

Before Independent Hearings Commissioners At Wellington

Under the Resource Management Act 1991

In the matter of Applications for resource consents, and a Notice of Requirement for Designation by Wellington Water Limited on behalf of Upper Hutt City Council, for the construction, operation and maintenance of the structural flood mitigation works identified as the Pinehaven Stream Improvements Project.

Statement of evidence of David John Compton-Moen for Wellington Water Limited (Landscape and Visual)

Dated 20 July 2020

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Statement of evidence of David Compton-Moen

1 Qualifications and experience

1.1 My full name is David John Compton-Moen.

1.2 I am a Director Landscape Architect / Urban Designer at DCM Urban Design Limited (**'DCM Urban'**). I founded DCM Urban in August 2016. Prior to this, I worked at Kamo Marsh Landscape Architects (18 months), Jacobs/SKM (2.5 years) and MWH NZ Ltd (now Stantec – 5.5 years).

1.3 I hold the qualifications of a Bachelor of Landscape Architecture (Hons) and a Bachelor of Resource Studies (Planning and Economics), both obtained from Lincoln University. I am a Registered Landscape Architect of the New Zealand Institute of Landscape Architects (**'NZILA'**), since 2001, a Full member of the New Zealand Planning Institute, since 2007, and a member of the Urban Design Forum since 2012. I am currently studying a Masters in Urban Design through the University of Auckland. I was branch Chair of the Canterbury/ Westland Branch of the NZILA for 4 years from 2013 to 2016.

1.4 I have worked in the landscape assessment and design, urban design, and planning fields for approximately 20 years, here in New Zealand and in Hong Kong. During this time, I have worked for both local authorities and private consultancies, providing expert evidence for urban design, landscape and visual impact assessments on a wide range of major infrastructure and development proposals, including the following relevant projects:

- 2013 – 2016 – I provided Landscape and Visual impact assessment and evidence services for Watercare Services Limited for a proposed 33km long water pipe between Waitakere and Albany, 2 water reservoirs and a pumping station. The proposal included the removal of native vegetation, crossing three significant stream corridors and developing detailed mitigation measures;
- 2018-2020 – I have recently provided design services and assessment for the development of a 171Ha aggregate quarry in the Selwyn District, Canterbury. The project involved providing landscape and visual impact evidence, development of detailed planting plans and landscape bunds around the perimeter of the site, and the development of photo-illustrations to show how the proposal would look from public viewpoints;

- 2019 – I provided Landscape and Visual impact assessment services to Christchurch City Council for the development of the Cashmere Valley Dam. The project involved extensive earthworks, the creation of a 4m high bund (dam), public pathways and extensive native planting;
- 2008 - I provided Landscape and visual evidence for the extraction of gravel from the Kowai River and creation of a new processing plant, for Winstone Aggregates, a division of Fletcher Concrete and Infrastructure Limited;
- 2008-11 – I provided Landscape and Visual impact assessment, evidence and landscape design services for the Pines Wastewater Treatment Plant on the outskirts of Rolleston, for Selwyn District Council. The project involved extensive landscape planting around the outskirts of the site (5.6km) to provide a landscape strip to capture potential spray drift.

1.5 My evidence relates to a Notice of Requirement (**'NOR'**) for Designation and associated resource consent applications for the construction, operation and maintenance of the structural flood mitigation works identified as the Pinehaven Stream Improvements Project (**'the Project'**). Wellington Water Limited (**'WWL'**) has lodged the resource consent applications and NOR on behalf of Upper Hutt City Council (**'UHCC'**).

1.6 I am familiar with the area that the Project covers, and have been involved with the Project in a Landscape Assessment and Design role since April 2013 when I prepared some initial concept sketches to illustrate possible options. I have visited the site on numerous occasions.

2 Code of conduct

2.1 While these applications are not before the Environment Court, I have read and am familiar with the Code of Conduct for Expert Witnesses in the current Environment Court Practice Note (2014). I have complied with the Code in the preparation of this evidence, and will follow it when presenting evidence at the hearing.

2.2 The data, information, facts and assumptions I have considered in forming my opinions are set out in my evidence to follow. The reasons for the opinions expressed are also set out in my evidence to follow.

2.3 Unless I state otherwise, my evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

3 Scope of evidence

3.1 This evidence addresses the following matters:

- a Existing landscape and visual environment;
- b Effects – Landscape character and values;
- c Effects – Visual;
- d Recommended mitigation;
- e Responses to issues in submissions;
- f Response to section 42A reports.

4 Executive summary

4.1 In terms of landscape elements and character, residual effects (with mitigation approximately 5 years after construction works finish) will be less than minor. There will be some loss of vegetation and modification of stream banks during construction, but the quality of the receiving environment is mixed, with areas of well-established native vegetation but also areas where there is a high level of modification and infestation of weeds species. The proposed landscape works combined with the engineering works will improve the amenity of the corridor over time, but there will be short term more than minor adverse effects (up to 5 years) when earthworks occur and vegetation is initially removed during construction, and before new plantings become established. There are some positive outcomes likely with the removal of some existing bridges and structures, and the consolidation of others.

4.2 The proposal will have less than minor adverse effects on the landscape values identified in the District Plan. The site is not located in an area with a landscape overlay, and does not affect any Notable Trees, but does move through two Urban Tree Groups identified in the District Plan resulting in the some loss of trees.

4.3 In terms of visual effects, the proposal will have the greatest visual effects on the residents of 26, 30-38 Blue Mountains Road and 10-12 Birch Grove who will all experience minor residual adverse effects (i.e. with mitigation), due to their proximity to stream widening works. The proposal to create a shared or partially shared accessway for 30-38 Blue Mountains Road will, in my opinion, have a positive effect on the character of the stream and Blue Mountains Road.

- 4.4 Residents at 10, 12 Birch Grove and 26, 30-38 Blue Mountains, will all experience significant adverse effects during construction with the loss of vegetation and significant encroachment on to their properties. With mitigation, the residual effects for these residents will reduce to minor once vegetation is established after approximately five years, but there will still be some loss of flat land. All other residual visual effects are less than minor or indiscernible.
- 4.5 Overall, from a landscape and visual effects perspective, I consider the residual effects of the Project acceptable.

5 Existing landscape and visual environment

- 5.1 The landscape character of Pinehaven is typical of many low-density residential suburbs in New Zealand. The density is low, with a mix of single and two storey dwellings on mid-sized sections. There are some multi-unit developments, but typically most dwellings are single units on a single lot. In general, the existing urban character, while being residential, has an eclectic range of building styles, setbacks and orientation, with little cohesion.
- 5.2 Well established landscape planting helps to 'tie' all the disparate elements together. Vegetation in the valley is well established with numerous trees, both native and exotic, over twenty metres in height. Undergrowth is also well-established.
- 5.3 Pinehaven Stream runs through the middle of the suburb and is sometimes highly visible, but in most situations is hidden from public view either by vegetation, buildings, topography, or a combination of all three. Each of the landscape elements which make up the landscape character are described in further detail below.
- 5.4 Overall, in relation to the sensitivity to change of each landscape element:
- a Topography - I consider to have a low-to-medium sensitivity to change;
 - b Existing vegetation - I consider to have a medium sensitivity to change;
 - c Waterway and natural character - I consider have a medium sensitivity to change;
 - d Built structures – I consider to have a low sensitivity to change.
- 5.5 The visual catchment of the proposal is limited to a relatively narrow corridor due to the nature of the works combined with the large amount of existing vegetation

present in the area. Of the dwellings which border the stream, views of the stream are typically open with large, well established native trees lining the banks of the stream, including kowhai and beech. Views of the water itself though are largely screened by either the steep banks, existing vegetation or a combination of the two with the exception of the stretch within Willow Park. The quality of the views vary from low to high, dependent on the presence of large trees and/or weed species.

- 5.6 The majority of visually sensitive receptors (generally being residents) are considered to have a high sensitivity to change, with the exception of Churchgoers (medium), Willow Park users (medium), and motorists (low).

6 Effects – Landscape character and Values

Landscape character

- 6.1 The framework for describing landscape character is divided into the categories of topography; land cover; built form, structures, and human elements; and natural character. Section 6(a) of the RMA requires preservation of natural character, which for the purposes of this report can be seen as a subset of landscape character. Together these categories combine to create the receiving 'Landscape Character'.
- 6.2 Without mitigation the effects on the overall Landscape Character will be minor resulting from localised vegetation clearance, earthworks and removal of three dwellings.
- 6.3 However, the (short term) effects on vegetation with mitigation minimising the number of large trees being removed will be more than minor, reducing to less than minor with the proposed planting. The table below is a summary of the effects, prior to mitigation and post mitigation:

Landscape Character / Element	Effect (before mitigation)	Residual Effect (after mitigation and 5 years plant growth)
Landscape Character (Overall effect)	Minor	Less than Minor
Topography	Less than minor	Less than Minor

Landscape Character / Element	Effect (before mitigation)	Residual Effect (after mitigation and 5 years plant growth)
Vegetation	More than minor	Less than Minor
Waterways	More than minor	Less than Minor
Built Structures	Minor	Less than Minor

6.4 Overall, the stream works are considered to have less than minor effects after mitigation on the existing landscape character and landscape elements along the alignment. The quality of the receiving environment is mixed with areas of well-established native vegetation but also areas where there is a high level of modification and infestation of weed species. The proposed landscape works combined with the engineering works will improve the amenity of the corridor over time, but there will be short term more than minor adverse effects when vegetation is initially removed, and before new plantings become established.

Natural character

6.5 In terms of natural character aspects, the stream channel will be enhanced with the proposed widening of the stream corridor, given the existing modified nature of some stream reaches. An open channel will be maintained, with no parts of the existing open stream proposed to be piped. There are some locations (south of the Pinehaven / Blue Mountains intersection) where the banks are somewhat naturalised and rocks in the stream bed are visible but for the most part the stream channel is modified with either concrete or timber banks. The residual effects (effects that cannot be mitigated) on natural character aspects are considered less than minor.

Landscape values (District Plan)

6.6 Landscape values are those classifications and listings which have been identified in the district plan which relate to Landscape elements.

6.7 In terms of Landscape Values, the proposed works are not located in an Outstanding Natural Landscape (ONL), with works located in the Residential, Open Space and Residential Conservation zones of the UHCC District Plan which do not have any Landscape overlays. I agree with this classification and

do not consider the receiving environment to be a ONL or an area worthy of a special landscape protection overlay.

- 6.8 The project footprint moves through two Urban Tree Group (Tree Groups 99 and 102) areas, which are within 48 and 50 Blue Mountains Road and 2A Freemans Way and adjacent to 11 Birch Grove. One Black Beech within Urban Tree Group 99 at 12 Birch Grove and one Black Beech within Tree Group 102 at the reserve on the corner of Pinehaven and Blue Mountains Road will be removed.
- 6.9 There are several mature native trees in the immediate area which will not be affected by the works and can be retained to ensure the amenity of the wider area is maintained. The southern section of the works, past the intersection with Pinehaven and Blue Mountains Road, is located in the Residential Conservation Area. Some trees will be removed as part of the works in this area, including some well-established native trees. However, given the scale of the proposed works and the large number of plants which are proposed as mitigation (refer to the Landscape Concept Plans in **Appendix A** for details), there will be only a minor, short term effect on amenity, which reduces to less than minor once new planting becomes established.

7 Effects – Visual

- 7.1 In terms of visual effects, the Project will have the greatest visual effects during construction, with the loss of vegetation and also the work occurring in the stream both being clearly visible to a number of properties and from public viewpoints. During construction and prior to mitigation, adverse visual effects are considered to range from minor through to significant with the residents of 26 and 30-38 Blue Mountains Road and 10-12 Birch Grove experiencing the largest magnitude of change.
- 7.2 Effects will reduce over time with the completion of the works and the establishment of the proposed landscape planting.¹ After 5 years, the residual visual effects will in my view be minor for the most affected properties (residents of 26 and 30-38 Blue Mountains Road and 10-12 Birch Grove) but there will still be some loss of flat land. All other properties will experience less than minor or indiscernible residual effects.

¹ Section 92 response to GWRC dated 21 February, 2020, Appendix J.

8 Recommended mitigation

- 8.1 The mitigation measures outlined in Section 4 of Appendix V (Landscape and Visual Impact Assessment) and shown in Appendix F (Landscape Plans) to the AEE are designed to either avoid, remedy or mitigate any potential effects on Landscape Values, Landscape Character or existing Visual Amenity values. The plans² have identified existing significant trees along the corridor and provided for their retention where shown.
- 8.2 Since the development of the set of landscape plans shown in the AEE³, the proposed L2 riparian planting (partially wet)⁴ is no longer proposed for the constructed stream bed due to advice from the Hydrological Engineer. The engineer's advice was to the effect that any planting (L2) within the stream bed would have been physically removed during the first major flood event and would cause issues downstream. Not carrying out the L2 planting will in my view have an Indiscernible effect on residual landscape, visual or amenity values when compared to the overall scope of works. The updated landscape plans are appended to my evidence, dated 5 February 2020 (see **Appendix A**).
- 8.3 A concept plan and detailed drawings have been prepared for Willow Park to ensure pedestrian connectivity is maintained through the space⁵. The design will improve access to the water as well as improve the park from a 'crime prevention through environmental design' ('**CPTED**') perspective. The current, narrow and long (over 60m in length) pedestrian path linking through to Tapestry Grove will be removed, replaced by a more direct and open link through to Sunbrae Drive. This constitutes a positive effect or benefit of the Project from a CPTED perspective.
- 8.4 While removing significant numbers of weed species along the stream corridor including bamboo, the proposed landscape plantings are mostly native, with all native species eco-sourced where possible, combined with some exotic tree species for amenity purposes. The proposed landscape works, in summary, will result in the planting of:⁶
- a 134 no. of trees, of which 101 are native species;
 - b 5,741 no. of native riparian species (L3 mix – rarely wet);

² AEE, Appendix F

³ AEE, Appendix F.

⁴ Refer the 'Plant Palette' at page 15 of Appendix F.

⁵ AEE, Appendix F.

⁶ See Appendix A to my evidence

- c 1,486 no. of native tree and shrub species (L4 – buffer mix);
- d 180 climbers

8.5 The suggested landscape conditions of consent require:

- a The retention of existing large trees within the designation, where possible. Refer to the landscape plans for those trees which are to be retained.⁷
- b Planting of disturbed areas with either riparian or buffer species as per the landscape plans, 2017_009 /L101-108 revision 7 dated 5 February 2020. All native species are to be eco-sourced where possible.⁸
- c Planting is to occur in the first available planting season following completion of the stream improvement works. All areas to be planted are to have at least a 300-millimetre depth of topsoil. A 24-month establishment period is recommended to ensure good plant growth is achieved and any failed plantings can be replaced.⁹
- d Replacement of existing bridges where shown on the General Arrangement Plans to ensure connectivity (e.g. pedestrian access) is maintained.
- e Construction of a path through Willow Park as shown in the landscape plan¹⁰, L102-103, to provide an all-weather access route through to Sunbrae Drive and Tapestry Grove. The finished height of the path is to be above the 25-year flood event with a new pedestrian bridge required to cross the stream.¹¹
- f Willow Park is to be planted with a mix of exotic and native species to reduce maintenance costs for grass mowing as well as to mitigate for the loss of the willow trees.¹²

9 Responses to issues in submissions

9.1 I have reviewed the submissions lodged in relation to the resource consent applications for the Project. Where I am able to respond to the matters raised, I do this below.

⁷ GWRC Section 42A Report, Appendix 5, Condition 23.

⁸ GWRC Section 42A Report, Appendix 5, Condition 23 and 33.

⁹ GWRC Section 42A Report, Appendix 5, Condition 23.

¹⁰ AEE, Appendix F.

¹¹ GWRC Section 42A Report, Appendix 5, Condition 22.

¹² GWRC Section 42A Report, Appendix 5, Condition 24.

Willow Park

- 9.2 Submitter 1 (Karyn Mills) has raised concerns that the improvement works for Willow Park will occur and that the willow trees are being cut down. The submission raises concerns over the concrete areas, disappearance of a local walkway and no replacement planting of apple or plum trees.
- 9.3 In response, I note that the Willow Park concept design includes several new willow trees to be placed, but in locations where they will not affect stream flows. Willows are a fast-growing species and will quickly establish in this location. Steps have been designed to provide access to the water edge, are not extensive in the area that they cover, and have been shown in other locations to provide a positive amenity to local residents giving access to the water and to feed eels. A new path is to be established through the park where it will be less susceptible to flood events and provides improved, safer access. The walkway's route, connecting with Sunbrae Cres rather than Tapestry Grove, is considered an improvement from a CPTED perspective. The existing path runs through a narrow corridor for over 60m which is not overlooked by adjoining properties, nor does it provide options for users to easily escape if they were to become entrapped.
- 9.4 With the exception of the willows and some street trees, all plantings are native species. The intention is provide plants we know will establish well in the area with limited maintenance requirements. For this reason, apple and plum trees were not included in the proposed palette.
- 9.5 Submitter 4 (Deborah Griffiths) has raised concerns that the removal of trees will have adverse effects on her view as well as adverse privacy effects. I agree there will be some localised, short term effects on privacy and changes to views where existing trees and vegetation will be removed as part of the works. This has been acknowledged in the Landscape and Visual impact assessment report with proposed landscape plantings designed to re-establish vegetation along the stream corridor as quickly as possible.

Silverstream Reformed Church

- 9.6 Submitter 10 (David Kyle) raised concerns about the deposition of excavated material at the Silverstream Reformed Church and associated privacy effects on local residents.

9.7 The fill proposed to be deposited on the Silverstream Reformed Church site is no longer proposed to be included in the Project works.¹³

10 Response to section 42A report

10.1 I have read the UHCC's Section 42A report and agree with its conclusions and proposed conditions. I consider the proposed landscape conditions appropriate.

11 Conclusions

11.1 In terms of landscape elements and character, residual effects (with mitigation approximately 5 years after construction works finish) will be less than minor.

11.2 The proposal will have less than minor adverse effects on landscape values as identified in the District Plan with the loss of some trees in a Protected Urban Tree Group.

11.3 In terms of visual effects, the proposal will have the greatest visual effects on the residents of 26, 30-38 Blue Mountains Road and 10-12 Birch Grove who will all experience minor residual adverse effects (i.e. with mitigation) due to their proximity to stream widening works. With mitigation, the residual effects for these residents will reduce to minor once vegetation is established after approximately five years, but there will still be some loss of flat land. All other residual visual effects are less than minor or Indiscernible.

11.4 Overall I consider the residual effects of the proposal acceptable.

David John Compton-Moen

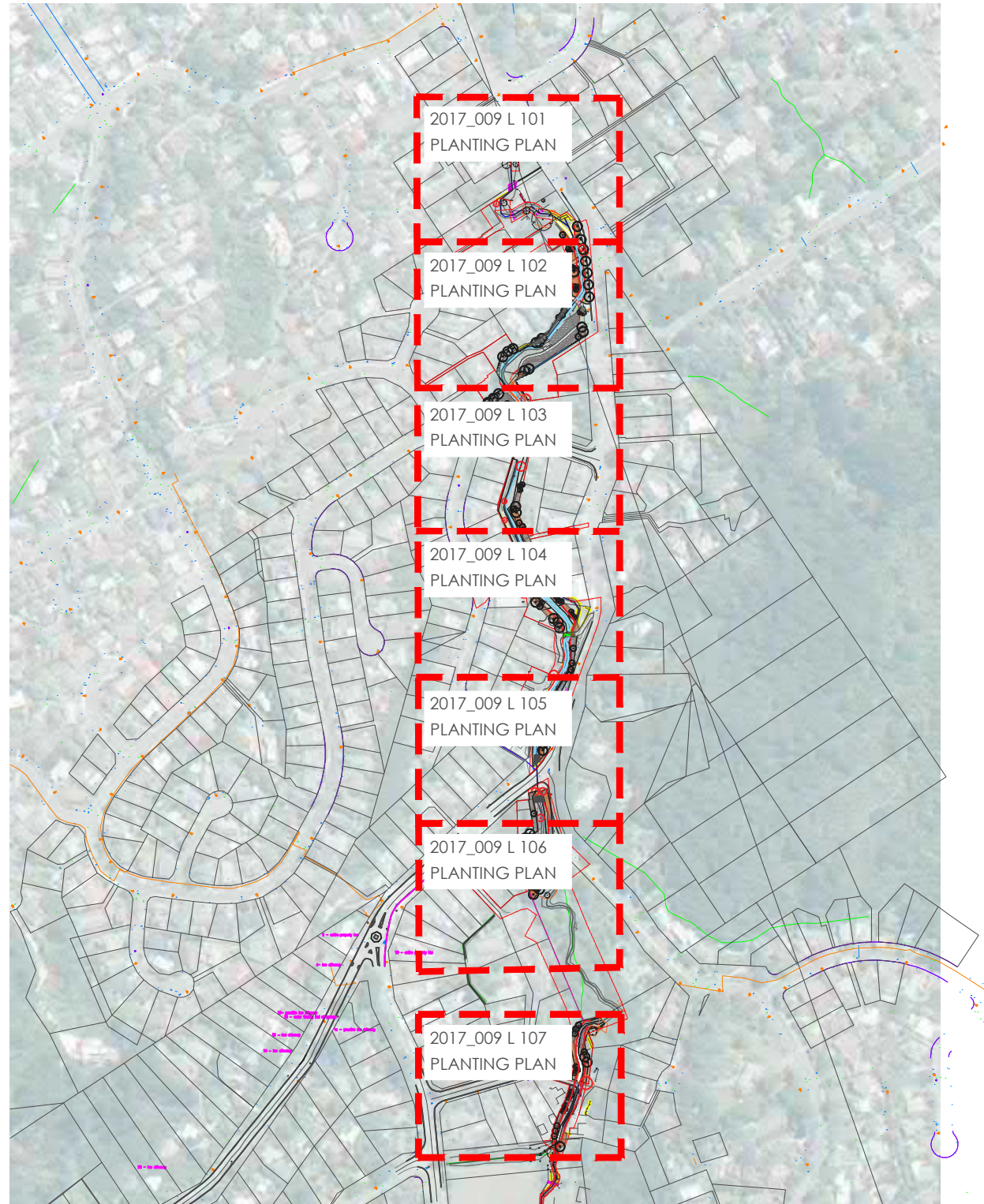
20 July 2020

¹³ Section 92 response to GWRC dated 21 February, 2020, appendices F and G.

Appendix A Updated landscape plans

PINEHAVEN STREAM IMPROVEMENTS

LANDSCAPE WORKS




SITE PLAN - Sheet 1 of 1
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DRAWING SCHEDULE - REV 7

Date	Sheet	Rev
05/02/2020	2017_009 L 100 Cover Sheet	7
05/02/2020	2017_009 L 101 Planting Plan - Sheet 1	5
05/02/2020	2017_009 L 102 Planting Plan - Sheet 2	6
05/02/2020	2017_009 L 103 Planting Plan - Sheet 3	6
05/02/2020	2017_009 L 104 Planting Plan - Sheet 4	5
05/02/2020	2017_009 L 105 Planting Plan - Sheet 5	5
05/02/2020	2017_009 L 106 Planting Plan - Sheet 6	6
05/02/2020	2017_009 L 107 Planting Plan - Sheet 7	6
05/02/2020	2017_009 L 108 Plant Schedule	7



legend:

revision:

rev no.	date	description	approved
0	26/09/2017	Client Approval	DCM
4	16/09/2019	For Resource Consent	DCM
5	18/09/2019	For Resource Consent	DCM
6	24/09/2019	For Resource Consent	DCM
7	05/02/2020	Removal of L2 Planting	DCM

note:
Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions



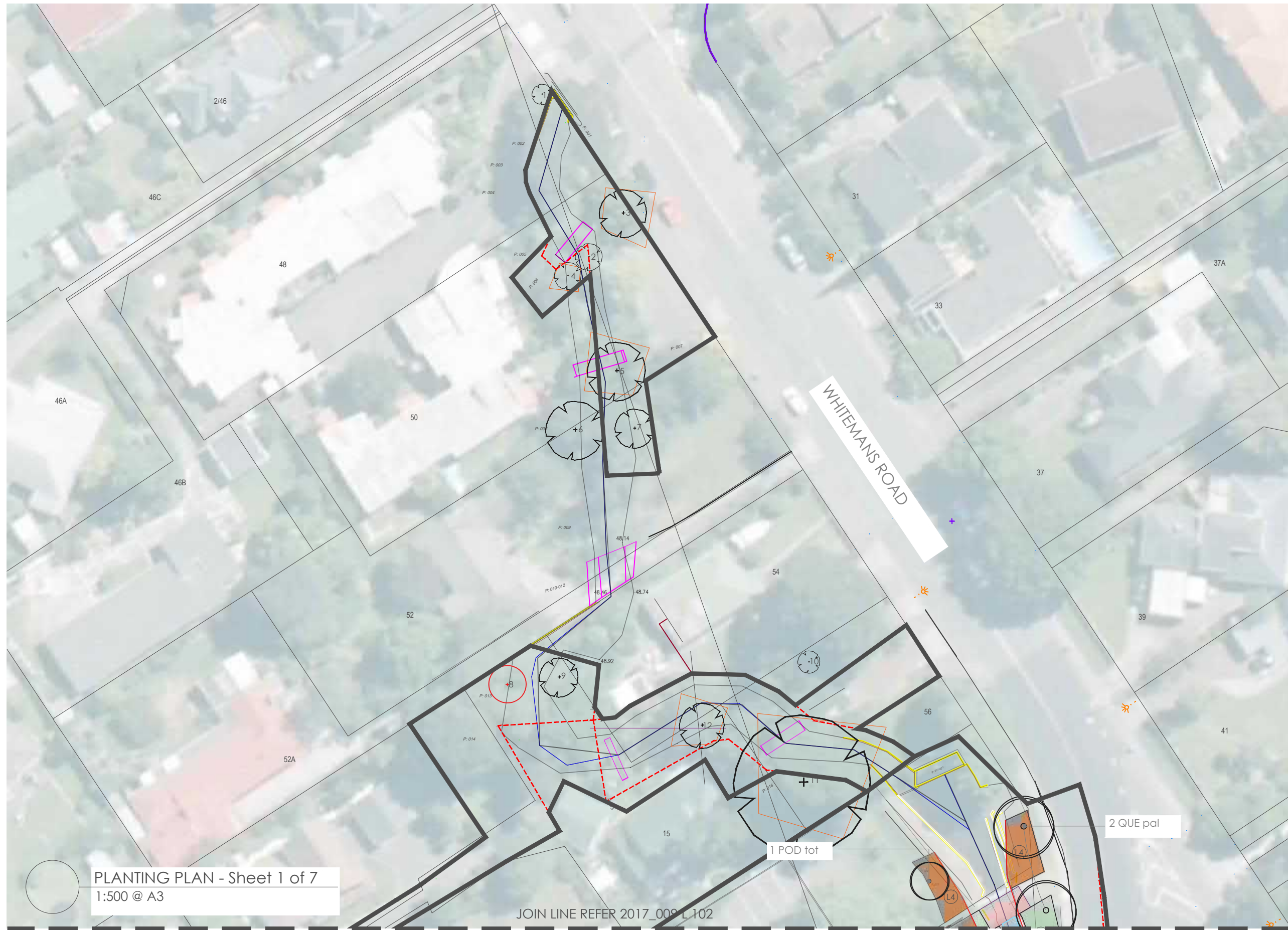
client / project name:
PINEHAVEN STREAM IMPROVEMENTS



drawing name:
LANDSCAPE WORKS COVER SHEET

drawing sheet:
 Sheet 1 of 1















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project no / drawing no / revision:
2017_009 / L 100 / 7



PLANTING PLAN - Sheet 1 of 7
1:500 @ A3

JOIN LINE REFER 2017_009 L 102

- legend:
-  Tree to be Retained
Refer to tree survey
 -  Tree to be Removed
 -  L1 Specimen Tree
 -  L3 Riparian 2 - Rarely Wet
 -  L4 Buffer
 -  L5 Climber
 -  Existing Retaining Wall
 -  Existing Bridge Deck
 -  Proposed Bridge Deck
 -  Proposed Timber Boardwall
 -  Concrete Pathway
 -  Gravel Pathway TBC
 -  Turf
 -  Designation Boundary

revision:


rev no.	date	description	approved
0	24/09/2017	Client Approval	DCM
1	27/09/2017	Boundary alignment	DCM
2	07/08/2019	Draft for comment	DCM
3	16/09/2019	For Resource Consent	DCM
4	18/09/2019	For Resource Consent	DCM
5	05/02/2020	Removal of L2 Planting	DCM

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drawing name:
LANDSCAPE WORKS PLANTING PLAN

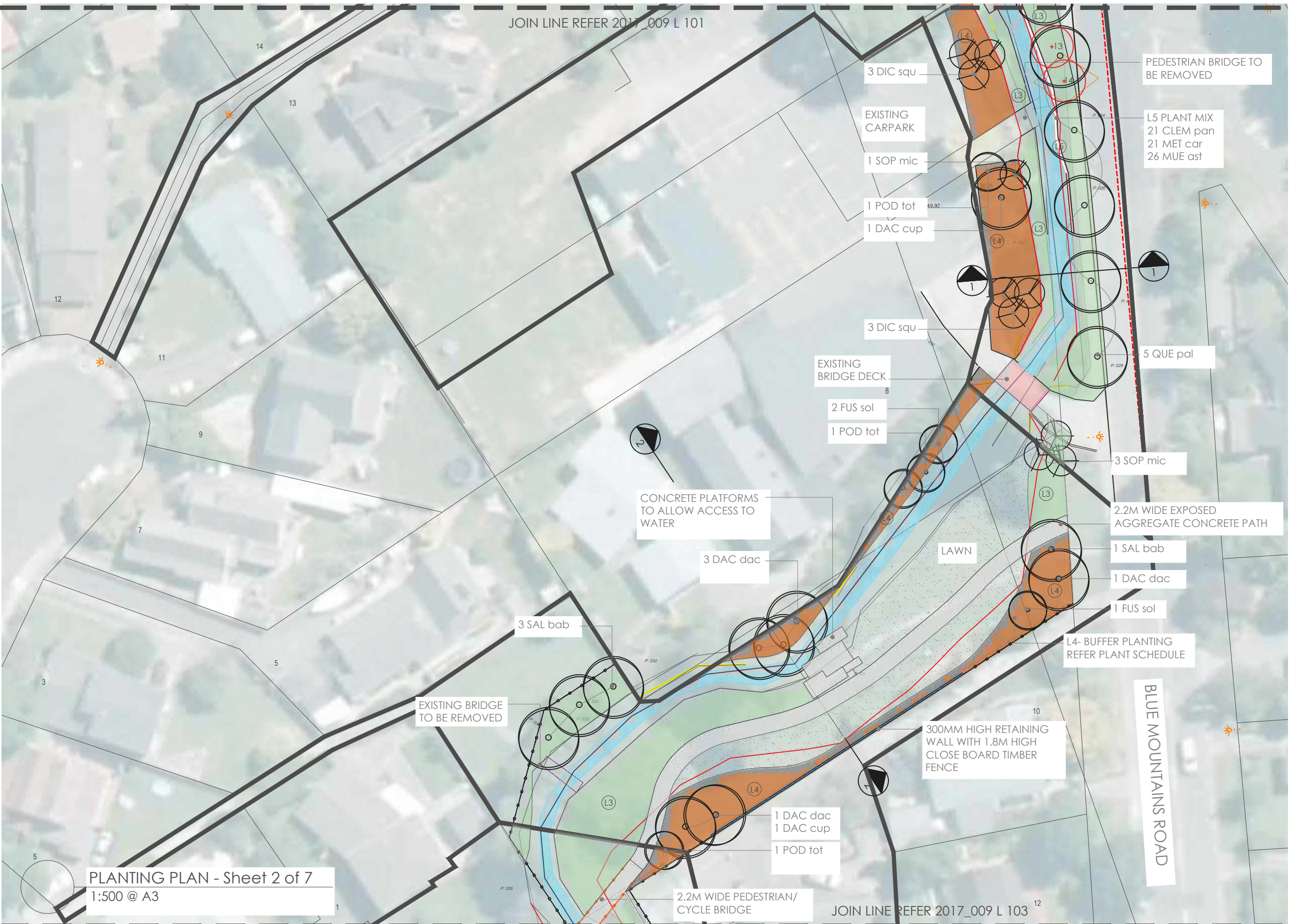
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- legend:
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drawing name:
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drawing sheet:
Sheet 2 of 7

original issue date : 26 SEPT 17
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project no / drawing no / revision:
2017_009 / L 102 / 6

PLANTING PLAN - Sheet 2 of 7
1:500 @ A3



legend:

- Tree to be Retained
Refer to tree survey
- Tree to be Removed
- L1 Specimen Tree
- L3 Riparian 2 - Rarely Wet
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drawing sheet:
Sheet 3 of 7

original issue date : 26 SEPT 17
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PLANTING PLAN - Sheet 3 of 7
1:500 @ A3



PLANTING PLAN - Sheet 4 of 7
1:500 @ A3

- legend:
- Tree to be Retained
Refer to tree survey
 - Tree to be Removed
 - L1 Specimen Tree
 - L3 Riparian 2 - Rarely Wet
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client / project name:
PINEHAVEN STREAM IMPROVEMENTS

drawing name:
LANDSCAPE WORKS PLANTING PLAN

drawing sheet:
Sheet 4 of 7

original issue date : 26 SEPT 17
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project no / drawing no / revision:
2017_009 / L 104 / 5



PLANTING PLAN - Sheet 5 of 7
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- legend:
- Tree to be Retained
Refer to tree survey
 - Tree to be Removed
 - L1 Specimen Tree
 - L3 Riparian 2 - Rarely Wet
 - L4 Buffer
 - L5 Climber
 - Existing Retaining Wall
 - Existing Bridge Deck
 - Proposed Bridge Deck
 - Proposed Timber Boardwalk
 - Concrete Pathway
 - Gravel Pathway TBC
 - Turf
 - Designation Boundary

revision:

rev no.	date	description	approved
0	26/09/2017	Client Approval	DCM
1	27/09/2017	Boundary alignment	DCM
2	07/08/2019	Draft for comment	DCM
3	16/09/2019	For Resource Consent	DCM
4	18/09/2019	For Resource Consent	DCM
5	05/02/2020	Removal of L2 Planting	DCM

note:
Contractors to verify all dimensions on site prior to commencing work. Contractors are responsible for confirming the location of all underground services on site prior to commencing work. Figured dimensions to be taken in preference to scaled dimensions

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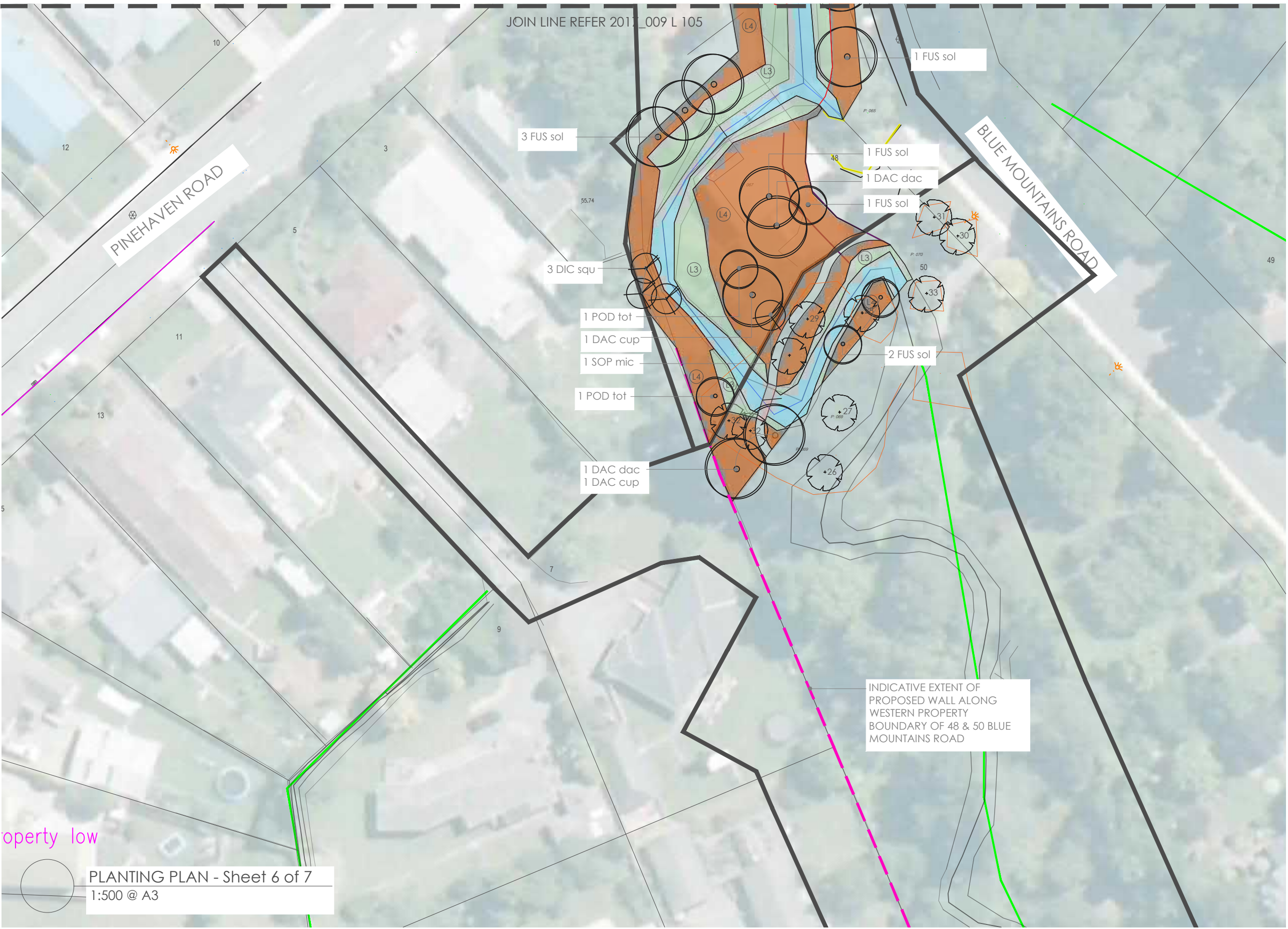
client / project name:
PINEHAVEN STREAM IMPROVEMENTS

drawing name:
LANDSCAPE WORKS PLANTING PLAN

drawing sheet:
Sheet 5 of 7

original issue date : 26 SEPT 17
designed by : DCM
drawn by : BD
scale : 1:500 @ A3

project no / drawing no / revision:
2017_009 / L 105 / 5



- legend:
- Tree to be Retained
Refer to tree survey
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revision:

rev no.	date	description	approved
0	24/09/2017	Client Approval	DCM
2	28/09/2017	Planting amendments	DCM
3	07/08/2019	Draft for comment	DCM
4	16/09/2019	For Resource Consent	DCM
5	18/09/2019	For Resource Consent	DCM
6	05/02/2020	Removal of L2 Planting	DCM

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client / project name:
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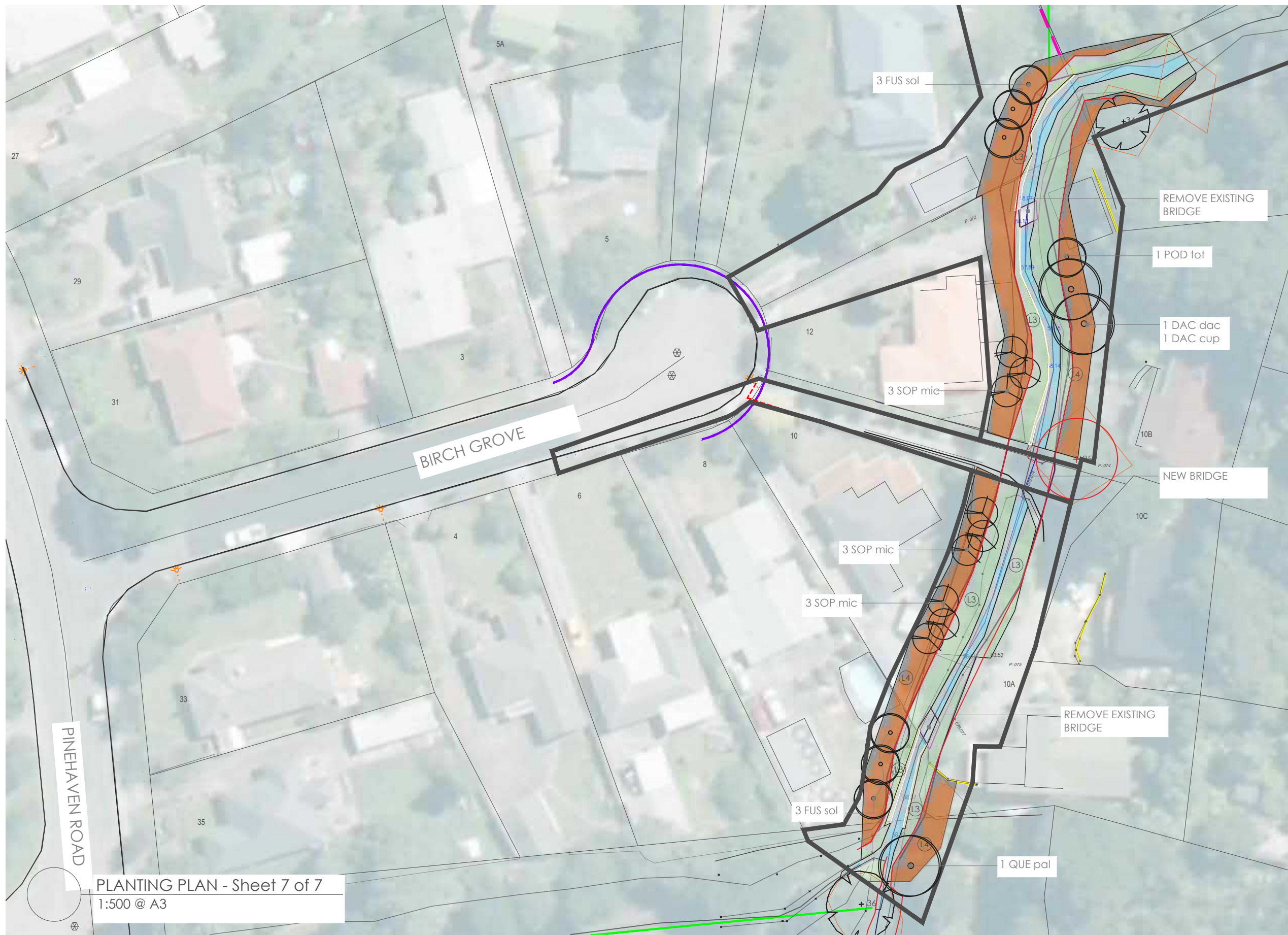
drawing sheet:
Sheet 6 of 7

original issue date : 26 SEPT 17
designed by : DCM
drawn by : BD
scale : 1:500 @ A3

project no / drawing no / revision:
2017_009 / L 106 / 6

property low

PLANTING PLAN - Sheet 6 of 7
1:500 @ A3



PLANTING PLAN - Sheet 7 of 7
1:500 @ A3

- legend:
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Refer to tree survey
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 - L1 Specimen Tree
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revision:

rev no.	date	description	approved
0	24/09/2017	Client Approval	DCM
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client / project name:
PINEHAVEN STREAM IMPROVEMENTS

drawing name:
LANDSCAPE WORKS PLANTING PLAN

drawing sheet:
Sheet 7 of 7

original issue date : 26 SEPT 17
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project no / drawing no / revision:
2017_009 / L 107 / 6

L1 Specimen Trees									
SP ITEM	Code	Botanical name	Common name	Habit (Low, Medium, High)	Size / Height	Spacing	Unit	Percentage of Mix	Quantity
S.01	DAC.dac	<i>Dacrycarpus dactyloides</i>	Kahikatea	High	45L	as shown		n/a	12
S.02	DAC.cup	<i>Dacrydium cupressinum</i>	Rimu	High	45L	as shown		n/a	6
S.03	DIC.squ	<i>Dicksonia squarrosa</i>	Whēki	Medium	1m high	as shown		n/a	15
S.04	IUS.sol	<i>Fuscospora solandri</i>	Black Beech	High	45L	as shown		n/a	30
S.05	POD.tot	<i>Podocarpus totara</i>	Totara	High	45L	as shown		n/a	10
S.06	QUE.pal	<i>Quercus palustris</i>	Pin Oak	High	45L	as shown		n/a	28
S.07	SAL.bab	<i>Salix babingtonii</i>	Weeping Willow	High	45L	as shown		n/a	5
S.08	SOP.mic	<i>Sophora microphylla</i>	Si Kowhai	Medium	45L	as shown		n/a	28
L3 Riparian 2 - Rarely wet									
					Area (m ²)				2013
	Code	Botanical name	Common name		Size	Spacing (m)		Percentage of Mix	Quantity
S.21	AST.ban	<i>Astelia banksii</i>	whāra whāra	Low	0.5L	0.7		10%	574
S.22	AUS.til	<i>Austroderia fulvida</i>	Torleso	Low	0.5L	0.7		10%	574
S.23	CAR.tor	<i>Carex lasiocarpa</i>	Orange sedge	Low	0.5L	0.7		15%	861
S.24	CAR.sec	<i>Carex secta</i>	purei	Low	0.5L	0.7		5%	287
S.25	RIC.nod	<i>Richtia nodosa</i>	Knobby club-rush	Low	0.5L	0.7		15%	861
S.26	HEB.sti	<i>Hebe stricta</i> var. <i>atkinsonii</i>	Koamiko	Low	0.5L	0.7		5%	287
S.27	LIB.per	<i>Lilium perigrinum</i>	NZ Iris	Low	0.5L	0.7		10%	574
S.28	MLC.ast	<i>Muehlenbeckia astonii</i>	Shrubby Torararo	Low	0.5L	0.7		15%	861
S.29	PHO.coo	<i>Phormium cookianum</i>	Mountain flax	Low	0.5L	0.7		15%	861
L4 Buffer									
					Area (m ²)				3344
	Code	Botanical name	Common name		Size	Spacing (m)		Percentage of Mix	Quantity
S.31	AUS.til	<i>Austroderia fulvida</i>	Small Inelae	Medium	0.5L	1.5		10%	149
S.32	BRG.rep	<i>Brachyglottis repanda</i>	Rangiora	Medium	0.5L	1.5		5%	74
S.33	COP.luc	<i>Coprosma lucida</i>	Shiny Karamu	Medium	0.5L	1.5		5%	74
S.34	COP.pro	<i>Coprosma propinqua</i>	Mingimingi	Medium	0.5L	1.5		5%	74
S.35	FUC.exc	<i>Fuchsia excorticata</i>	Tree Fuchsia	Medium	0.5L	1.5		5%	74
S.36	GRI.bif	<i>Griselinia biflora</i>	Broadleaf	Medium	0.5L	1.5		0%	149
S.37	LLA.hoo	<i>Flacocarpus hookianus</i>	Pokaka	Medium	0.5L	1.5		5%	74
S.38	MEL.tam	<i>Melaleuca tamnifolia</i>	Mahoe	Medium	0.5L	1.5		5%	74
S.39	PIT.leug	<i>Pittosporum rugosoides</i>	Lemonwood	Medium	0.5L	1.5		5%	74
S.40	PIT.ten	<i>Pittosporum tenax</i>	Kohuhu	Medium	0.5L	1.5		5%	74
S.41	PHO.coo	<i>Phormium cookianum</i>	Mountain flax	Low	0.5L	1.5		5%	74
S.42	PHO.ten	<i>Phormium tenax</i>	Flax	Medium	0.5L	1.5		5%	293
S.43	POD.tot	<i>Podocarpus totara</i>	Totara	High	0.5L	1.5		5%	74
S.44	PSY.arb	<i>Pseudopanax arborosum</i>	Five finger, Fuchsia	Medium	0.5L	1.5		5%	74
S.45	SCH.dig	<i>Schefflera digitata</i>	Pale	Medium	0.5L	1.5		5%	74
S.46	WEI.rac	<i>Weinmannia racemosa</i>	Kaurahi	Medium	0.5L	1.5		5%	74
L5 Climber / Bench									
					Area (m ²)				24
	Code	Botanical name	Common name		Size	Spacing (m)		Percentage of Mix	Quantity
S.51	CAR.pan	<i>Clematis paniculata</i>	Puwāhanganui	Medium	0.5L	0.7		30%	54
S.52	MET.cir	<i>Metrosideros cuneata</i>	Climbing rata	Medium	0.5L	0.7		30%	54
S.53	MLL.aus	<i>Muehlenbeckia australis</i>	Pohutukawa	Low	0.5L	0.7		40%	71

PLANT SCHEDULE - REV 0A

rev no.	date	description	approved
0	26/09/2017	Client Approval	DCM
1	07/08/2019	Draft for comment	DCM
2	16/09/2019	For Resource Consent	DCM
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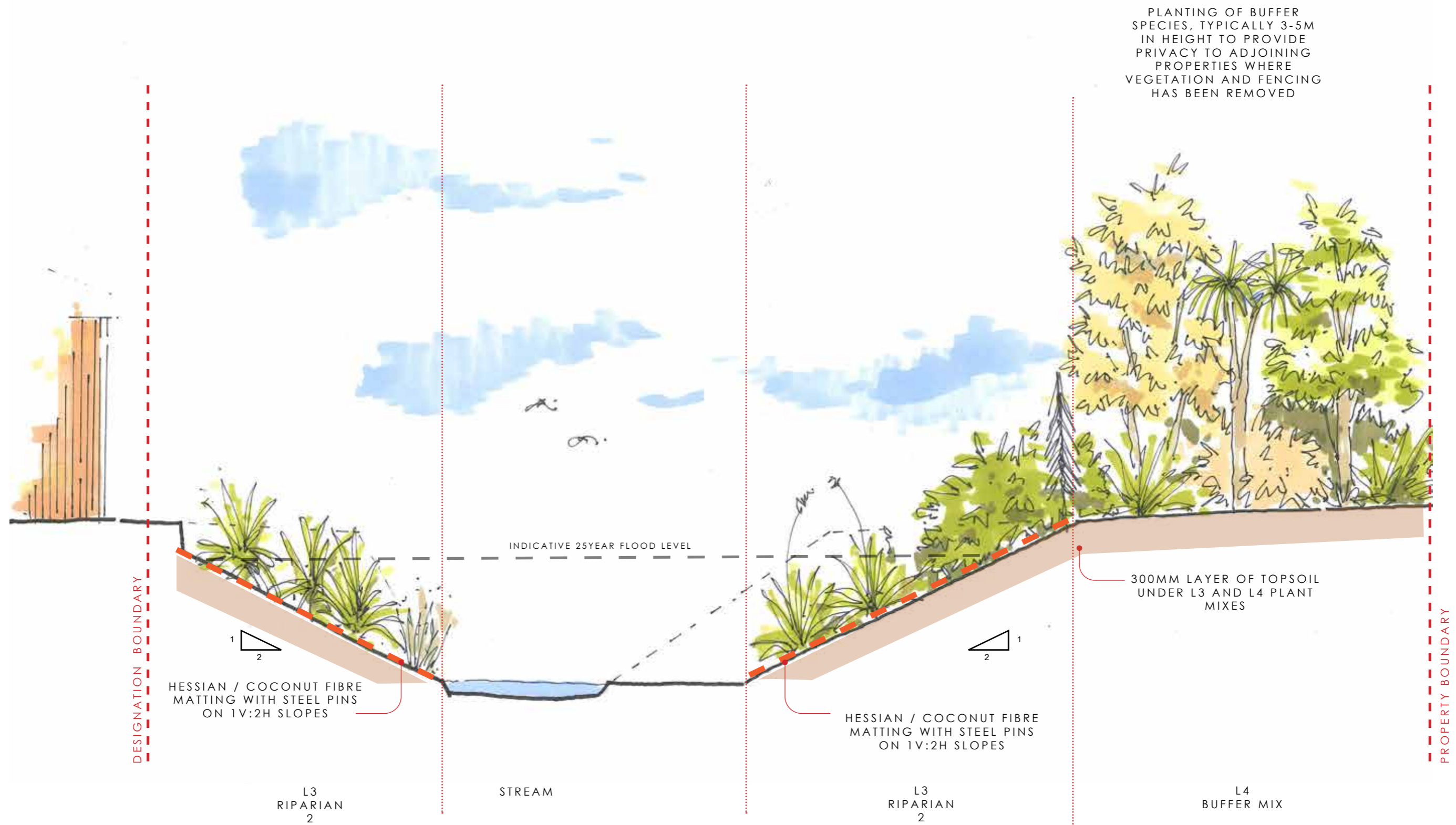
client / project name:
PINEHAVEN STREAM IMPROVEMENTS

drawing name:
LANDSCAPE WORKS PLANT SCHEDULE

drawing sheet:
Sheet 7 of 7

original issue date : 26 SEPT 17
designed by : DCM
drawn by : BD
scale : NTS

project no / drawing no / revision:
2017_009 / L 108 / 7



A. INDICATIVE LANDSCAPE CROSS SECTION TREATMENT

Client / project name: JACOBS/PINEHAVEN STREAM IMPROVEMENT WORKS
 Drawing name: **LANDSCAPE CROSS SECTION_TYPICAL**
 Designed by: Dave Compton-Moen
 Drawn by: DAVE COMPTON-MOEN
 Original issue date: 9 DECEMBER 2019
 Scales: 1:50

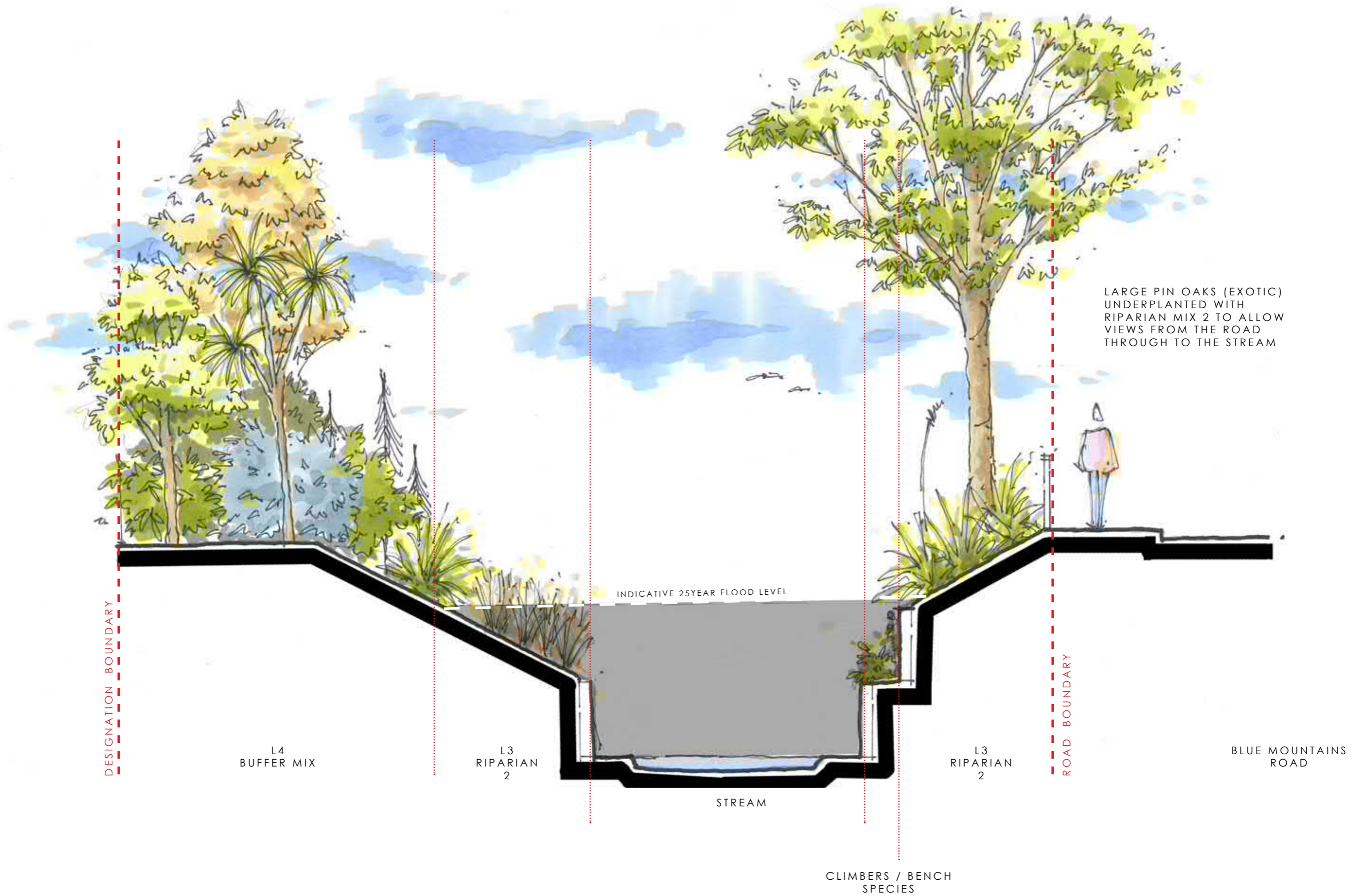
Revision no:	Amendment	Approved	Date
1	Initial issue for construction	DCM	9.12.2019
2	Removal of L2 planting	DCM	5.02.2020



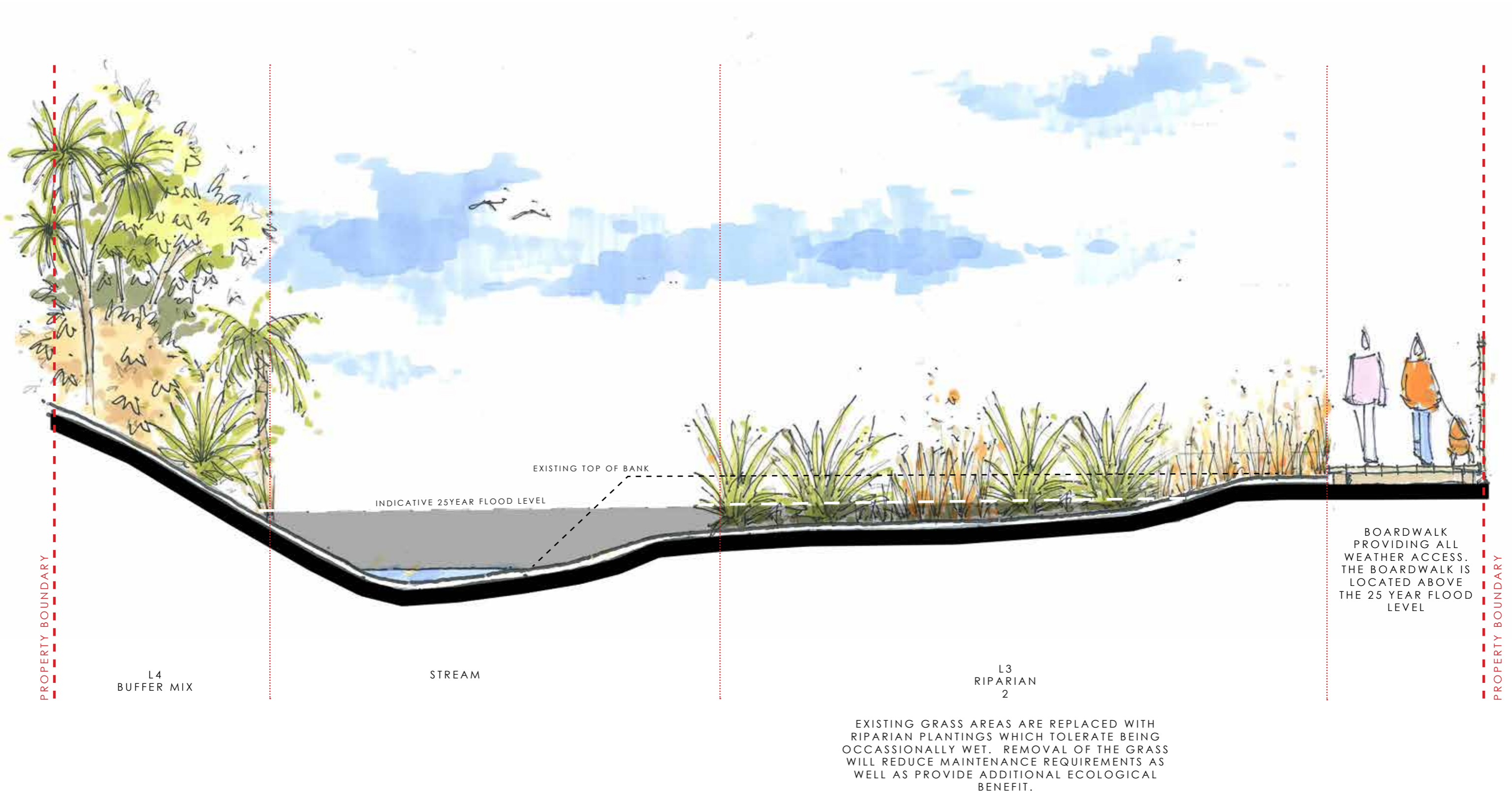
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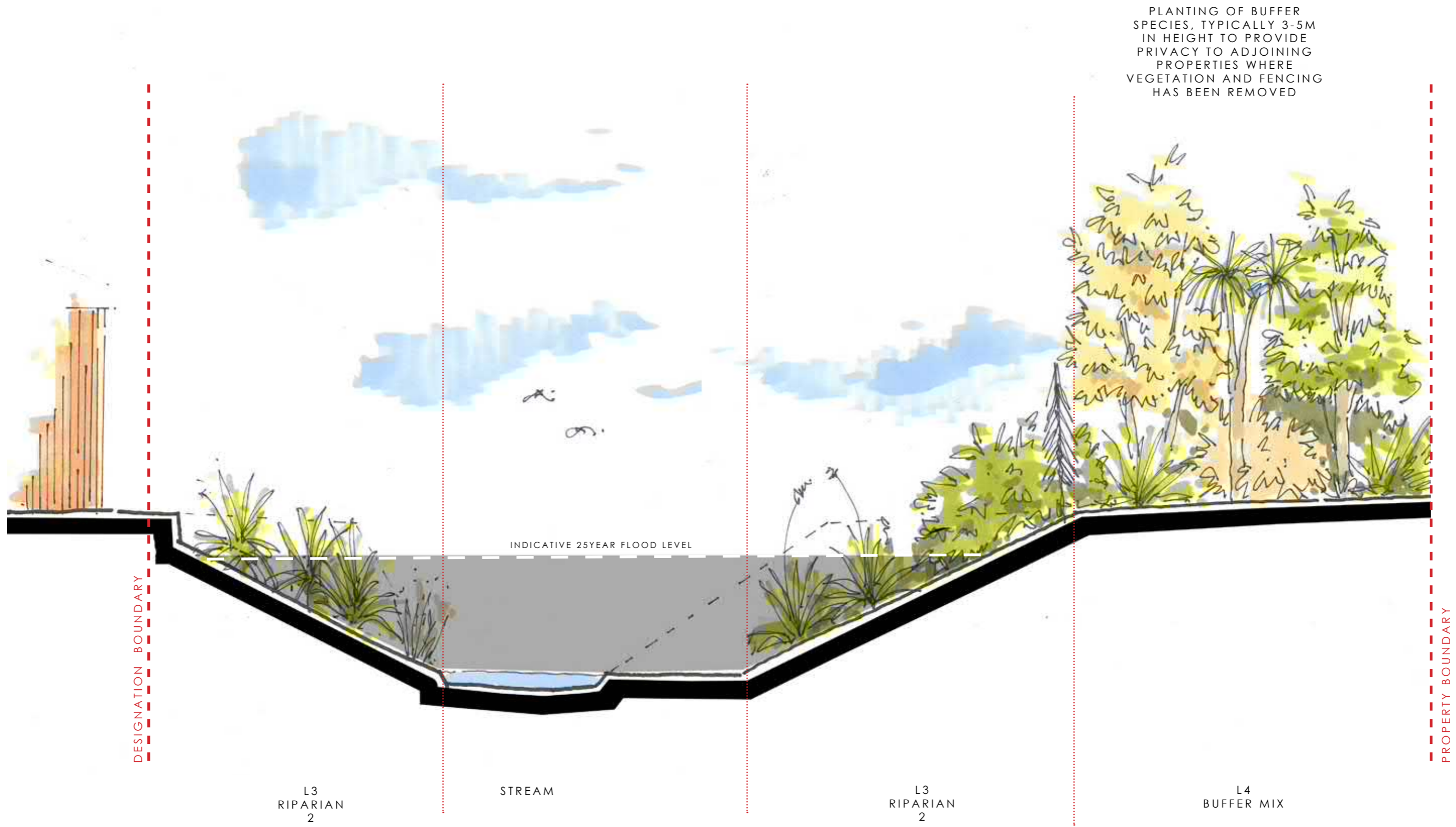
Project no / drawing no: **2017_009 / L101**

Revision: **2**



LANDSCAPE AND VISUAL IMPACT ASSESSMENT FIGURES
 MITIGATION MEASURES - LANDSCAPE CROSS SECTION (1)





LANDSCAPE AND VISUAL IMPACT ASSESSMENT FIGURES
 MITIGATION MEASURES - LANDSCAPE CROSS SECTION (3)