

AKAROA WASTEWATER PROJECT

REPORT: HIGH-LEVEL LANDSCAPE AND VISUAL REVIEW

Prepared for Beca
Report Drafted by Align Limited

MARCH 2017



PREPARED BY ALIGN LANDSCAPE ARCHITECTS

DOCUMENT DETAILS

| Details | Stage | Outline |
|--------------|--------------|--|
| Document | Report | High-level Landscape and Visual Review of Site Options for the Akaroa Wastewater Project |
| Revision | Rev 1.1 | For client review |
| Produced By | Align Ltd | LA Division |
| | Anne Wilkins | Senior Landscape Architect |
| Produced For | Beca | For input into CH2M Beca Environmental report for CCC |
| Document | Revision | Author + Sign-off |
| Draft | 0.1 | Anne Wilkins // Align |
| | 0.2 | Wade Robertson // Beca |
| | 0.3 | Anne Wilkins // Align |
| Initial Date | 03.03.17 | Revision 1.0 draft |
| Draft Final | 1.0 | Wade Robertson // Beca Raelene Stewart // Beca (CH2M) |
| | 1.1 | CCC |
| Final | 1.2 | Anne Wilkins // Align |
| | | Wade Robertson // Beca |
| Date | 30.03.17 | For CCC Submission |

DOCUMENT CONTENTS

| | |
|--|----|
| 1.0 Introduction | 3 |
| 2.0 Project Activities (Irrigation and Ponds) Outline and Features..... | 4 |
| Irrigation (Pasture or Tree Planting) Activity | 4 |
| Irrigation Pond (Storage) Activity..... | 5 |
| 3.0 Potential Landscape and Visual Effects of the Three Identified Short-listed Areas..... | 5 |
| 4.0 Findings | 17 |

Appendix A – Irrigation Areas and Pond Study Sites [Provided by Beca]



1.0 Introduction

- 1.1 The Akaroa Wastewater Project involves identifying suitable sites for treatment and disposal options for wastewater. The three sites for consideration are Robinsons Bay, Takamatua Valley and Pompeys Pillar; based around the information and maps provided in Appendix A (second iteration version 1.2 updated).
- 1.2 The following report provides a high-level review of potential landscape and visual effects associated with the consideration of alternative locations for land irrigation.
- 1.3 Full details outlining the project history, site specifics and other specialist inputs, are provided in the CH2M Beca's 'Akaroa Wastewater Investigation of Alternative Sites of Land Irrigation'¹ report (named for the purposes of this report as CH2M-BR)² dated March 13th (second iteration). The following high-level report should be read in conjunction with this wider project report.

Report Scope and Purpose

- 1.4 The purpose of this report is to provide a high-level review of the potential landscape and visual effects of the proposal, including identifying any 'fatal flaws', that may assist in the selection of an overall preferred option. The preferred option will then be subject to further design refinement and a more detailed assessment of the potential landscape and visual effects. This subsequent refinement will provide more detail around factors such as irrigation design, pond appearance, ancillary features, lighting, access etc. to base a Landscape and Visual Effects Assessment (LVA) undertaken for the particular site.
- 1.5 The landscape and visual effects review is based on an analysis of desk top data and observations made during a site visit on 28.01.17. The scope of the review includes the consideration of the proposed components in relation to the three shortlisted areas, by outlining the landscape and visual effects including proximity to roads, dwellings and visual catchments.
- 1.6 The scope does not include a detailed policy analysis of planning documents, as this will be undertaken as part of the LVA³ once a site has been chosen for assessment. Please see the planning considerations outlined in the CH2M-BR for any further detail. The review does include reference to the various planning overlays⁴ including Outstanding Natural Landscapes, ridge protection zones, High Natural Character Areas and Rural Amenity Landscapes depicted by the maps in Appendix A, and in further detail in the planning considerations in the CH2M-BR.
- 1.7 Accordingly, the following document is a high-level review and is not a LVA document. The key objectives, potential issues and design outcomes are outlined and will be assessed in detail in the LVA, which will form part of the resource consent application of the chosen site. It is not feasible to do a landscape and visual assessment given the unknowns including detailed location, appearance and design of each proponent. It is intended that the following review shapes part of the consideration of alternatives process to inform the best choice of site from a landscape and visual perspective.

¹ It is assumed this report will be read in conjunction with the Beca Alternative Sites full assessment.

² Will be referred to throughout the document.

³ Iteration 1 of this report (version 1.1) referred to planning considerations; this has subsequently been removed from the report (current version 1.2), as this will be undertaken within the upcoming LVA.

⁴ (Replacement District Plan) For any planning considerations see wider Beca Report.



Methodology

- 1.8 The following review report evaluates (i) the suitability of irrigation; in the form of pasture and/or tree planting, in the three locations, and (ii) the suitability of introducing a pond storage area at the three locations.
- 1.9 The potential landscape, visual and character effects are then evaluated by a high-level rating review⁵. The rating review is outlined in the Summary of Effects Table section following.
- 1.10 The sites have been reviewed in relation to the potential effects to investigate whether the proposal:
- is consistent with existing land uses;
 - includes modification to the existing landform and any significant features;
 - site is unique in the local rural context and whether development is consistent with these unique qualities;
 - is consistent with existing rural distribution patterns;
 - is anticipated in the rural environment (i.e. relevant provisions);
 - is in an area that is already subject to modification; and
 - will influence bio physical attributes such as vegetation and water ways.

2.0 Project Activities (Irrigation and Ponds) Outline and Features

- 2.1 The proposal has two key components: irrigation areas and associated storage ponds. There are two options for treatment of the irrigation areas, the first being drip line irrigation in combination with tree planting, and the second irrigation, such as K-line, in combination with pasture land. The associated storage pond can differ depending on the site and the design. A general outline of the components of the activities are outlined below. Detailed descriptions of these activities are provided in the CH2M-BR.

Irrigation (Pasture or Tree Planting) Activity

- 2.2 The irrigation as described in the CH2M-BR will either be; a series of pasture blocks or indigenous tree planting areas, which will be irrigated by differing methods (such as K-line / drip line). Maps outlining the site locations and surrounding features been attached in Appendix A.
- 2.3 Irrigation Pasture:
- Pasture – it is anticipated that the proposed pastoral land appears as typically rural farmland; of fenced areas of exotic grass of a bright green appearance.
 - Pasture suitability - is explored in further detail for each individual area in Section 3.0. Paragraphs 2.4 and 2.5 below present an introduction to this.
- 2.4 Both Robinsons Bay and Takamatua Valley are modified rural landscapes and pasture farmland is a common feature within these landscapes. Robinsons Bay has expansive pastoral areas on the flatter areas of the valley, and pocketed areas on the surrounding hillside. Takamatua Valley has pocketed areas of pastoral land on mainly undulating land between existing tree areas and residential properties.
- 2.5 Pompeys Pillar has a minimal area of pasture existing on the headland; currently approximately 3-6 small pasture blocks which have been established.

⁵ A description of the rating system is outlined in the following sections.



2.6 Irrigation Tree Planting:

- Tree Planting – newly established kanuka or manuka with a dark olive-green appearance.
- Tree Planting Establishment - given variables around growth rates, establishment, management etc. the overall nature of the trees will be transitional and change over time, particularly in the years following initial planting.
- Tree planting suitability - is explored in further detail for each individual area in Section 3.0. Paragraphs 2.7 and 2.8 below present an introduction to this.

2.7 Areas of indigenous trees currently exist across both Robinsons Bay and Takamatua Valley and both have numerous areas of established broadleaved hardwoods and indigenous forest. Outside of this the areas both have several exotic tree stands and pine forests.

2.8 Pompeys Pillar has minimal existing tree planting on the headland area, limited to single trees, or groups of approximately 5-10 trees. Tree forest areas are concentrated on the south-west slopes closer to Hinawai, or within the adjacent valleys through to Wakarema and Long Bay.

Irrigation Pond (Storage) Activity

2.9 A series of locations have been outlined as potentially appropriate for the irrigation pond sites. These are of varying scales and sizes given the site and available land (as outlined in CH2M-BR). Pond sites are explored in further detail following. Maps outlining the site locations and surrounding features been attached in Appendix A.

2.10 Irrigation Pond (Storage):

- Pond – exact size⁶, function, and depth requirements are subjected to engineer requirements and are currently being worked through with Beca.
- Pond edging - appearance to be sloped banks, possible bunding and planted edges. The cut and fill and associated earthworks will be assessed in further detail for the LVA.
- Pond surrounds⁷ - other ancillary features, such as access roads, pumps, pump stations or sheds utilities etc.

2.11 The pond storage size will be based on the choice of irrigation for trees or pasture. Irrigation to trees require a 17,500m³ storage pond, with irrigation to pasture land requiring approximately 35,000m³.

2.12 The full extents of the visual effects will depend upon the pond design, the appearance of the side batters, slope, consideration of surrounding landscape and introduction and blending of new landscape features, such as planting. Design suggestions are included in the Findings section of the review.

2.13 As noted, consideration of ancillary components and features such as utilities, pumps, lighting, access routes (etc.) will need to be included in the upcoming Landscape and Visual Assessment once a site has been located. For the purposes of this high-level review, it has been considered that a degree of subsequent “built” elements will be included (additional to the pond).

2.14 No existing ponds⁸ have been established or exist in any of the proposed sites (irrigation pond sites). Therefore, it is assumed that a new land-use, and subsequent factors pertaining to a new activity, is applied to each area on an equal basis.

3.0 Potential Landscape and Visual Effects of the Three Identified Short-listed Areas

3.1 As noted, the following outlines a high-level review of the three identified sites for their suitability to

⁶ CH2M-BR outlines size criteria for each option.

⁷ The landscape and visual effects review does not take into consideration odour / noise etc.; see CH2M-BR.

⁸ As outlined by the Beca assessment project details



absorb the proposal; including both irrigation and pond (storage) activities listed above. It is anticipated that once a location is chosen a site specific LVA⁹ will be organised to respond to site specifics i.e. visual assessment with the number of different combinations, and number of unknowns, is not feasible.

- 3.2 As outlined, three broad areas, Robinsons Bay, Takamatua Valley and Pompeys Pillar, have been identified¹⁰ for their potential to accommodate areas for irrigation as described above. Additionally, site specific locations within these broader areas, have been identified for irrigation pond sites. In the case of Pompeys Pillar, it is likely that the pond would be a dammed ephemeral water course with irrigation areas.
- 3.3 While there is the potential for the pond and irrigation components to be co-located within an area, there is also potential that some separation between the two components will occur. The following assesses each site on an individual basis for the likely effects of a) pasture, b) tree planting and c) storage ponds.
- 3.4 The three sites have been reviewed by outlining:
- The category of the constituent components: area location, landform, level of development, vegetation and land cover and [key] views/ catchments.
 - An analysis of qualities: [key] sensitivities, overall character and values of the area.
 - Visual effects and visual catchment of the area (see note 3.5 below).
 - Summary table of potential landscape and visual effects and associated rating.
- 3.5 Visual effects will need to be further explored in the LVA. Visual effects are explored in the following sections in terms of size of the catchment, amount of fixed nature views, amount of transient views (i.e. travelling along SH75) and other features that play into the visual suitability of the proposal (i.e. existing site character). However, it is understood that given sensible design implementation, that the proposal being seen or exposed *does not necessarily mean a subsequent negative effect*, especially given the proposal is based largely around land uses commonly established within a rural environment (pasture / trees / water).

Robinsons Bay Area

- 3.6 Robinsons Bay environment is a typically modified rural landscape, made up of grazing farmland and pastoral land, with associated farm structures such as sheds, storage features and barns. Rural residential properties exist in the area, with some representing small commercial operations such as olive tree groves and accommodation facilities.
- 3.7 Pasture is predominant in the area, with the most expansive area of pasture on the undulating land in the valley floor west of Sawmill Road. A small tributary stream runs through this area with minimal offset riparian margin planting currently bordering it. The higher up the valley the more rugged and unmodified the landscape appears; mainly given the natural slope producing less practical land areas for pasture.
- 3.8 Overall the area appears mainly as brown-green (partial to seasonal change) rural grassland. Pastoral land blocks are present adjacent to the State Highway, adjacent to farm properties off Robinsons Bay Valley Road, and on small pocketed areas across the surrounding hills. Therefore, new pasture grass is likely to be in keeping in character of the existing landscape and would be absorbed relatively seamlessly.
- 3.9 Environmentally the landscape is relatively varied; made up of pockets of native forest, pine forest,

⁹ Landscape and Visual Assessment document as per statutory requirements

¹⁰ The CH2M-BR outlines the background and process for short-listing three general areas for the project.



exotic trees, olive groves, streams and riparian edges. A large historic oak tree plantation lies mid-way within the valley area. Areas of broadleaved indigenous hardwoods, manuka and kanuka and other mixed indigenous forest exist in sporadic areas across the wider area.

- 3.10 Irrigation tree planting is likely to be immersed within higher reaches of the valley given the existing patchwork patterning of the trees. These are mainly the existing indigenous and native revegetation areas, geometric forest blocks and surrounding tree stands. Ecologically, the linking of these smaller indigenous parcels of trees could improve connectivity and green corridors within the area.
- 3.11 The Robinsons Bay area has a rich land-use history, made up mostly of varied rural farm practices such as sawmills, farming, and other pastoral practices, including a Historic Place (pertaining to the old sawmill use and associated stream use) adjacent to Sawmill Road. The planning considerations in the CH2M-BR outline these Heritage Items mainly as built features (not areas).
- 3.12 Several accommodation operations are in the area, including 'The Olive Grove', 'Matua Gardens Retreat' and several other 'Bed and Breakfast' establishments. The School Road Reserve is also present adjacent to the entrance to the Valley. Recreationally, the land use is largely limited to the reserve.
- 3.13 The area is accessed east off SH75 Christchurch Akaroa Road. Robinsons Bay Valley Road is the main link into the valley area to access residential properties and visitors to the area. Several minor relatively under-developed (some unsealed) farm roads fork off the Sawmill Road intersection. Okains Bay Road runs off SH75 to wind up the hill to the summit ridge line and accesses several residential properties on the hillside, however the valley roads effectively are not loop roads i.e. people passing through is unlikely except via the adjacent SH75. The Summit Road looks down over the area to the east with minor pocket views apparent on approach from Christchurch.
- 3.14 The 'BnB' developments are likely to be within the visual catchment of some of the site options. The areas accommodation facilities display the rural amenity of the area; therefore, disturbances to the land that aren't purely 'rural' could be damaging to amenity values of the area if not properly integrated into the landscape. As outlined the nature of the proposal is predominantly rural and in keeping with the character of the existing landscape, outside of the new land-use (storage ponds).
- 3.15 As outlined, introducing a pond storage area into the landscape would be a new activity, and thus changing the nature of the environment. However, Robinsons Bay already has a complex history of introducing new land uses, such as the saw-milling activities making use of the existing stream, and the wastewater disposal could form a fabric of this story. The progression of new land-uses is historically a function of the area not dissimilar to the current future proposal of irrigation, tree planting and/or pond storage facilities.
- 3.16 The establishment of the pond location, as to where it would be suitably situated would be of importance to avoid any visual effects risk. As outlined a few key residential properties, as well as several established BnB outfits, could be within the visual catchment of the pond sites represented. Ideally, the pond would be of a naturalised appearance and utilise existing environments such as slope or trees for mitigation or visual blocks. The exact pond locations proposed are explored in further detail in the Summary table, and the Design comments make reference to the nature of the pond and its design.
- 3.17 Robinsons Bay is extensively modified and is a highly-mixed use landscape. The patchwork nature of the area creates a varied pattern of environments rather than a simple or cohesive overall singular-type of landscape. This means that new or introduced environments are likely to have the capacity to be relatively easily absorbed into the general area.

Takamatua Valley Area

- 3.18 Takamatua Valley has a rural residential landscape character type, expressing a series of mixed land



uses, predominantly rural pasture and grazing areas, olive groves, and residential blocks. The area is also a predominantly rural environment, but contains an increased degree of residential areas than Robinsons Bay.

- 3.19 The valley is relatively flat surrounded by sloping hills on the north, east and south and adjacent to Takamatua Bay and the SH to the west. The areas valley floor is quite flat compared to the undulating nature of Robinsons Bay and the topography of the hills adjacent is of a more rolling appearance. The area is bordered by the Long Bay Road to the south where two pond sites have been tabled for consideration, and stretches west to along Mcree's Road where an additional pond site has been proposed on the protruding spit. This create a wide and varied catchment area, meaning the area is partial to a number of different characteristics and environmental influences.
- 3.20 The mid-valley area is mainly residential in its nature. Takamatua Valley Road has a residential feel given the properties, power lines, utilities, and mature street trees lining the road and the higher density residential blocks. The road runs approximately 2.5km midway through the valley to a dead-end, with three ancillary roads running off this i.e. no roads loop through the area.
- 3.21 The new housing development adjacent to Mcree's Road in the highly-exposed peninsula area looking south over the valley is another residential character area. These houses have been developed and built out on the spit or on the hillside creating a highly-modified landscape context, within which to consider the proposal.
- 3.22 The residential character of these areas; including houses on the surrounding hill and within the valley, and the new houses on the spit, are relatively inconsistent in appearance and materiality. The high degree of variability in the landscape adds to the complexity of the character and tends to mean a higher capacity to absorb additional change. This is an important conclusion as comparatively, the nature of effects of natural elements proposed (i.e. pasture / trees / pond) are not likely to exceed that of the built environment i.e. new houses, built-up nature highly unnatural in appearance).
- 3.23 Existing pasture land is focused on the lower reaches of the valley adjacent to SH75. Several patchwork areas of pasture exist in the upper reaches of the valley, mostly situated adjacent to rural residential properties and separated by areas of trees or production landscapes (e.g. olive groves). Pocketed areas exist on the Takamatua spit headland bordered in some places by rural macrocarpa shelter belts.
- 3.24 Takamatua Valley has a high degree of existing trees and forest areas. Areas of pine plantations and exotic tree stands, including olive groves and gum tree groups, exist in the area. A high degree of indigenous vegetation areas, broadleaved hardwoods and native vegetation areas are also sporadically located across the area. Due to the existing stream in the middle of the valley a degree of riparian margin planting, native flaxes and wetland planting make the landscape environment rich and varied.
- 3.25 The upper ridge of Takamatua Valley contains a large area of indigenous forest located west of the SH75 / Old French Rd / Long Bay Rd intersection. This presents an opportunity that the existing indigenous forest area could be extended upon with proposed new planting, to have positive landscape and ecological benefits. Other areas of Takamatua Valley, predominantly areas on the valley slopes where larger areas of tree plantings exist, could be extended upon and joined to create greater connectivity also.
- 3.26 These upper reaches of the valley are adjacent to a Main Ridgeline zone (see planning considerations in CH2M-BR) displaying a highly-modified area of rural residential properties, with sweeping views of the surrounding bays and Akaroa. Along Old French Rd and SH75 has large area of olive orchards which appear in controlled rows; expressing a highly-adapted environment. Paired with the utilities, roads, complex residential patterns the ridgeline area expresses itself as a modified, varied mixed-use landscape. To this degree, the upper reaches of the valley are likely to easily absorb additional land uses into the complex patchwork.
- 3.27 Pond site options, as outlined by the maps in Appendix A, that are situated in highly open and visible locations are to be avoided to reduce any risk of visual effects. This is explored in further detail in the summary table. Again, visibility does not necessarily mean that visual effects exist, and It is understood



that further assessment would need to occur.

Pompeys Pillar Area

- 3.28 Pompeys Pillar is a part of the south-east Banks Peninsula headlands. The rugged coastline extends in a finger-like formation into the ocean, made up of steep sloped banks and flat-top hills, natural landforms and brown-green grassland, which is a typical representation of the Banks Peninsula environment.
- 3.29 The area can be reached from access off the Summit Road and Long Bay Road running along the adjacent ridgeline. The headland is then reached via an undeveloped access road known as Fishermans Bay Road, primarily used for access to a residential property adjacent to the headland. Several ancillary roads run off this to access adjacent valleys, however it returns to single access approx. 1.7km north of the peninsula headland (primarily private access only).
- 3.30 The headland remains largely unmodified. This is not dissimilar to the surrounding headlands to the north-east extending through to Governors Bay Harbour, and extending to the south-west around to Akaroa Harbour, which all remain predominantly unmodified. Changing the physical characteristics of the area would be altering the modification level of the existing landscape.
- 3.31 The headland at Pompeys Pillar is surrounded by an Outstanding Natural Character area (ONL). The area for the proposed specific works are outside of this zone (see Appendix A maps), however consideration should be given to proximity to this character area, as well as the potential landscape effect of works in an area surrounded by this zone i.e. flow-on and wider scale effects.
- 3.32 There is a degree of pasture land existing in the area, however this is mainly located further within the valley area and not on the headland. There are some small patches of pasture adjacent to the headland, where farmers have used localised irrigation to water farmland.
- 3.33 There is a minimal number of trees, vegetation or planting outside of the existing tussock grassland across the area. Several small groupings of trees, approximately 3 – 6 trees total, exist in arbitrary locations across the headland. Two rows of shelter belts exist at the far end of Fishermans Bay Road next to the entrance to the residential property.
- 3.34 Tree planting on Pompeys Pillar headland area could face significant challenges. The evidence that can be read off the existing landscape patterns, is that vegetation and planting mainly only thrives within valley and sheltered gullies, probably due to the exposed coastal nature of the headland. It would also change the landscape character if the headland as explained above.
- 3.35 Pond establishment in this area would be out of character (see note 1.2) given the lack of any similar features, the unmodified nature of the environment and the lack of existing features which could absorb the pond i.e. existing planting or built elements. Additionally, earthworks, construction, and extensive works for piping and ancillary features which could tear through the natural landscape. Aside from the landscape challenges of this, the effects of this change would pose a significant risk to the landscape character of this landscape.
- 3.36 Additionally, a conservation area known as the Hinewai Reserve exists off the main access road to Pompeys Pillar. The area is used as a wildlife conservation zone, as well as used recreationally for cyclists and walkers. The area has a special status (see planning considerations CH2M-BR) and high ecological value. Any possible flow-on effects from piping, earthworks, access or ancillary features to take the proposal to the headland would require evaluation as protection to this area is recommended.



Images of the Three Area Options Existing Landscape

Robinsons Bay: Images showing mixed-use modified rural landscape, with several built elements typical of the area



Takamatua Valley: Images showing modified rural landscape, with residential and olive grove planting patterns typical of the area



Pompeys Pillar: Images showing unmodified rural landscape, brown-green grassland and surrounding headlands typical of the area



Summary of Potential Landscape and Visual Effects

- 3.37 The following table is a summary of the landscape and visual issues raised in the review, in association with the proposed activities (irrigation / storage) in site specific places within these broader three areas.
- 3.38 The rating is based on the following criteria as explored in detail above:
- Character Effect – pertaining to aspects that contribute to rural character e.g. openness, pasture, low density/ clustered development, shelter belts and pockets of veg etc.
 - Visual Effect – Visibility / Visual Catchment; number of visually affected parties, proximities, distances and extents.
 - Landscape Effect – environmental features effects, including any cuts, flow-on effects, ecological considerations and natural features.
 - Amenity¹¹ Effect – existing built nature of landscape, values pertaining to land uses, natural landscape and zoning, perceptual and experiential rural character.
- 3.39 As expressed in report note 3.5 while visual effects have been discussed, this is at a catchment scale outlining the potential risks and effects due to placement and number of parties possibly affected. Visual effects are dependent on the final design; mitigation measures, placement and further design can result in reducing any potential effects. The following summary outlines the potential risks to assist in choosing an appropriate site.
- 3.40 Effects have been assessed using the five-point rating scale outlined below. An overall effects rating has then been provided to establish an ‘on balance judgement’ for each of the sites.
- 3.41 Updated information and further assessment will be required to define the criteria and scoring, however the high-level input outlined below will assist in giving a “fatal flaw” assessment to disregard or favour certain sites. Please note ‘*more than minor*’ terminology has been purposely avoided given the review is not a formal Landscape and Visual Assessment.

| 1 | 2 | 3 | 4 | 5 |
|--|-----|--|------|---|
| Very low degree of effect // site well suited | Low | Moderate degree of effect // site could be suitable | High | Very high degree of effect // site not well suited |

¹¹ All areas are within the Rural zone so Amenity values are associated with that of rural amenity values.



Table 5.3: Potential Landscape and Visual Effects Criteria and Rating

| No ¹² | Location Option ¹³ | Potential Activity | Character Effects | Landscape Effects | Visual Effects | Amenity Effects | Description of Site Factors for Scoring | Potential Landscape and Visual Effects |
|------------------|------------------------------------|--|-------------------|-------------------|----------------|-----------------|--|--|
| 1 | Robinsons Bay – northern hill site | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 3 | 3 | 4 | 3 | <ul style="list-style-type: none"> An elevated hillside topography on southern sloping face of the valley. The site is surrounded by forestry blocks and tree stands and could be absorbed into the patchwork nature of the hill. Rural character effects are likely to be minimal given the mixed-use modified landscape. Number of residential properties as well as BnB establishments on the southern hillside off Okains Bay Rd that could have pocket views to the site; topography and existing vegetation likely to mostly hide portions of these view shafts. Views could be limited given the topography and existing vegetation. View from SH looking north to site mainly hidden by forestry and hill slope, other views are mainly from within the Valley on sites off Sawmill Road. The elevation could create increased exposure opening a larger visual catchment, however distance from residential properties or roads could be a mitigating factor. Flow-on landscape effects down-hill given steep nature could be present (i.e. streams, farmland, surrounding land-use etc. The design of the pond site may require ancillary features given the aspect of the site (relatively steep). Further investigation on earthworks effects would be required. | Moderate |

¹² Relating to the pond number within each area.¹³ See location map and landscape overlay in Appendix A

| No ¹² | Location Option ¹³ | Potential Activity | Character Effects | Landscape Effects | Visual Effects | Amenity Effects | Description of Site Factors for Scoring | Potential Landscape and Visual Effects |
|------------------|------------------------------------|--|-------------------|-------------------|----------------|-----------------|--|--|
| 2 | Robinsons Bay – mid lower valley | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 2 | 3 | 4 | 3 | <ul style="list-style-type: none"> Sweeping views of most of the area travelling southeast on SH and surrounding roads. Residential properties looking down onto area, including BnB establishments are likely to be effected, however distance could be a mitigating factor. North of the stream intersecting through the valley, landscape effects on margins and riparian edges could be present. The pond site would require further design and offset from the stream margin. Design options that integrate an ecological design focus would be recommended due to the riparian margin. Pasture lands surrounding, so modified appearance of character and displays a typical rural character. Line of adjacent thick flax bushes along SH75, with other pocket planting within rural landscape, could help to absorb, mitigate and offset any new land-use. Existing flaxes and border planting could be extended upon to integrate design. | Moderate |
| 3 | Robinsons Bay – south lower valley | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 2 | 4 | 4 | 3 | <ul style="list-style-type: none"> Like north of the stream margin, design options to integrate an ecological design focus would be recommended. The pond site would require further design and offset from the stream margin. Adjacent to SH near base of valley so views of most of the area travelling southeast on SH and surrounding roads. Residential properties looking down onto area, including BnB establishments are likely to be effected, however distance could be a mitigating factor given the detachment from this flat land. Area is at a slightly further distance from most residential properties at a further distance and a slightly lower elevation. Currently pasture lands existing and surroundings are modified already, with surrounding vegetation pockets that could further act to absorb the landscape change. | Moderate - High |



| No ¹² | Location Option ¹³ | Potential Activity | Character Effects | Landscape Effects | Visual Effects | Amenity Effects | Description of Site Factors for Scoring | Potential Landscape and Visual Effects |
|------------------|--------------------------------------|--|-------------------|-------------------|----------------|-----------------|--|--|
| 4 | Robinsons Bay – west of Sawmill Road | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 2 | 2 | 3 | 3 | <ul style="list-style-type: none"> The design of the area would depend largely on blending in to the current pastoral land-uses and bordering vegetation of Sawmill Road. Stream riparian margins and protection from flow-on effects and other landscape factors would require main design focus. The site lies adjacent to a Historic Place which could influence alignment with policy provisions, further exploration required. The site could potentially be discreet given the encapsulating nature of the existing vegetation and pasture land. The site is of a slightly higher topography adjacent to the road, so earthworks could be of consideration. Views from properties looking down into the area from the south hillside properties are present. Views from surrounding accommodation blocks including the BnBs and the 'The Olive Grove' are also likely. Landscape effects could be of main concern (rather than visual) at this site given the historic, cultural, and ecological layers. | Low - Moderate |
| 5 | Thacker property – lower site | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 2 | 3 | 3 | 3 | <ul style="list-style-type: none"> Access to this area is directly off the intersection of the Robinsons Bay Valley road and 'fork' roads off this, which could prove to be busy and more populated than other areas. The proximity to the intersecting roads off Robinsons Bay Valley Road, could be an issue given this exposure. The proximity to historic place and mixed-use landscapes, including accommodation land-use could be of concern. Views from surrounding accommodation blocks including the BnBs and the 'The Olive Grove' as well as surrounding residents is present. The Historic Place zoning and nature of the provisions and policies towards this would require further investigation; currently the pond site is very close to this. | Moderate |
| 6 | Thacker property – upper site | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 3 | 4 | 3 | 2 | <ul style="list-style-type: none"> The design of the pond site may require ancillary features given the aspect of the site (relatively steep). Further investigation on earthworks effects would be required as any potential scarring to the hill face should be avoided. Given the hill topography and the slope it is likely that change would be quite apparent. The distance of the area from surrounding fixed viewpoints, i.e. residential properties, is significant and could neutralise these effects. Mostly, pocket views are present from SH75 looking east. A large forestry block to the southwest; investigation on the effects on the landscape would be required, as well as other flow-on landscape effects down-hill. Catchment effects would require careful management. Given the steep nature of the area, the concerns would be in regard to offset effects, farmland, and surrounding land-use (landscape effects). | Moderate |



| No ¹² | Location Option ¹³ | Potential Activity | Character Effects | Landscape Effects | Visual Effects | Amenity Effects | Description of Site Factors for Scoring | Potential Landscape and Visual Effects |
|------------------|---------------------------------|--|-------------------|-------------------|----------------|-----------------|--|--|
| 7 | Takamatua Valley – lower valley | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 3 | 5 | 5 | 3 | <ul style="list-style-type: none"> The scale of the available pond site land is larger than other sites. A sensible design approach would be necessary here in further detail to break up a possible larger expanse, including the possibility to break up the area into a series of smaller ponds. If the proposal was to break up the ponds into a series along the northern stream border (appropriate offset distance) then likely to decrease effects overall. Feedback from the project team is that the pond site may need to be “built-up” above ground level rather than excavated as at the other sites, changing the potential effects. This could add to visibility from SH75 and surroundings, as well as reduce the potential for a naturalised appearance (i.e. ancillary features, less streamlined appearance). The built-up nature could make pond more difficult to screen and create visual issues. Western edge visible from the SH75 and no current existing vegetation screening over this landscape. Proximity is close therefore distance mitigation is unlikely. High degree of residential dwellings to the south, and likely to be viewed to some degree from the new subdivision on the Takamatua peninsula or from surrounding bays. Highly modified landscape with multitude of land-uses and rural character could absorb development depending on placement. Further development of the placement and design of this site would be required for assessment, given the large area that the proposal encompasses. Proximity to the stream and the riparian margins could have landscape effects. | Moderate - High |
| 8 | Takamatua Valley headland | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 4 | 3 | 5 | 5 | <ul style="list-style-type: none"> The site being on the peak of the hill and directly out on the peninsula would make visual mitigation relatively difficult, given the encompassing nature of the views. Encompassing views include exposure to land, road and ocean users. Contextually the site is adjacent to a developing subdivision which means the area appears as a highly-modified landscape with built forms. Likely to be visible from as far away as the Summit Road and surrounding approaches from the north. Pocket views from Akaroa township and southern roads due to topography. Adjacent to forestry blocks and vegetation areas on the hill and surrounding subdivision where planting could be extended upon. | High |



| No ¹² | Location Option ¹³ | Potential Activity | Character Effects | Landscape Effects | Visual Effects | Amenity Effects | Description of Site Factors for Scoring | Potential Landscape and Visual Effects |
|------------------|--|--|-------------------|-------------------|----------------|-----------------|--|--|
| 9 | Takamatua Valley – top of hill north of SH75 | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 4 | 3 | 5 | 5 | <ul style="list-style-type: none"> Mixture of exotic trees in proximity, including an olive grove and gum trees, indigenous forest and rural farmland. High exposure from SH75 coming north around road bend and key views from southern approaches on SH and adjacent intersection. Sweeping views from several adjacent residential dwellings (i.e. not ‘pocket’ views). The site crosses over within a Main Ridge Zone as depicted by planning mapping provided; issues could exist with policy provisions. Due to the nature of the landscape being directly adjacent to roads, orchards, ridge lines and several different use landscapes, mitigation including screening would be necessary. | High |
| 10 | Takamatua Valley – top of hill south of SH75 | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond | 3 | 2 | 2 | 2 | <ul style="list-style-type: none"> Mostly protected from visual exposure from SH75 due to terrain. View heading west on Long Bay Road moving south downhill to the intersection, predominantly of a transient nature (road users). Visibility from several surrounding residential properties, though pocketed due to existing mature forest vegetation and topography. The nature of the surrounding bush and mature forest means that the site is relatively screened from the surrounding areas including the SH75. Due to the gradient slope of the hill the site is somewhat visible from the southern Akaroa township below. Adjacent to / near protected ridgeline zone. Feedback from the planning project team outlines that the Main Ridge Line zone does not encroach onto this landscape area. Potential value to place adjacent to the existing water treatment tank and the worth of “grouping” these features to maintain streamlined mitigation etc. Opportunity for extension of indigenous forest surrounding the western and southern edges of the proposed site and create extended green space. | Low - Moderate |
| 3 | Pompeys Pillar | <ul style="list-style-type: none"> Pasture Tree Planting Storage Pond [Ephemeral Dam] | 5 | 5 | 2 | 5 | <ul style="list-style-type: none"> A Rural Amenity Landscape overlay is located across the site and adjacent to Outstanding Natural Landscape and High Natural Character overlays (although outside of the scope the proximity should be considered at a wider scale). The unmodified nature of the landscape dictates that any change will have a greater degree of change over other environment options. Pond establishment in this area would be out of character for the landscape type, given the lack of any similar features, the unmodified nature of the environment and the absence of existing features which could absorb the pond i.e. existing planting or built elements. Further investigation required as well as visual representations of how the ephemeral waterway dam would appear in comparison to a pond site, in order to make a visual assessment. | High |



4.0 Findings

- 4.1 There are several sites within Robinsons Bay and Takamatua Valley that have the capacity to absorb the proposed development, both the irrigation options and the pond storage site, without generating significant landscape and visual effects. Broadly speaking these areas can be grouped into landscapes that are on softly undulating valley environments and areas that have similar land-uses in the vicinity, such as forestry blocks, pasture land, tree stands or indigenous bush or tree groups.
- 4.2 Pompeys Pillar is a headland adjoined by an Outstanding Natural Landscape (ONL) and a High Natural Character Area (HNL). The headland fixed visual catchment is very low, however, given the undisturbed, raw, undeveloped nature of area, it can be summarised that the proposal, in particular any pond storage areas or tree planting, is not in keeping with the characteristics of the current landscape. Modifying the natural composition of this headland is likely to be inconsistent with the inherent natural and aesthetic value of the landscape, and the adjacent identified ONL and HNC values.
- 4.3 There are several areas outlined that have the capacity to absorb the proposed development without generating significant landscape and visual effects. The overall degree of effect will be contingent on sensible design solutions and mitigation being undertaken. Broadly speaking these sites can be grouped into areas that have a smaller visual catchment, increased distance from major roads, or residential outlooks, on topography that hides aspects of the development or sites that are of a complex mixed-use character.
- 4.4 Areas adjacent to existing forest areas in Robinsons Bay (pond storage sites 1, 2, 3) and Takamatua Valley (pond storage sites 7 and 10) present the opportunity for expansion and extension of existing screen vegetation. Views from surrounding bays, including Akaroa, transient views, including SH75, and other pocket views would still be present, but with appropriate design solutions these landscapes could absorb the changes relatively well.
- 4.5 Sites located on the Thacker property (pond storage sites 4 and 5) are located within the mid-valley and present a good opportunity for expansion of existing tree planting. Alongside design resolution it is likely that a pond area could also be absorbed into the area also given the highly mixed-use and complex makeup of the area. Landscape effects and ecological repercussions onto existing stream margins would require further investigation.
- 4.6 Sites on steeper sloping areas require further investigation on whether the offset flow-on effects will have a high degree of landscape effect. Sites on sloped areas within Robinsons Bay are likely to be mitigated from a visual perspective due to distance.
- 4.7 Areas that require extensive earthworks or result in a less naturalised appearance (pond storage site 7 may need to be “built-up” above ground level) are likely to create issues from a visual and landscape perspective. Similarly, flat, exposed open landscapes could provide challenges due to their highly visible nature (e.g. pond site 8).
- 4.8 The further consideration of areas within Robinsons Bay and Takamatua Valley catchment areas are preferable, given the findings of the effects likely to occur at Pompeys Pillar.
- 4.9 The further investigation of a pond storage site located on the upper reaches of the Takamatua Valley area (adjacent to the wastewater treatment plant) would be preferable from a landscape perspective. This is due to the low potential effects rating, low visual catchment, the possibility of extending upon surrounding existing vegetation and the potential for the grouping of project elements (i.e. centralised effects of treatment plant and pond).



Design Opportunities and Requirements

- 4.10 The design of the pond sites represents an opportunity to create a naturalised and environmentally sensitive response that will fit within the landscape, and potentially integrate and improve upon the existing landscape fabric. Early ecological suggestions outline the possibility of creating a series of smaller ponds within the chosen site, thus dispersing centralised effects.
- 4.11 The Beca Alternative Sites Report refer to 'pond naturalisation', and present a series of opportunities and risks associated with landscaping. We would recommend these are explored further to come up a suitable design solution for the pond within its chosen site. Mitigation options are to be explored in the upcoming LVA.
- 4.12 Aesthetically, pond sites could be developed with soft sloping sides, planted borders, meandering edges and vegetation creating a "wetland" like appearance. Additionally, any functional additional features required for ponds, such as access roads, pumps etc., could be designed to site specific requirements to obscure and/or mitigate as much as possible.
- 4.13 Tree planting could be developed by extending upon sites that are in proximity to other indigenous areas, to allow for connectivity of green corridors across the broader landscape. This increases fauna and bird life connectivity and environmental linkages (refer to specialist / ecologist). Broadly speaking each site is within proximity to indigenous pocket forest blocks (see Appendix A). Additionally, tree planting could be developed to have meandering edges and a naturalised appearance (rather than stark geometric blocks like pine forestry plantations).

Summary

- 4.14 Generally, the nature of the development is one of rural land (pasture), tree blocks and ponds each of which are land uses commonly established within a rural environment. Given the rural nature of the proposal the development being visible does not necessarily mean it will be viewed in a negative light, provided there is balance between structural elements and more natural elements that might be implemented. Therefore, the focus is likely to be upon whether the design has a suitable consideration and approach to landscape effects such as amenity values, ecological effects and the degree of character change created.
- 4.15 It is preferable that selected sites have the capacity to absorb change into the existing aesthetic and environmental fabric of the landscape. Sites that lack similar existing features, that are on headlands or on prominent ridgelines, or in areas that are not of already modified rural nature, are to be avoided if possible.
- 4.16 As outlined in the summary table of potential effects, several sites have the capacity to absorb the development within the mixed-use, rural, modified landscapes. With further development, and the utilisation of appropriate design techniques it is likely that the irrigation development can be accommodated without giving rise to significant landscape and visual effects.

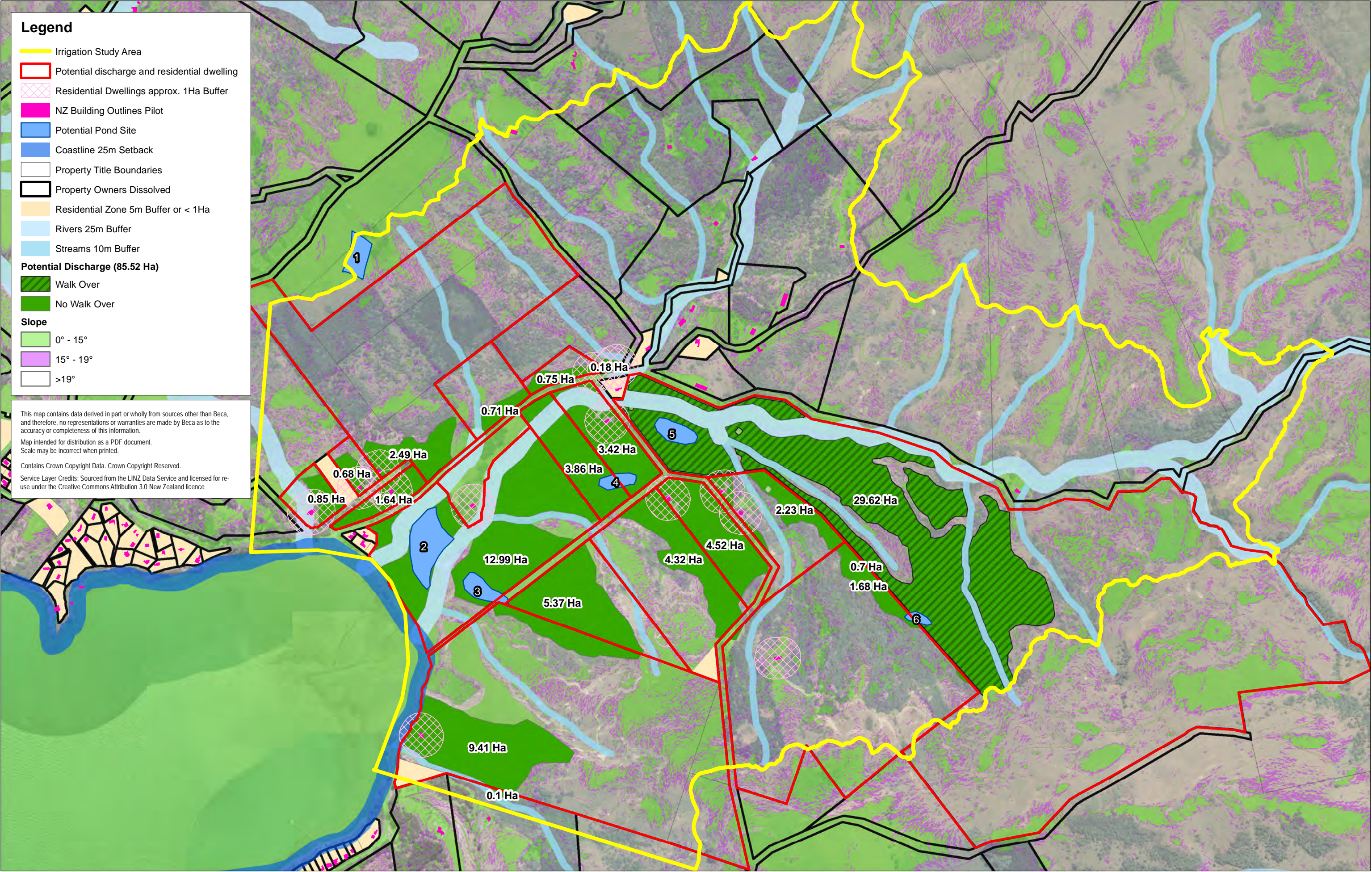


APPENDIX A:

Irrigation Areas: Pasture or Tree Planting Areas [Provided by Beca]



GIS@beca.com
File: P:\6517986\TC101 Map\6517986-20-14a_AkaroaNewWWTP_Robinsonsbay_Dripperirrigation.mxd Author: Date: 10/03/2017



Map Scale @ A3: 1:10,000

1 Ha @ 1:10,000

0100200400

Metres

N

| Revision | Author | Verified | Approved | Date | Title |
|----------|--------|----------|----------|------------|-------|
| 2 | BDJ | JAF | GO | 08/03/2017 | |
| 1 | BDJ | DRAFT | DRAFT | 21/02/2017 | |

Robinsons Bay Study Area

Dripper Irrigation

Client:

Christchurch City Council

Project:

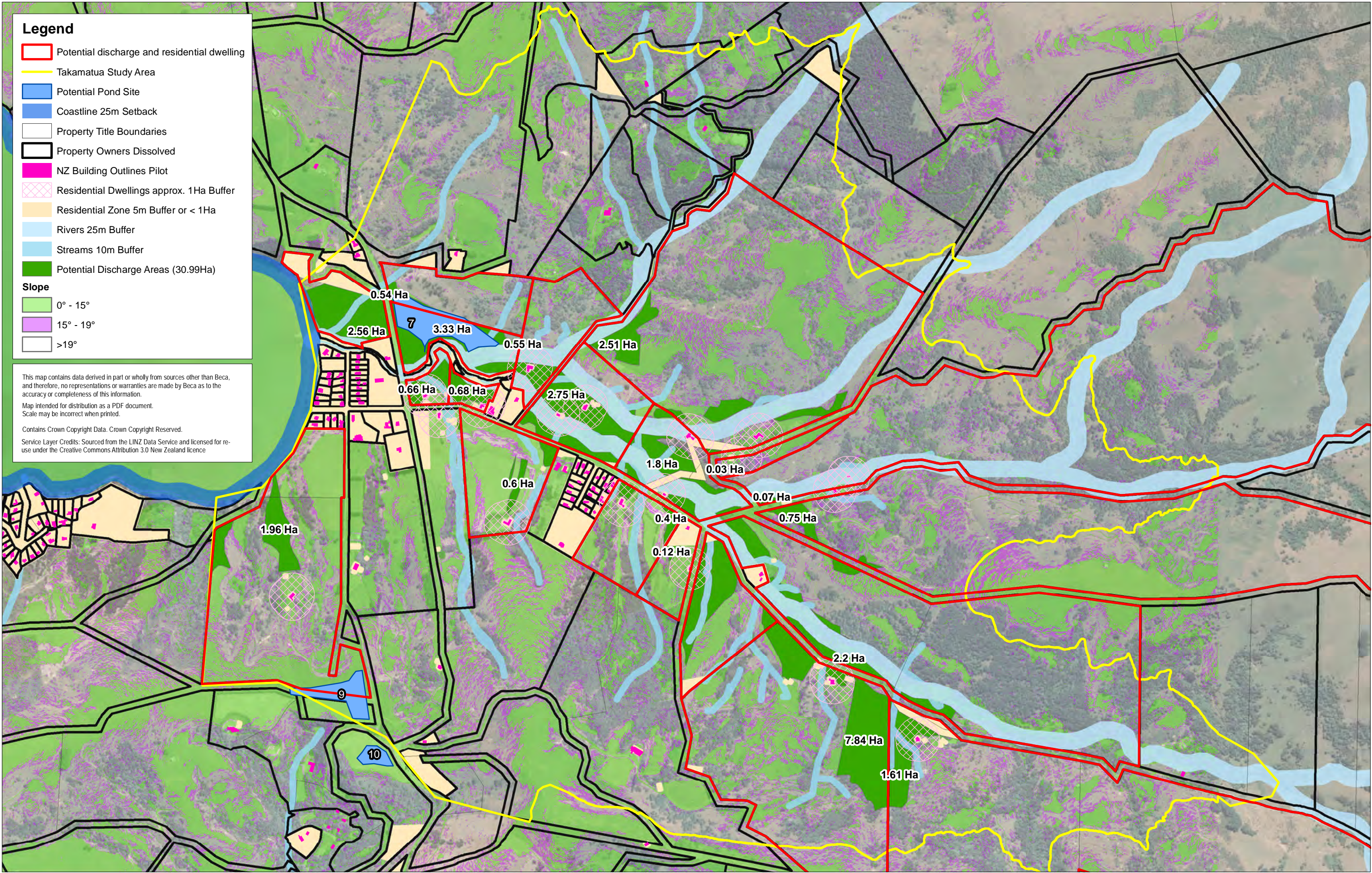
Akaroa Wastewater Upgrade

Discipline:

GIS

Drawing No:

GIS-6517986-20-14a



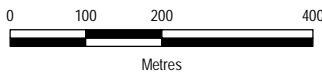
Legend

- Potential discharge and residential dwelling
- Takamatua Study Area
- Potential Pond Site
- Coastline 25m Setback
- Property Title Boundaries
- Property Owners Dissolved
- NZ Building Outlines Pilot
- Residential Dwellings approx. 1Ha Buffer
- Residential Zone 5m Buffer or < 1Ha
- Rivers 25m Buffer
- Streams 10m Buffer
- Potential Discharge Areas (30.99Ha)
- Slope**
 - 0° - 15°
 - 15° - 19°
 - >19°

This map contains data derived in part or wholly from sources other than Beca, and therefore, no representations or warranties are made by Beca as to the accuracy or completeness of this information.
Map intended for distribution as a PDF document.
Scale may be incorrect when printed.
Contains Crown Copyright Data. Crown Copyright Reserved.
Service Layer Credits: Sourced from the LINZ Data Service and licensed for re-use under the Creative Commons Attribution 3.0 New Zealand licence

Map Scale @ A3: 1:10,000

1 Ha @ 1:10,000



| Revision | Author | Verified | Approved | Date |
|----------|--------|----------|----------|------------|
| 2 | BDJ | JAF | GO | 08/03/2017 |
| 1 | BDJ | DRAFT | DRAFT | 16/02/2017 |

Title:

Takamatua Study Area Dripper Irrigation

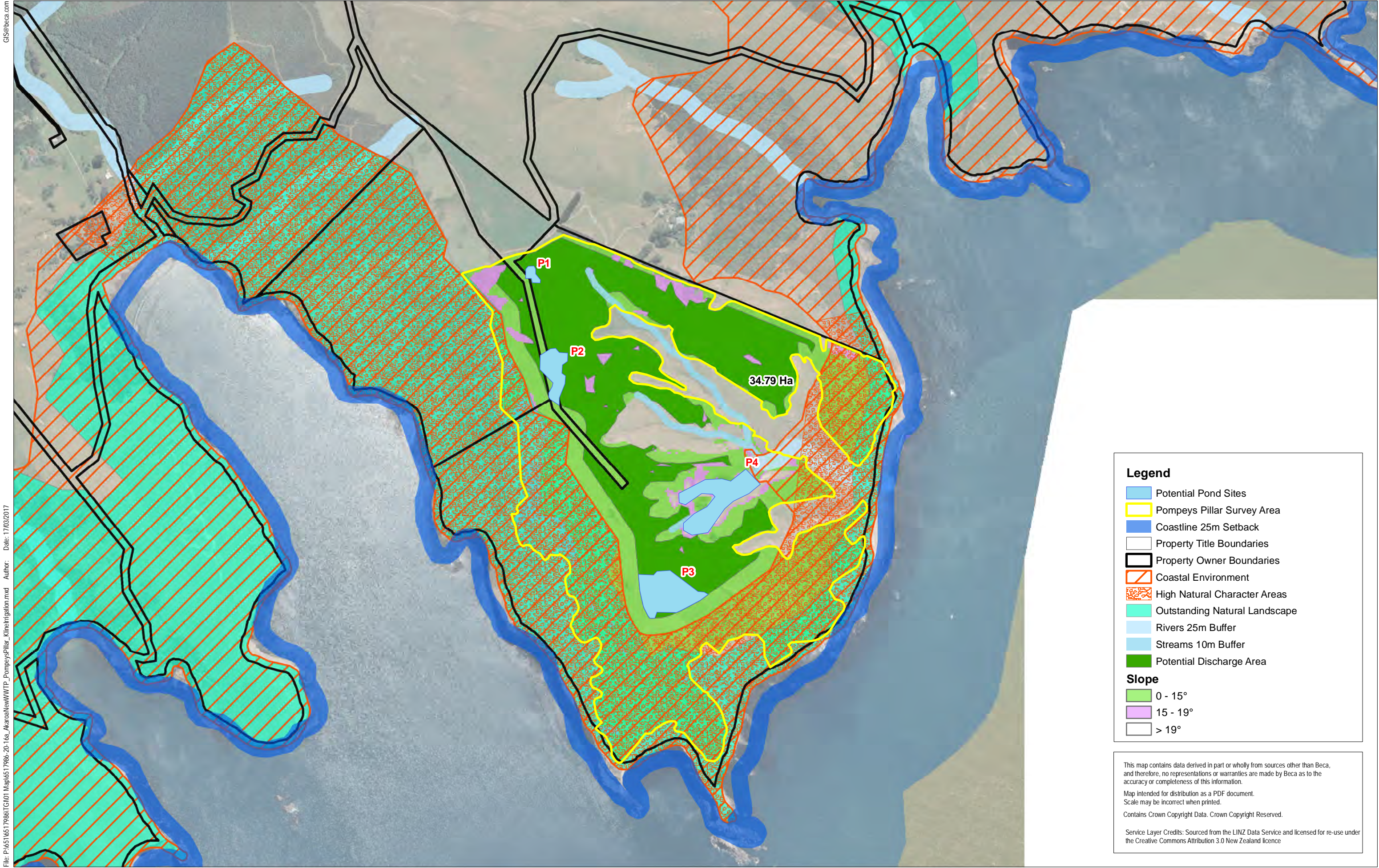
Client: Christchurch City Council

Project: Akaroa Wastewater Upgrade



Discipline: GIS

Drawing No: GIS-6517986-20-13a



File: P:\6517986\TC\01 Map\6517986-20-16a_AkaroaNewWWTP_PompeysPillar_KlineIrrigation.mxd Author: Date: 17/03/2017

Legend

- Potential Pond Sites
- Pompeys Pillar Survey Area
- Coastline 25m Setback
- Property Title Boundaries
- Property Owner Boundaries
- Coastal Environment
- High Natural Character Areas
- Outstanding Natural Landscape
- Rivers 25m Buffer
- Streams 10m Buffer
- Potential Discharge Area

Slope

- 0 - 15°
- 15 - 19°
- > 19°

This map contains data derived in part or wholly from sources other than Beca, and therefore, no representations or warranties are made by Beca as to the accuracy or completeness of this information.
Map intended for distribution as a PDF document.
Scale may be incorrect when printed.
Contains Crown Copyright Data. Crown Copyright Reserved.

Service Layer Credits: Sourced from the LINZ Data Service and licensed for re-use under the Creative Commons Attribution 3.0 New Zealand licence

Map Scale @ A3: 1:10,000

1 Ha @ 1:10,000

0100200400

Metres

N

| Revision | Author | Verified | Approved | Date | Title |
|----------|--------|----------|----------|------------|--|
| 3 | BDJ | DRAFT | DRAFT | 17/03/2017 | Pompeys Pillar Study Area K-Line Spray Irrigation |
| 2 | BDJ | DRAFT | DRAFT | 17/03/2017 | |
| 1 | BDJ | DRAFT | DRAFT | 17/03/2017 | |

Client:

Christchurch City Council

Project:

Akaroa Wastewater Upgrade

Discipline:

GIS

Drawing No:

GIS-6517986-20-16a



Pompeys Pillar - Base Image



Pompeys Pillar - Example of Irrigation to Pasture







Robinsons Bay Valley View 2 - Base Image

