Before a Panel Appointed by the

Dunedin City Council

In the Matter of	the Resource Management Act 1991 (**RMA**)
And	
In the Matter of	Proposed Variation 2 of the Second Generation Dunedin District Plan – Appeals Version (**2GP**)

Brief of Evidence of **Emma Rayner Peters** on behalf of Mr Cole Bennetts

(Submission 247 – Requested Site 110)

Dated 5th August 2022

Background:

1. My name is Emma Rayner Peters. I hold a BA and LLB both from the University of Otago and a First Class Honours degree and MA with Distinction, both from the University of Canterbury. I have worked as a solicitor in the areas of commercial and environmental law. I have been the principal of Sweep Consultancy Limited since 2003 providing resource management advice predominantly in the Dunedin City, Clutha, Waitaki, Queenstown Lakes and Central Otago districts.

2. I have prepared this evidence based upon my investigations and knowledge of the submission, further submissions and Variation 2 of the Dunedin City Second Generation District Plan Appeals Version including Council's s32 report, s42a report and evidence from Council staff.

3. I acknowledge we are not before the Environment Court. However, I have read the Code of Conduct for Expert Witnesses within the Environment Court Consolidated Practice Note 2014 and I agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying on the evidence of another person. To the best of my knowledge, I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed in this evidence.

Submission:

4. A submission was made on behalf of Mr Cole Bennetts to rezone land he owns located at 23 Sretlaw Place from *Rural – Hill Slopes* to *General Residential 1* and apply a structure plan mapped area to the site[1]. The submission included two structure plans in the alternative, to be decided at the time of subdivision – copy of these structure plans is included at Appendices 1a and 1b. A landscape plan was also included with the submission. The landscape plan has been amended in response to the s42a report and further submissions and the amended landscape plan for each structure plan is appended at Appendices 2a and 2b respectively. The site contains approximately 1.8ha. Council identifies the site as RS 110.

Futher Submissions:

5. 13 further submissions were recevied, one in support and 12 opposing rezoning of RS 110. An analysis of the further submissions received is appended at Appendix 3[2].

1 Original submission 247.

2 This does not include analysis of submissons from Jade Benfell, Mark Baker or Timlan Davies as copy of their submissions was

S42a Report:

6. The reporting planner recommends: "*Taking into account the expert evidence received for this site, I am unable to recommend rezoning, and recommend that the zoning of RS110 remain as Rural Taieri*."[3] The reporting planner's recommendation is based on[4]:

   a) "*...whether access can be realistically achieved, given that this would require use of one of two private accessways. These accesses would need to be widened and upgraded to Code of Subdivision standards and vested back to Council as legal road*..."; and

   b) "*...the 3 Waters evidence received for this site does not support rezoning due to issues associated with wastewater and stormwater. Rezoning would likely lead to downstream overflows and potential degradation of Frasers Gully. I therefore consider rezoning to have a conflict with Policy 2.6.2.1.d.iii and Policy 2.6.2.1.dix*."

7. However, the reporting planner states[5]: "*While I do not recommend rezoning, should the Panel choose to rezone the site, I would recommend a structure plan be implemented for the site to require the following: subdivision is limited to 12 lots; walking access must be provided from the subdivision into the adjacent Frasers Gully track; a vegetated buffer (minimum 5m) must be implemented along the entire northern boundary of the site...[and] that a new development mapped area is applied...*".

Access

8. RS 110 is currently accessed via two rights of ways as shown in Figure 1 below. Right of Way 'A' contains land held within 25 Sretlaw Place. The owner of this property has lodged an opposing further submission. Right of Way A currently provides access to 3 properties excluding RS 110.

9. Right of Way 'B' contains land held within 18 Sretlaw Place. There is no further submission from this property owner. Right of Way B currently provides access to 10 properties excluding RS 110.

not received, However, the s42a report details these submissions.

3 S42a Report page 221.

4 See s42a Report page 220.

5 S42a Report page 220.

Figure 1: Current Right of Way Accesses to RS 110.

10. Policy 6.2.3.Y states: "*Require subdivision activities to provide for new roads where: a. any proposed vehicle accessway will service more than 12 residential sites, or a development with an equivalent amount of vehicle trip demand, unless the location or design of the subdivision makes this inappropriate; b. it is necessary to provide connectivity to potential future urban growth areas in the surrounding environment; or c. it is otherwise necessary to support the safe and efficient operation of the transport network*."

11. This means that Right of Way A can provide access to a further nine dwellings and Right of Way B can provide access to a further two dwellings. This is the basis for the reporting planner's recommendation that if the Panel is to rezone the site it should limit subdivision to 12 lots (see paragraph 7 above).

12. The submitter has had discussions with the owner of 18 Sretlaw Street to regarding purchasing Right of Way B on the provisio that RS 110 is rezoned *General Residential 1*. Right of Way B can be included in RS 110 by way of a resource consent application for a boundary adjustment.

13. There are several feasible technical solutions to the access issue. These include:

    a) A one way access through RS 110 – see structure plan appended at Appendix 4;

    b) Council uses its powers pursuant to s189 of the *Local Government Act 2002* to compulsorily purchase Right of Way A and the small area of 27 and 28 Sretlaw Place required for the submitter to form the legal road to RS 110.

14. In the case of 13.b) above, it is noted that the majority of the further submissions spoke to ongoing issues with the formation of the Right of Way A and the need

for this to be upgraded. This provides the opportunity for this to occur at no cost to those landowners. A *Residential Transition Overlay Zone* could be placed on those lots which cannot be serviced by existing access infrastructure.

15. Council's site assessment of RS 110 states[6]: "*It is expected that development would have mininmal impact on the wider transport network*."

Stormwater & Wastewater

16. An estimate of stormwater attenuation has been undertaken by Mr Scott Cookson, surveyor for the submitter. Mr Cookson states: "*The volume of storage required within the pond area will need to be 75m³ if a 45% runoff coefficient is used, or 175m³ if a 70% runoff coefficient is used. Both volumes will easily be achieved in the area set aside for stormwater management. These volumes allow for a 1 in 100 year event, and are designed so the pond does not overflow in a 24hr event...These calculations are simplified and do not take into account the existing watercourse that will still receive some natural runoff*."[7]

17. Additional attenuation can be achieved by a combination of tanks on dwellings and within accesses. It is anticipated that performance standards attached to the structure plan will require a storm water management plan to be provided at the time of subdivision. A performance standard can also be attached to the structure plan requiring that all accesses within residential lots, vehicle and pedestrian, have a level of permeability. Performance standards with respect to stormwater management are included in the landscape response – see Appendix 7.

18. There is capacity within the existing wastewater infrastructure for residential development of RS 110. 3 Waters states: "*Minor network extension required to connect the site. The existing local infrastructure provides enough capacity for additional flow and achieves grade for self-cleaning. The site will require a pump system to be installed to connect to the existing infrastructure. 3 Waters prefers gravity to pumping where possible due to lower operating and maintenance costs and supporting DCC's Zero Carbon policy*."

19. The issue raised by 3 Waters is an existing problem with stormwater infiltration of the wastewater network within Kaikorai Valley and South Dunedin at points well beyond the site. Council is obligated pursuant to various legislation to undertake

6 See s42a Report, Appendix C.19, *Transport Effects (Wider Network)*.
7 Please refer to information from Scott Cookson appended at Appendix 9.

the work necessary to solve this issues. In most places within Dunedin where this issue arises, the stormwater infiltration occurs due to old pipes either half clay or degraded and simply requires replacement of those pipes with new pipes of a suitable diameter. Council has statutory obligations to ensure that required upgrades to fix stormwater infiltration.

20. The stormwater infiltration of the wastewater network is not a reason to reject rezoning of RS 110 but it may be a reason to apply a *Residential Trasitional Overlay Zone* with a site specfic release relating to those network upgrades.

Policy 2.6.2.1

21. Objective 2.6.2 *Adequate Urban Land Supply* states: "*Dunedin provides sufficient, feasible, development capacity (as intensification opportunities and zoned urban land) in the most appropriate locations to at least meet demand over the medium term (up to 10 years), while sustainably managing urban expansion in a way that maintains a compact city with resilient townships as outlined in Objective 2.2.4 and policies 2.2.4.1 to 2.2.4.3*."

22. Policy 2.6.2.1 provides the criteria by which the district plan envisages land will be selected for residential rezoning. The criteria include[8]:

- necessary to provide at least sufficient housing capacity to meet short and medium term demand;
- no pressure on unfunded public infrastructure upgrades;
- area is suitable for rezoning with respect to specified factors;
- the zoning sought is the most suitable with respect to specified factors;
- biodiversity effects;
- effects on oustanding and signifcant landscapes;
- effects on natural character of costal environment;
- access to coasts, rivers and the like;
- effects on residents' and visitors' aesthetic appreciation and enjoyment of the City with respect to specified factors;
- risk from natural hazards;
- effect on the efficiency and effectivity of public infrastructure;
- effects on a multi-modal trasport network;
- Dunedin remains a compact and accessible City with resilient townships.

8 See Appendix 5 for a copy of Policy 2.6.2.1.

Council's Assessment of the Site Pursuant to Policy 2.6.2.1.

23. In Appendix 4 to the s32 report Council states: "*The following table lists sites that were assessed for rezoning but are not being proposed for rezoning in Variation 2. These sites were rejected as they do not meet (or there is insufficient information to be confident that they would be likely to meet) relevant policy assessment criteria. Having identified that a site was unsuitable for any reason, no further assessment was undertaken. Therefore, the list of reasons for rejection included in Appendix 4 is not necessarily complete, as a full assessment against all policy criteria may not have been undertaken*."

24. In relation to RS 110 the table includes the following information:

Location	Map number	Current Zone	Requested Zone	Size (ha)	Reasons for rejection
23 Sretlaw Place / 118 Brockville Road		Rural	GR1	4.45	The original request to rezone the site was received from a potential (unsuccessful) purchaser, so was not progressed. 23 Sretlaw Place was subject to a second rezoning request from the new purchaser, but request was received too late in the Variation 2 process to assess.

25. Appendix C *Site Criteria Assessment* to the s42a report includes assessment of the RS 110 with respect to Policy 2.6.2.1[9].

Assessment of Site Pursuant to Policy 2.6.2.1

26. An assessment of the RS 110 against the criteria set out in Policy 2.6.2.1 is undertaken below.

<u>*Short and Medium Term Demand*</u>

27. Policy 2.6.2.1.a states: "*...rezoning is necessary to ensure provision of at least sufficient housing capacity to meet expected demand over the short and medium term...*".

28. The s42a report includes an update of the Housing Capacity Assessment. That assessment purports to show a supposed surplus of zoned capacity of 1,280 dwellings in the short term (2022 – 2025) and 350 dwellings in the medium term (2022 – 2032). However, it appears that these figures do not take into account the impact of the Panel's decision that pre-1940s buildings required some level of protection and resource consent is now required to demolish buildings built prior to 1 January 1940 in the *General Residential 1* and *Township and Settlement* (with Council reticulated wastewater) zones as well as in *Variation 2 Mapped Areas*[10].

29. This rule will operate so that at least some of pre 1940's buildings will now have

9 Copy attached at Appendix 6.

10 This part of the Panel's decision has been appealed by Paterson Pitts Limited Partnership – see *ENV-2022-CHC-035.*

to be retained meaning that the number of dwellings resulting from infill development in these zones and mapped area will now not be as high as originally anticipated in the Housing Capacity Assessment.

30. It became apparent during 2GP mediation that there were issues in the modelling producing the Housing Capacity Assessment data. A finer grained analysis of the land with moderate to high zoned capacity (that is, zoned capacity for 6 or more residential units) showed that there were issues with the modelled zoned capacity including things such as historic rubbish tips, slopes of more than 25 degrees, insufficient lot size on slope terrain, access, encumbrances and the like.

31. Despite repeated requests by Sweep Consultancy Limited (to Council and to the Panel) and by Property Economics (to Council) Council has not released the zoned capacity data for double checking by professionals engaged by submitters. This raises real issues of natural justice particularly if the Panel places weight on the Housing Capacity Assessment Report in any decisions not to rezone residential requested sites.

32. There is also an accepted difference between '*zoned capacity*' which is what the Housing Capacity Assessment Report assesses and '*market availability*' of that zoned capacity. Seeking a residential rezone of your land is a clear indication that such landowners intend to make the zoned capacity resulting from such a rezone available to the market.

33. There is unsatisfied demand for housing and sections in this area of Dunedin and insufficient land available to the market to meet that demand.

34. The reporting planner states[11]: "*Despite a projected sufficiency of supply in the short and long term, the decisions on Variation 2 to date do not enable any additional greenfield zoning. Providing for greenfield development opportunities provides choice for Dunedin's residents, in terms of type, price and location of households. Sufficient projected capacity should not be a reason not to rezone any new greenfield land*. *However, in my view, there is not a pressing demand for additional development capacity that could be used to justify zoning greenfield land that is not well aligned with the objectives and polices of the 2GP*."

35. This criteria is met. There is a clear demand for more residential zoned capacity to be made available to the market in this area of Dunedin.

11 S42a Report, paragraph 23.

Public Infrastructure and Multi-Modal Land Transport Network

36. Policy 2..6.2.1.b states: "...*rezoning is unlikely to lead to pressure for unfunded public infrastructure upgrades, unless either an agreement between the infrastructure provider and the developer on the method, timing, and funding of any necessary public infrastructure provision is in place, or a Residential Transition overlay zone is applied and a future agreement is considered feasible*..." and Policy 2.6.2.1.d.ix states: "...*public infrastructure networks operate efficiently and effectively and have the least possible long term cost burden on the public (Objective 2.7.1)*..." and Policy 2.6.2.1.d.x states: "...*the multi-modal land transport network, including connections between land, air and sea transport networks, operates safely and efficiently (Objective 2.7.2)*...".

37. The issues of effects on 3 Waters infrastructure and increased traffic effects were raised in further submissions.

38. There is existing capacity within both the transport network and 3 Waters infrastructure for the demand arising from residential development of RS 110 and there are feasible technical solutions with respect to management of stormwater and wastewater (see paragraphs 16 – 20 above).

39. Any transport infrastructure upgrades, for example formation upgrades to the accesses to RS 110, would be paid for by the developer, with the ongoing maintenance of that roading infrastructure being paid for by the rate take provided the accesses have vested in Council as road. The development of RS 110 will not have an adverse impact on the multi-modal land transport network.

40. These criteria can be met by RS 110.

Land Suitable for Rezoning?

41. Policy 2.6.2.1.c states: "...*the area is suitable for residential development by having all or a majority of the following characteristics: i. a topography that is not too steep; ii. being close to the main urban area or townships that have a shortage of capacity; iii. currently serviced, or likely to be easily serviced, by frequent public transport services; iv. close to centres; and v. close to other existing community facilities such as schools, public green space and recreational facilities, health services, and libraries or other community centres*...".

42. Table 1 below contains an assessment of RS 110 against the factors specified in Policy 2.6.2.1.c.

43. Table 1: Assessment of RS 110 Against Policy 2.6.2.1.c – Desired Site Characteristics.

Desired Characteristic	Assessment of RS 110
Topography 'not too steep'	Council's site assessment states that the mean slope of RS 110 is less than 15 degrees. Santec assesses RS 110 as having a low to medium level hazard and concludes that: "*Geotechnical advice will be required prior to subdivision of this site to confirm the extents of any instabilities and enure the proposed subdivision layout will not limit the ability to address these hazards. This may also identify any offsets that might be required from unstable slopes or landslide debris*." It is anticipated that a performance standard requiring subsuface geotechnical investigations prior to subdivison will be attached to the structure plan if RS 110 is rezoned residential. RS 110 has this characteristic.
Close to township with shortage of capacity	RS 110 is located on the edge of the Dunedin suburb of Brockville which, in this locale, is zoned *General Residential 1*. There is a shortage of zoned capacity available to the market in Dunedin, particularly in this locale. RS 110 has this characteristic.
Public transport services 'currently serviced or likely to be easily serviced'	Council's site assessment assesses this as 'good' due to there being a non-frequent bus stop approximately 383m away. RS 110 has this characteristic.
Close to centres	'Centre' is defined in the district plan as: "*Principal, Suburban, Rural, Neighbourhood, Neighbourhood Convenience and Neighbourhood Destination centres zones*." Council's site assessment assess this as 'poor' due to the Roslyn Surburban Centre being approximately 2.2km away and the Brockville Neighourhood Centre being approximately 1.2km away. RS 110 does not have this characteristic.
Close to existing community facilities	Council's site assessment notes that the nearest primary school is located 1km away. The closest highschool is located in Kaikorai Valley approximately 2.6km away. There is a public green space being Frasers Gully and Ellis Park are immediately adjacent to the site. Moana Pool is located approximately 3km away. The closest GP clinics are located in Roslyn and Helensborough. There is a public library in central Dunedin. RS 110 exhibits this characteristic.

44. Policy 2.6.2.1.c states that a site is suitable for rezoning if it has all or the majority of the characteristcs therein listed. '*Majority*' is typically interpreted to mean: '*a number or percentage equaling more than half of a total*'[12]. The analysis in Table 1 above shows that RS 110 meets four of the five desired charcterstics which represents a majority. This criteria is met.

Landscape, Rural Character and Visual Amenity

45. Policy 2.6.2.1.d.i states: *"...the character and visual amenity of Dunedin's rural environment is maintained or enhanced (Objective 2.4.6)..."* and Policy 2.6.2.1.d.vii states: *"...the elements of the environment that contribute to residents' and visitors' aesthetic appreciation for and enjoyment of the city are*

12 Source: Merriam-Webster online dictionary: https://www.merriam-webster.com/dictionary/majority

protected or enhanced. These include: 1. important green and other open spaces, including green breaks between coastal settlements; 2. trees that make a significant contribution to the visual landscape and history of neighbourhoods; 3. built heritage, including nationally recognised built heritage; 4. important visual landscapes and vistas; 5. the amenity and aesthetic coherence of different environments; and 6. the compact and accessible form of Dunedin (Objective 2.4.1)...".

46. Policies 2.6.2.1.d.iv and d.v are not relevant to RS 110 as it is not located within a landscape overlay zone or within the coastal environment.

47. The issues of loss of rural and natural character, amenity and green spaces are raised in further submissions.

48. The s42a report states at page 218: *"...that rezoning will result in adverse visual amenity effects on nearby residents associated with loss of open space adjacent to the Frasers Gully reserve. Mr McKinley notes that, for nearby residents, views over the subject site to the northern side of Frasers Gully, which comprises the most prominent natural area to the north, will not be intruded upon by residential development on this site due to its sloping topography, which falls towards the Kaikorai Stream. For users of the walking track that passes along the northern boundary of the site and across the hillside to the west, there will be adverse visual amenity effects associated with residential development occurring in this location. From this track, bush within Frasers Gully, the recently replanted council reserve and the undeveloped character of the subject site and the neighbouring rural block (118 Brockville Road) are the primary components of surrounding views, which contribute to the natural character of this area. Whilst views to nearby residential areas are also present, they are not a primary focus from this track. The effects on wider rural character will be relatively low, given that this is a small remnant rural block adjacent to residential development. If rezoning does occur, Mr McKinlay recommends a number of mitigations should be implemented, including planting around the existing pond, retention of the oak tree, a buffer of native planting on the northern boundary, and use of rural fencing and native planting on the western boundary. Mr McKinlay considers that the proposed 12-lot structure plan would integrate into the existing environment more successfully than the 17-lot plan*."

49. The submission to rezone RS 110 included conditions to: retain the existing oak

tree; plant around the stormwater pond (partly in the site on its bottom north/west corner); plant with native species across the lower northern boundary; plant with native species along the western site boundary; and install post and rail fencing on the western site boundary.

50. Mr Hugh Forsyth has provided a landscape response with respect to the s42a report, comments by Mr McKinley and further submissions – a copy of that response is appended at Appendix 7. Further conditions are now offered as detailed in that response. Mr Forsyth states at paragraphs 3.1 and 3.2: *"...Apart from specific planting requests from Council the conditions seek to break up the visual impact of the roof profiles with bands of vegetation, colour conditions, and height and ground floor restrictions. The external walls are also subject to colour conditions that seek to mitigate their visual impact and apparent mass when viewed from Frasers Bush Reserve. The bands of planting on some of the lower lot boundaries seek to filter views to the lower walls of structures as well as break up the elevated views to the roofs of these houses*."

51. Zoning to *General Residential 1* is sought pursuant to a structure plan. This zoning is the most suitable given the landscape characteristics of RS 110 and the locale. This criteria is met.

Protection of Land, Facilities and Infrastructure Important to Economic Productivity & Social Wellbeing

52. Policy 2.6.2.1.d.ii states: *"...land, facilities and infrastructure that are important for economic productivity and social well-being, which include industrial areas, major facilities, key transportation routes, network utilities and productive rural land: 1. are protected from less productive competing uses or incompatible uses, including activities that may give rise to reverse sensitivity; and 2. in the case of facilities and infrastructure, are able to be operated, maintained, upgraded and, where appropriate, developed efficiently and effectively (Objective 2.3.1). Achieving this includes generally avoiding areas that are highly productive land or may create conflict with rural water resource requirements*...".

53. With respect to loss of rural productive land, Council's site assessment of RS 110 states: *"A small portion of the site is assessed as having high class soils. The site does not contain any LUC class 1-3 land. Given its location immediately adjacent to existing General Residential 1 zoning and the small amount of high class soils present, the loss of primary productivity is likely to be low*." Council's site assessment also states that there are 'no issues' with significant indigenous

biodiversity, significant trees, heritage items, important vistas or viewshafts, important green or open spaces.

54. The issues of loss of rural productive land and loss of an important 'green belt' are both raised in further submissions.

55. The controls on built form, required indigenous planting and access through RS 110 to Frasers Gully mitigate the effects of residential development of RS 110.

56. This criteria is met.

Biodiversity

57. Policy 2.6.2.1.d.iii states: "*Dunedin's significant indigenous biodiversity is protected or enhanced, and restored; and other indigenous biodiversity is maintained or enhanced, and restored; with all indigenous biodiversity having improved connections and improved resilience (Objective 2.2.3). Achieving this includes generally avoiding the application of new residential zoning in ASBV and UBMA*...".

58. The issue of loss of biodiversity including habitat for birds is raised in further submissions.

59. The reporting planner states at page 218 of the s42a report in relation to biodiversity that: *"A desktop assessment of the vegetation cover mapping produced by Wildland Consultants Limited was completed [for RS 110]...with negligible indigenous vegetation (less than 0.5%) identified...Overall, I consider the impact on biodiversity values to be low*."

60. The proposed residential development includes riparian planting and amenity planting along boudaries. These areas will be planted with indigenous species suitable for the locale. These will provide for an enhancement of the biodiversity of the site.

61. This criteria is met.

Access to Waterbodies, Coastlines and Other Parts of the Natural Environment

62. Policy 2.6.2.1.d.vi states: *"...subdivision and development activities maintain and enhance access to coastlines, water bodies and other parts of the natural environment, including for the purposes of gathering of food and mahika kai (Objective 10.2.4)*...".

63. The submission includes access through RS 110 to Frasers Gully.

64. This criteria is met.

Natural Hazards Risk

65. Policy 2.6.2.1.d.viii states: "*...the potential risk from natural hazards, and from the potential effects of climate change on natural hazards, is no more than low, in the short to long term (Objective 11.2.1)*...".

66. The s42a report states at page 219: "*The site has been assessed by Stantec as having a low to medium hazard level associated slope instability. Stantec has commented that the site slope angles are moderate, and there appears to be no significant landslides on the site. However, there are several sources of information to suggest that the site has been inundated with landslide debris and affected by landslides from other lots. Geotechnical assessment will be required to confirm the stability of the site and address the landslide mapping concerns. This may also identify any offsets that might be required from unstable slopes or landslide debris. Overall, however, from a hazards perspective the site is considered developable*."

67. The issue of natural hazard risk including land instability and flooding was raised in further submissions.

68. There is no mapped hazard overlay for RS 110 pursuant to the district plan. RS 110 is not shown as having a flood hazard overlay in Otago Regional Council flood hazard mapping as shown in Figure 1 below. However, localised flooding and ponding is anticipated in the lower reaches of the site immediately adjacent to the stream.

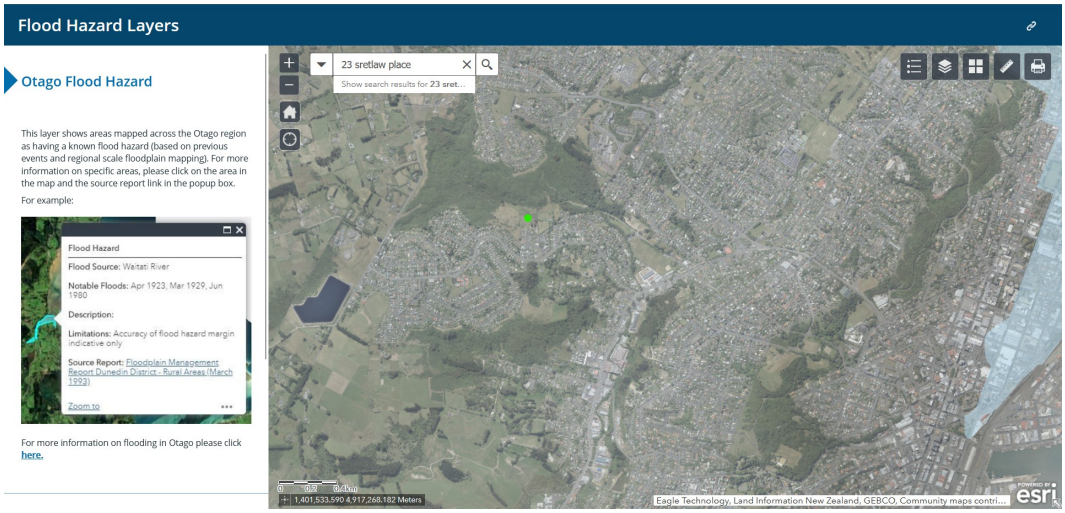


Figure 1: ORC Flood Hazard Mapping in Relation to RS 110 – RS 110 Marked with a Green Dot.

69. The submitter engaged Geosolve to prepare a preliminary geotechnical assessment for the residential rezone of RS 110. The conclusions reached by GeoSolve are in line with those reached by Santec[13].

70. It is anticipated that a performance standard will be attached to the structure plan requiring further subsurface investigations to be carried out at the subdivision design stage.

71. This criteria is met.

Compact & Accessible City

72. Policy 2.6.2.1.d.xi states: "*Dunedin stays a compact and accessible city with resilient townships based on sustainably managed urban expansion. Urban expansion only occurs if required and in the most appropriate form and locations (Objective 2.2.4)*...".

73. Council's site assessment of RS 110 states that there are 'no issues' with respect to the assessment criteria of proximity to existing residential areas and that RS 110 rates as 'OK' against the compact city – ability to develop land efficiently criteria.

74. This crieteria is met.

Conculsion

75. Council has incorrectly applied Policy 2.6.2.1 in recommending that RS 110 be declined for residential rezoning. The reporting planner accepts that 12 lots can be provided for based on the existing access and infrastructure capacity.

76. The only impediment to more lots is the access issue which can be resolved via a couple of different mechanisms.

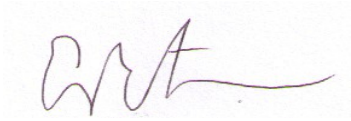
77. Stormwater infiltration of the wastewater network within Kaiorai Valley and South Dunedin is an existing issue for which Council has existing statutory obligations to resolve in a timely manner. As such, this cannot be used as a reason to reject the submission to rezone the site but may be a reason to apply a *Residential Transition Overlay Zone* to part of RS 110 if the 17 lot structure plan is adopted.

78. RS 110 is situated within the City adjacent to existing *General Residential 1* zone.

13 Copy appended at Appendix 8.

The analysis of RS 110 against the rezone criteria contained in Policy 2.6.2.1 clearly demonstrates that RS 110 is an ideal site for rezoning residential.

Dated this 5th day of August 2022



Emma Rayner Peters (BA (First Class Honours), MA (Distinction), LLB)

Appendix 1a: Structure Plan 1 Included with Submission 247.

Appendix 1b: Structure Plan 2 Included with Submission 247.

COOKSON LAND SURVEYING
www.cooksonlandsurveying.co.nz
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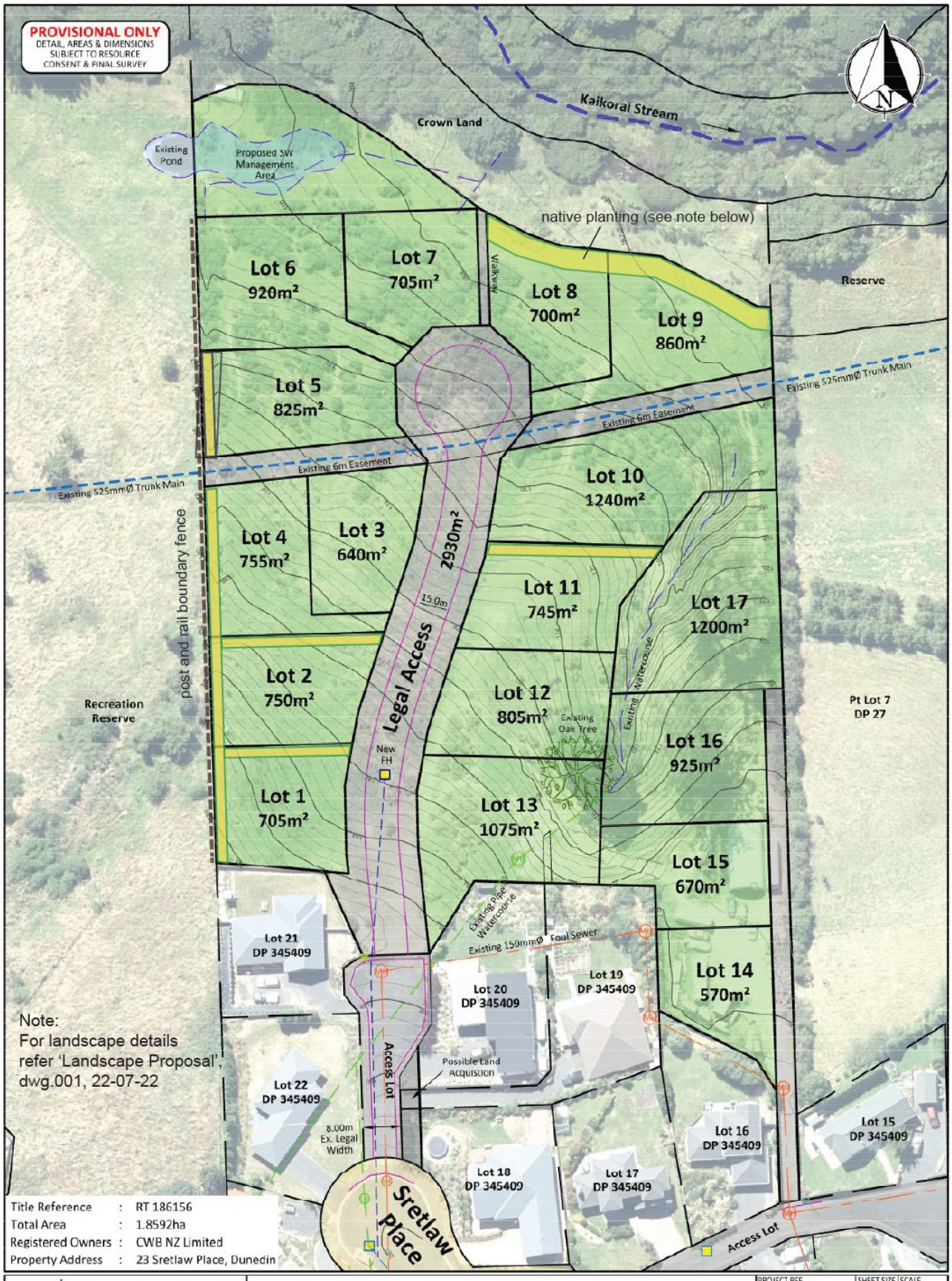
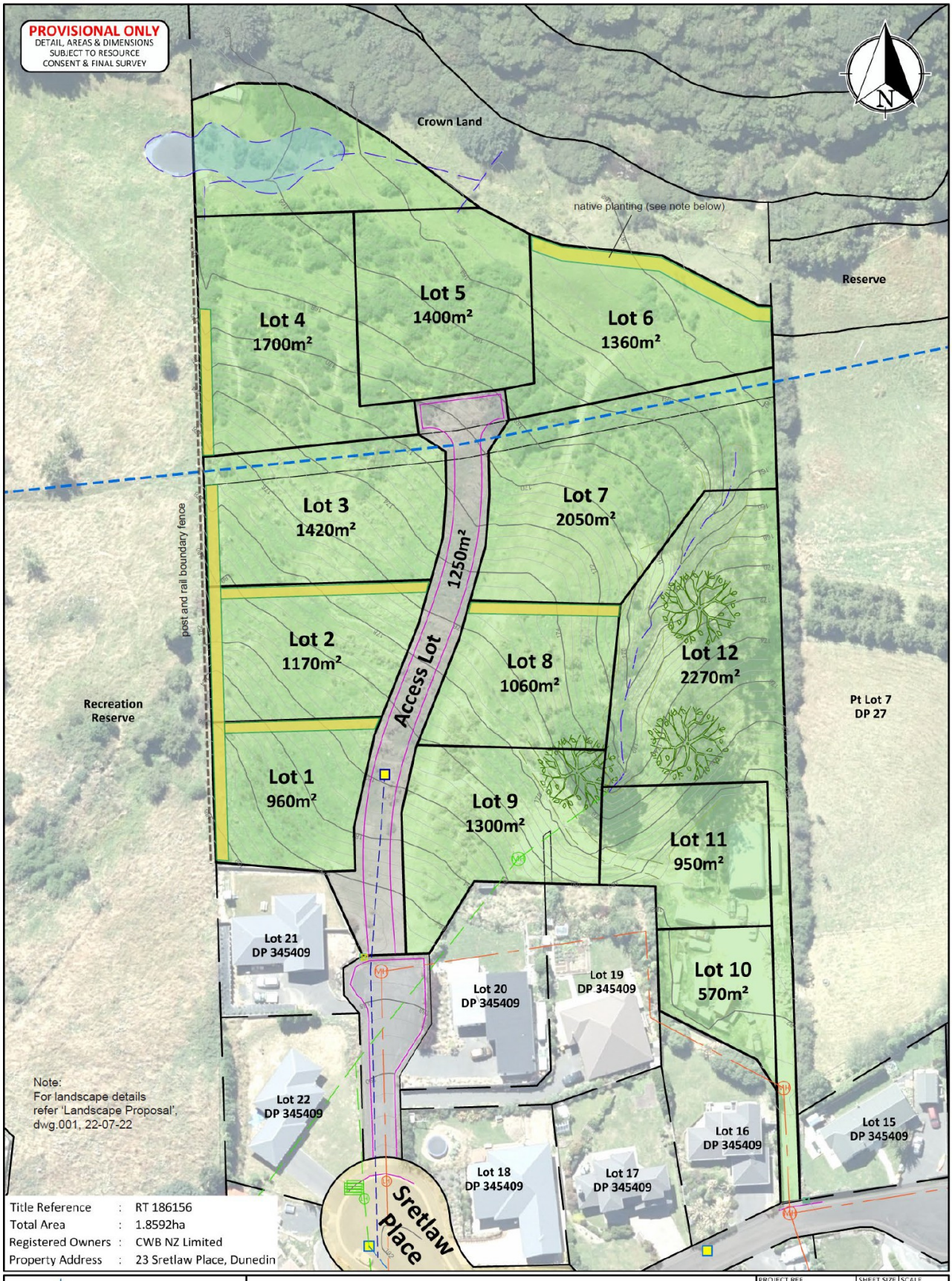
Lots 1 - 12 Being a Proposed Subdivision of Lot 29 DP 345409

PROJECT REF. CLS110	SHEET SIZE A3	SCALE 1:700	
DRAWN DATE 13 DECEMBER 2020	PLAN REF. CLS110-2		
SHEET NO. SHEET 1 OF 1			

Appendix 2a: Structure Plan 1 with Landscape Requirements.



Appendix 2b: Structure Plan 2 with Landscape Requirements.



Appendix 2b: Landscape Proposal.

KEY

1. Unnumbered lot to be vested with Council. Enlarge existing pond which is currently located in adjacent recreation reserve

2. Revegetation area, planted with native species, providing a linkage to revegetation to the west and the biodiversity values of Frasers Gully

3. Easement strip to be vested in Council and is to provide public pedestrian access between Frasers Gully and Sretlaw Place

4. 12 residential lots ranging from 570m to 2270m, which provide for the topography of the site

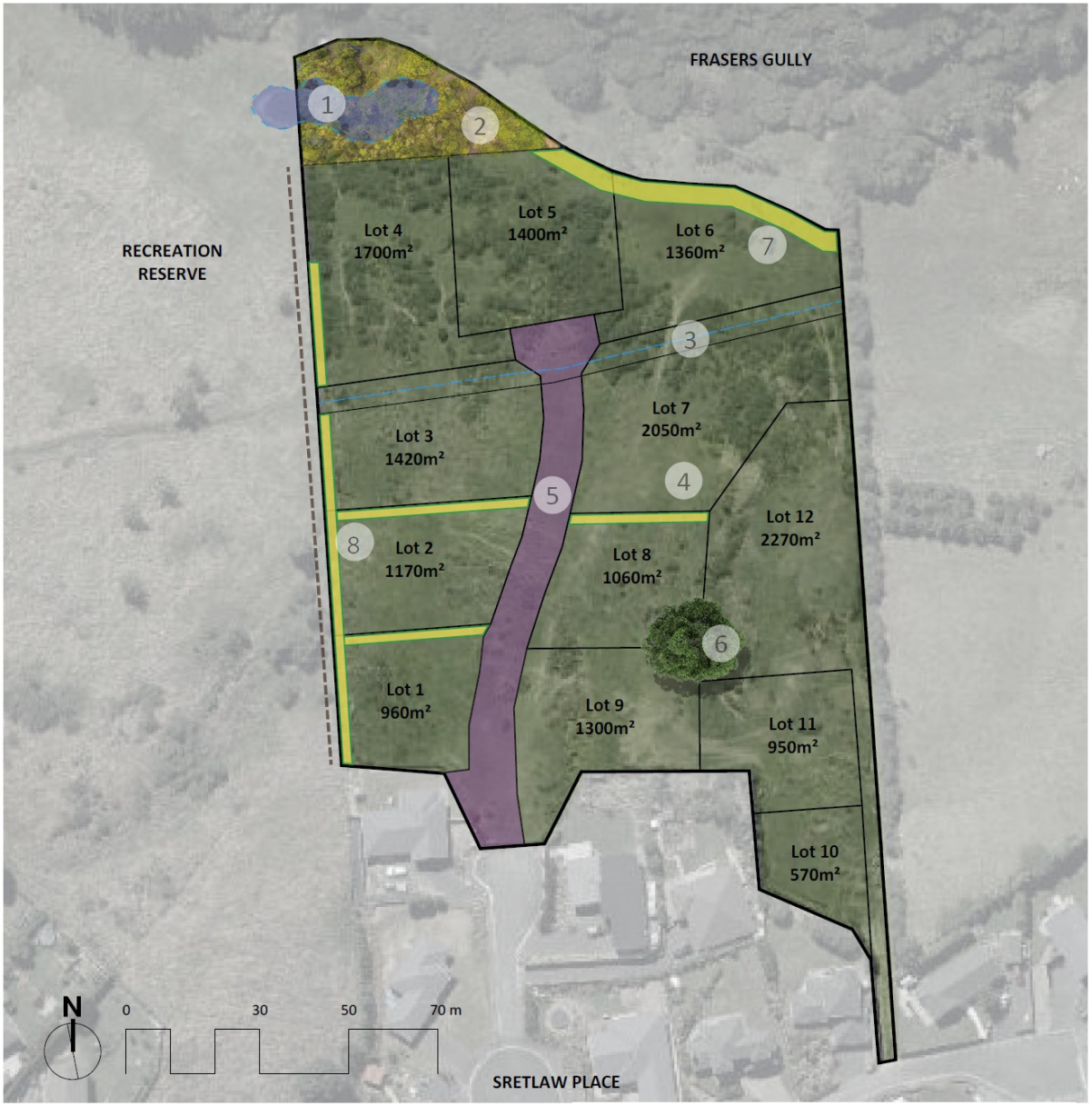
5. Access lot to be vested with Council and is 1250m²

6. Retain existing oak (remove two adjacent gum trees)

7. 5m wide planting strip set aside for permanent planting of revegetation species for area 1

8. 2m wide planting strip set on the down hill boundary of lot 1, 2, and lot 8 and on the west boundary of Lot 1, 2, 3 and 50% of Lot 4.

------ Post and rail fencing to be located along the western boundary



site. ENVIRONMENTAL CONSULTANTS

HUDSON ASSOCIATES LANDSCAPE ARCHITECTS

23 Sretlaw Place

LANDSCAPE PROPOSAL

DATE: 25-07-22 SCALE @A3: 1:1000

DWG: 001 REVISION #: A

Appendix 3: Analysis of Further Submissions Received in Relation to RS 110.

Further Submitter	Issues Raised in Further Submission
Dowling, Anthony (21 Sretlaw Place) ***Opposes***	• Narrowness of ROW – traffic safety especially for children. • Visual impacts from loss of rural land and increase in residential activity – 'natural beauty' of Frasers Gully. • Environmental impact on Frasers Gully particularly plant and bird life. • Visual impact from Frasers Gully walking track. • Overflow of stream during significant weather event. Slips within Frasers Gully reserve area. • Effects of ice and snow. • Fire hazard from residential activity with respect to indigenous vegetation within Frasers Gully and adjoining reserve area.
Finne, Peter & Tracy (12 Stretlaw Place) ***Opposes***	• Infrastructure pressures – access via ROWs – numerous repairs of road surfaces and burst water pipes within ROW. • Increase in traffic movements by 40% - noise and safety, loss of quiet enjoyment by existing residents. • Issues with shared ownership of access including costs to existing owners.
Martin, Allan (20 Stretlaw Place) ***Opposes***	• Property used for pastoral grazing purposes which is a rural activity. • Adverse visual effects from surrounding properties and Fraser's Gully. • Access points are currently private rights of way which was not designed for volume of traffic, safety etc. • Rural and natural values of area. • Stormwater management and impact on Fraser's Gully.
MacLeod, Flora (3 McMeakin Road) ***Opposes***	• 23 Stretlaw Place is an area of greenbelt for Brockville. • Stop urban sprawl. • Heritage values of gums, oak and hedge on site – planted over 100 years ago. • Loss of rural amenity and natural landscape values.
Milne, Jill (16 Stretlaw Place) ***Opposes***	• Instability on slopes on opposite side of stream within Frasers Gully – removal of trees may increase stability. • Visual effects from walking track in Frasers Gully and through reserve area adjoining site. • Access via private road is problematic – damage to road from construction traffic - unfair burden on existing landowners who are party to the private maintenance agreement for the ROW.
Moffitt, Michael (26 Sretlaw Place) ***Opposes***	• Access via private road which has had issues with burst water mains, stormwater and detoriation of surface. • Narrow formation of access. • Limited parking.

	• Only allow one dwelling on 23 Stretlaw Place.
Moore, Drs Bryan & Catherine (24 Stretlaw Place) ***Oppose***	• Loss of a large greenbelt area which will have significant environmental (including loss of biodiversity, capturing of carbon, space for stormwater) and heritage impacts. • Loss of agricultural land. • Reduction of value of surrounding properties due to loss of rural outlook. • Stormwater management, risk of instability and erosion. • Access is via private right of way which is not up to standard for current volumes of traffic. • Loss of quiet enjoyment by existing residents due to increase in traffic volumes.
Shearer, David & Sarah (25 Stretlaw Place) **Oppose**	• Traffic safety. • No ability for gravity wastewater service – risk of pump failures particularly with proximity to Kaikorai Stream. • Access via ROW across this landowners land – not willing to sell. • Removal of trees. • Potential HAIL site – 2015 aerial (no copy of aerial provided). • Slips on opposite side of stream within Frasers Gully reserve. • Lack of good sun access. • Loss of amenity for existing urban residents. • Gradient of site will require significant earthworks for residential activity. • Loss of 'green belt'. • Stormwater management – potential to exacerbate existing flooding issues downstream.
Thayer, Myles & Helen (10 Stretlaw Place) ***Partially Oppose***	• ROW – unfair increase in costs to existing residents, want Council to take over as public road. • Loss of amenity for existing residents due to increase in traffic and residential activity. • Concerns over safety for pedestrians.
Venables, Ann (118 Brockville Road) ***Opposes***	• No s32 report information available for site – should not be in Variation 2 process. • Loss of rural amenity and outlook for existing residents of area. • Increased traffic noise and inconvenience. • Interception and discontinuation of natural watercourse entering site. • Increased noise, smells, dust and general nuisance from increased residential activity. • Loss of privacy for 118 Brockville Road. • Storwater management issues and effect on lower portions of 118 Brockville Road (compounding existing issues from slip debris in stream

	bed approximately 150m downstream from 23 Sretlaw Place), drainage infrastructure constraints downstream. • Destruction of 100 plus year old hedge between 23 Stretlaw Place and 118 Brockville Road, Bluegums and other trees/vegetation on site. • Reverse sensitivity with continuing small farm operation on 188 Brockville Road. • Risk of contamination etc from breakdown of pump for wastewater from residential activity. • Contaminants in stormwater run-off. • Tip site in middle of lower paddock – HAIL risk. • The area with 'reserve' notation on 118 Brockville Road is in fact privately owned by 118 Brockville Road. • Loss of rural outlook for users of walking track. • Increased risk of trespassing on 188 Brockville Road and increased risk of dog attacks on stock on 118 Brockville Road. • Loss of rural landscape. • Increased pedestrian traffic through development site – loss of quiet enjoyment of their properties by existing residents, concrete ford at Kaikorai Stream is unsafe. • Increased traffic movements onto Brockville Road. • Increase in litter and rubbish entering stream from increased residential activity. • Reduction in night-time dark sky resulting from increase in light pollution.

Appendix 4: Structure Plan for General Residential 1 Zoning & One Way Access through RS 110.

COOKSON LAND SURVEYING
www.cooksonlandsurveying.co.nz
Phone: 021 0890 9023

Lots 1 - 16 Being a Proposed Subdivision of Lot 29 DP 345409

PROJECT REF. CLS110		SHEET SIZE A3	SCALE 1:700
DRAWN DATE 2 AUGUST 2022		PLAN REF. CLS110-5	
SHEET NO. SHEET 1 OF 1			

Appendix 5: Policy 2.6.2.1.

Identify areas for new residential zoning based on the following criteria:

a) rezoning is necessary to ensure provision of at least sufficient housing capacity to meet expected demand over the short and medium term; and

b) rezoning is unlikely to lead to pressure for unfunded public infrastructure upgrades, unless either an agreement between the infrastructure provider and the developer on the method, timing, and funding of any necessary public infrastructure provision is in place, or a Residential Transition overlay zone is applied and a future agreement is considered feasible; and

c) the area is suitable for residential development by having all or a majority of the following characteristics:

    i. a topography that is not too steep;

    ii. being close to the main urban area or townships that have a shortage of capacity;

    iii. currently serviced, or likely to be easily serviced, by frequent public transport services;

    iv. close to centres; and

    v. close to other existing community facilities such as schools, public green space and recreational facilities, health services, and libraries or other community centres;

d) considering the zoning, rules, and potential level of development provided for, the zoning is the most appropriate in terms of the objectives of the Plan, in particular:

    i. the character and visual amenity of Dunedin's rural environment is maintained or enhanced (Objective 2.4.6);

    ii. land, facilities and infrastructure that are important for economic productivity and social well-being, which include industrial areas, major facilities, key transportation routes, network utilities and productive rural land:

        1. are protected from less productive competing uses or incompatible uses, including activities that may give rise to reverse sensitivity; and

        2. in the case of facilities and infrastructure, are able to be operated, maintained, upgraded and, where appropriate, developed efficiently and effectively (Objective 2.3.1).

        Achieving this includes generally avoiding areas that are highly productive land or may create conflict with rural water resource requirements;

    iii. Dunedin's significant indigenous biodiversity is protected or enhanced, and restored; and other indigenous biodiversity is maintained or enhanced, and restored; with all indigenous biodiversity having improved connections and improved resilience (Objective 2.2.3).

Achieving this includes generally avoiding the application of new residential zoning in ASBV and UBMA;

iv. Dunedin's outstanding and significant natural landscapes and natural features are protected (Objective 2.4.4). Achieving this includes generally avoiding the application of new residential zoning in ONF, ONL and SNL overlay zones;

v. the natural character of the coastal environment is, preserved or enhanced (Objective 2.4.5). Achieving this includes generally avoiding the application of new residential zoning in ONCC, HNCC and NCC overlay zones;

vi. subdivision and development activities maintain and enhance access to coastlines, water bodies and other parts of the natural environment, including for the purposes of gathering of food and mahika kai (Objective 10.2.4);

vii. the elements of the environment that contribute to residents' and visitors' aesthetic appreciation for and enjoyment of the city are protected or enhanced. These include:

    1. important green and other open spaces, including green breaks between coastal settlements;
    2. trees that make a significant contribution to the visual landscape and history of neighbourhoods;
    3. built heritage, including nationally recognised built heritage;
    4. important visual landscapes and vistas;
    5. the amenity and aesthetic coherence of different environments; and
    6. the compact and accessible form of Dunedin (Objective 2.4.1);

viii. the potential risk from natural hazards, and from the potential effects of climate change on natural hazards, is no more than low, in the short to long term (Objective 11.2.1);

ix. public infrastructure networks operate efficiently and effectively and have the least possible long term cost burden on the public (Objective 2.7.1);

x. the multi-modal land transport network, including connections between land air and sea transport networks, operates safely and efficiently (Objective 2.7.2); and

xi. Dunedin stays a compact and accessible city with resilient townships based on sustainably managed urban expansion. Urban expansion only occurs if required and in the most appropriate form and locations (Objective 2.2.4).

Appendix 6: Appendix C.19 to s42a Report.

APPENDIX C.19 Rezoning Assessment Sheet – 23 Sretlaw Place (RS110)		
SITE DETAILS		
Change Number	RS110	
Site outline image	Brockville 	
Site Address	23 Sretlaw Place	
Full area assessed	As shown in map above	
Site Area	1.9 hectares	
Current zoning	Rural	
PROPOSAL DETAILS		
2GP Zone assessed	General Residential 1	
ASSESSMENT CRITERIA		
Slope	Significant issues	Mean slope of 14.8 degrees
Aspect - Solar access	Very Good	Generally sloping north
Accessibility – Public Transportation	Good	There is a non-frequent bus stop approximately 383m away.
Accessibility - Centres	Poor	The Roslyn suburban centre is approximately 2,270m away and the Brockville neighbourhood centre is approximately 1,200m away

Accessibility – Schools	Very good	The nearest primary school is approximately 1,039m away
Rural character/visual amenity	Some issues	The pastoral site comprises a relatively small, broadly rectangular block of land that borders Frasers Gully Reserve and the nearby Kaikorai Stream. The site is not highly prominent from surrounding publicly accessible locations, except from the reserve track that links Turnbull Street in Brockville with The Frasers Gully Track. The site is overlooked by some nearby residents on Sretlaw Street and there will likely be adverse visual amenity effects on nearby residents. For users of the reserve track that passes along the northern boundary of the site and across the hillside to the west of the site, there will be adverse visual amenity effects associated with residential development occurring in this location. In general, effects on wider rural character will be relatively low, given that this is a small remnant rural block adjacent to residential development, however, as addressed above there will be adverse effects on the natural character of this area, particularly for users of the nearby reserves track. It is considered that the 12-lot structure plan will visually integrate more successfully than the 17-lot plan. Mitigations including planting around the existing pond as proposed, boundary conditions, native planting buffer on northern boundary, rural type fencing, and other native planting is recommended.
Impacts on productive rural land	Some issues	A small portion of the site is assessed as having high class soils. The site does not contain any LUC class 1-3 land. Given its location immediately adjacent to existing General Residential 1 zoning and the small amount of high class soil present, the loss of primary productivity is likely to be low.
Reverse sensitivity	No issues	
Significant indigenous biodiversity	No issues	
Natural landscapes and natural coastal character	No issues	
Access to the coast and water bodies	Some issues	Northern part of the site is adjacent to Frasers Stream which is subject to an esplanade reserve. Existing 2GP rules require subdivision activities along the bank to provide an esplanade strip of a minimum width of 20m.
Significant Trees, heritage items, important vistas or viewshafts, important green or open spaces	No issues	

Natural Hazards	Some issues (manageable)	The site is assessed as having a low to medium hazard level associated slope instability. Geotechnical assessment will be required to confirm the stability of the site and address the landslide mapping concerns.
Potable water supply	No issues	Minor network extensions required to connect the site. There is a water connection within Sretlaw Place. Possibly some minor network upgrades required.
Wastewater supply	Significant issues (not considered manageable)	Minor network extension required to connect the site. The existing local infrastructure provides enough capacity for additional flow and achieves grade for self-cleaning. The site will require a pump system to be installed to connect to the existing infrastructure. 3 Waters prefers gravity to pumping where possible due to lower operating and maintenance costs and supporting DCC's Zero Carbon policy. Flow goes to Kaikorai Valley then South Dunedin in wet weather to reach Tahuna Wastewater Treatment Plant. Wastewater overflows occur into Kaikorai Stream and South Dunedin (entering Dunedin Harbour) including Surrey St affecting the environment and creating a public health risk. Significant downstream upgrades required to address this. Long term timeframe to resolve these
Stormwater management	Significant issues (not considered manageable)	Downstream of the site is Frasers Creek. Water flows from Fraser Creek into Kaikorai Stream. There are known flooding issues downstream at Glenelg St that affect Stone St roundabout and downstream areas. The capacity of Frasers Creek is unknown. Therefore on-site attenuation for the 100-year ARI storm flows has been assessed. The area of land required for stormwater management is over 20% of the total area of the site and is not considered feasible. ORC has flood hazard mapping of the Kaikorai Stream (*Flood hazard of Dunedin's urban streams, ORC, 2014*). Frasers Gully also has high ecological value. Potential degradation of Frasers Creek is counter to the principles of Te Mana o te Wai.
Transport effects (local)	Significant issues (manageable)	Access to the site is problematic, with access required over at least one of two private shared access lots (18 Sretlaw Place and/or 25 Sretlaw Place). These access lots are not of a standard that Council would accept to adopt as legal roads. For this to happen, they would need to be widened/upgraded to Code of Subdivision standards as part of a subdivision and vested back to the Council as legal roads. This would require agreement from other owners/users. Increased use of these access lots of private access-ways to the numbers being contemplated would be contrary to recent policies notified relating to number of lots accessed from a private way (where it is suggested that an access-way serving more than 12 sites should be made a legal road). Therefore, unless the developer is able to demonstrate suitable road access can be achieved, it is considered that development is constrained by lack of access.

Transport effects (wider network)	No issues	It is expected that development would have minimal impact on the wider transport network.
Compact city – proximity to existing residential areas	No issues	
Compact city - ability to develop land efficiently	Ok	The site has an estimated capacity of 17 dwellings under the proposed structure plan. There is also a second structure plan for 12 dwellings.
Effects on Manawhenua values	No issues	
Issues for: • network utility operators • Southern District Health Board • Ministry for Education • FENZ	No issues	
Other constraints on development (encumbrances, owner aspirations, appeals)	Some issues (manageable)	Site is subject to easements and a land covenant.

Appendix 7: Response from Hugh Forsyth, Landscape Architect for the Submitter.

23 Sretlaw Place Residential Rezone

Brockville

Landscape Conditions

01 August 2022

site.
ENVIRONMENTAL CONSULTANTS

1. Introduction

1.1 This report responds to the landscape issues raised by technical experts and submitters in Dunedin City Council's s42 planning report in respect of a submission by Mr. Cole Bennetts to rezone 23 Sretlaw Place from 'Rural - Hill Slopes' and to 'General Residential 1' in the Dunedin City Council Second-Generation District Plan. Mr. Bennett submitted proposals for 17 lot and a 12-lot subdivision with the submission.

1.2 Council's s42 report draws on advice from DCC Transport, DCC 3 Waters, DCC's landscape architect, and Parks and Reserves. The following conditions respond to the observations of DCC's landscape architect and Parks and Recreation are addressed in respect of the 12 lot proposal (see attached drawing ' 23 Sretlaw Place, Landscape Proposal', dated 25-07-22).

2.0 Landscape Comment - s42 report

2.1 Mr. McKinlay, DCC landscape architect, considered that surrounding houses would lose visual amenity from downwards views toward Kaikorai Stream Valley which they presently receive. These include the short flood plain between the site and the stream edge and the open space of the lower site slopes. Recreational walkers on a track that passes the lower north/west toe of the site, and on the track on the northern side of the stream, would experience a similar loss of visual amenity.

2.2 In Mr. McKinlay's opinion the flood meadows between the northern site boundary and Kaikorai Valley stream are the focal point for Fraser Bush Reserve users, and not the residential areas above. He also considered the rising slopes of Frasers Bush Reserve to provide the focal point of the wider valley landscape for surrounding residents, due to the elevation of these houses and the wider views these forested slopes provide.

2.3 Mr. McKinlay suggested the following conditions in the event of approval:

- Retain the existing oak tree, upper eastern site slopes;
- Provide native planting around the stormwater pond that is located partly within the lower north/west corner of the site;
- A band of native planting across the lower northern boundary;
- Planting with native species along the western site boundary; and
- A requirement for post and rail fencing on the western site boundary.

2.4 DCC Parks and Recreation Department seek a further area of buffer planting along the lower northern site boundary. From site observation, the flood plain areas between the site and the stream edge have recently been planted in a range of indigenous shrub and forest species. These are now establishing and include forest canopy tree species as well as colonising and edge shrubs.

3.0 Draft Landscape Conditions

3.1 The following conditions respond to Mr. McKinlay's observations and suggestions and also address submitters concerns that are reflected in the s42 report. These include loss of amenity, biodiversity, loss of 'rural nature' perspective, a reduction in green space, and in natural landscape values.

3.2 The s42 report reflects the observations of Mr. McKinley and does not consider that the lower slopes are a primary focus for surrounding residents and that the impact on biodiversity values will be low. The report also considers that amenity issues may be addressed by 2GP performance standards and does not consider that reverse sensitivity issues apply.

3.3 The landscape conditions proposed in section 4 of this report respond to the suggested conditions contained in the s42 report and also seek to meet some of the submitters concerns. The conditions seek to break up the visual impact of the roof profiles with native vegetation required on some upper slope lots. External colour conditions apply to roofs and walls and height and ground floor restrictions also apply.

3.4 The colour conditions seek to reduce the potential visual impact of new housing from views above and from Frasers Bush Reserve. The bands of planting within some lots seek to break up the visual mass of the future residents from northern views and to provide variety and variation to views from above. The planting will also draw bird life to the development as its established on these areas and along the western and northern boundary.

3.5 The planting mix proposed in the original submission is retained and seeks to provide a visual and ecological link to existing Frasers Bush Reserve vegetation, which includes kowhai and kanuka canopy species. Storm water collection and discharge are considered in conditions relating to site permeability, ground floor area, and the requirement for stormwater detention tanks and rain gardens in each lot.

3.6 The following conditions are proposed and relate to *'23 Sretlaw Place, Landscape Proposal Plan, Drawing 001, Revision A, date 25-07-22'* :

- All sites are to retain a minimum of 60% permeability that may be used for permeable decking, lawn areas, ground cover, shrub planting, gravel paths or forecourt areas;
- Concrete hard standing is restricted to a maximum of 80m^2 on each lot, excluding car port areas. Larger areas may be permitted where compacted gravel surfaces are used and runoff is directed to an adjacent garden area, excluding public land;
- Lots 1 – 4 and lot 8 include lower northern boundary planting as indicated on the landscape concept plan. This planting is to include 50% native plants and shrubs – refer section 4.5 and section 4.6 for indicative species;
- Lots 1, 2, 3, 8, 9, 10, and 11 are restricted to a ground floor area of 250m^2, including garage/carport;
- Lots 4, 5, 6, 7, and 12 are restricted to a ground floor area of 300m^2, including garage/carport;
- All lots are restricted to one external garden shed/studio, to 2GP performance standards;
- All structures are limited to a 5m elevation from base of external wall to top of roof line at the lowest point of construction;
- A light reflectivity value ('LRV') 30% or below on British Standard Colour Chart 5252 applies to all roofs (https://www.resene.co.nz/pdf/charts/BS5252_Colour_Range.pdf);

- External wall colours are not to exceed 40% LRV on the BS5252 range, including concrete block, steel, synthetic cladding, or painted finish;
- Lots 1 – 4 are required to use a post and rail fencing style, if erecting a fence on the western boundary;
- Boundary fences are restricted to 1.8m, excluding the western boundary;
- The accessway is to be tinted to 50% LRV if concrete is used for construction;
- All lots, excluding Lots 4, 5, and 6 are to include a storm water detention tank, with capacity to allow for 100 litres of water per $1m^2$ of roof area before discharge to the local stormwater system; and
- Roof drainage is to be collected in detention tanks that will allow for storage of 100 litres per square metre of roof area, or to the specification of DCC 3 Waters; and
- All external hard standing surfaces are to be drained to an in-ground garden detention tank or rain garden prior to discharges to Sretlaw Place drainage, to the technical requirements of Council at building consent.

4.0 Planting lists

4.1 The following lists include the species attached to the submission. These apply to the lower site areas of the margins of the stormwater ponds, *'water's edge/wet areas'*, the damp areas surrounding the pond or where know over ground runoff occurs, *'damp areas but not waterlogged for long periods'*, and '*dry areas*.

4.2 Where planting is required along the western boundary the 'dry areas' list applies. Native species that are established in Frasers Bush Reserve may be included, e.g., fuchsia, kanuka, and mahoe. Native tree planting will be more effective in establishing if planted in groups of 3 or more and a distance of 10 – 12m between groups.

4.3 Where planting is a requirement of subdivision consent a landscape plan is to be provided from an established landscape contractor or plant nursery for Council's consideration that specifies an outline of ground preparation, species, and the size on intended shrubs or trees. The purpose of this outline is to ensure that planting is achievable and not onerous, while meeting its objectives of environmental enhancement.

4.4 The remainder of the individual lot areas are for individual discretion, which may mean no planting at all. Where tree species are planted these are to be species that do not exceed 5m in height and are to exclude ornamental confer species.

4.5 Stormwater pond - Water's edge/wet areas

- Carex virgata (Sedge)
- Carex secta (Purei)
- Dacrycarpus dacrydioides (Kahikatea)

4.6 Northern site boundary - Damp areas but not waterlogged for long periods:

- Austroderia richardii (Toetoe)
- Carpodetus serratus (Marble leaf)
- Coprosma propinqua (Mingimingi)
- Cordyline australis (Cabbage tree)

- Olearia lineata (Twiggy Tree Daisy)
- Phormium tenax (Harakeke/flax)
- Plagianthus regius (Ribbonwood)
- Kunzea ericoides (kanuka)
- Fuchsia excortica (tree fuchsia)

4.7 Dry areas – boundary planting

- Griselinia littoralis (Broadleaf)
- Hoheria angustifolia (Narrow-leaved lacebark) Olearia odorata (Scented tree daisy)
- Pittosporum eugenioides (Lemonwood)
- Pittosporum tenuifolium (kōhūhū)
- Sophora microphylla (kōwhai)
- Melicytus ramiflorus (Whiteywood)

Hugh Forsyth

Registered landscape architect

01 August 2022

Appendix 8: Geosolve Report.

GeoSolve Ref: 220434
2 August 2022

CWB NZ Ltd
Cole Bennetts
3668 Fruitlands-Roxburgh Rd
RD1, Roxburgh, 9571

c.c. Emma Peters (Sweep Consultancy Ltd)

Preliminary geotechnical assessment
Proposed residential re-zoning and subdivision of 23 Sretlaw Place (Lot 29, DP 345409), Brockville, Dunedin

Dear Cole,

In accordance with our Agreement dated 2 June 2022 we have undertaken a preliminary engineering geological appraisal at the above property to visually assess slope stability and to determine the likely geotechnical suitability of building platforms for a proposed rezoning from Rural – Hill Slopes to General Residential 1 and subsequent subdivision. Our investigation has comprised a site inspection and desktop review of existing information. No subsurface investigations have been carried out at this stage.

Photo 1 – Typical site photograph.

Proposed Development

The proposed development is for subdivision of the above site to form 17 new residential lots, as shown in Figure 1. The lot sizes vary from about 570 to 1240 m^2. One central accessway is proposed as shown.

Figure 1 – Proposed scheme plan

Site Description

The site is currently used as farm land and is largely in pasture with some trees locally, no structures are present on site. The site topography is generally moderately sloping towards the north-east with mostly subdued topography. A large, incised gully feature is located on the eastern extents of the property as well as other minor gully features. The gullies generally drain towards Frasers Gully which lies to the north of the site. The gullies are likely to represent ephemeral overland flow paths potentially conveying upslope spring flows.

Hazard and Geological Mapping Review

We have reviewed available hazard mapping including the Dunedin City Council (DCC) District Plan map and various reports by GNS Science, as well as published geological maps.

Published geological maps indicate that the site is underlain (below overburden soils) by Caversham Sandstone marine sedimentary rock. Soil exposures on site contain variable soils with volcanic rock clasts and indicate Ancient Landslide Debris or slopewash deposits overlies the sedimentary rock types.

The DCC district plan indicates no known natural hazards on site, however an ancient landslide is mapped on site by GNS Science Ltd and this potential hazard is discussed below.

The Otago Regional Council Natural Hazards database indicates that the site is likely to contain few other potential geotechnical hazards, summarised as follows:

The site has been mapped in a 2014 liquefaction hazard assessment[1] as belonging to Domain A, which is predominantly underlain by rock or firm sediments and there is considered to be only a low likelihood of liquefaction-susceptible materials being present.

No active faults are known to be mapped on the property. The ORC Natural Hazards database lists the Akatore Fault, Alpine Fault and Dunstan Fault as potential risks. The nearest active faults with demonstrated Late Quaternary movement history are the Green Island Fault and the Akatore Fault. The Akatore Fault is expected to have a recurrence interval of 2-3,000 years[2]; however a recent paleoseismic study of the Akatore fault[3] found that three recent ruptures of this fault which occurred in the past 15,000 years (two of which occurred in the past 1,300 years) were preceded by a minimum 110,000 year period

[1] Barrell, D.J.A., Glassey, P.J., Cox, S.C., Smith Lyttle, B. (2014). Assessment of liquefaction hazards in the Dunedin City district. GNS Science Consultancy Report 2014/068. 68p.
[2] Otago Regional Council (2005). Seismic Risk in the Otago Region. Report No SPT: 2004 / 23. Wellington, NZ: Opus International Consultants.
[3] Taylor-Silva, B.I., Stirling, M.W., Litchfield, N.J., Griffin, J.D., van den Berg, N.J., Wang, N. (2019). Paleoseismology of the Akatore Fault, Otago, New Zealand. New Zealand Journal of Geology and Geophysics, 63(2): 151-167; doi: 10.1080/00288306.2019.1645706

of quiescence, suggesting this fault exhibits strong aperiodicity of earthquake occurrence. The authors suggest it is prudent to assume that the relatively high rates of recent fault activity will continue, with an estimated recurrence interval of 450-5110 years. Both of these faults are likely to be capable of generating magnitude 7.5 earthquakes in Dunedin and surrounds. Other known faults that have some potential to cause strong shaking in the area are the nearby potentially active Kaikorai Fault (900 m from site), the Titri Fault and the North Taieri Fault. The above faults are not included in Table 3.6 of NZS 1170.5:2004 as major faults requiring near fault factors when assessing structural design actions.

The other faults mentioned by the ORC database are distant from the site, however strong ground shaking throughout the South Island is likely to be associated with a rupture of the Alpine Fault, located along the West Coast of South Island. Recent research[4] suggests there is a 75% probability of an Alpine Fault earthquake occurring within the next 50 years and an 82% probability that the next earthquake on the Alpine Fault will be of magnitude 8 or greater.

Detailed Flood hazard assessment is beyond the scope of this report, however we note that the lower (northern) parts of the site containing proposed lots 5-10 is within an "Active Flood-water dominated" alluvial fan hazard zone. Additionally, these lower lots are in close proximity to Frasers Creek, though no flood hazard is noted on any available hazard mapping. Flood hazard requirements should be confirmed with council at the early stages. Flooding on upper hillslope lots appears improbable however the gullies indicate that some increased flows may operate during storm events.

Slope Stability

The site is mapped partly as a 'likely' landslide (see Figure 2 below) with 'low' sensitivity, and 'prehistoric' activity in a 2017 GNS Science Consultancy Report[5]. A 'low' sensitivity code has been specified which means that no geomorphic modifiers are currently active. Landslides of this description are interpreted to require a large reduction in stability factors to be reactivated or enlarged.

The landslide appears to be mapped well upslope of the site and includes a large area of residential land in Brockville.

Engineering geological mapping of the site revealed no indicative scarps or hummocky terrain characteristic of recent or historical land movement. The site is generally of subdued topography apart from some incised gullies and swales.

Review of stereoscopic photography (Dun 1942, SN 0223, Run 511) indicate that the mapped landslide shown above can be identified as a relatively subdued debris feature on

[4] Howarth, J.D., *et al.* (2021). Spatiotemporal clustering of great earthquakes on a transform fault controlled by geometry. Nature Geoscience; doi: 10.1038/s41561-021-00721-4

[5] Barrell, D.J.A., Smith Lyttle, B. & Glassey, P.J., (2017). Revised landslide database for the coastal sector of the Dunedin City district in and around Dunedin City. GNS Science Consultancy Report 2017/41

the hillside. The outline of this feature matches with that identified by the 2017 GNS Science report[6]. No obvious scarp features were identified, and no signs of recent movement were apparent on aerial imagery.

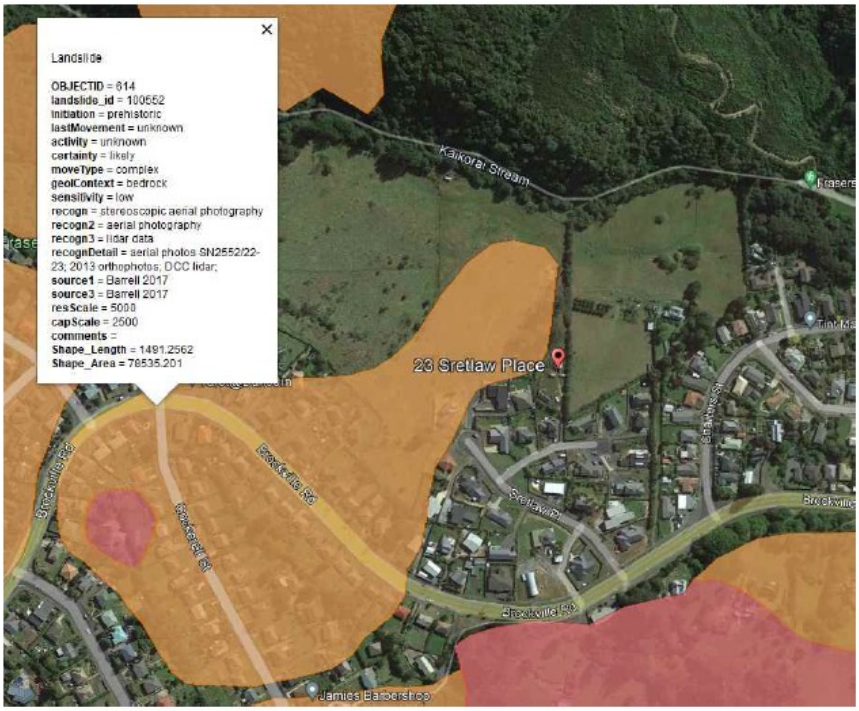


Figure 2 – Landslide mapping showing part of the site as prehistoric landslide debris.

Engineering geological reconnaissance mapping of the landslide feature mapped above revealed subdued landslide topography with swale features (resembling incision of possible localised historical debris). Outcrop indicates that the sites are likely to be underlain by typically firm to ancient landslide debris or colluvium overlying inferred marine sedimentary rock types. There is some minor fretting of near surface soils on the steeper flanks of the gullies, however these are assumed to be well away from the future building platforms or would be subject to earthworks. We have viewed the lots and likely building platforms and note that these are typically located on gentle to moderate slopes. We observed no typical features of landslide or landslide risk at any of the platforms, i.e. no scarps, no tension cracks, no debris accumulations and no saturated soils/spring flows.

No obvious cracking of existing dwellings that lie on the landslide feature, sharp scrap-like features or any other indicators of movement were noted during the reconnaissance observation of existing developments within the mapped landslide. We are not aware of

[6] Barrell D.J.A., Smith Lyttle B., Glassey P.J. (2017). Revised landslide database for the coastal sector of the Dunedin City district. Lower Hutt (NZ): GNS Science. 29 p. (GNS Science consultancy report; 2017/41).

previous cases of active landslide damage on any property within the mapped landslide extents over a large area of Brockville.

The risk of localised slope instability over the site in general is currently interpreted to be low based on the relatively gentle undulating slopes, the presence of likely ancient landslide debris across the site.

The groundwater flows are unknown at this stage, however test pitting should be scheduled so that remedial drainage measures can be implemented where required. There is some risk at this location that perched groundwater could accumulate on the Caversham Sandstone and give rise to spring flows on the site, however deep cut-off drains are generally effective if this is found to be applicable. This risk will need to be adequately managed but is likely to be manageable provided that adequate geotechnical input is in place at all stages of development and that adequate drainage is in place.

Conclusions and Recommendations

No subsurface investigations have been carried out at this stage, however on the basis of visual appraisal, all of the proposed building sites are considered to be suitable for residential land use and we consider that there is a low risk of slope instability affecting the sites, provided that standard best practice is adopted, such as obtaining detailed geotechnical investigations and reporting to assist with building design, retention of cuts, appropriate setbacks from steeper slopes, appropriate disposal of stormwater and wastewater and cut-off drains upslope of developments where required (especially if spring flows are suspected on the basis of the site geology and geomorphology). It may be that drainage will need to be incorporated as part of subdivision construction and we recommend detailed geotechnical investigations at the subdivision stage to determine requirements.

The primary risk factor for potential slope instability relates to potential saturation of the soils. In addition, softening and general nuisance could occur where water is able to collect and infiltrate, particularly as there are natural swales located on the site. Consequently, robust site drainage is recommended. All sources of slope saturation should be eliminated by permanent cut-off drains upslope of the subdivision extents, particularly any cuts proposed and upslope of the proposed building platforms. No stormwater or wastewater should be discharged onto these slopes.

All drains should be designed to discharge to suitable Council-approved stormwater disposal points (likely Frasers Creek). In general stormwater should not be discharged to the slopes without geotechnical approval. Currently, there is a drainage channel running along the western boundary as well as the prominent gully near the eastern boundary which appear to be collecting surface run-off and some stormwater from neighbouring properties. It will be important during development that these drainage features are well maintained and appropriately directed. Currently the flows are unclear and appear to discharge onto the flats on lower portion of the site, rather than fully to the stream.

Placement of uncontrolled side cast fill should be avoided on the slopes and setbacks should be defined for structures and areas adjacent to steeper slopes on site as required.

Any spring flows encountered should be assessed further by a geotechnical specialist.

We recommend that future building development should at a minimum be informed by geotechnical good ground check in accordance with NZS3604 to enable appropriate foundation advice, however as discussed above test pitting is recommended at an early stage to better evaluate drainage requirements. Depending on the location and type of dwelling adopted, further investigations may also be required, e.g. to assist with drainage, earthworks and retaining wall design etc.

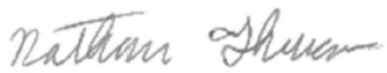
The possible presence of localised uncontrolled fill will need to be assessed at the subdivision and building consent stages.

The general recommendations of this report should be followed in order to mitigate the risk associated with landslip, bearing capacity and subterranean groundwater flow/erosion.

Applicability

This report has been prepared for the sole use of our client, Cole Bennetts, with respect to the particular brief and on the terms and conditions agreed with our client. It may not be used or relied on (in whole or part) by anyone else, or for any other purpose or in any other contexts, without our prior review and written agreement.

Yours faithfully,



Nathan Thurow
Engineering Geologist

Reviewed by: Mark Walrond (Senior Engineering Geologist)

GeoSolve Limited

Appendix 9: Information from Scott Cookson.

5 August 2022

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Attn: Emma Peters

23 SRETLAW PLACE, DUNEDIN

Please find below indicative calculations with respect to volume of earthworks and stormwater runoff calculations for the proposed development at 23 Sretlaw Place, Dunedin.

Earthworks

The slope of the site varies from less than 7° to some specific areas greater than 15°. The average slope from Lot 1 to Lot 9 is calculated to be 10°.

For simplicity, if the site is regarded as being within the 'Greater than 12° but less than or equal to 15°' category, then the volume of permitted earthworks is 25m³ per 100m² of site area. This equates to 4650m³ of earthworks.

If the site is developed to 16 Residential Sites (one way road option), then I would conservatively estimate the volume of earthworks to be around 6500-8000m³. This would entirely depend on the site owner's preference on having a split-level house or not. If all sites had a single level home and cut out to solid ground for the full house foundation, the volume of earthworks would be near 8000m³. This would reduce considerably for every house that does not require a full cut into the slope.

Stormwater

Pre-development Runoff (ARI 100yr):
Tc = 15min
C = 0.30 (*Source: Table 1 NZBC E1*)
I = 83mm/hr (*Source: NIWA HIRDS v4 RCP8.5*)
A = 1.8592ha
Runoff = 129L/s

Post-development Runoff (ARI 100yr):
Tc = 10min (*10min minimum*)
C = 0.45 (*Source: Rule 4.3.12.2 DCCCoSD 2010 for Res 1 Zone*)
I = 97.1mm/hr (*Source: NIWA HIRDS v4 RCP8.5*)
A = 1.8592ha
Runoff = 226L/s (or 351L/s if 70% runoff coefficient is used)

The volume of storage required within the pond area will need to be 75m³ if a 45% runoff coefficient is used, or 175m³ if a 70% runoff coefficient is used. Both volumes will easily be achieved in the area set aside for SW management. These volumes allow for a 1 in 100 year event, and are designed so the pond does not overflow in a 24hr event. See the table on the following pages for the detention calculations.

SW Pond Volume Calculations Using 45% Runoff Coefficient									
CA Value	0.8366								
Length of Storm	10	20	30	60	120	360	720	1440	Min
Intensity	97.1	67.8	55.8	40.6	29.6	17.6	12.3	8.28	mm/hr
Flow into Pond	225.6	157.6	129.7	94.3	68.8	40.9	28.6	19.2	L/s
Discharge for 1st 25%	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	L/s
1st 25% Retention Rate	161.1	93.1	65.2	29.8	4.3	-23.6	-35.9	-45.3	L/s
Pond Volume in 1st 25%	18750	18750	18750	18750	18750	18750	18750	18750	Litres
Time to fill 1st 25%	1.9	3.4	4.8	10.5	72.9	-13.2	-8.7	-6.9	Min
Discharge for 2nd 25%	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	L/s
2nd 25% Retention Rate	134.1	66.0	38.1	2.8	-22.8	-50.7	-63.0	-72.3	L/s
Pond Volume in 2nd 25%	18750	18750	18750	18750	18750	18750	18750	18750	Litres
Time to fill 2nd 25%	2.3	4.7	8.2	113.2	-13.7	-6.2	-5.0	-4.3	Min
Discharge for 3rd 25%	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	L/s
3rd 25% Retention Rate	113.4	45.3	17.4	-17.9	-43.4	-71.3	-83.6	-93.0	L/s
Pond Volume in 3rd 25%	18750	18750	18750	18750	18750	18750	18750	18750	Litres
Time to fill 3rd 25%	2.8	6.9	17.9	-17.5	-7.2	-4.4	-3.7	-3.4	Min
Discharge for 4th 25%	129	129	129	129	129	129	129	129	L/s
4th 25% Retention Rate	96.6	28.6	0.7	-34.7	-60.2	-88.1	-100.4	-109.8	L/s
Pond Volume in 4th 25%	18750	18750	18750	18750	18750	18750	18750	18750	Litres
Time to fill 4th 25%	3.2	10.9	464.3	-9.0	-5.2	-3.5	-3.1	-2.8	Min
Total time to fill	10.3	25.9	495.3	--	--	--	--	--	Min
Must be at least	10	20	30	60	120	360	720	1440	Min
Size of Detention Pond	**75000**	**Litres**							
	75m³								

SW Pond Volume Calculations Using 70% Runoff Coefficient									
CA Value	1.3014								
Length of Storm	10	20	30	60	120	360	720	1440	Min
Intensity	97.1	67.8	55.8	40.6	29.6	17.6	12.3	8.28	mm/hr
Flow into Pond	351.0	245.1	201.7	146.8	107.0	63.6	44.5	29.9	L/s
Discharge for 1st 25%	64.5	64.5	64.5	64.5	64.5	64.5	64.5	64.5	L/s
1st 25% Retention Rate	286.5	180.6	137.2	82.3	42.5	-0.9	-20.0	-34.6	L/s
Pond Volume in 1st 25%	43750	43750	43750	43750	43750	43750	43750	43750	Litres
Time to fill 1st 25%	2.5	4.0	5.3	8.9	17.2	-832.4	-36.4	-21.1	Min
Discharge for 2nd 25%	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	L/s
2nd 25% Retention Rate	259.4	153.5	110.1	55.2	15.4	-28.0	-47.1	-61.7	L/s
Pond Volume in 2nd 25%	43750	43750	43750	43750	43750	43750	43750	43750	Litres
Time to fill 2nd 25%	2.8	4.8	6.6	13.2	47.3	-26.1	-15.5	-11.8	Min
Discharge for 3rd 25%	112.2	112.2	112.2	112.2	112.2	112.2	112.2	112.2	L/s
3rd 25% Retention Rate	238.8	132.9	89.5	34.5	-5.2	-48.6	-67.8	-82.3	L/s
Pond Volume in 3rd 25%	43750	43750	43750	43750	43750	43750	43750	43750	Litres
Time to fill 3rd 25%	3.1	5.5	8.1	21.1	-139.5	-15.0	-10.8	-8.9	Min
Discharge for 4th 25%	129	129	129	129	129	129	129	129	L/s
4th 25% Retention Rate	222.0	116.1	72.7	17.8	-22.0	-65.4	-84.5	-99.1	L/s
Pond Volume in 4th 25%	43750	43750	43750	43750	43750	43750	43750	43750	Litres
Time to fill 4th 25%	3.3	6.3	10.0	41.0	-33.1	-11.2	-8.6	-7.4	Min
Total time to fill	11.7	20.6	30.1	84.2	--	--	--	--	Min
Must be at least	10	20	30	60	120	360	720	1440	Min
Size of Detention Pond	175000	Litres							
	175m³								

These calculations are simplified and do not take into account the existing watercourse that will still receive and discharge some natural runoff.

Size of Pond

On the development plan, there is a pond shown in the north western corner of the proposed. The blue shaded area within 23 Sretlaw Place is 300m². In order to achieve 175m³ of storage, this pond area would need to be approximately 0.60m deep.

The pond could be enlarged to 450m² and if the depth was increased to 1.00m, the volume of storage would increase to 450m³. Accordingly, with the space available adequate storage volume is available for, even for inflated calculations.

Yours faithfully

Scott Cookson
Licensed Cadastral Surveyor