommends that rural residential houses have sprinkler systems. This is to account for the potentially longer travel time of firefighting trucks to arrive at the area in a fire event. We recommend that the FENZ's Rural Property Checklist from Fire safety for rural living is followed at the time of design.

The minimum water storage within 90m for a FW1 classification is 7,000 L otherwise, Table 2 of SNZ PAS 4509:2008 specifies a fire water storage capacity of 45,000 L for a fire classification of FW2. It is expected that the houses will not be sprinklered. Experience within QLDC shows that a static firefighting water supply of 20,000 L within a 30,000 L tank is normally acceptable.

It is therefore proposed that the housing for each lot will be supplied with fire water from on-site water tanks each with a storage volume of 30,000 L with 20,000 L dedicated for firefighting supply. We recommend that the fire water and domestic water storage tanks are independent to mitigate water quality concerns and low turnover rates. For example, the lot can have a three-tank configuration of 10,000L tanks, of which two are dedicated to firefighting supply, and the third to domestic supply. This is to take into consideration the tank retention time factors. Each tank will have a float switch or alternative means to allow level control.

8 WASTEWATER

The nearest available wastewater reticulation network is 2.5 km to the south of the site. With the reticulation being located far away, a primary treatment system will be installed with the use of an effluent to land disposal system such as trenches or beds.

8.1 Estimated Wastewater Flows

We have assumed that each proposed house will have 4 bedrooms. Based on Table J1 of AS/NZS 1547:2012, 4 bedrooms equals to a peak design flow of 1400 litres/day therefore a 3500-litre septic tank will be adequate for this design flow.

The size, location, and discharge of the system will be in accordance with AS/NZS 1547:2012 and confirmed during detailed design.

8.2 Proposed Effluent Disposal System

A Site and Soil assessment has previously been carried out by Petherick Consultancy as per Paterson Pitts Group's Infrastructure Report and has determined that the analysis of the excavated soils is suitable for the use of on-site wastewater management systems. It appears like the site mainly comprises of sandy, silty gravels topped with topsoil, but does vary. Two treatment and disposal systems are proposed based on the findings from the testing:

- Gravels at shallow depths: Primary treatment system with effluent discharged to ground via trenches/beds
- No gravels, lower permeability soils:
 - Secondary treatment systems with effluent discharged via buried driplines
 - Primary treatment systems with effluent discharged via low pressure effluent disposal systems (LPEDs)

This shall be reassessed and confirmed prior during the detailed design and prior to Building Consent. The new treatment and disposal system will be designed in accordance with AS/NZS 15461.1 or AS/NZS 15461.1, and AS/NZS 1547.

Typical Conventional Trench/Bed

To assess the extent of a typical conventional trench/bed system for effluent disposal, we have sized the trench assuming that the soil is high/moderate structured loams.

The design loading rate (DLR) for trenches on high/moderate structured loams was taken to be (at a conservative rate) 15 mm/day.

Calculations for a possible disposal field are included Appendix A. The trench length is calculated to be 207 m. However, according to L6.1.1 from AS/NZS 1547:2012 the length is limited to 20 m. It was assumed that there will be 11 trenches at 20 m lengths at 1 m apart, where trenches will be 450 mm wide in accordance with Table L2 of AS/NZS 1547:2012. This calculates the disposal field to be 15m x 20m, an overall area of 300 m².

The size, location and discharge of the disposal fields will be in accordance with AS/NZS 1547:2012 and confirmed prior to Building Consent. We recommend the disposal field to be installed in accordance with Table R1 and Table R2 AS/NZS 1547:2012 which guides for horizontal and vertical setback distances and the site constraints for the development of setback distances.

The final locations of disposal fields will be finalised in the design stage of the project.

8.3 ORC Requirements

The proposed effluent discharge for the development is less than 2000 litres/day. Therefore, this will be a permitted activity in accordance with the ORC Water Plan (Section 12.A.1.4).

9 STORMWATER

There are no nearby stormwater networks that the proposed subdivision can connect to. With this in mind and the underlying gravels of test pits as mentioned in the previous site soil assessment, we recommend that all stormwater discharge will be directed to soakage pits.

9.1 Stormwater Design

Soakage pits shall be designed in accordance with the NZBC E1 at the time of applying for building consent. The NZBC E1 shall be used for design, where the rainfall intensity is based on a 1-hour duration and 10-year return period. As per the QLDC LDSC, the rainfall intensity design charts developed from NIWA High Intensity Rainfall Design Systems (HIRDS) V4 RCP 8.5 data for 2081-2100 should be used for rainfall design.

All catchment areas shall be taken into account for design, where architectural plans will define the roof catchment areas and possible hardstand areas.

Possible locations and sizes for soakage pits shall be determined in the design stage of the project.

10 ACCESS AND ROADING

There is an existing access to the existing homestead at the northern side of the site which is consented. A new access is proposed for the subdivision which has been principally approved by Waka Kotahi, and a written approval is in progress. Correspondence between Brown & Company Palling Group and Waka Kotahi regarding the proposed access is shown in Appendix E. The access will be designed to meet the requirements and standards of Waka Kotahi, QLDC Operative District Plan (ODP) and QLDC Land Development and Subdivision Code of Practice (LDSC).

A proposed and conceptual private access road is developed for the residential units in Lot 1, 2, and 3 by Clark Fortune McDonald, indicating possible gradients for the access roads while generally following the natural grade. QLDC Volume One: Operative District Plan (ODP), 14.2.4.2(iii) states the maximum gradient for vehicle access is 1 in 6, while the QLDC LDSC Table 3.3 indicates a maximum gradient for an E1 classified rural road as 16%. With the conceptual vertical alignments of the access road within these limits, access to the lots can feasibly be provided.

The private access road will need to be designed to meet the QLDC LDSC requirements, including sufficient provision to accommodate stormwater.

11 POWER

There are existing overhead powerlines adjacent to the site. These services are supplied by Aurora.

Aurora Energy have confirmed that a point of supply is available for this development. Appendix B shows the provisioning letter via email.

12 TELECOMMUNICATION

There are existing underground telecommunication cables adjacent to the site. These are serviced by Chorus.

Chorus have previously provided a provisioning letter via email stating the development can be supplied with the required infrastructure. We have followed up with Chorus on providing connections for up to 6 residential units for this development, and Chorus have confirmed that this development can be serviced (shown in Appendix B).

Appendix A

Calculations



WASTEWATER DESIGN & ONSITE DISPOSAL

PROJECT TITLE	The Dene Subdivision
DESIGNED BY	LYW
DATE	8/12/2022
PROJECT DESCRIPTION	Design of wastewater for a 5 lot subdivision with intention to dispose of wastewater on-site.

Refer to Wastewater Analysis Calculations for Design flows

Design Flow = L/day

Daily wastewater flow of 1400 L/day, disposed of via drip irrigation in Category 3 Soils (NZS 1547:2012)

The Design Loading Rate (DLR) is 15 mm/day.

The trench dimensions shall be determined from the relationship: $L = Q / (DLR \times W)$...Eq. L1 in AS/NZS 1547:2012

Where:

L = length in m

Q = design daily flow in L/day

DLR = Design loading rate in mm/d

W = width in m (assumed to be .45 m from Table L2 in AS/NZS 1547:2012)

The trench length is:

m

The trench lengths shall be limited to 20 m. Therefore, 11, 20 m trenches is a feasible option

Appendix B

Provisioning Letters



AURORA ENERGY LIMITED

PO Box 5140, Dunedin 9058

PH 0800 22 00 05

WEB www.auroraenergy.co.nz



31 October 2022

Leanne Wong
Holmes NZ

Sent via email only: leanne.wong@holmesgroup.com

Dear Leanne,

**ELECTRICITY SUPPLY AVAILABILITY FOR A PROPOSED FIVE LOT SUBDIVISION.
1576 MAKARORA-LAKE HAWEA ROAD, MAKARORA. LOT 1 DP 396356.**

Thank you for your inquiry outlining the above proposed development.

Subject to technical, legal and commercial requirements, Aurora Energy can make a Point of Supply¹ (PoS) available for this development.

Disclaimer

This letter confirms that a PoS **can** be made available. This letter **does not** imply that a PoS is available now, or that Aurora Energy will make a PoS available at its cost.

Next Steps

To arrange an electricity connection to the Aurora Energy network, a connection application will be required. General and technical requirements for electricity connections are contained in Aurora Energy's Network Connection Standard. Connection application forms and the Network Connection Standard are available from www.auroraenergy.co.nz.

Yours sincerely

A handwritten signature in black ink, appearing to read "Niel Frear".

Niel Frear

CUSTOMER INITIATED WORKS MANAGER

¹ Point of Supply is defined in section 2(3) of the Electricity Act 1993.

Chorus New Zealand Limited

01 November 2022

Chorus reference: 10344733

Attention: Leanne Wong

Quote: New property development early design only

6 connections at Lot: 1, DP: 396356

Thank you for your enquiry about having Chorus network designed for the above development. Chorus is pleased to advise that, as at the date of this letter, we are able to provide an early design for this property development based upon the information that has been provided.

The total contribution we would require from you is **\$575.00 (including GST)**. This quote is valid for 90 days from 01 November 2022. This quote is conditional on you accepting a NPD Early Design Contract with us and making payment. We reserve the right to withdraw this quote and requote should we become aware of additional information that would impact the scope of this quotation.

This quote is only for the service of high-level design work and does not constitute any commitment by either party to reticulate fibre network to the site. When the development is ready for fibre network reticulation to every connection, a new request will be required, and standard pricing will apply at that time. For more information on what's involved in getting your development connected, visit our website www.chorus.co.nz/develop-with-chorus.

Kind Regards

Chorus New Property Development Team



Rin Ha

From: Chorus Property Developments <develop@chorus.co.nz>
Sent: Wednesday, January 29, 2020 4:28 PM
To: Rin Ha
Subject: Chorus Simple Estimate, WNK56045, 1576 Makarora-Lake Hawea Road, Albert Town.
Attachments: Before You Dig.pdf

Categories: Filed by Newforma

Hello Rin Ha,

Thank you for providing an indication of your development plans in this area. I can confirm that we have infrastructure in the general land area that you are proposing to develop. Chorus will be able to extend our network to provide connection availability. However, please note that this undertaking would of course be subject to Chorus understanding the final total property connections that we would be providing, roll-out of property releases/dates and what investment may or may not be required from yourselves and Chorus to deliver the infrastructure to and throughout the site in as seamless and practical way as possible.

The cost involved would be a minimum of our current standard fee of \$1600 per lot excluding GST. This cost can only be finalised at the time that you are ready to proceed.

Chorus is happy to work with you on this project as the network infrastructure provider of choice. What this ultimately means is that the end customers (business and home owners) will have their choice of any retail service providers to take their end use services from once we work with you to provide the physical infrastructure.

Please reapply with a detailed site plan when you are ready to proceed.

We're here to help – so please let us know if you need any further information.

Kind regards,

Jarred Hebden
Property Development Coordinator

T 0800 782 386 (OPT 1)
E Develop@chorus.co.nz

PO Box 9405
Hamilton
www.chorus.co.nz

C H ● R U S

 Please consider the environment before printing this email

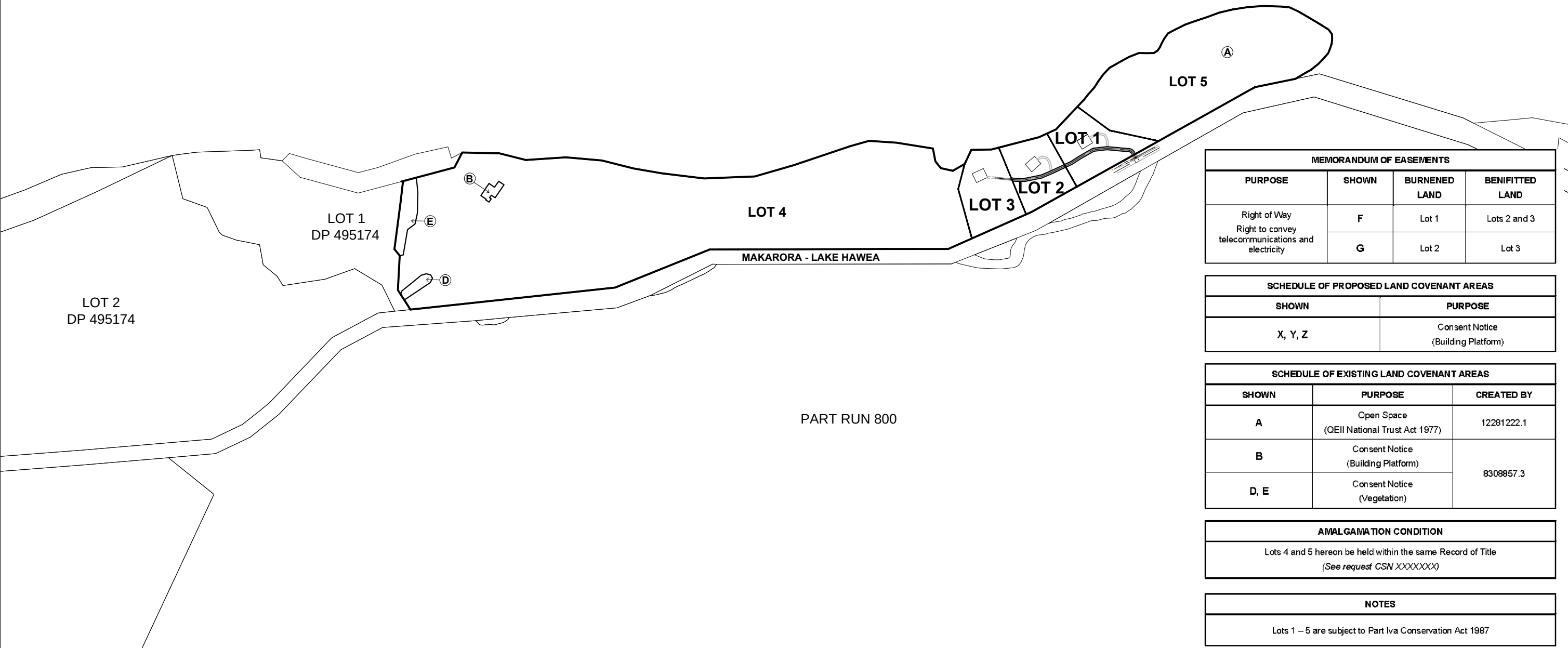
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Appendix C

Updated Subdivision Scheme Plan





MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	BURNENED LAND	BENIFITTED LAND
Right of Way Right to convey telecommunications and electricity	F	Lot 1	Lots 2 and 3
	G	Lot 2	Lot 3

SCHEDULE OF PROPOSED LAND COVENANT AREAS	
SHOWN	PURPOSE
X, Y, Z	Consent Notice (Building Platform)

SCHEDULE OF EXISTING LAND COVENANT AREAS		
SHOWN	PURPOSE	CREATED BY
A	Open Space (QEII National Trust Act 1977)	12281222.1
B	Consent Notice (Building Platform)	8308857.3
D, E	Consent Notice (Vegetation)	

AMALGAMATION CONDITION
Lots 4 and 5 hereon be held within the same Record of Title (See request CSN XXXXXXXX)

NOTES
Lots 1 – 5 are subject to Part Iva Conservation Act 1987

Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants
309 Lower Shotover Road, P.O.Box 553 Queenstown
Tel. (03)441-6044, Fax (03)442-1066, Email admin@cfma.co.nz
Shop 2, Otago House, 475 Moray Place, P.O. Box 5960
Tel. (03)470-1582, Fax (03)470-1583, Email admin@cfma.co.nz

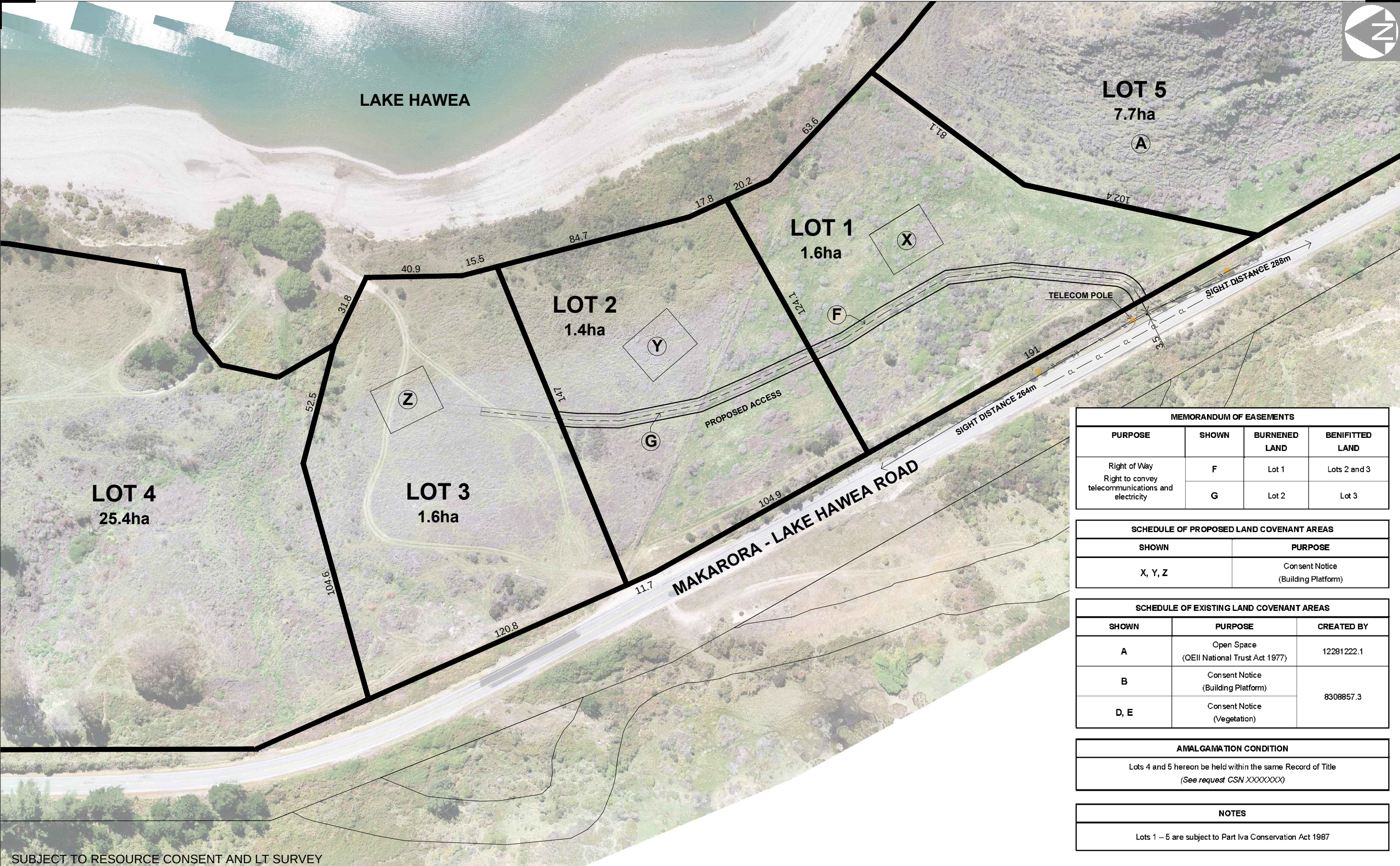
Rev.	Date	Revision Details	By
A	22.07.22	CROSSING POINT AMENDED	HK
B	15.08.22	CROSSING POINT AMENDED	HK
C	05.09.22	LOT BOUNDARIES AMENDED	HK

LOTS 1 - 5 BEING A PROPOSED SUBDIVISION OF
LOT 1 DP 396356
GLEN DENE STATION, HAWEA

Client	J & L BURDON	Surveyed	-	Date	-	Job No.	14803	Drawing No.	03
		Drawn	HK	Date	29.03.22	Scale	1:4000 @ A1		Sheet 001
		Checked	CH	Date	-	Datum & Level	LINDIS PEAK 2000	Rev.	C

Notes:
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S:\JOBS\14800\14803\acad\14803_03_Subdivision Scheme Plan.dwg Plotted: 05.09.2022



MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	BURNED LAND	BENEFITTED LAND
Right of Way Right to convey telecommunications and electricity	F	Lot 1	Lots 2 and 3
	G	Lot 2	Lot 3

SCHEDULE OF PROPOSED LAND COVENANT AREAS	
SHOWN	PURPOSE
X, Y, Z	Consent Notice (Building Platform)

SCHEDULE OF EXISTING LAND COVENANT AREAS		
SHOWN	PURPOSE	CREATED BY
A	Open Space (QEII National Trust Act 1977)	12281222.1
B	Consent Notice (Building Platform)	8308857.3
D, E	Consent Notice (Vegetation)	

AMALGAMATION CONDITION
Lots 4 and 5 hereon be held within the same Record of Title (See request CSN XXXXXXXX)

NOTES
Lots 1 – 5 are subject to Part Iva Conservation Act 1987

SUBJECT TO RESOURCE CONSENT AND LT SURVEY



Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants
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Rev.	Date	Revision Details	By
A	22.07.22	CROSSING POINT AMENDED	HK
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C	05.09.22	LOT BOUNDARIES AMENDED	HK

**LOTS 1 - 5 BEING A PROPOSED SUBDIVISION OF
LOT 1 DP 396356
GLEN DENE STATION, HAWEA**

Client	J & L BURDON	Surveyed	-	Date	-	Job No.	14803	Drawing No.	03			
		Drawn	HK	Date	29.03.22	Scale	1:750 @ A1 1:1500 @ A3					
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S:\JOBS\14800\14803\acad\14803_03_Subdivision Scheme Plan.dwg Plotted: 05.09.2022

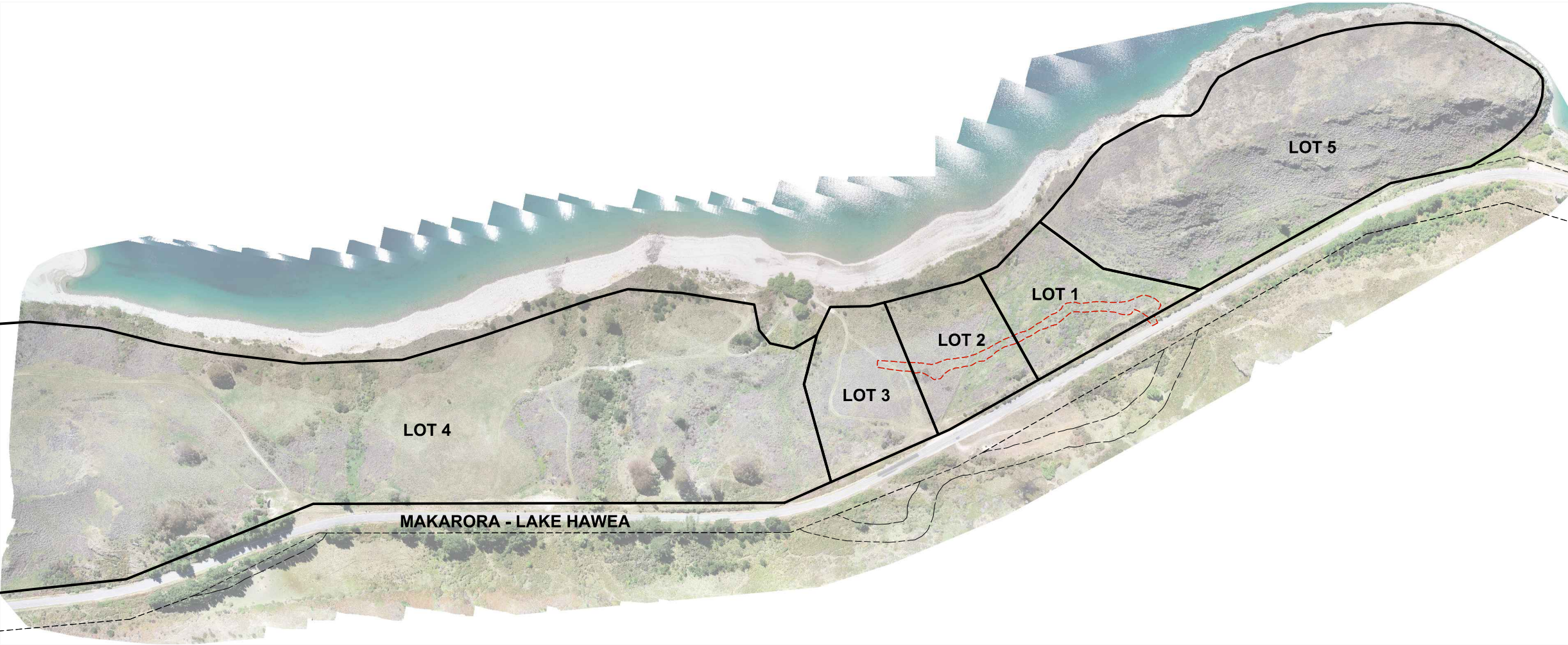
Appendix D

Updated Earthworks Plan





LAKE HAWEA



PART RUN 800

ISSUED 31/10/2022



Clark Fortune McDonald & Associates
Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD
3 LOWE STREET, ADDINGTON
60 TENNYSON STREET
14 MERSEY STREET

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Rev.	Date	Revision Details	By
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-

LOTS 1 - 5 BEING A PROPOSED SUBDIVISION OF
LOT 1 DP 396356 - THE DENE, HAWEA
SITE OVERVIEW

Client		J BURDON	SURVEYED	HK	-	Job No.	14803	Drawing No.	E001
			DESIGNED	PT	10.2022				SHEET 001
			DRAWN	PT	10.2022	Scale	1 @ A1 1:5000 @ A3		
			CHECKED	-	-	Datum & Level	LINDIS PEAK 2000		
			APPROVED	-	-	Rev.	-		

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