

Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of [Form 9](#)). Prior to, and during, completion of this application form, please refer to [Resource Consent Guidance Notes](#) and [Schedule of Fees and Charges](#) — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?

Yes No

If yes, who have you spoken with?

2. Type of consent being applied for

(more than one circle can be ticked):

Land Use

Discharge

Fast Track Land Use*

Change of Consent Notice (s.221(3))

Subdivision

Extension of time (s.125)

Consent under National Environmental Standard
(e.g. Assessing and Managing Contaminants in Soil)

Other (please specify)

**The fast track is for simple land use consents and is restricted to consents with a controlled activity status.*

3. Would you like to opt out of the fast track process?

Yes No

4. Consultation

Have you consulted with iwi/Hapū? Yes No

If yes, which groups have you consulted with?

Who else have you consulted with?

For any questions or information regarding iwi/hapū consultation, please contact Te Hono at Far North District Council, tehonosupport@fndc.govt.nz

5. Applicant details

Name/s:

Ian Smith

Email:

Phone number:

Postal address:

(or alternative method of service under section 352 of the act)

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? Yes No

If yes, please provide details.

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6. Address for correspondence

Name and address for service and correspondence (if using an Agent write their details here)

Name/s:

Nicola & Martin O'Brien

Email:

Phone number:

Postal address:

(or alternative method of service under section 352 of the act)

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

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7. Details of property owner/s and occupier/s

Name and Address of the owner/occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)

Name/s:

Ian Smith

Property address/
location:

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8. Application site details

Location and/or property street address of the proposed activity:

Name/s:

Site address/
location:

 Postcode

Legal description:

Val Number:

Certificate of title:

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site visit requirements:

Is there a locked gate or security system restricting access by Council staff? Yes No

Is there a dog on the property? Yes No

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

9. Description of the proposal

Please enter a brief description of the proposal here. Please refer to Chapter 4 of the *District Plan, and Guidance Notes*, for further details of information requirements.

If this is an application for a Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s), with reasons for requesting them.

10. Would you like to request public notification?

Yes No

11. Other consent required/being applied for under different legislation

(more than one circle can be ticked):

Building Consent

Regional Council Consent (ref # if known)

National Environmental Standard Consent

Other (please specify)

12. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following:

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)? Yes No Don't know

Is the proposed activity an activity covered by the NES? Please tick if any of the following apply to your proposal, as the NESCS may apply as a result? Yes No Don't know

Subdividing land

Disturbing, removing or sampling soil

Changing the use of a piece of land

Removing or replacing a fuel storage system

13. Assessment of environmental effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as written approvals from adjoining property owners, or affected parties.

Your AEE is attached to this application Yes

14. Draft conditions:

Do you wish to see the draft conditions prior to the release of the resource consent decision? Yes No

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

15. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write in full)

Ian Smith

Email:

Phone number:

Postal address:
(or alternative method of service under section 352 of the act)

Fees Information

An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

15. Billing details continued...

Declaration concerning Payment of Fees

I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: (please write in full)

Signature:

(signature of bill payer)

Date

MANDATORY

16. Important Information:

Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form.

You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement.

A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:

Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fnfdc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

17. Declaration

The information I have supplied with this application is true and complete to the best of my knowledge.

Name (please write in full)

Signature

Date

A signature is not required if the application is made by electronic means

See overleaf for a checklist of your information...

Checklist

Please tick if information is provided

- Payment (cheques payable to Far North District Council)
- A current Certificate of Title (Search Copy not more than 6 months old)
- Details of your consultation with Iwi and hapū
- Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- Applicant / Agent / Property Owner / Bill Payer details provided
- Location of property and description of proposal
- Assessment of Environmental Effects
- Written Approvals / correspondence from consulted parties
- Reports from technical experts (if required)
- Copies of other relevant consents associated with this application
- Location and Site plans (land use) AND/OR
- Location and Scheme Plan (subdivision)
- Elevations / Floor plans
- Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.

From: [Ian Smith](#)
To: [Nicola OBrien](#)
Subject: Re: RC form to sign
Date: Wednesday, 15 April 2026 11:21:15 pm

Understood- please accept this email in place of my signature

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From: Nicola OBrien <nicola@obrienconsulting.co.nz>
Sent: Wednesday, April 15, 2026 2:39:34 PM
To: Ian Smith <iansmith@wontok.co.nz>
Subject: Re: RC form to sign

Hi Ian,

The Planner on the phone said the processing Planner may accept an email from you stating that you have read Form 9 and cannot sign as overseas but agree with the form and would like to proceed. If you could reply to this email to that affect that would be great. If the processor doesn't accept an email, we will wait till you can sign the form.

Regards
Nicola

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From: Nicola OBrien
Sent: Wednesday, April 15, 2026 11:33:16 AM
To: Ian Smith <iansmith@wontok.co.nz>
Subject: RE: RC form to sign

Hi Ian,

We don't have Docusign so are just checking with Council if they will accept email approval from you. Waiting for a planner to call me back.

Kind regards
Nicola O'Brien



T 09 407 5208 | M 027 4446115

From: Ian Smith <iansmith@wontok.co.nz>
Sent: Wednesday, 15 April 2026 9:54 am
To: Nicola OBrien <nicola@obrienconsulting.co.nz>
Cc: Martin OBrien <martin@obrienconsulting.co.nz>
Subject: Re: RC form to sign

Please send via Docusign or similar as I am currently in Australia until the 22nd

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From: Nicola OBrien <nicola@obrienconsulting.co.nz>
Sent: Wednesday, April 15, 2026 7:47:27 AM
To: Ian Smith <iansmith@wontok.co.nz>
Cc: Martin OBrien <martin@obrienconsulting.co.nz>
Subject: RC form to sign

Hi Ian,

Can you please print page 5 of the form attached, sign it and scan it back to me as soon as you can. This is for the Resource Consent for Stormwater Management with the increase in impermeable surfaces.

Kind regards
Nicola O'Brien



T 09 407 5208 | M 027 4446115

STORMWATER MANAGEMENT ASSESSMENT OF ENVIRONMENTAL EFFECTS

Hihi Top Ten Holiday Park
61 Hihi Beach Road
Hihi
Far North District

Lot 1 DP 56536

Written by: Nicola O'Brien
Reviewed by: Martin O'Brien

Rev: A
Date: 15th April 2026
Job No: 4262

Ph: (09) 407 5208 | Mob: 027 407 5208

E-mail: martin@obrienconsulting.co.nz

E-mail: nicola@obrienconsulting.co.nz

Form 9

Application for Resource Consent under Sections 127 Resource Management Act 1991

To Far North District Council

1. *Hihi Beach TOP 10 Holiday Park, from 61 Hihi Beach Road, Hihi, Lot 1 DP 56536, apply for Resource Consent due to the following rule breach in a Coastal Residential zone:*

“10.8.5.1.6 Stormwater Management

The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 50% or 1,000m², whichever is the lesser”.

Lot 1 DP 56536 has existing buildings including cabins and a metal driveway with a current total impermeable surface area of ~2,189m². 2 future cabins with a combined roof area of ~66m² are proposed to the southwest of the lot. A proposed bathroom addition to existing Cabin 7 and 10 is to occur. The proposed bathroom additions will have a total roof area of ~9m² (rounded). Total impermeable surfaces following relocation of the 2 future cabins and installation of the additions will be ~2,264m², or 16% of the lot area. ~2,264m² is greater than the 1,000m² permitted, 16% is well under 50% of the gross site area. All figures are rounded to the nearest decimal point.

The activity is Restricted Discretionary as per 10.8.5.2.8 which states “The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 60%, unless Low Impact Design has been used to reduce site impermeability and consent has been obtained from the Northland Regional Council for any stormwater discharge from any area of more than 1,000m²”. 16% is well under the 60% described.

The applicant opts out of the fast-track consent process as the breach is Restricted Discretionary.

2. *The activity to which the application relates (the proposed activity) is as follows:*

Lot 1 DP 56536 has existing buildings including cabins and a metal driveway with a current total impermeable surface area of ~2,189m². The lot is 14,164m² in size. 2 future cabins are to be moved onto the site and a proposed bathroom addition to existing Cabin 7 and 10 is to occur. The proposed roof area of each relocated cabin is 33m² (66m² total). The proposed roof area of the bathroom for cabin 7 is ~5m² whilst cabin 10 will be ~4m². The total proposed increase to impermeable surfaces will be 75m² (rounded).

This report addresses relevant criteria in the existing and proposed Far North District Plan and Resource Management Act (1991).

3. *The location of the proposed activity:*

Lot 1 DP 56536 is located at 61 Hihi Beach Road, Hihi. The Certificate to Title is attached as Appendix 1. The property is zoned Coastal Residential in the operative Far North District Plan and will be rezoned General Residential with a Coastal Environment overlay in the Far North Proposed District Plan. Refer to the Cabin Location Plan, Appendix 2, Sheet A01b, showing the location of the proposed future cabins along with the bathroom additions to Cabin 7 and 10.

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4. The owner listed is the only owner/occupier of the site to which this application relates.
 5. There are no other activities that are part of the proposal to which this application relates.
 6. No additional resource consents are required for the proposal to which this application relates.
 7. Attached is an assessment of the proposed activity's effect on the environment that:
 - a. Includes the information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and
 - b. Addresses the matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and
 - c. includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.
 8. Attached is an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.
 9. Attached is an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1)(b) of the Resource Management Act 1991, including the information required by clause 2(2) of Schedule 4 of that Act.
 - 10-13 Not applicable.
 14. Attached is further information required to be included in this application by the District Plan, the Regional Plan, the Resource Management Act 1991, or any regulations made under that Act.

1.0 Executive Summary

Lot 1 DP 56536 is a 14,164m², irregular shaped, property located at 61 Hihi Beach Road, Hihi. Lot 1 DP 56536 is part of Hihi Beach Top 10 Holiday Park. The property is zoned Coastal Residential in the operative Far North District Plan and will be rezoned General Residential with a Coastal Environment overlay in the Far North Proposed District Plan.

Lot 1 DP 56536 has existing buildings including cabins and a metal driveway with a current total impermeable surface area of ~2,189m². The lot is 14,164m² in size. 2 future cabins with a total roof area of ~66m² (33m² each) are proposed. A proposed bathroom addition to existing Cabin 7 and 10 is to occur. The proposed roof area of the additions will be 9m² (rounded). Total impermeable surface increase of 75m², 16% of the gross site area.

Application for Stormwater Management as a Restricted Discretionary Activity due to impermeable surfaces being greater than the 1,000m² permitted in a Coastal Residential zone as per permitted activity rule 10.8.5.1.6. In the Far North Proposed District Plan the activity will be permitted as GRZ-R2 for a General Residential zone reads "The impermeable surface coverage of any site is no more than 50%". The proposed activity will be 16% of the gross site area.

The Stormwater Mitigation Report written by Wilton Joubert Consulting Engineers, 14th April 2026 outlines stormwater management. Mitigation of runoff is to be provided by upgraded drainage conveyance onsite. Roof runoff (from all existing cabins, proposed cabins and proposed additions), walkway runoff and retaining wall drainage is to be directed to a piped network discharging to Waiaua Stream. A riprap apron, to be lined with anchored geotextile, is to be installed directly downstream of the outfall with minimum dimensions of 4.0mL x 0.9mW x 0.3mD with min. 0.15Ø rip rap for erosion protection.

The activity has triggered an improvement to current stormwater management of existing impermeable surfaces as well as proposed. With mitigation, effects of all impermeable surfaces on stormwater are considered to have less than minor impact on the receiving environment.

1.1 Scope

O'Brien Design Consulting were engaged by Ian Smith from Hihi Campground to prepare an Assessment of Environmental Effects Report to accompany an application to for Resource Consent addressing the requirements of Section 88.2 and Schedule 4 of the Resource Management Act 1991. The application is to be submitted to the Far North District Council. This application has been prepared in accordance with Form 9 and Schedule 4, Sections 2, 6 and 7 of the Resource Management Act.

Relevant District Plan and proposed District Plan objectives and policies have been assessed. The Stormwater Mitigation Report written by Wilton Joubert Consulting Engineers, 14th April 2026 addresses criterion for stormwater management and is attached as Appendix 3.

1.2 Description of Activities

Hihi Beach TOP 10 Holiday Park, from 61 Hihi Beach Road, Hihi, Lot 1 DP 56536, apply for Resource Consent due to the following rule breach in a Coastal Residential zone:

“10.8.5.1.6 Stormwater Management

The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 50% or 1,000m², whichever is the lesser”.

Lot 1 DP 56536 has existing buildings including cabins and a metal driveway with a current total impermeable surface area of ~2,189m². 2 future cabins with a combined roof area of ~66m² are proposed to the southwest of the lot. A proposed bathroom addition to existing Cabin 7 and 10 is to occur. The proposed bathroom additions will have a total roof area of ~9m² (rounded). Total impermeable surfaces following relocation of the 2 cabins and installation of the additions will be ~2,264m², or 16% of the lot area. ~2,264m² is greater than the 1,000m² permitted, 16% is well under 50% of the gross site area. All figures are rounded to the nearest decimal point.

The Proposed Floor Plans and Elevations of the Architectural Plans, Appendix 2, Sheets A03 and 4 show the proposed bathroom pods for Cabin 7 and 10.

The activity is Restricted Discretionary as per 10.8.5.2.8 which states “The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 60%, unless Low Impact Design has been used to reduce site impermeability and consent has been obtained from the Northland Regional Council for any stormwater discharge from any area of more than 1,000m²”. 16% is well under the 60% described.

Impermeable Surfaces

Existing metal right of way:	1,805 m ²
Existing top block:	43 m ²
Existing Cabin 3:	30 m ²
Existing Cabin 4:	27 m ²
Existing Cabin 5:	28 m ²
Existing Cabin 6:	37 m ²

Existing Cabin 7:	22 m ²
Proposed bathroom addition to 7:	5 m ²
Existing Cabin 8:	33 m ²
Existing Cabin 9:	34 m ²
Existing Cabin 10:	26 m ²
Proposed bathroom addition to 10:	4 m ²
Existing Cabin 11:	26 m ²
Existing Cabin 12:	29 m ²
Existing Cabin 13:	32 m ²
Existing Cabin 14:	17 m ²
Future Cabin 1:	33 m ²
Future Cabin 2:	<u>33 m²</u>
Total proposed:	2,264 m ²

A Stormwater Mitigation Report has been written by Wilton Joubert Consulting Engineers, 14th April 2026 and is attached as Appendix 3.

2.0 Site Description

Lot 1 DP 56536 is a 14,164m², irregular shaped, property located at 61 Hihi Beach Road, Hihi. The site is within the Hihi Top Ten Holiday Park (comprising of Lot 1 DP 56536, Lot 1 DP 53180, Lot 2 DP 53180 and Lot 3 DP 53180). The Cabin Location Plan, Sheet A01b, Appendix 2 shows the location of existing buildings including existing Cabins 3-14 and proposed future Cabins 1-2 (to be relocated). Metal right of ways provide access to the buildings. The remainder of the lot is grassed camping areas with vegetation.

The site falls generally to the northwest with steeper terrain toward the eastern and upper boundaries transitioning to lower, flatter ground toward the northwestern boundary which borders Waiaua Stream. The lower central and north-western portions of the site are relatively flat and low lying.

Northland Regional Council maps show potential flooding from Waiaua Stream in 10-year, 50 year and 100-year events along part of the eastern boundary. Lot 1 DP 65713 is located to the north and east. Lot 1 DP 65713 is a 78,104m² property with bush to the north and grassland to the south. The holiday park and residential properties are located to the south. Northland Regional Council or Far North District Maps show Lot 1 DP 56536 and the surrounding area.

3.0 Far North District Plan Review

3.1 Operative Far North District Plan

Application for Stormwater Management as a Restricted Discretionary Activity due to total impermeable surfaces being greater than 1,000m² as per 10.8.5.1.6.

3.2 Operative Far North District Plan Other Rule Assessment:

The following District Plan rules comply:

10.8.5.1.1 Relocated Buildings: Complies.

10.8.5.1.2 Residential Intensity: Existing campsite, Complies

10.8.5.1.3 Scale of Activities: Complies

10.8.5.1.4 Building Height: 3.6m proposed, 8m permitted, Complies

10.8.5.1.5 Sunlight, Complies.

10.8.5.1.7 Setback from Boundaries, Complies.

10.8.5.1.8 Screening for Neighbours Non-Residential Activities, Complies.

10.8.5.1.9 Outdoor Activities, Complies.

10.8.5.1.10 Transportation, Complies.

10.8.5.1.11 Site Intensity – Non-Residential Activities, Complies.

10.8.5.1.12 Hours of Operation – Non-Residential Activities, Complies.

10.8.5.1.13 Keeping of Animals, Complies

10.8.5.1.14 Noise, Complies

10.8.5.1.15 Helicopter Landing Area, Complies

10.8.5.1.16 Building Coverage, Complies

12.3.6.1: Earthworks: No earthworks required, Complies

3.3 Operative Far North District Plan Objectives & Policies

3.3.1 Coastal Residential Zone, Section 10.8.3, Operative Far North District Plan

The following has been taken from the Coastal Residential section of the Operative Far North District Plan, Section 10.8.

OBJECTIVES

10.8.3.1 To enable the development of residential activity in and around existing coastal settlements.

The relocation of 2 future cabins and installation of prefabricated bathroom pods for existing Cabins 7 and 10 at Hihi Beach, Top 10 Holiday Park is proposed.

10.8.3.2 To provide for low density residential development on the urban periphery, where more intense development would result in adverse effects on the rural and natural environment.

The campground including Cabins 7 and 10 are existing. The installation of bathroom pods and relocated cabins has triggered the need for stormwater management of all existing cabins plus the additions, as well as walkway and retaining wall drainage. Roof runoff from all cabins plus additions, walkway runoff and retaining wall drainage will be piped to a discharge point northwest of the accommodation area in the Waiaua Stream via a new/upgraded onsite piped drainage network. Low impact design principles are utilised to reduce run off volumes and to protect receiving environments from the adverse effects of stormwater discharge.

The proposed activity has triggered an improvement to current stormwater management of existing impermeable surfaces as well as proposed.

10.8.3.3 To enable the development of coastal settlements where urban amenity and coastal environmental values are compatible.

Stormwater management of existing and proposed impermeable surfaces, existing walkways and retaining wall drainage is to be improved.

POLICIES

10.8.4.1 That standards in the zone enable a range of housing types and forms of accommodation to be provided, recognising the diverse needs of the community and the coastal location of the zone.

The campground is existing. The relocation of 2 future cabins and 2 bathrooms to existing cabins is in keeping with existing development of the site. The campground provides a range of accommodation.

10.8.4.2 Non-residential activities within the Coastal Residential Zone shall be designed, built, and located so that any effects that are more than minor on the existing character of the residential environment or the scale and intensity of residential activities are avoided, remedied or mitigated.

The activity has triggered a requirement to update and improve stormwater management for existing impermeable surfaces, including walkways and retaining wall drainage as well as proposed increased roof areas.

10.8.4.3 That residential activities have sufficient land associated with each household unit to provide for outdoor space, and sewage disposal.

The activity is commercial. The 14,164m² property has sufficient land available for outdoor space as shown on the Cabin Location Plan, Sheet A01b, Appendix 2. Sewage disposal is via public wastewater disposal.

10.8.4.4 That the portion of a site covered in buildings and other impermeable surfaces be limited to enable open space and landscaping around buildings and avoid or mitigated the effects of stormwater runoff on receiving environments.

Total impermeable surfaces will be ~2,264m², or 16% of the lot area (14,164m²). 16% is well under 50% of the gross site area required by the permitted rule. Large areas over the property are grassed or covered with vegetation as shown on the Cabin Location Plan, Sheet A01b, Appendix 2. The open space and landscaping around buildings assists in mitigating the effects of stormwater runoff on receiving environments.

10.8.4.5 That provision be made for ensuring sites have adequate access to sunlight and daylight.

Not applicable. Complies with sunlight rule.

10.8.4.6 That activities with net effects greater than a single residential unit could be expected to have, be required to minimise adverse effects on the amenity values and general peaceful enjoyment of any adjacent residential activities.

Not expected to have adverse effects on the amenity values and general peaceful enjoyment of any adjacent residential activities.

10.8.4.7 That provision be made to ensure a reasonable level of privacy and amenity for inhabitants of buildings.

Not related to stormwater management. Numerous, existing trees are located over the site providing privacy.

3.3.2 Proposed Far North District Plan Objectives & Policies

In the proposed District Plan the property will become General Residential with a Coastal Environment overlay. The impermeable surfaces of the site will be 16% of the gross site area. Under the proposed plan this will be permitted as the rule states the following:

GRZ-R2 Impermeable Surface Coverage

PER-1 "The impermeable surface coverage of any site is no more than 50%"

As the activity will be permitted in this zone the objectives and policies are not listed. The objectives and policies relevant or somewhat relevant to the activity would be Objective GRZ-04 and Policies GRZ-P1 (a), GRZ-P3.

4.0 Proposed Far North District Plan Rules with Immediate Legal Effect

The proposal is subject to the Proposed District Plan rules with immediate legal effect. Within the Proposed District Plan, the site is zoned General Residential with a Coastal Environment overlay.

Chapter	Rule Reference	Compliance of Proposal
<i>Hazardous Substances</i>	<i>The following rules have immediate legal effect: Rule HS-R2 has immediate legal effect but only for a new significant hazardous facility. HS-R5 relates to a hazardous facility within a scheduled site and area of significance to Maori. HS-R6 relates to a hazardous facility within an SNA. HS-R9 relates to a hazardous facility within a scheduled heritage resource.</i>	Not applicable. The site does not contain any hazardous substances to which these rules would apply.
<i>Heritage Area Overlays</i>	<i>All rules have immediate legal effect (HAR1 to HAR14) All standards have immediate legal effect (HA-S1 to HA-S3)</i>	The site is not within a Heritage Area Overlay.
<i>Historic Heritage</i>	<i>All rules have immediate legal effect (HHR1 to HHR10) Schedule 2 has immediate legal effect</i>	Not applicable. The site is not located within a Heritage Area Overlay.
<i>Notable Trees</i>	<i>All rules have immediate legal effect (NTR1 to NTR9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect</i>	Not applicable. The site does not contain any notable trees.
<i>Sites and Areas of Significance to Māori</i>	<i>All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect</i>	Not applicable. Not identified as a site or area significant to Māori.
<i>Ecosystems and Indigenous Biodiversity</i>	<i>All rules have immediate legal effect (IB-R1 to IB-R5)</i>	Not applicable. The proposal does not include any indigenous vegetation pruning trimming, clearance, or associated land disturbance. No plantation forestry activities are proposed. Therefore, the proposal is not in breach of rules IB-R1 to IB-R5.
<i>Subdivision</i>	<i>The following rules have immediate legal effect: SUB-R6, SUB-R13, SUB-R14, SUB-R15, SUB-R17</i>	Not applicable. The proposal is not a subdivision
<i>Activities on the Surface of Water</i>	<i>All rules have immediate legal effect (ASWR1 to ASWR4)</i>	Not applicable. The proposal does not involve activities on the surface of water.
<i>Earthworks</i>	<i>The following rules have immediate legal effect: EW-R12, EW-R13 The following standards have immediate legal effect: EW-S3, EW-S5</i>	Earthworks addressed in Section 5.2
<i>Signs</i>	<i>The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area</i>	Not applicable. No signs are proposed as part of this application.
<i>Orongo Bay Zone</i>	<i>Rule OBZ-R14 has partial immediate legal effect because RD-1(5) relates to water</i>	Not applicable. The site is not located in the Orongo Bay Zone.

The assessment above indicates that the proposal is determined to be a Permitted Activity in regard to the Proposed District Plan. Therefore, no further assessment of these rules will be undertaken.

5.0 Assessment of Environmental Effects

Stormwater Management – *Far North District Plan Assessment Criteria Section 10.8.5.2.8*

The assessment criteria for stormwater management are addressed in Section 8, p. 10 and 11 of the Stormwater Mitigation Report by Wilton Joubert, 14th April 2026 attached as Appendix 3.

“Roof run off is to be collected via gutter systems and piped to the onsite drainage network. Any existing roof drainage piping (e.g.) downpipes to ground surface) may be extended into the proposed drainage network provided these are in adequate condition. Leaf guards and/or first flush diverters may be installed for run off treatment to further improve system efficacy/

The drainage from the existing retaining wall(s) between the cabins is to be directed to Pipe DL01 via sealed pipes. The condition of the existing retaining wall drainage cannot be confirmed from available information. It is recommended that the retaining wall drainage is inspected and flushed by a suitably qualified professional to confirm functionality prior to completion of the drainage works. Should the existing drainage be found to be non-functional or inadequate, replacement or modification may be required (may require input from a structural and/or geotechnical engineer)” (p.8).

“Low impact design principles have been employed in the drainage design, with all roof and hardstand areas to be collected and conveyed via a piped network discharging to the Waiaua Stream via a riprap-protected outlet. The majority of the wider catchment is undeveloped coastal and bush land, and the total impermeable fraction of the catchment as a whole is estimated to be low” (p.10).

The Site Plan of the Stormwater Mitigation Report, p.13 visually shows proposed and existing stormwater design.

The District Plan Assessment is provided in Section 8 of the report pages 10-11.

The activity has triggered an improvement to current stormwater management of existing impermeable surfaces as well as proposed. With mitigation, effects of all impermeable surfaces on stormwater are considered to have less than minor impact on the receiving environment.

6.0 Notification Assessment, Section 95, RMA 1991

6.1 Section 95A-G, RMA 1991

Section 95A-G, Public Notification and Limited Notification of Applications, of the Resource Management Act (1991) were reviewed against the breach discussed.

95A Public Notification of Consent Applications

- (1) *A consent authority must follow the steps set out in this section, in the order given, to determine whether to publicly notify an application for a resource consent.*

Step 1: Mandatory public notification in certain circumstances

- (2) *Determine whether the application meets any of the criteria set out in subsection (3) and,—*
(a) if the answer is yes, publicly notify the application; and
(b) if the answer is no, go to step 2.

- (3) *The criteria for step 1 are as follows:*

- (a) the applicant has requested that the application be publicly notified;*
(b) public notification is required under section 95C;
(c) the application is made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.

The applicant has not requested public notification nor is it required under section 95C. The application is not made jointly with an application to exchange recreation reserve land. Step 1 does not apply.

Step 2: If not required by step 1, public notification precluded in certain circumstances

- (4) *Determine whether the application meets either of the criteria set out in subsection (5) and,—*
(a) if the answer is yes, go to step 4 (step 3 does not apply); and
(b) if the answer is no, go to step 3.

- (5) *The criteria for step 2 are as follows:*

- (a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes public notification;*
(b) the application is for a resource consent for 1 or more of the following, but no other, activities:
(i) a controlled activity;
(ii) [Repealed]
(iii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity.
(iv) [Repealed]

(6) [Repealed]

Step 2 does not apply to the activity.

Step 3: If not precluded by Step 2, public notification required in certain circumstances

(7) Determine whether the application meets either of the criteria set out in subsection (8) and,-

(a) if the answer is yes, publicly notify the application; and

(b) if the answer is no, go to step 4.

(8) The criteria for step 3 are as follows:

(a) the application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification:

(b) the consent authority decides, in accordance with section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor.

The application does not require public notification. The activity will have a less than minor effect on the surrounding environment. Stormwater mitigation to existing will be improved.

Step 4; Public notification in special circumstances

(9) Determine whether special circumstances exist in relation to the application that warrant the application being publicly notified and,-

(a) if the answer is yes, publicly notify the application; and

(b) if the answer is no, do not publicly notify the application, but determine whether to give limited notification of the application under section 95B.

No special circumstances exist in this application which justify public notification.

From the assessment above it is considered that the application does not require public notification.

95B Limited notification of consent applications

(1) A consent authority must follow the steps set out in this section, in the order given, to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified under section 95A.

Step 1: certain affected groups and affected persons must be notified

(2) Determine whether there are any—

(a) affected protected customary rights groups; or

(b) affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity).

There are no protected customary rights groups or affected customary marine title groups.

(3) Determine—

-
- (a) whether the proposed activity is on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11; and
- (b) whether the person to whom the statutory acknowledgement is made is an affected person under section 95E.

Not applicable to this application.

- (4) Notify the application to each affected group identified under subsection (2) and each affected person identified under subsection (3).

Step 2: if not required by step 1, limited notification precluded in certain circumstances

- (5) Determine whether the application meets either of the criteria set out in subsection (6) and,—
- (a) if the answer is yes, go to step 4 (step 3 does not apply); and
- (b) if the answer is no, go to step 3.

No, go to step 3.

- (6) The criteria for step 2 are as follows:

- (a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification;
- (b) the application is for a controlled activity (but no other activities) that requires a resource consent under a district plan (other than a subdivision of land).

Step 3: if not precluded by step 2, certain other affected persons must be notified

- (7) In the case of a boundary activity, determine in accordance with section 95E whether an owner of an allotment with an infringed boundary is an affected person.
- (8) In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.
- (9) Notify each affected person identified under subsections (7) and (8) of the application.

The activity is not a boundary activity. Section 6.2 provides information determining that neighbours and the public are unlikely to be affected by the activity.

Step 4: further notification in special circumstances

- (10) Determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under section 95E as not being affected persons), and,—
- (a) if the answer is yes, notify those persons; and
- (b) if the answer is no, do not notify anyone else.

No special circumstances exist in relation to the application that warrant notification of other persons.

95C-E – Are not applicable as the activity has been assessed as being less than minor effect to neighbouring properties.

95F and G are not applicable as there are no affected customary rights groups involved or is it a customary marine title group.

It is considered that the application does not require public notification.

6.2 Neighboring Properties

The Stormwater Mitigation Report by Wilton Joubert, 14th April 2026, p.10 attached as Appendix 3 states “The majority of the wider catchment is undeveloped coastal and bush land, and the total impermeable fraction of the catchment as a whole is estimated to be low”. Potential flooding effects from Waiaua Stream have been considered, p. 9.

The proposed activity has triggered an improvement to stormwater management of existing impermeable surfaces as well as proposed. With mitigation the effect of stormwater on the receiving environment is expected to be less than minor.

7.0 Resource Management Act Section 104 Assessment

(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2 and section 77M, have regard to:

(a) any actual and potential effects on the environment of allowing the activity; and

Section 104(1)(a) requires assessment of any actual and potential effects on the environment as a result of the proposed activity. Section 4, 5 and 6.2 discuss actual and potential effects. The conclusion reached is that the adverse effects of granting consent to the proposal are less than minor, and therefore acceptable in the receiving environment.

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity;

Section 104(1)(ab) requires that the consent authority consider ‘any measure proposed or agreed to by the applicant for the purposes of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity’. It is considered the proposal is not of a scale or nature that would require specific offsetting or environmental compensation measures to ensure positive effects on the environment. Mitigation measures are proposed and have been discussed.

(b) any relevant provisions of:

(i) a national environmental standard:

(ii) other regulations:

(iii) a national policy statement:

(iv) a New Zealand coastal policy statement:

(v) a regional policy statement or proposed regional policy statement:

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

The Regional Plan has been reviewed and there are no documents that are relevant to the proposal.

Any earthworks will proceed under the guidance of an ADP and will be in accordance with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016, in accordance with Rules EW-12, EW-R13, EW-S3 and EW-S5.

8.2 Part 2 of the Resource Management Act

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:
 - (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.**

The application will have less than minor effect on the items in Part 2 of the Resource Management Act.

8.0 Schedule 4

Information required in assessment of environmental effects.

- (1) An assessment of the activity's effects on the environment must include the following information:
 - (a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:**

Refer to Section 4, 5 and 6.2 which discuss the activity, potential effects, and mitigation methods. The activity will not result in any significant adverse effects on the environment.

- (b) an assessment of the actual or potential effect on the environment of the activity:*

Section 4, 5 and 6.2 discuss potential effects. The potential effects with mitigation are expected to be less than minor.

- (c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:*

There are no hazardous installations proposed.

- (d) if the activity includes the discharge of any contaminant, a description of—
 - (i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*
 - (ii) any possible alternative methods of discharge, including discharge into any other receiving environment:**

No contaminants are proposed.

(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:

Mitigation measures are discussed in this report. Refer to Section 5 for mitigation measures and recommendations.

(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:

Refer to Section 6.1, Notification Assessment, Section 95, RMA 1991 and Section 6.2 Neighbouring Properties. Consultation and response not applicable.

(g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:

No monitoring is required for this activity.

(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).

The activity will not have a more than minor effect on protected customary rights groups.

(2) A requirement to include information in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

Refer to Section 4 and 5 for the assessment against the operative and proposed Far North District Plan and the Far North District Plan Assessment Criterion.

(3) To avoid doubt, subclause (1)(f) obliges an applicant to report as to the persons identified as being affected by the proposal, but does not—

(a) oblige the applicant to consult any person; or

(b) create any ground for expecting that the applicant will consult any person.

Refer to Section 6.0 Notification Assessment, Section 95, RMA 1991.

Matters that must be addressed by assessment of environmental effects.

(1) An assessment of the activity's effects on the environment must address the following matters:

(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:

(b) any physical effect on the locality, including any landscape and visual effects:

(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:

(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:

(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:

(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.

(2) The requirement to address a matter in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

Refer to Section 4.0 - 7.0 which address the items required as per Schedule 4, Section 7.

9.0 Conclusion

Roof runoff (from all existing cabins, proposed cabins and proposed additions), walkway runoff and retaining wall drainage is to be directed to a piped network discharging to Waiaua Stream. A riprap apron, to be lined with anchored geotextile, is to be installed directly downstream of the outfall with minimum dimensions of 4.0mL x 0.9mW x 0.3mD with min. 0.15Ø rip rap for erosion protection.

The activity has triggered an improvement to current stormwater management of existing impermeable surfaces as well as proposed. With mitigation, effects of all impermeable surfaces on stormwater are considered to have less than minor impact on the receiving environment.



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**



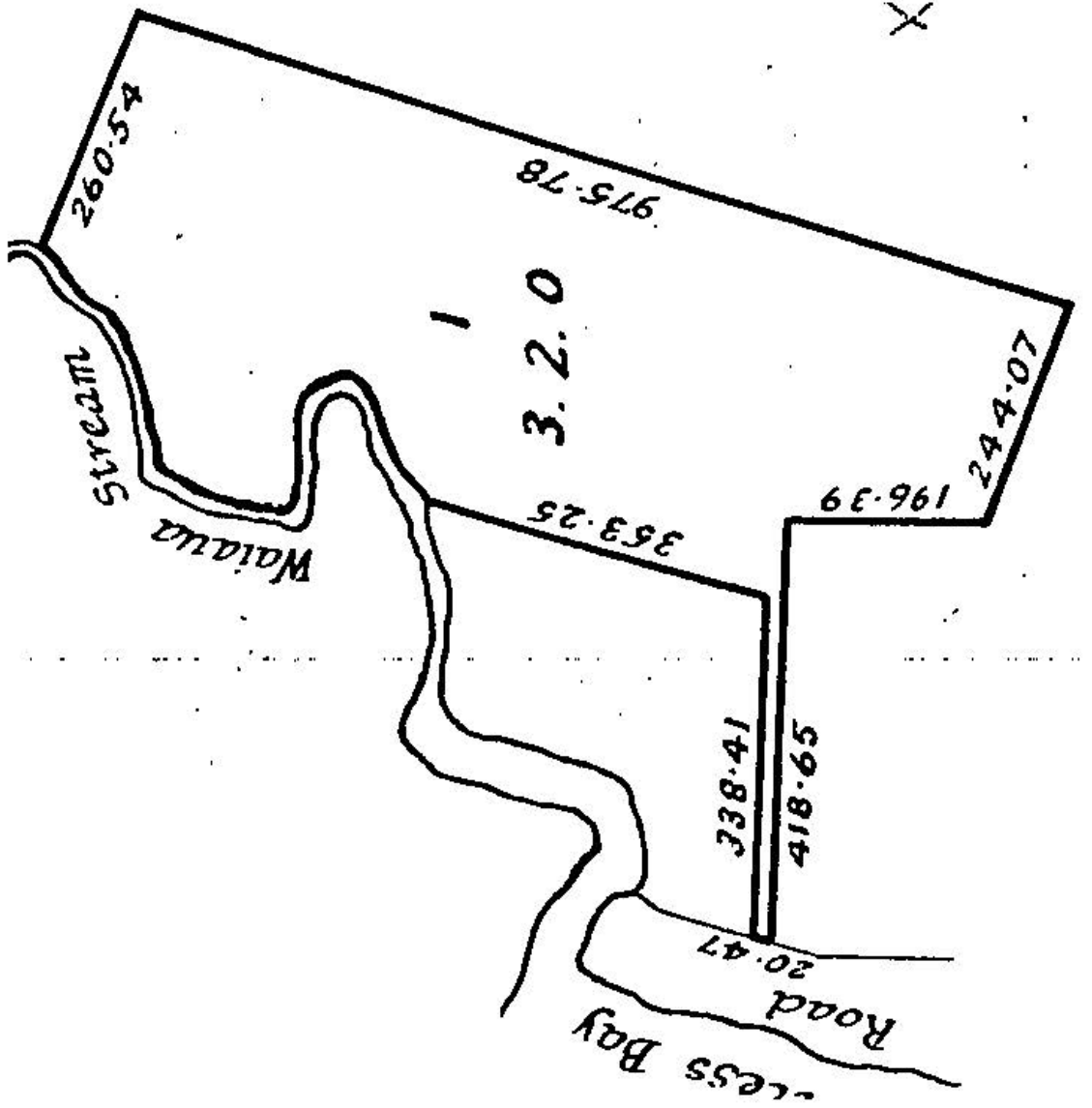

R.W. Muir
Registrar-General
of Land

Identifier NA9C/130
Land Registration District North Auckland
Date Issued 03 August 1966

Prior References
NA5A/101

Estate Fee Simple
Area 1.4164 hectares more or less
Legal Description Lot 1 Deposited Plan 56536
Registered Owners
Vicki Anne Smith, Ian Roger Smith and CLM Trustees Limited

Interests
13030956.2 Mortgage to Westpac New Zealand Limited - 1.7.2024 at 2:47 pm





Lot 1 DP 56536
 Lot area: 14,164m²
 Roof pitch: 3°
 Cladding weight: Light
 Corrosion zone: D
 Wind zone: High
 Coastal Residential zone

District plan compliance:

Relocated Buildings: NA

Residential intensity: Existing camp site complies

Scale or activity: Complies

Building height:
 Permitted: 8m max
 Proposed: 3.6m approx. Complies

Sunlight rule: Complies

Stormwater Management

(Impermeable surfaces):	
Existing metal driveway:	1,805m ²
Existing top block:	43m ²
Existing 3:	30m ²
Existing 4:	27m ²
Existing 5:	28m ²
Existing 6:	37m ²
Existing 7:	22m ²
Proposed addition to 7:	5m ²
Existing 8:	33m ²
Existing 9:	34m ²
Existing 10:	26m ²
Proposed addition to 10:	4m ²
Existing 11:	26m ²
Existing 12:	29m ²
Existing 13:	32m ²
Existing 14:	17m ²
Future cabin 1:	33m ²
Future cabin 2:	33m ²
Total proposed:	2,264m ²

50% or 1,000m²
 Total permitted = 50% of gross site area = 7,082m²
 Total proposed = 2,264m² = 16% RC Required

Setbacks to boundaries: 3m Complies

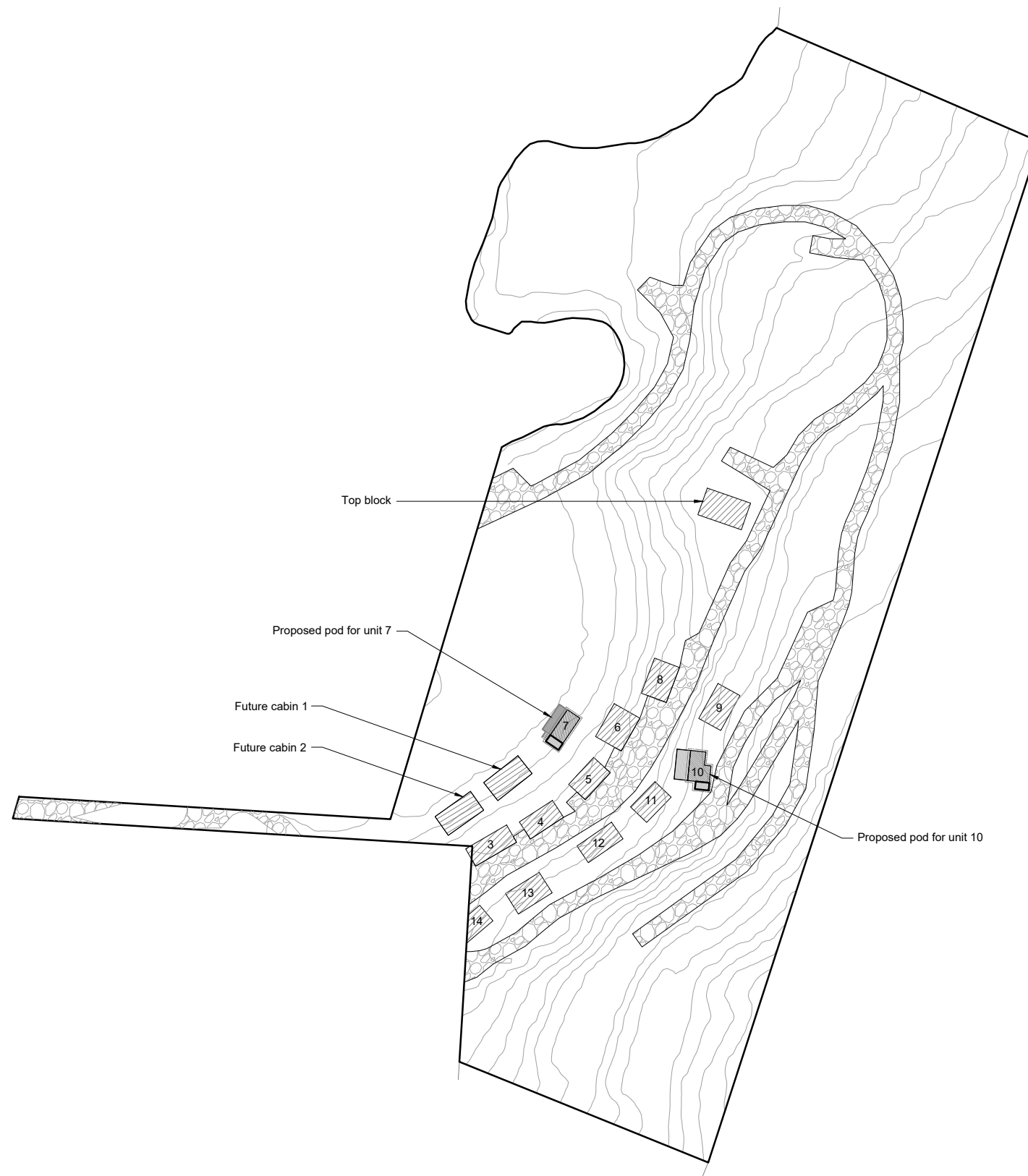
Building Coverage:

Existing top block:	43m ²
Existing 3:	30m ²
Existing 4:	27m ²
Existing 5:	28m ²
Existing 6:	37m ²
Existing 7:	22m ²
Proposed addition to 7:	5m ²
Existing 8:	33m ²
Existing 9:	34m ²
Existing 10:	26m ²
Proposed addition to 10:	4m ²
Existing 11:	26m ²
Existing 12:	29m ²
Existing 13:	32m ²
Existing 14:	17m ²
Future cabin 1:	33m ²
Future cabin 2:	33m ²
Total proposed:	459m ²

45% or 900m²
 Total permitted = 45% of gross site area = 6,374m²
 Total proposed = 459m² = 3.2% Complies

Earthworks

No earthworks required



Verify all dimensions on site before commencing work & do not scale from drawings. Refer any discrepancies to O'Brien Design Consulting Ltd.

All work to be done in accordance with NZS 3604: 2011 and the NZ Building Code unless specifically designed.

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T 09 407 5208 | martin@obrienconsulting.co.nz

Project Title
 Hihi Top Ten
 Holiday Park
 Hihi Beach Road
 Lot 1 DP 56536

Sheet Title
 Cabin Location Plan

Drawn 26 March 2026

Project No 4262.1

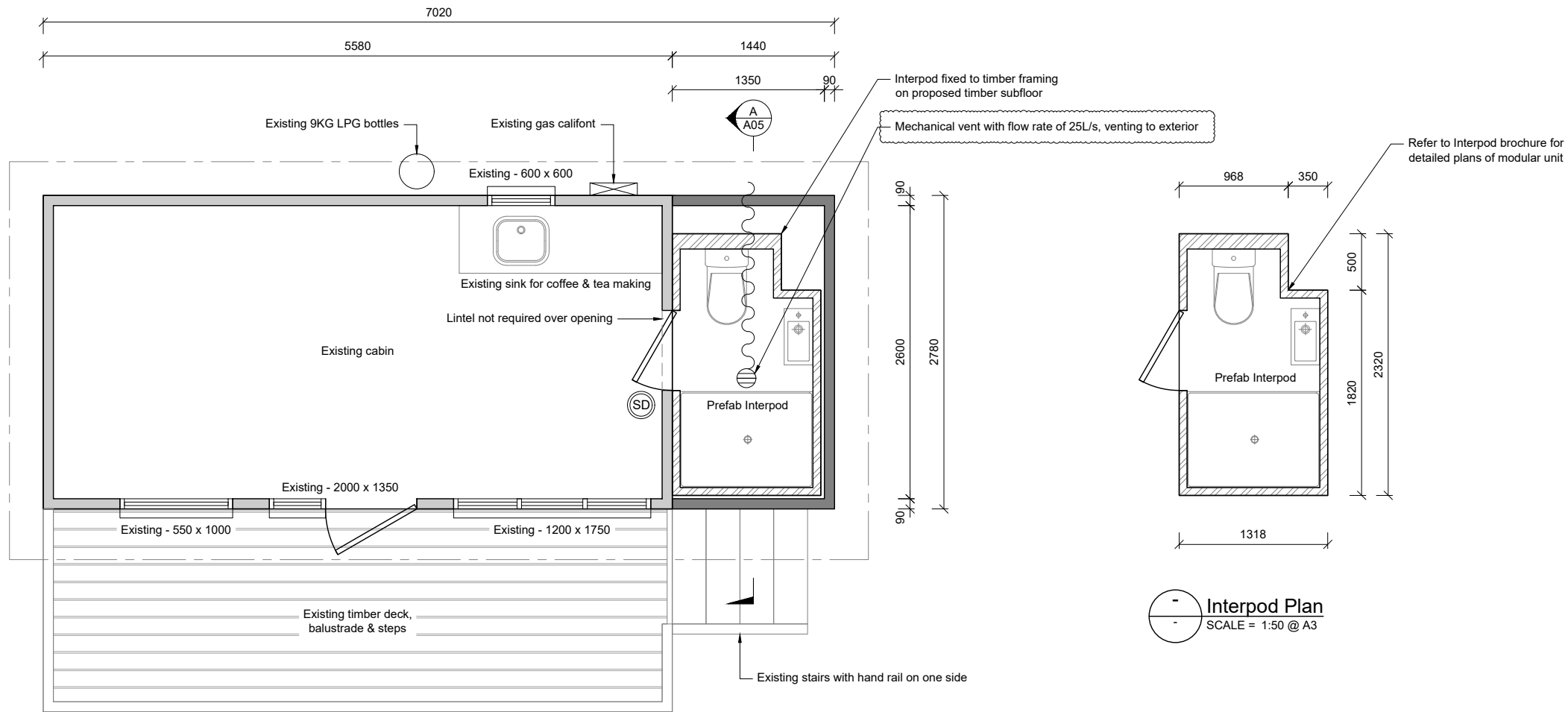
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 10 5 0 10 20
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SPECIFICATION:

- High wind zone
- Exposure zone D
- Timber subfloor & pile foundations
- 2605mm Stud height (low end)
- Existing Hardie-Flex sheet cladding
- Proposed Hardie-Flex sheet cladding
- Proposed direct-fix shadowclad cladding
- Trimline roofing (Colorsteel MAXAM)
- 3° Roof pitch
- Hardieflex soffit lining
- Selected timber facisa with uPVC spouting & uPVC 80Ø downpipe, unless noted.



Proposed Floor Plan
SCALE = 1:50 @ A3

Interpod Plan
SCALE = 1:50 @ A3

BUILDING AREA:

Existing	Floor Area: 15.5m ²
	Roof Area: 21.8m ²
Addition	Floor Area: 4.0m ²
	Roof Area: 5.1m ²
Total	Floor Area: 19.5m ²
	Roof Area: 26.9m ²

- NOTE:**
1. All dimensions taken from the outside of pre-cut, please check all dimensions before construction commences.
 2. Refer to attached sheet for cladding & roofing notes & details.
 3. All wall framing typically H1.2 treated unless specifically stated.
 4. All external linings to be installed to manufacturers instructions, refer to separate detail sheet for cladding details & notes.
 5. Interconnected Smoke alarms to be installed to NZS4514:2021 located in all bedrooms, living spaces, hallways, and landings within the building spaces. Where a kitchen is separated from the living spaces with a door a suitable kitchen smoke alarm shall be installed. This may be a heat alarm to avoid nuisance activations.

LEGEND

	Smoke Detector
	Roof Line
	New External load-bearing wall framing: 90 x 45 SG8 H1.2 Timber studs at 400 c/c 90 x 45 SG8 H1.2 Timber noggs at 800 c/c
	Steel prefab Interpod framing
	Existing timber wall framing to remain

FIXINGS

- Exposure zone: D
Durability of fixings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1
- Fixings within 600mm of finished ground level to be 304 stainless steel.
Exposed fixings to be type 304 stainless steel.
Sheltered fixings to be type 304 stainless steel.
Closed in nail plates in roof space to be continuous coated galvanized steel.
Closed in wire dogs and bolts to be hot dipped galvanized steel.
All other closed structural fixings to be mild steel (uncoated non galvanized)

Verify all dimensions on site before commencing work & do not scale from drawings. Refer any discrepancies to O'Brien Design Consulting Ltd.
All work to be done in accordance with NZS 3604:2011 and the NZ Building Code unless specifically designed.
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Project Title
Hihi Top Ten
Holiday Park
Hihi Beach Road
Lot 1 DP 56536

Sheet Title
Proposed Floor Plan
Unit 7

Drawn 26 March 2026

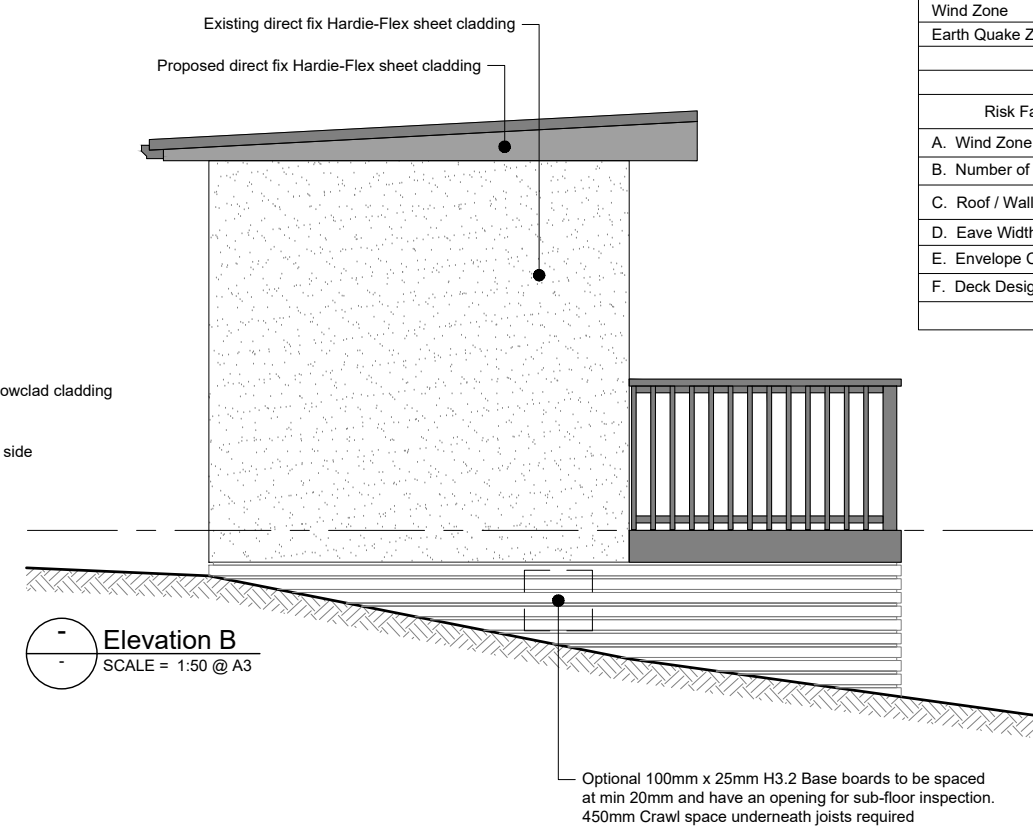
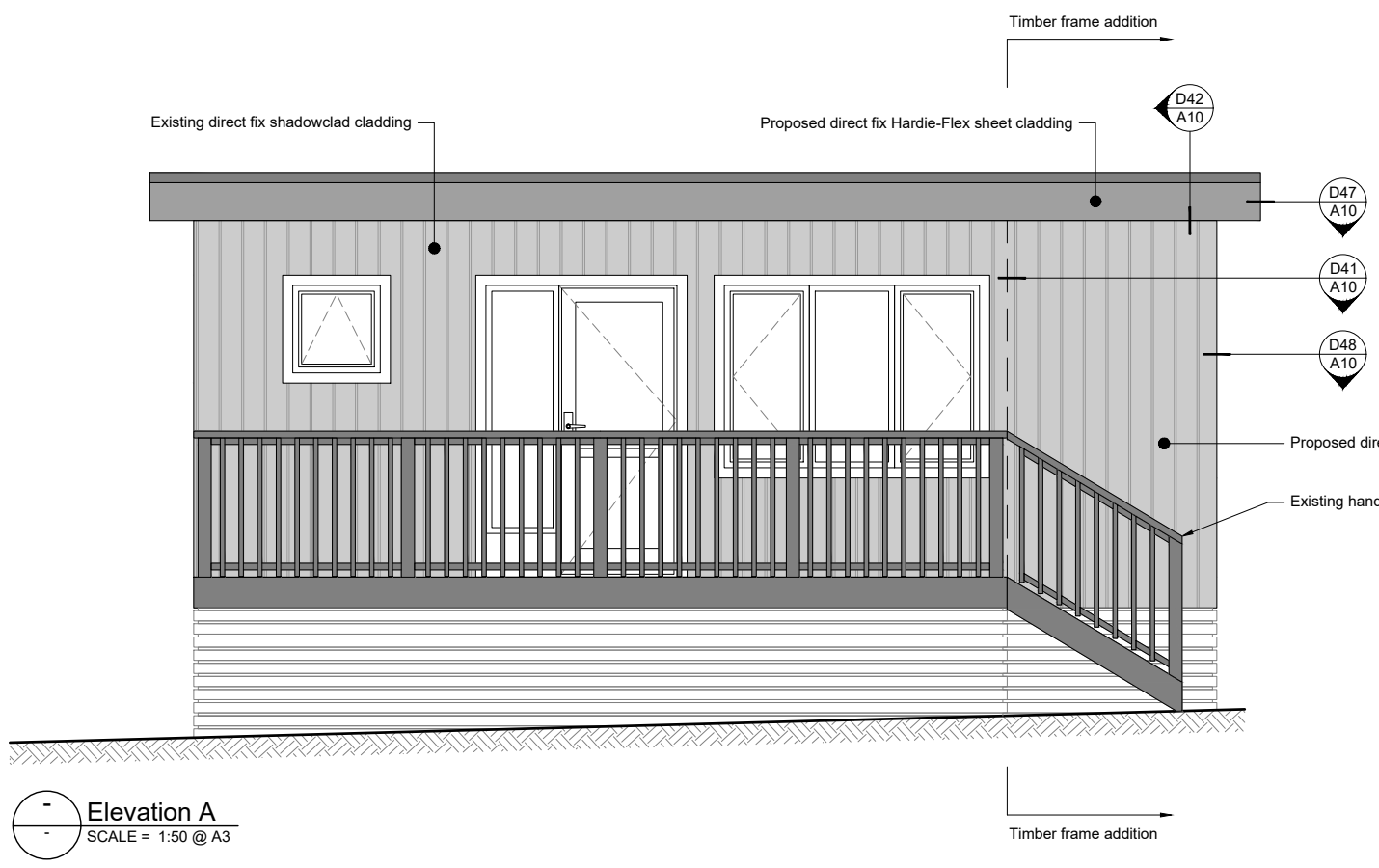
Project No 4262.1

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C	A03

Scale (A3 Original) 1: 50
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SPECIFICATIONS	
Cladding Type	Hardie-flex & Shadowclad
Stud Height	2605
Roofing Type	Trapezoidal
Roof Pitch	3°
Joinery	Aluminum
Wind Zone	High
Earth Quake Zone	1

RISK MATRIX					
Risk Factor	L	M	H	VH	Score
A. Wind Zone	0	0	1	2	1
B. Number of Storeys	0	1	2	4	0
C. Roof / Wall Intersection	0	1	3	5	0
D. Eave Width	0	1	2	5	2
E. Envelope Complexity	0	1	3	6	1
F. Deck Design	0	2	4	6	0
Total					4



NOTE:

- All heights shown are existing ground heights.
- All external linings to be installed to manufacturers instructions, refer to separate detail sheet for cladding details & notes.

FIXINGS

Exposure zone: D
Durability of fixings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1

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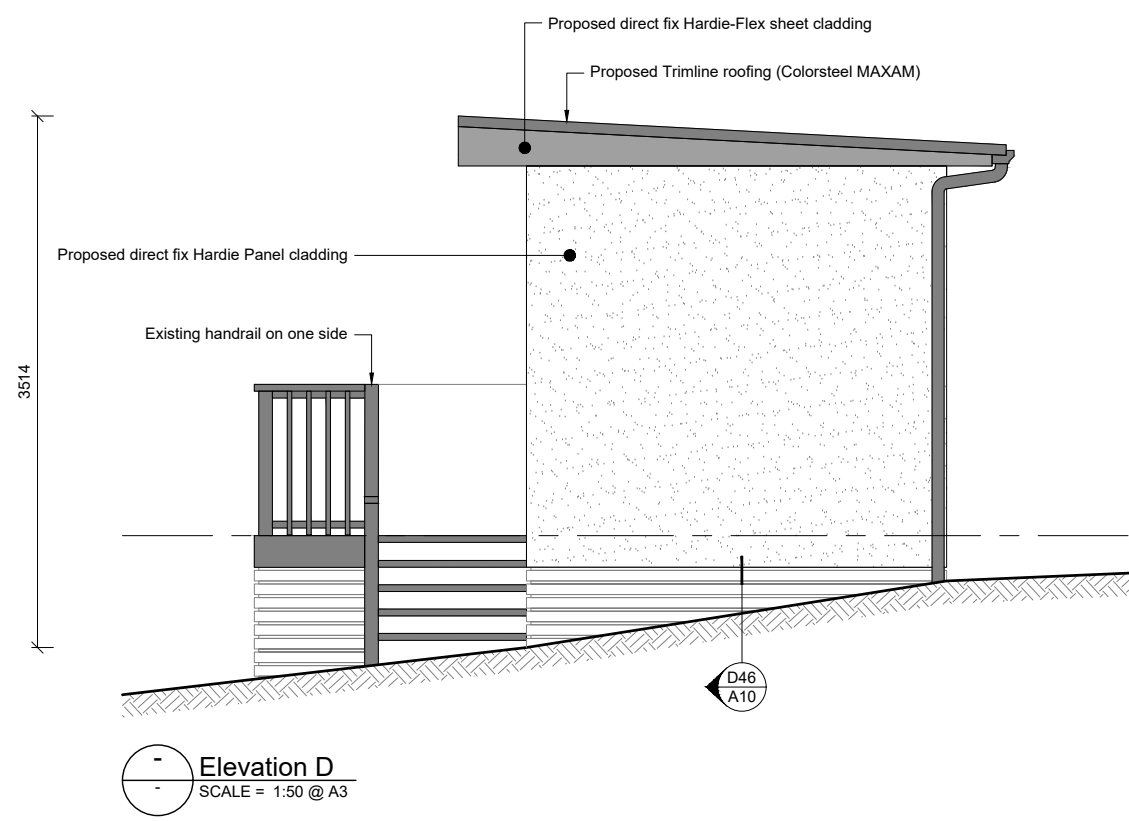
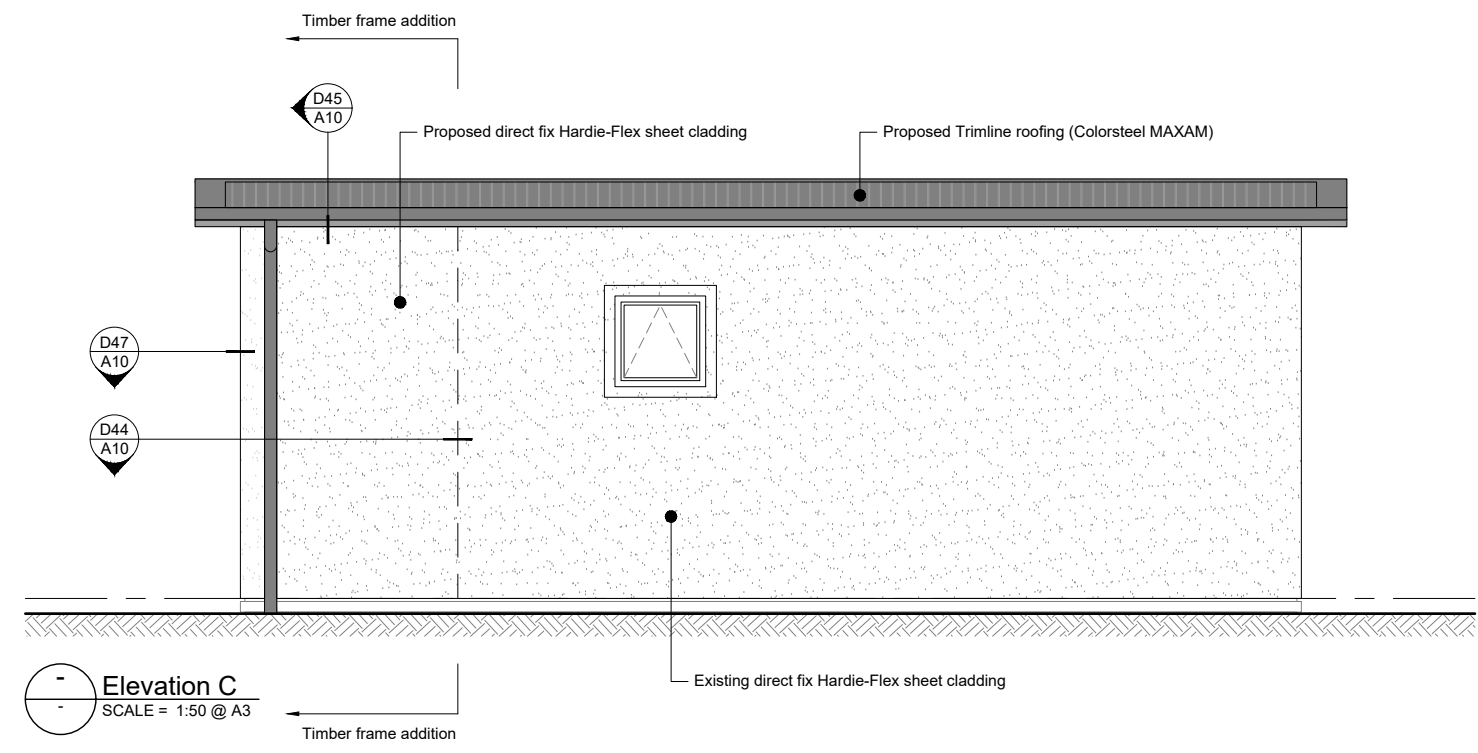
Project Title
Hihi Top Ten
Holiday Park
Hihi Beach Road
Lot 1 DP 56536

Sheet Title
Proposed Elevations
Unit 7

Drawn 26 March 2026

Project No 4262.1

Rev	Sheet
C	A04





SPECIFICATION:

- High wind zone
- Exposure zone D
- Timber subfloor & pile foundations
- 2605mm Stud height (low end)
- Existing Hardie-Flex sheet cladding
- Proposed direct-fix Hardie-Flex sheet cladding
- Trimline roofing (Colorsteel MAXAM)
- 3° Roof pitch
- Hardieflex soffit lining
- Selected timber facisa with uPVC spouting & uPVC 80Ø downpipe, unless noted.

BUILDING AREA:

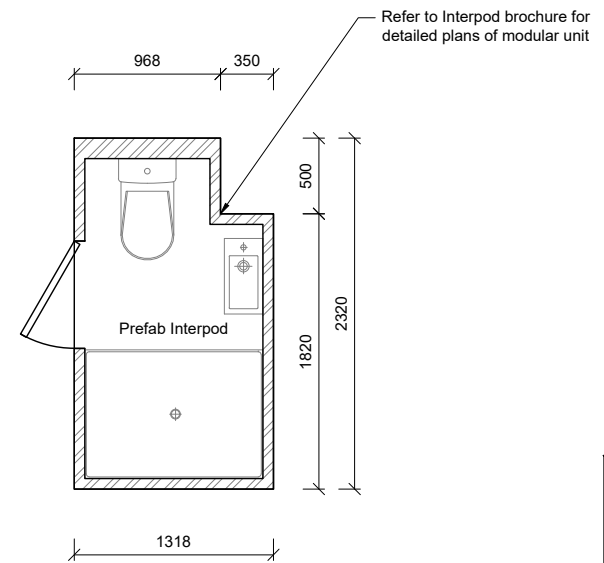
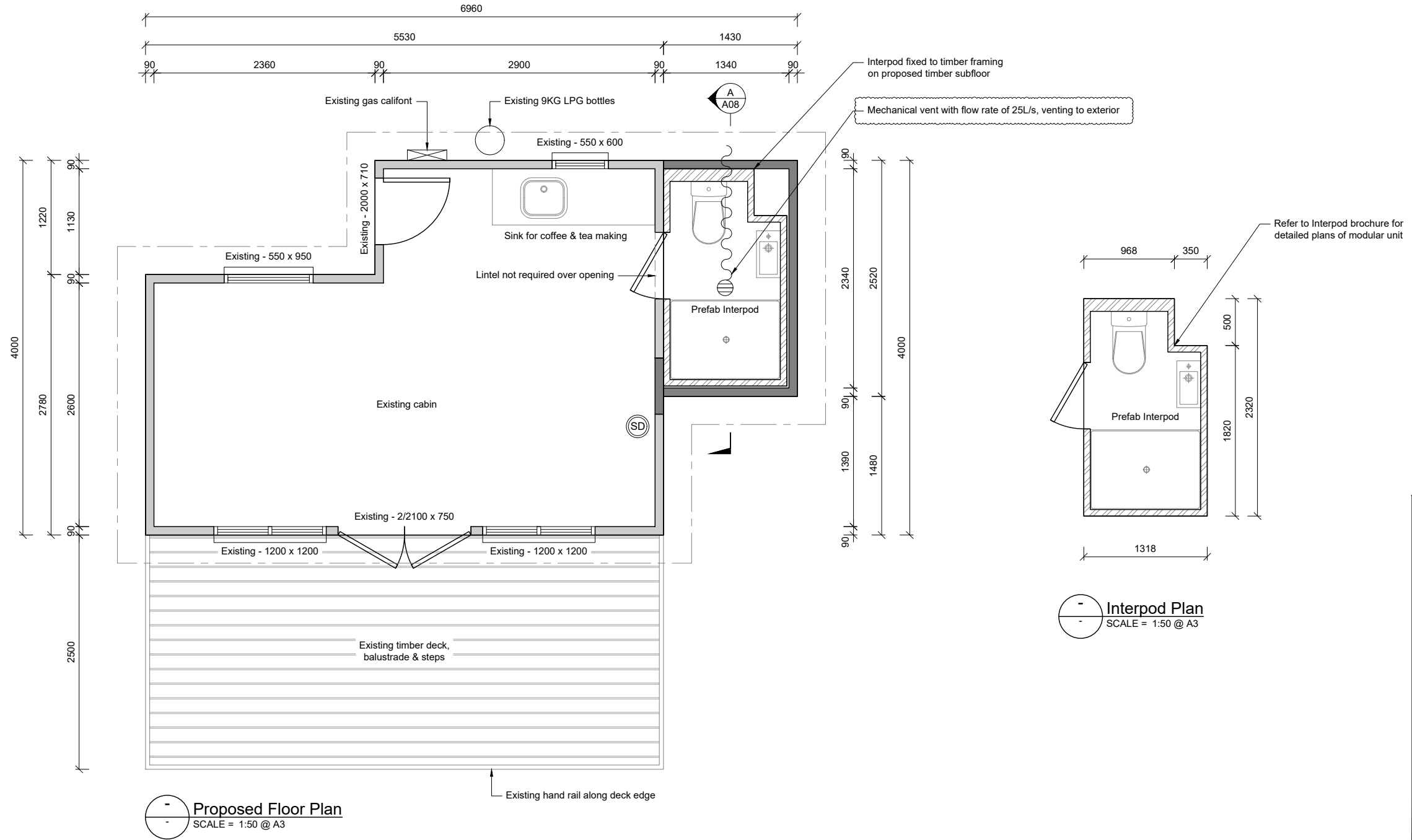
Existing
 Floor Area: 19.1m²
 Roof Area: 26.1m²

Addition
 Floor Area: 3.6m²
 Roof Area: 3.5m²

Total
 Floor Area: 22.7m²
 Roof Area: 29.6m²

NOTE:

1. All dimensions taken from the outside of pre-cut, please check all dimensions before construction commences.
2. Refer to attached sheet for cladding & roofing notes & details.
3. All wall framing typically H1.2 treated unless specifically stated.
4. All external linings to be installed to manufacturers instructions, refer to separate detail sheet for cladding details & notes.
5. Interconnected Smoke alarms to be installed to NZS4514:2021 located in all bedrooms, living spaces, hallways, and landings within the building spaces. Where a kitchen is separated from the living spaces with a door a suitable kitchen smoke alarm shall be installed. This may be a heat alarm to avoid nuisance activations.



Interpod Plan
SCALE = 1:50 @ A3

Proposed Floor Plan
SCALE = 1:50 @ A3

- LEGEND**
- (SD) Smoke Detector
 - Roof Line
 - ▬ New External load-bearing wall framing:
90 x 45 SG8 H1.2 Timber studs at 400 c/c
90 x 45 SG8 H1.2 Timber noggs at 800 c/c
 - ▨ Steel prefab Interpod framing
 - ▬ Existing timber wall framing to remain

- FIXINGS**
- Exposure zone: D
 Durability of fixings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1
- Fixings within 600mm of finished ground level to be 304 stainless steel.
 Exposed fixings to be type 304 stainless steel.
 Sheltered fixings to be type 304 stainless steel.
 Closed in nail plates in roof space to be continuous coated galvanized steel.
 Closed in wire dogs and bolts to be hot dipped galvanized steel.
 All other closed structural fixings to be mild steel (uncoated non galvanized)

Verify all dimensions on site before commencing work & do not scale from drawings. Refer any discrepancies to O'Brien Design Consulting Ltd.
 All work to be done in accordance with NZS 3604:2011 and the NZ Building Code unless specifically designed.
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Project Title
 Hihi Top Ten
 Holiday Park
 Hihi Beach Road
 Lot 1 DP 56536

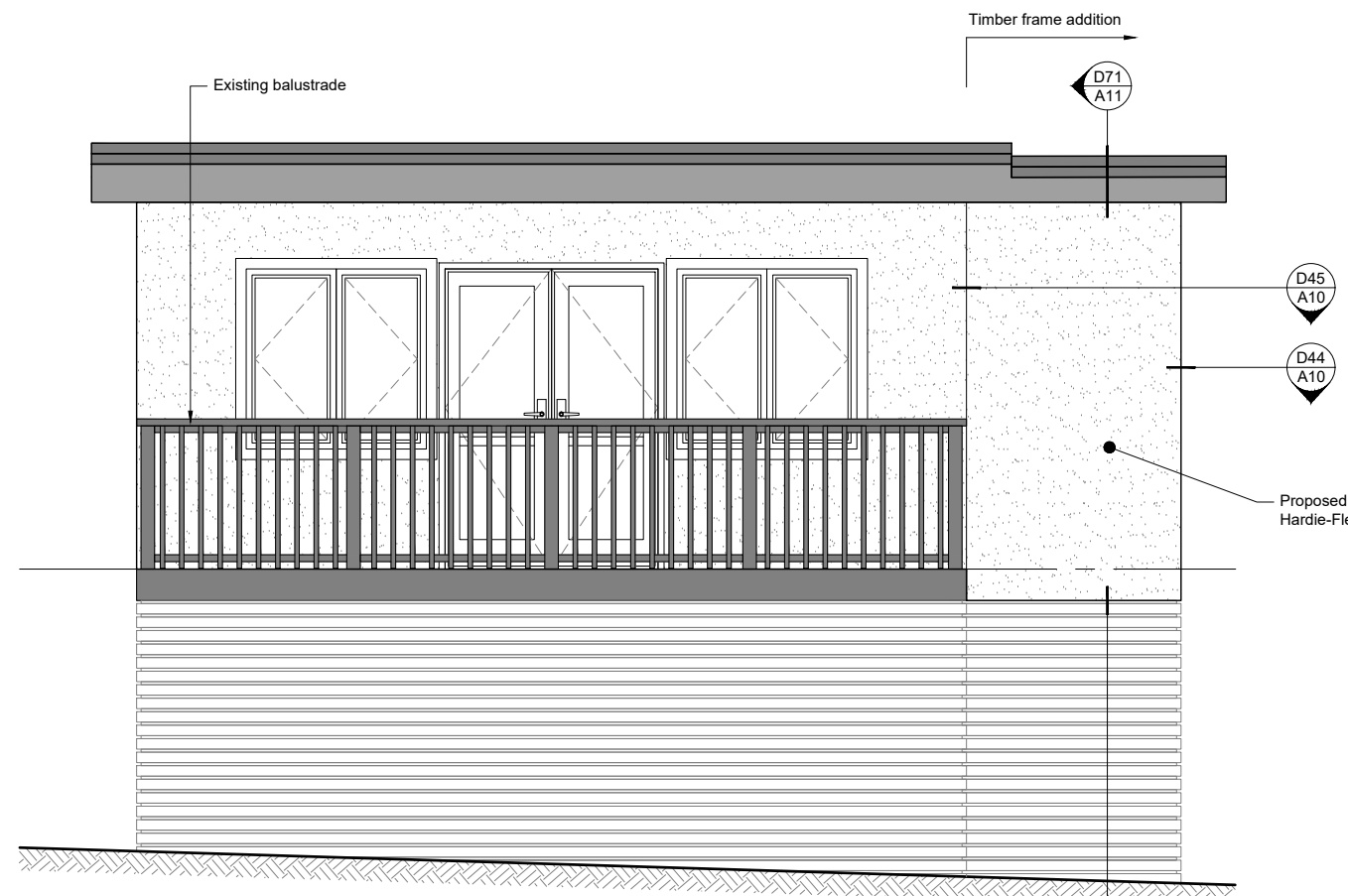
Sheet Title
 Proposed Floor Plan
 Unit 10

Drawn 26 March 2026

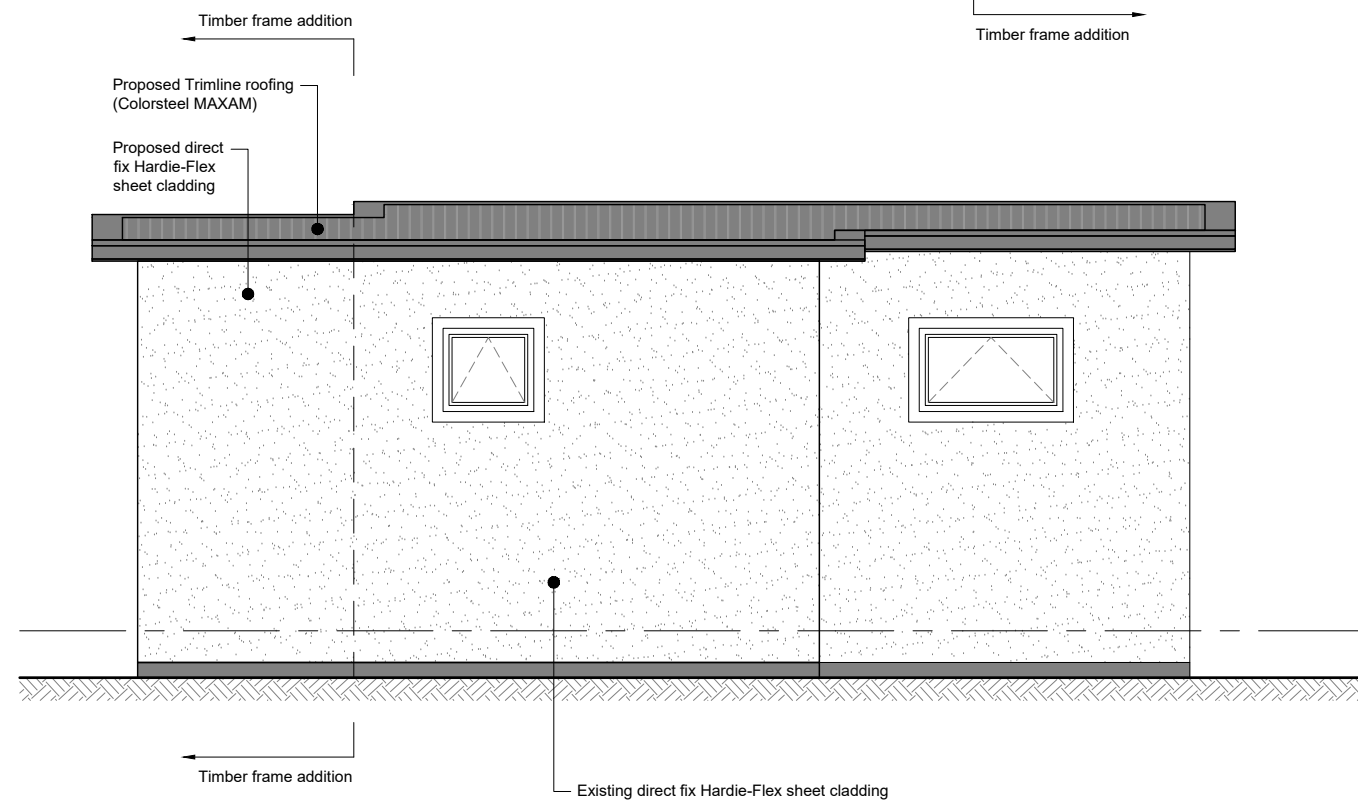
Project No 4262.2

Rev	Sheet
B	A03

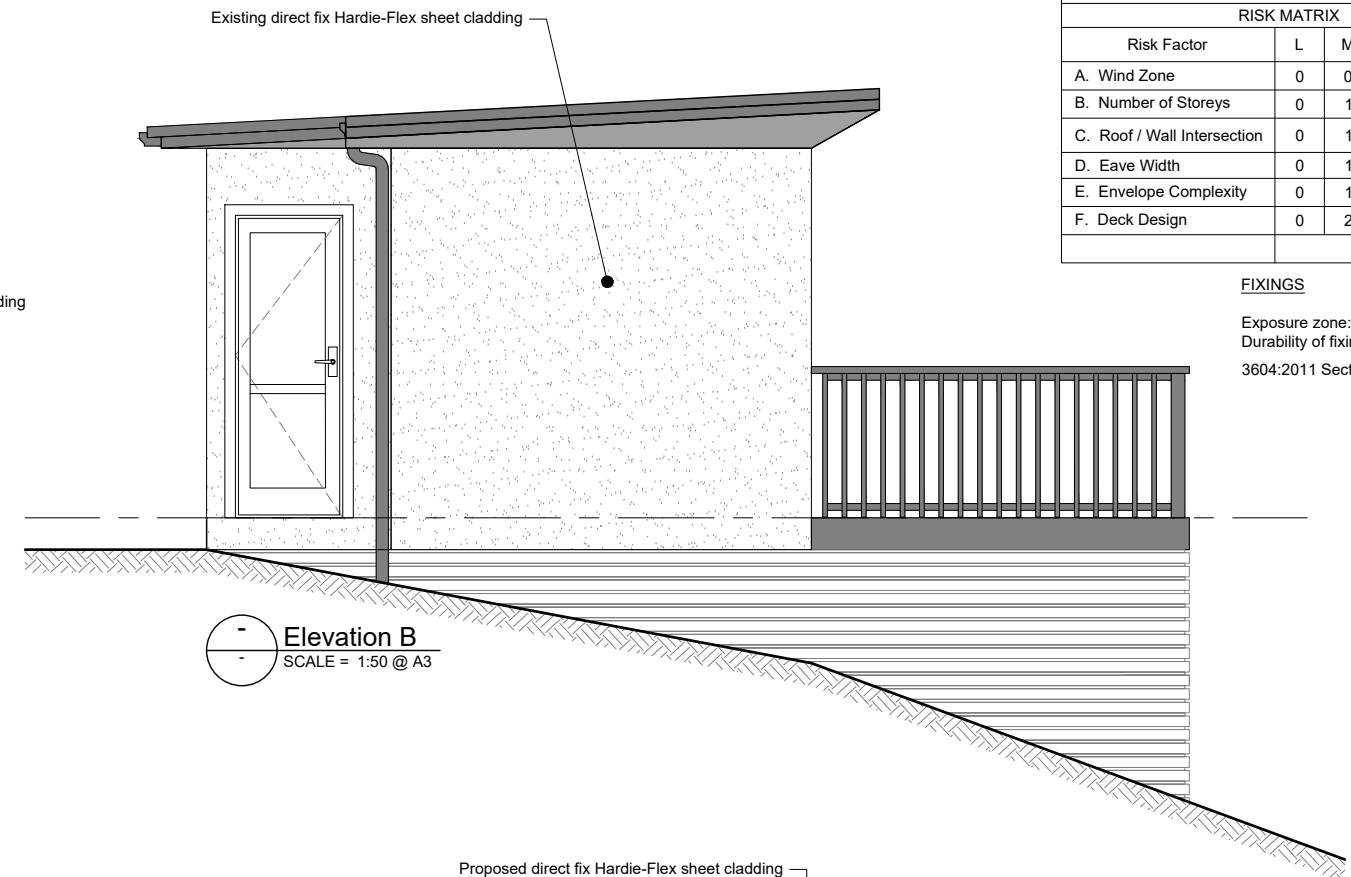
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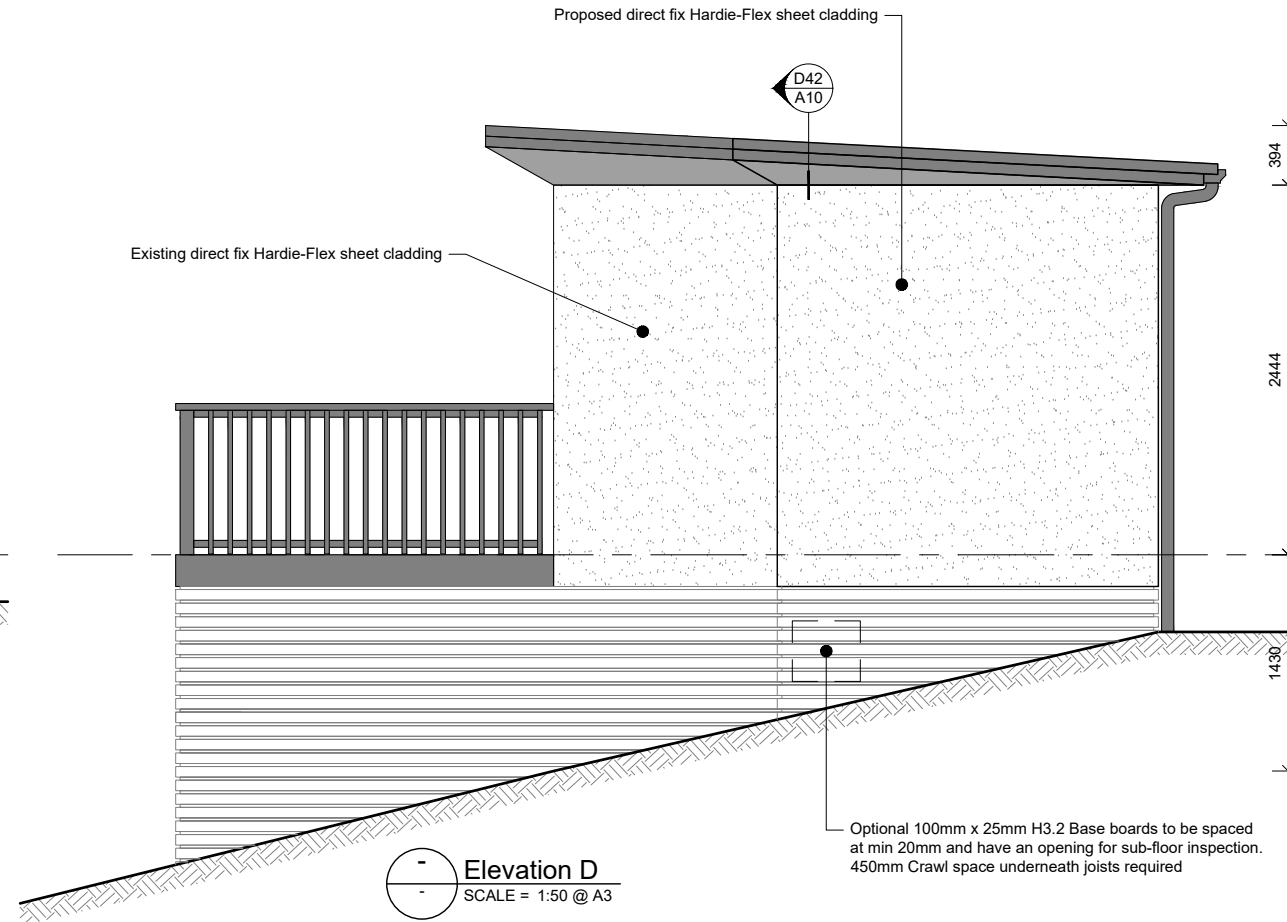
Elevation A
SCALE = 1:50 @ A3



Elevation C
SCALE = 1:50 @ A3



Elevation B
SCALE = 1:50 @ A3



Elevation D
SCALE = 1:50 @ A3

SPECIFICATIONS	
Cladding Type	Direct-fix Hardie-flex
Stud Height	2605
Roofing Type	Trapezoidal
Roof Pitch	3°
Joinery	Aluminum
Wind Zone	High
Earth Quake Zone	1

RISK MATRIX					
Risk Factor	L	M	H	VH	Score
A. Wind Zone	0	0	1	2	1
B. Number of Storeys	0	1	2	4	0
C. Roof / Wall Intersection	0	1	3	5	0
D. Eave Width	0	1	2	5	2
E. Envelope Complexity	0	1	3	6	1
F. Deck Design	0	2	4	6	0
Total					3

FIXINGS
Exposure zone: D
Durability of fixings to comply with NZS 3604:2011 Section 4 & NZBC B2/AS1

Verify all dimensions on site before commencing work & do not scale from drawings. Refer any discrepancies to O'Brien Design Consulting Ltd.
All work to be done in accordance with NZS 3604:2011 and the NZ Building Code unless specifically designed.
This document and the copyright in this document remain the property of O'Brien Design Consulting Ltd.



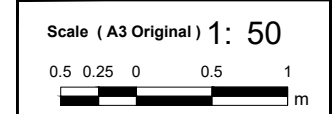
Project Title
Hihi Top Ten
Holiday Park
Hihi Beach Road
Lot 1 DP 56536

Sheet Title
Proposed Elevations
Unit 10

Drawn 26 March 2026



Project No 4262.2

Rev	Sheet
B	A04



SITE	60 Hihi Beach Road, Hihi
LEGAL DESCRIPTION	Lot 1 DP 56536
PROJECT	Proposed Bathroom Pod Additions & Future Relocated Cabins
CLIENT	Daniel Smith
REFERENCE NO.	145269
DOCUMENT	Stormwater Report
STATUS/REVISION No.	02
DATE OF ISSUE	14 April 2026

Report Prepared For	Email
Daniel Smith	daniel@hihibeach.co.nz

Reviewed by	P. McSweeney (BE(Hons) Civil)	Civil Engineer	Patrick@wjl.co.nz	
Approved by	B. Steenkamp (CPEng, BEng Civil, CMEngNZ, BSc (Geology))	Senior Civil Engineer	BenS@wjl.co.nz	

1. EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

Legal Description:	Lot 1 DP 56536
Site Area:	14,164m ²
Development Proposals Supplied:	Existing & proposed plan set by O'Brien Design Consulting Ltd. (Job No. 4262.1 Rev. C, dated 26 March 2026)
Development Type:	Installation of prefabricated bathroom pods (Interpod units) within existing accommodation Cabins 7 & 10 and relocation of two cabins to the site.
District Plan Zone:	Coastal Residential
Permitted Activity Coverage:	50% site area or 1,000m ²
Impermeable Coverage:	Proposed Bathroom Pods: +9m ² Future Relocated Cabins: +66m ² Post-Development Total = 2,264 m ² or 16% of the site area
Activity Status:	Restricted Discretionary – RC Required
District Plan Rule Response:	Mitigation of runoff resulting from the proposed impermeable area is to be provided via implementation of upgraded drainage conveyance on-site. Attenuation is not considered to be suitable given the nature of the development and existing site conditions.
Recommendations:	<ul style="list-style-type: none">• Roof runoff, walkway runoff and retaining wall drainage labelled in the appended Site Plan is to be directed to a piped network discharging to Waiaua Stream. Drainage network specifications given in Table 1.• For erosion protection, a riprap apron is to be installed directly downstream of the outfall with minimum dimensions of 4.0mL x 0.9mW x 0.3mD with min. 0.15mØ riprap. To be lined with anchored geotextile.

2. SCOPE OF WORK

Wilton Joubert Ltd. (WJL) was engaged by the client, Daniel Smith, to produce a stormwater mitigation assessment at the above site.

At the time of report writing, the following documents were referred to for background data and details of the proposed development:

- Existing & proposed plan set by O'Brien Design Consulting Ltd. (Job No. 4262.1 Rev. C, dated 26 March 2026).

Any revision of these drawings and/or development proposals with stormwater management implications should be referred back to us for review.

3. SITE DESCRIPTION

The subject site is legally described as Lot 1 DP 56536 and is located at 60 Hihi Beach Road, within the Hihi Top Ten Holiday Park. The subject site parcel encompasses an area of approximately 14,164m² and is irregular in shape. The subject site parcel and adjacent Lot 1 DP 53180, Lot 2 DP 53180 and Lot 3 DP 53180 collectively form the campground site as a whole. The campground adjoins coastal reserve and Hihi Beach to the northwest, with the Waiaua Stream forming the natural drainage outlet for the site catchment along the north-western boundary of the campground.

The holiday park is an established camping ground comprising accommodation cabins, a recreation room, toilet and laundry facilities, a work shed, and associated access driveways and hardstand areas. The site is well-vegetated with established trees interspersed between structures.

The site falls generally from the south and east toward the north-west, with steeper terrain toward the eastern and upper boundaries transitioning to lower, flatter ground toward the north-western boundary bordering Waiaua Stream. The lower central and north-western portions of the site are relatively flat and low-lying.

FNDC online GIS maps and the supplied construction drawings indicate that no public reticulated stormwater network serves the site. The provided drawing set illustrates a series of existing drainage elements within the development area as follows:

- Existing open drain traversing the upper eastern portion of the site, collecting surface runoff from the top block area.
- Existing 300mmØ culvert in the north-western area conveying flows from the site catchment toward the Waiaua Stream.
- Existing downpipes collecting runoff from cabin roof areas and discharging to the ground surface.
- Existing catchpits located in the low-lying lawn area in the north-western portion of the site.
- Existing retaining walls along mid-slope terrace of the accommodation area.



Figure 1: Aerial view of the subject site with subject lot highlighted in cyan (FNDC Atlas maps).

4. DEVELOPMENT PROPOSALS

The proposed development comprises the installation of prefabricated bathroom pods for the existing accommodation Cabins 7 and 10 and the future relocation of 2 cabins to the site as depicted in the O'Brien Design Consulting plan set (Job No. 4262.1 Rev. C, dated 26 March 2026).

The principal objective of this assessment is to provide a stormwater management design addressing the impermeable surface exceedance of the Permitted Activity threshold, and provide sizing and specifications for new stormwater management infrastructure within the site to improve drainage performance across the lower-lying areas of the site.

5. ASSESSMENT CRITERIA

Impermeable Areas

The calculation for the stormwater system for the development is based on a gross site area of 14,164m² and the below areas extracted from the supplied plans:

	Pre-Development	Post-Development	Total Change
Roof Area	384 m ²	459 m ²	75 m ²
Hardstand	1,805 m ²	1,805 m ²	-
Pervious	11,975 m ²	11,900 m ²	-75 m ²

The total amount of impermeable area on site, post-development will be 2,264m² or 16% of the site area. Should any changes be made to the current proposal, the on-site stormwater mitigation design must be reviewed.

Consent Conditions & Design Requirements

The site is under the jurisdiction of the Far North District Council. This design has been completed in accordance with the recommendations and requirements contained within the Far North District Council Engineering Standards 2023 and the New Zealand Building Code E1 – Surface Water.

A Form 4 Certificate issued by FNDC (Building Consent No. EBC-2026-522/0, dated 16 December 2025) identifies a breach of Rule 10.8.5.1.6 — Stormwater Management under the Coastal Residential zone of the operative Far North District Plan in the proposals.

The site is zoned Coastal Residential under the Operative District Plan and Resource Consent is required for breach of the following:	
Rule:	10.8.5.1.6 STORMWATER MANAGEMENT The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 50% or 1,000m ² , whichever is the lesser.
Reason:	50% = 7,082m ² therefore the permitted threshold is 1,000m ² being the lesser. Impermeable surface stated as 2,198m ² or 15.5%.

Figure 2: Snip from Form4 issued by FNDC.

The applicable District Plan rules are as follows:

Rule 10.8.5.1.6 — Permitted Activities — Stormwater Management — The maximum proportion or amount of the gross site area covered by impermeable surfaces shall be 50% or 1,000m², whichever is the lesser.

Rule 10.8.5.2.8 — Restricted Discretionary Activities — Stormwater Management — The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 60%, unless Low Impact Design has been used to reduce site impermeability and consent has been obtained from the Northland Regional Council for any stormwater discharge from any area of more than 1,000m².

The total proposed impermeable area of 2,264m² exceeds the 1,000m² threshold by 1,264m². Therefore, the proposals exceed the Permitted Activity coverage threshold and the activity status is considered Restricted Discretionary. A Resource Consent for the proposals will be required. This report aims to address the breach of the applicable rule and support a Resource Consent application.

While on-site attenuation is typically required for developments exceeding allowable impermeable coverage limits; however, on-site stormwater attenuation is not considered to be suitable in the context of the proposed development as the effect of introducing on-site detention would be to hold back and delay the site's discharge, shifting its peak closer in time to the wider catchment's peak — thereby increasing the combined peak flow at the outlet rather than reducing it.

Additionally, the 1,000m² impermeable area threshold is applied uniformly regardless of site area. While this is appropriate for typical residential properties, it represents a comparatively low threshold when applied to a larger site such as the subject site, where the resulting impermeable coverage as a percentage of the total site area remains relatively low.

Therefore, the stormwater design will prioritise efficient conveyance of runoff from the site to the receiving environment to provide optimal outcomes with regards to peak catchment flow rates, effects on surrounding properties and drainage utility at the subject site.

6. CATCHMENT ASSESSMENT

Stormwater Modelling Method

Runoff calculations have been computed using the HydroCAD hydrologic and hydraulic modelling software. In accordance with the Far North Engineering Standards, the Type IA storm profile was utilised for runoff calculations. Rainfall data was obtained from HIRDS and increased by 20% to account for climate change, with a resulting 24-hour rainfall depth of 142mm for the 20% AEP storm event. CN values for pervious and impervious surfaces have been taken as 74 and 98 respectively.

For the delineation of the overland flow paths in proximity to the site, elevation data extracted from the LINZ Northland LiDAR 1m DEM (2018-2020) model was utilised. This data was exported to the HEC HMS software environment to determine the drainage catchment and routes.

The OLFP catchment extends into the following zones:

- Coastal Residential
- Rural Production

For the purposes of this report, the catchment area was assumed to be developed to 15% coverage with a resulting weighted CN value of 78, excluding existing and proposed roof and driveway areas which were separately delineated and the CN value taken as 98. The minimum time of concentration of 10 minutes was utilised in the calculations. The delineated subcatchment areas, Subbasins 1 & 2, are shown in Figure 3 below.

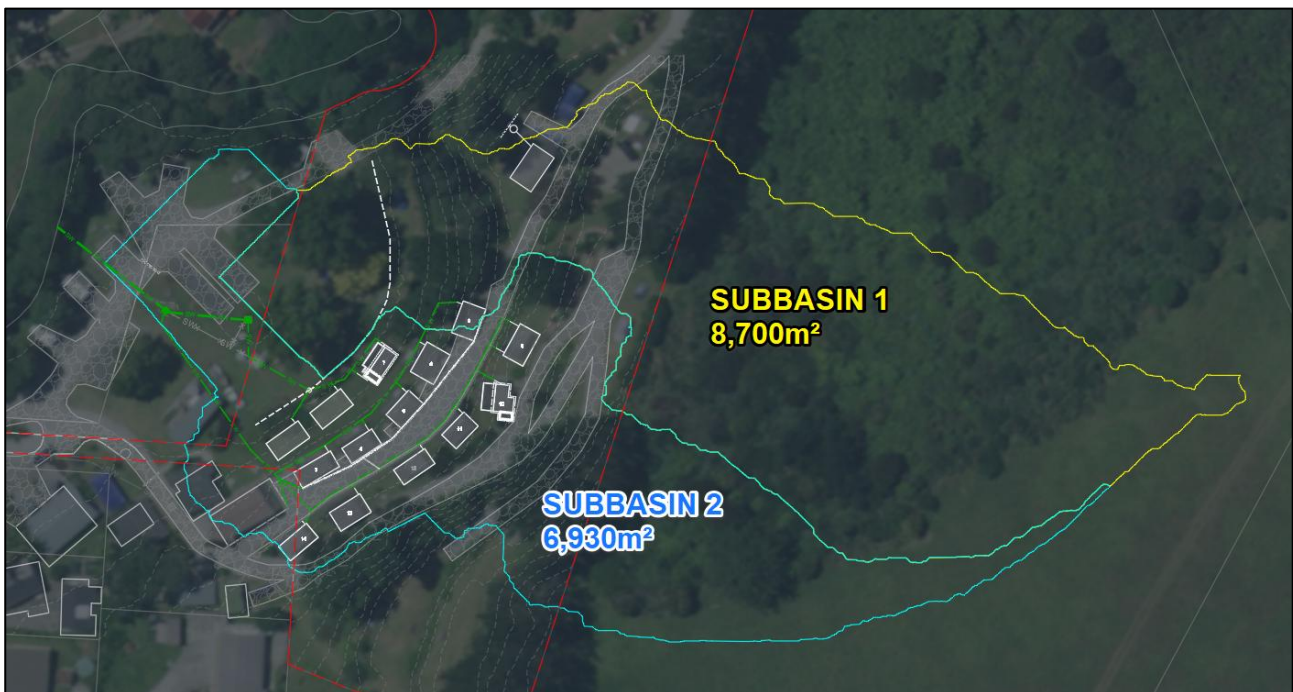


Figure 3: Screenshot from AutoCAD indicating delineated subbasins in cyan and yellow.

HydroCAD[®] Modelling Software was utilized to calculate the peak flow generated from the identified catchments. The peak flows are as follows:

Subcatchment 1

S1_Q 20% AEP = 48.1ℓ/s

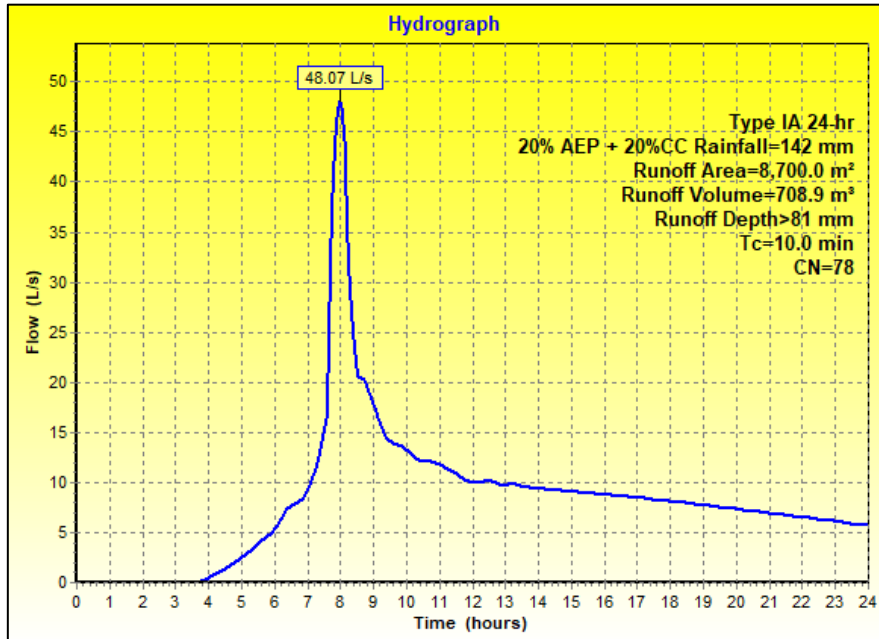


Figure 4: HydroCAD Peak Flow Assessment Result for OLFP Subcatchment 1.

Subcatchment 2

S2_Q 20% AEP = 33.3ℓ/s

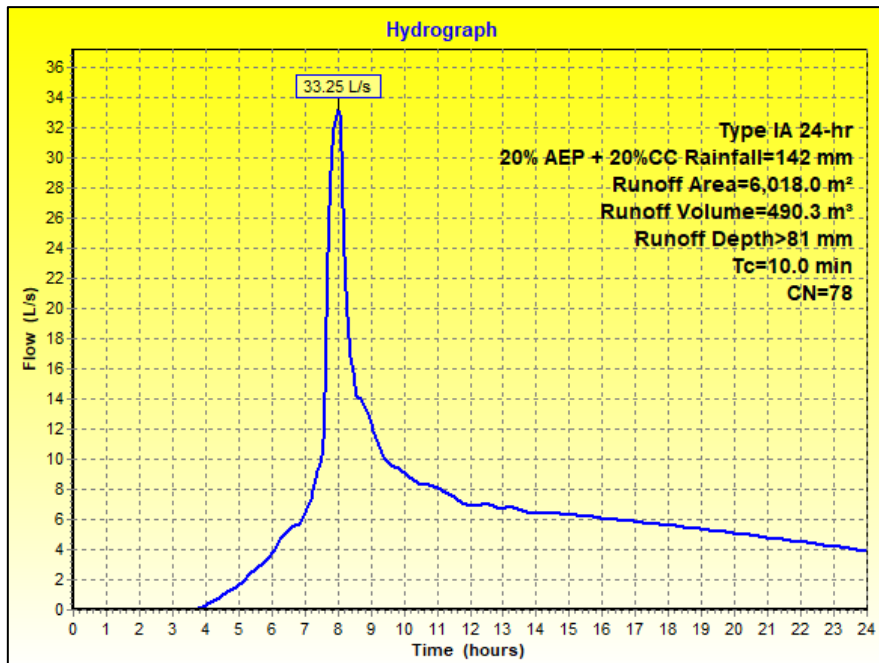


Figure 5: HydroCAD Peak Flow Assessment Result for OLFP Subcatchment 2.

7. STORMWATER MITIGATION ASSESSMENT

Proposed Drainage Network

It is recommended that runoff from the roof areas of the existing cabins (including proposed additions), future cabins and the walkway between the cabins be piped and directed to a discharge point northwest of the accommodation area in the Waiaua Stream via a new/upgraded on-site piped drainage network.

Roof runoff is to be collected via gutter systems and piped to the on-site drainage network (see Table 1 below and the appended Site Plan for clarification). Any existing roof drainage piping (e.g downpipes to ground surface) may be extended into the proposed drainage network provided these are in adequate condition. Leaf guards and/or first-flush diverters may be installed for runoff treatment to further improve system efficacy.

The drainage from the existing retaining wall(s) between the cabins is to be directed to Pipe DL01 (see Table 1 below) via sealed pipes. The condition of the existing retaining wall drainage cannot be confirmed from available information. It is recommended that the retaining wall drainage is inspected and flushed by a suitably qualified professional to confirm functionality prior to completion of the drainage works. Should the existing drainage be found to be non-functional or inadequate, replacement or modification may be required (may require input from a structural and/or geotechnical engineer).

The proposed on-site stormwater drainage network is shown on the appended Site Plan and comprises the following drainage lines:

Table 1: Proposed Drainage Network Summary

Drainage Item	Specifications	Catchment	Notes
RT_DL01	100mmØ uPVC @>1%	Retaining wall drainage & walkway	Subsurface/surface flows from retaining wall and walkway. Discharges to DL05.
ROOF_DL02	100mmØ uPVC @>1%	Cabins 9–14 roofs	Roof runoff from Cabins 9-14 (incl. Cabin 10 bathroom pod). Discharges to DL05.
ROOF_DL03	100mmØ uPVC @>1%	Recreation Room roof	Discharges to DL05.
ROOF_DL04	100mmØ uPVC @>1%	Cabins 3–6 & 8 roofs	Discharges to DL05.
DL05	100mmØ uPVC @ >3% or 150mmØ uPVC @>1%	DL01–DL04 combined	Collector main. Discharges to CP02.
ROOF_DL06	100mmØ uPVC @>1%	Cabin 7, Relocated Cabins 1 & 2	Captures roof runoff incl. Cabin 7 bathroom pod. Drains to CP01.
DL07	100mmØ uPVC @>1%	CP01	Retain and realign existing line. Drains to CP02.
DL08	300mmØ @>1%	CP02	Upgraded 300mmØ. Drains to CP03.
DL09	300mmØ @>1%	CP03	Outlet to Waiaua Stream via rip-rap apron.
CP01	Existing Catchpit	DL06	Existing catchpit in open drain to remain, drainage lines from Cabins 1, 2 & 7 plumbed in.

CP02	Type 2 Catchpit (650x460mm inlet)	Subbasins 1 & 2, DL07	Upgrade catchpit to Type 2.
CP03	Type 2 Catchpit (650x460mm inlet)	DL05 & DL08	Upgrade catchpit to Type 2.

All drainage is to be installed in accordance with NZBC E1. All catchpits should have minimum 300mm sumps for debris settlement.

Discharge Outlet

To provide erosion protection at the drainage system's outfall, discharge from DL09 (as specified in Table 1 above) is to be directed to a riprap outlet discharging to the receiving environment (Waiaua Stream) at the north-western boundary of the site.

The minimum riprap dimensions are as follows: 4.0m long x 0.9m wide x 0.3m thick, with a minimum aggregate diameter of 150mm. The apron is to be underlain with anchored geotextile.

Refer to calculations in the appendices. An indicative outlet location is given in the attached site plan (145269-C200).

Alternative Drainage Specifications

We note that the specifications given above are based on achieving gravity flow through the system without overspill from CP01, CP02 or CP03 up to the 20% AEP + CC design storm. The specifications are given as optional recommendations to improve drainage efficiency through the site, and are not intended to be hard requirements to support the RC application.

If the client wishes to install the drainage system to specifications with lower flow capacity this is acceptable. In such a case, the system should be installed such that overspill from the primary system is allowed to be conveyed over land in a controlled manner, clear of any structures, and out to a suitable receiving environment.

Flooding Effects Considerations

The Northland Regional Council Hazard Maps indicate that the regionwide flood overlays extend into the lower contours of the site, in the vicinity of catchpits CP01–CP03. During significant storm or flood events, elevated water levels in the receiving environment (Waiaua Stream) may limit the ability of the proposed stormwater network to freely discharge runoff. While flooding may still occur within the site, the proposed upgrades are anticipated to improve the drain-down time of ponded water in comparison to the existing drainage system once flood levels recede.

The effects of flooding on the proposed system's efficacy may be mitigated by achieving the highest practicable discharge outlet level while allowing for minimum drainage grades as specified above. The design levels are based on LINZ LiDAR data as previously described in this report and general assumptions of pipe cover, with the design discharge point level being 2.02m NZVD2016; to reiterate, this is an indicative design level and conditions on-site and resulting final construction levels may vary.

Where practicable, the ground surface should be shaped such that any overspill from the existing/proposed catchpits in severe storm events exceeding the design capacity of the drainage system is allowed to drain out to the receiving environment, clear of structures.

It is noted that no specific assessment of secondary flow paths, overland flow routing, or flood inundation extents has been undertaken as part of this report.

8. DISTRICT PLAN ASSESSMENT

This report has been prepared to demonstrate the likely effects of increased stormwater run-off arising from the proposed development and the means of mitigating run-off to no more than the levels that would result from the permitted threshold under Stormwater Management Rule 10.8.5.1.6 as required by the received Form4 document issued by FNDC.

In assessing an application under this provision, the Council will exercise its discretion to review the following matters below, (a) through (f) of FNDCDP Section 10.8.5.2.8. In respect of matters (a) through (f), we provide the following comments:

<p><i>(a) the extent to which building site coverage and Impermeable Surfaces contribute to total catchment impermeability and the provisions of any catchment or drainage plan for that catchment;</i></p>	<p>The total post-development impermeable coverage will be 2,264m². The proposed development results in an increase in impermeable area of 75m² in additional roof area associated with the two proposed bathroom pods and relocated cabins. Low impact design principles have been employed in the drainage design, with all roof and hardstand areas to be collected and conveyed via a piped network discharging to the Waiaua Stream via a riprap-protected outlet. The majority of the wider catchment is undeveloped coastal and bush land, and the total impermeable fraction of the catchment as a whole is estimated to be low.</p>
<p><i>(b) the extent to which Low Impact Design principles have been used to reduce site impermeability;</i></p>	<p>Roof runoff from all cabins is to be collected via downpipes and conveyed via a piped network. Any first-flush diverters and/or leaf guards installed will provide source-level water quality treatment prior to discharge. The proposed upgrades will reduce the extent of uncontrolled overland flow across the site, improving both conveyance efficiency and water quality outcomes.</p>
<p><i>(c) any cumulative effects on total catchment impermeability;</i></p>	<p>The proposed development will result in an increase in impermeable area of 75m² attributable to the two new bathroom pod roof areas and relocated cabins. This represents a negligible increase in the context of the existing 2,189m² of impermeable surface already present on site and the wider coastal catchment. Cumulative effects on total catchment impermeability are considered to be minor.</p>
<p><i>(d) the extent to which building site coverage and Impermeable Surfaces will alter the natural contour or drainage patterns of the site or disturb the ground and alter its ability to absorb water;</i></p>	<p>Roof runoff from the proposed bathroom pods and relocated cabins is to be collected via downpipes and directed to the proposed piped network, mitigating the potential for runoff to pass over or saturate surrounding soils. No earthworks are required in association with the proposed building works.</p>
<p><i>(e) the physical qualities of the soil type;</i></p>	<p>Bordering “Undifferentiated Tangihua Complex basalt in Northland Allochthon” and “OIS4-OIS1 (Late Pleistocene to Holocene) estuary, river and swamp deposits”</p>
<p><i>(f) any adverse effects on the life supporting capacity of the soils;</i></p>	<p>Runoff from the proposed roof areas is to be collected and directed to a piped drainage network. Any first-flush diverters and/or leaf guards installed will provide source-level water quality treatment prior to discharge, minimising the risk of adverse effects on soil and groundwater quality.</p>

<i>(g) the availability of land for the disposal of effluent and stormwater on the site without adverse effects on the water quantity and water quality of water bodies (including groundwater and aquifers) or on adjacent sites;</i>	The supplied plans indicate that wastewater is managed via reticulation. No bore locations are shown in the supplied plan set.
<i>(h) the extent to which paved, Impermeable Surfaces are necessary for the proposed activity;</i>	The existing hardstand areas are necessary for the operation of the campground. No new hardstand areas are proposed.
<i>i) the extent to which land scaping and vegetation may reduce adverse effects of run-off;</i>	Existing vegetation is present across the site, including areas of native coastal planting and lawn areas between cabins, which contribute to on-site infiltration and evapotranspiration of rainfall. No specific landscaping regime is proposed for the site.
<i>j) any recognised standards promulgated by industry groups;</i>	N/A.
<i>(k) the means and effectiveness of mitigating stormwater runoff to that expected by permitted activity threshold.</i>	On-site stormwater attenuation is not considered appropriate or effective in the context of the development or existing site conditions. Detention of stormwater would delay the site's discharge peak, shifting it closer in time to the wider catchment peak and increasing rather than reducing the combined peak flow at the outlet. The stormwater management strategy instead prioritises efficient conveyance of runoff to the receiving environment. This approach is considered the most appropriate and effective mitigation measure, consistent with the objectives of Rule 10.8.5.1.6.
<i>(l) the extent to which the proposal has considered and provided for climate change;</i>	RCP 6.0 2081–2100 rainfall intensities from HIRDS v4 have been adopted in the hydraulic design of the stormwater pipe network and riprap outlet, accounting for projected increases in rainfall intensity due to climate change.

9. NOTES

If any of the design specifications mentioned in the previous sections are altered or found to be different than what is described in this report, Wilton Joubert Ltd will be required to review this report. Indicative system details have been provided in the appendices of this report (145269-C200 & 145269-C210). Care should be taken when constructing the discharge point to avoid any siphon or backflow effect within the stormwater system.

Subsequent to construction, a programme of regular inspection / maintenance of the system should be initiated by the Owner to ensure the continuance of effective function, and if necessary, the instigation of any maintenance required.

Wilton Joubert Ltd recommends that all contractors keep a photographic record of their work.

10. LIMITATIONS

The recommendations and opinions contained in this report are based on information received and available from the client at the time of report writing.

This assignment only considers the primary stormwater system. The secondary stormwater system, Overland Flow Paths (OLFP), vehicular access and the consideration of road/street water flooding are not within the scope of this report.

All drainage design is up to the connection point for each building face of any new structures/slabs; no internal building plumbing or layouts have been undertaken.

During construction, an engineer competent to judge whether the conditions are compatible with the assumptions made in this report should examine the site. In all circumstances, if variations occur which differ from that described or that are assumed to exist, then the matter should be referred to a suitably qualified and experienced engineer.

The performance behaviour outlined by this report is dependent on the construction activity and actions of the builder/contractor. Inappropriate actions during the construction phase may cause behaviour outside the limits given in this report.

This report has been prepared for the particular project described to us and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Wilton Joubert Ltd.



Patrick McSweeney
BE(Hons)

REPORT ATTACHMENTS

1. Site Plan - C200
2. Riprap Apron Detail - C210
3. Calculation Set



OUTLET
DISCHARGE TO STREAM VIA RIPRAP APRON
4.0mL x 0.9mW x 0.3mD WITH MIN. 150mmØ AGGREGATE
UNDERLAIN WITH ANCHORED GEOTEXTILE.
SEE DETAIL C210

EXISTING 300Ø CULVERT. RECOMMEND TO
CHANNELISE DRIVEWAY AT LOW-POINT TO
ALLOW SECONDARY FLOW ESCAPE FROM
SITE FOR SEVERE STORM EVENTS.

EXISTING OPEN DRAIN

DL09
300mmØ @ >1%
CATCHMENT: CP03

CP02
UPGRADE TO TYPE 2 CATCHPIT
(650x460mm GRATE INLET)
CATCHMENT: S1 & S2, DL07

EXISTING DOWNPIPES FROM CABIN
ROOF AREAS CONNECTED TO NEW
DRAINAGE LINES

CP03
TYPE 2 CATCHPIT
(650x460mm GRATE INLET)
CATCHMENT: DL05 & DL08

DL08
UPGRADE TO 300mmØ @ >1%
CATCHMENT: CP02

SECTION EXISTING 100Ø LINE
TO BE REMOVED

CP01
EXISTING CATCHPIT
CATCHMENT: DL06

DL07
RETAIN & REALIGN EXISTING LINE TO
DRAIN TO CP02. MIN. 100mmØ @ >1%
CATCHMENT: CP01

ROOF_DL06
100mmØ @ >1%
CATCHMENT: CABIN 7 &
RELOCATED CABINS ROOF AREAS

DL05
100mmØ @ >3% OR 150mmØ @ >1%
CATCHMENT: DL01 - DL04

ROOF_DL03
100mmØ @ >1%
CATCHMENT: RECREATION
ROOM ROOF AREA

ROOF_DL02
100mmØ @ >1%
CATCHMENT: ROOF
AREAS CABINS 9-14

ROOF_DL04
100mmØ @ >1%
CATCHMENT: CABINS 3-6 & 8

RECREATION
ROOM

RT_DL01
100mmØ @ >1%
CATCHMENT: RETAINING
DRAINAGE & WALKWAY

NOTES:

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
3. ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.

WILTON JOUBERT
Consulting Engineers
Northland: 09 945 4188 Auckland: 09 527 0196
Christchurch: 021 824 063 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
01	MAR '26	PM	DRAINAGE DESIGN

DESIGNED BY:
PM
DRAWN BY:
PM
CHECKED BY:
BGS
SURVEYED BY:
OTHER

SERVICES NOTE
WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

RESOURCE CONSENT

DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:
SITE PLAN

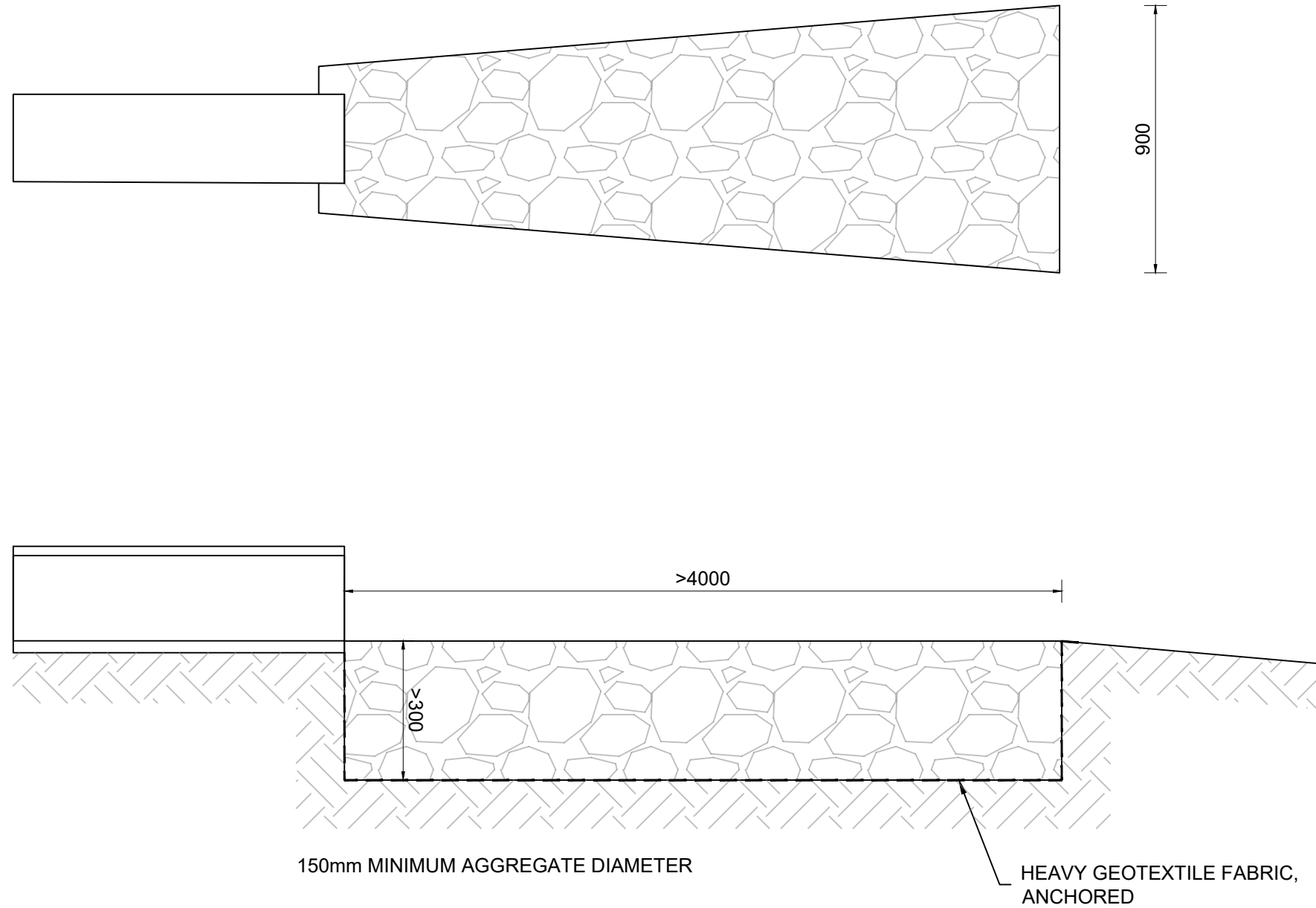
PROJECT DESCRIPTION:
PROPOSED CABIN ADDITIONS

PROJECT TITLE:
**LOT 1 DP 56536
HIHI BEACH CAMPGROUND
HIHI BEACH
NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: OREWA
DRAWING SCALE: 1:350	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 145269-C200	ISSUE: 01
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NOTES:

1. NOT TO SCALE. DRAWN INDICATIVELY ONLY. LABELLED DIMENSIONS IN MM.
2. ALL LEVELS & DIMENSIONS TO BE CONFIRMED ON SITE & ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
3. REGULAR INSPECTION & CLEANING IS REQUIRED TO ENSURE THE EFFECTIVE OPERATION OF THE SYSTEM.



01 **RIPRAP OUTLET DETAIL**
C200 N.T.S

WILTON JOUBERT
Consulting Engineers

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Christchurch: 021 824 063 Wanaka: 03 443 6209
www.wiltonjoubert.co.nz

ISSUE / REVISION			
No.	DATE	BY	DESCRIPTION
01	MAR '26	PM	DRAINAGE DESIGN

DESIGNED BY:	PM
DRAWN BY:	PM
CHECKED BY:	BGS
SURVEYED BY:	OTHER

SERVICES NOTE
WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

RESOURCE CONSENT

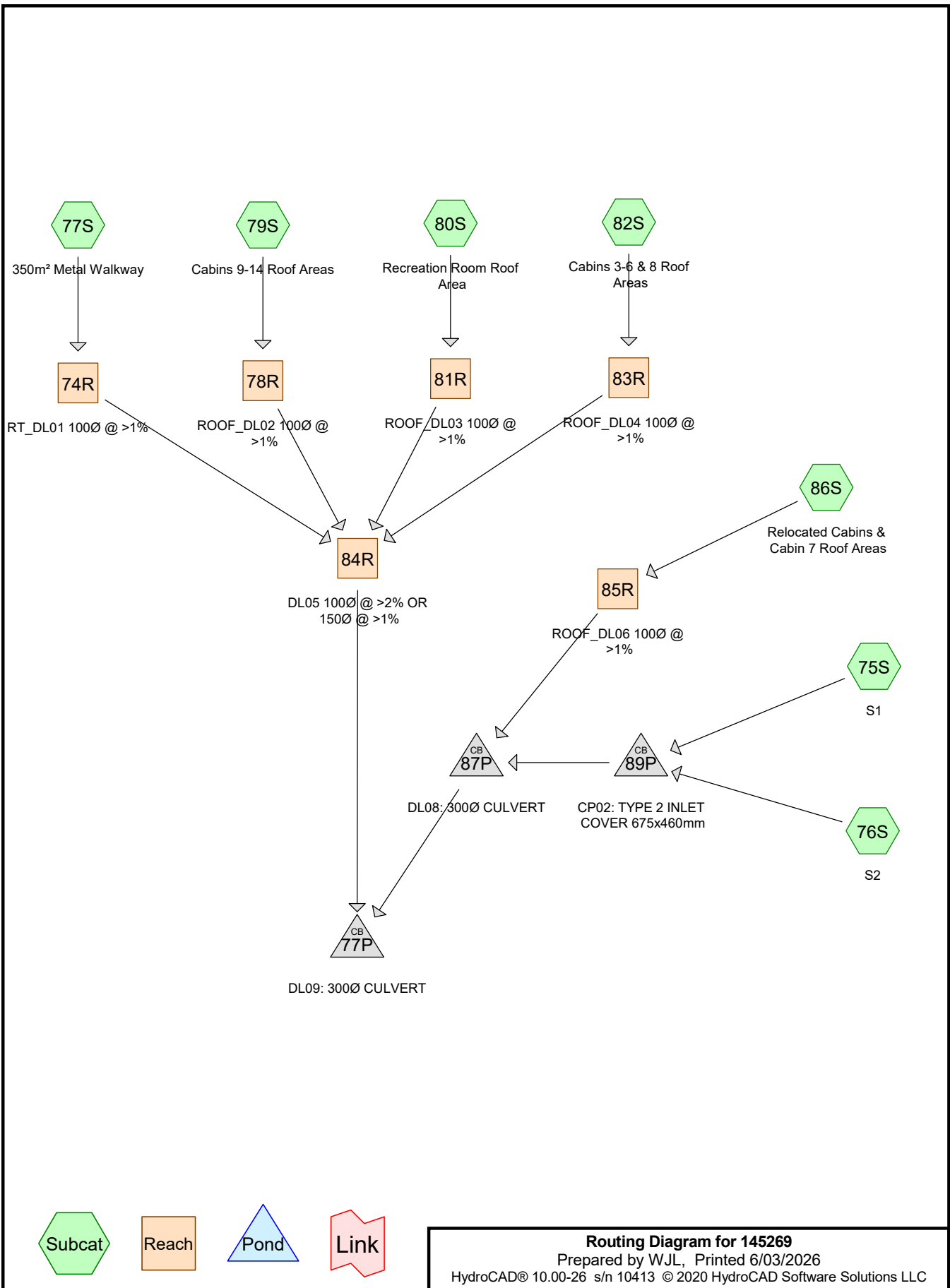
DESIGN / DRAWING SUBJECT TO ENGINEERS APPROVAL

DRAWING TITLE:
RIPRAP APRON DETAIL

PROJECT DESCRIPTION:
PROPOSED CABIN ADDITIONS

PROJECT TITLE:
**LOT 1 DP 56536
HIHI BEACH CAMPGROUND
HIHI BEACH
NORTHLAND**

ORIGINAL DRAWING SIZE: A3	OFFICE: OREWA
DRAWING SCALE: N.T.S	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 145269-C210	ISSUE: 01
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Summary for Subcatchment 75S: S1

Runoff = 48.07 L/s @ 8.00 hrs, Volume= 708.9 m³, Depth> 81 mm

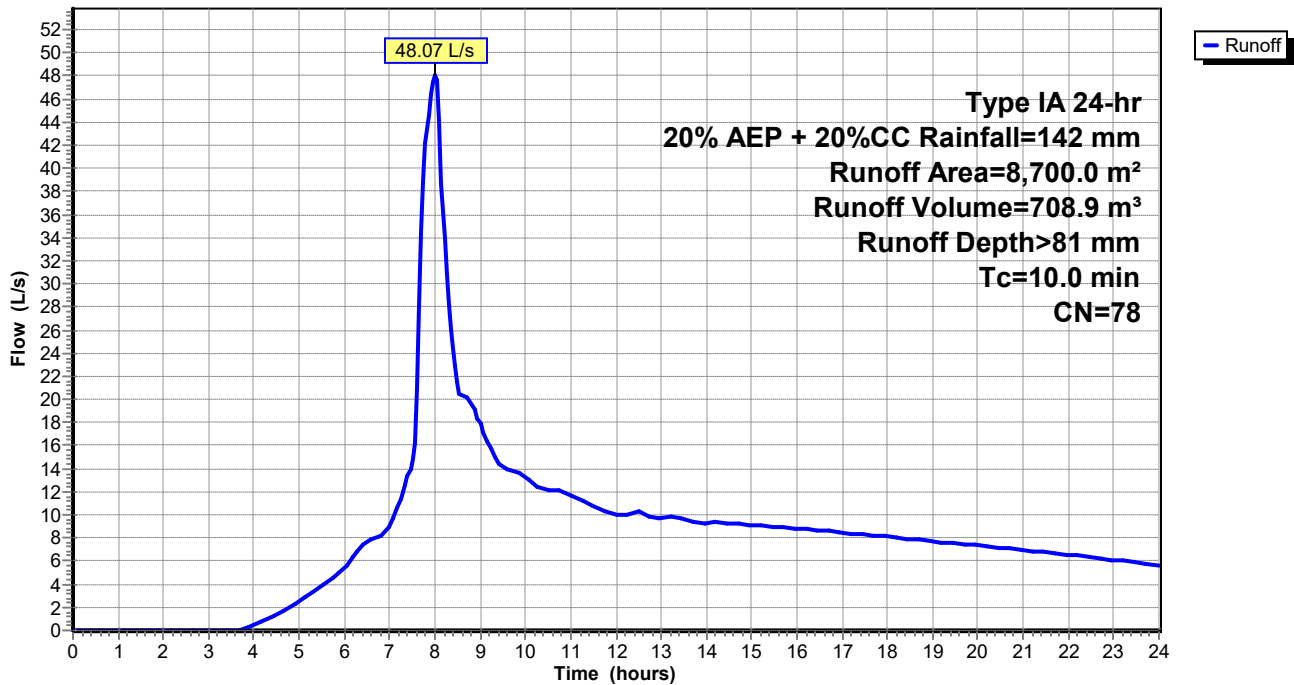
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 8,700.0	78	
8,700.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 75S: S1

Hydrograph



Summary for Subcatchment 76S: S2

Runoff = 33.25 L/s @ 8.00 hrs, Volume= 490.3 m³, Depth> 81 mm

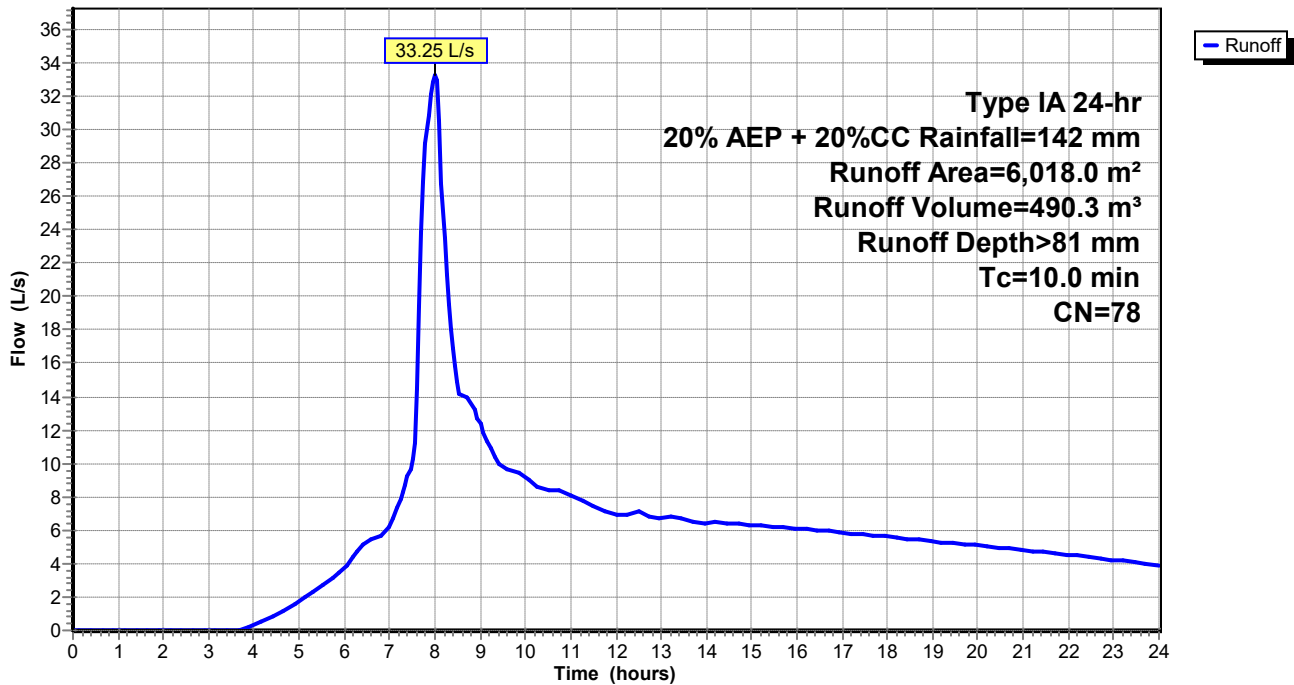
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 6,018.0	78	S2 (primary catchment subtracted)
6,018.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 76S: S2

Hydrograph



Summary for Subcatchment 77S: 350m² Metal Walkway

Runoff = 2.76 L/s @ 7.97 hrs, Volume= 38.5 m³, Depth> 110 mm

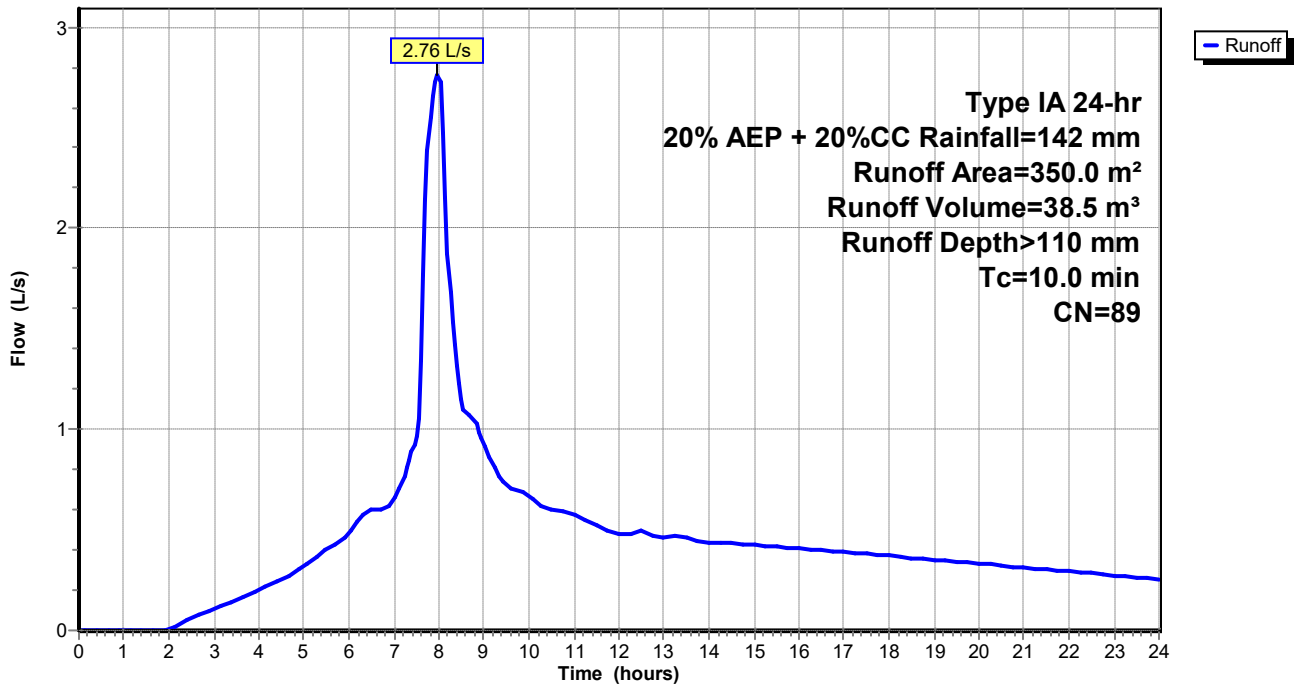
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 350.0	89	Metalled Driveway
350.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 77S: 350m² Metal Walkway

Hydrograph



Summary for Subcatchment 79S: Cabins 9-14 Roof Areas

Runoff = 1.87 L/s @ 7.94 hrs, Volume= 27.3 m³, Depth> 136 mm

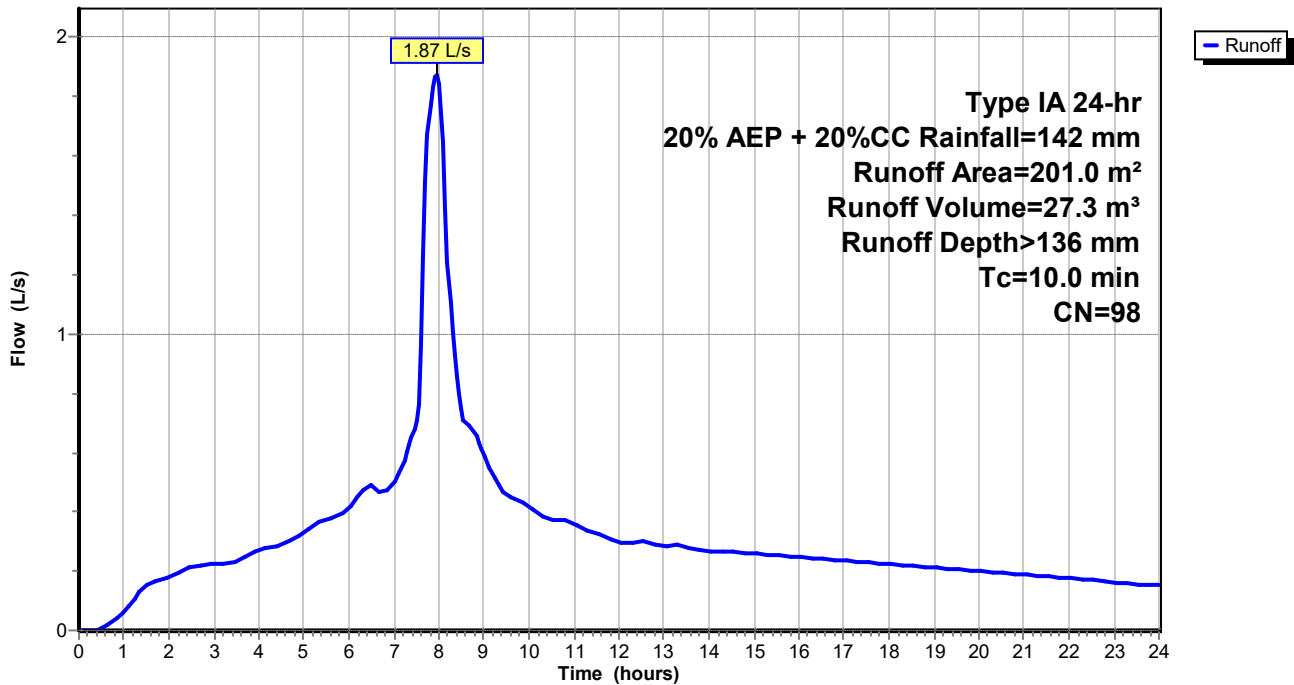
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 201.0	98	Roof Areas
201.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 79S: Cabins 9-14 Roof Areas

Hydrograph



Summary for Subcatchment 80S: Recreation Room Roof Area

Runoff = 0.97 L/s @ 7.94 hrs, Volume= 14.1 m³, Depth> 136 mm

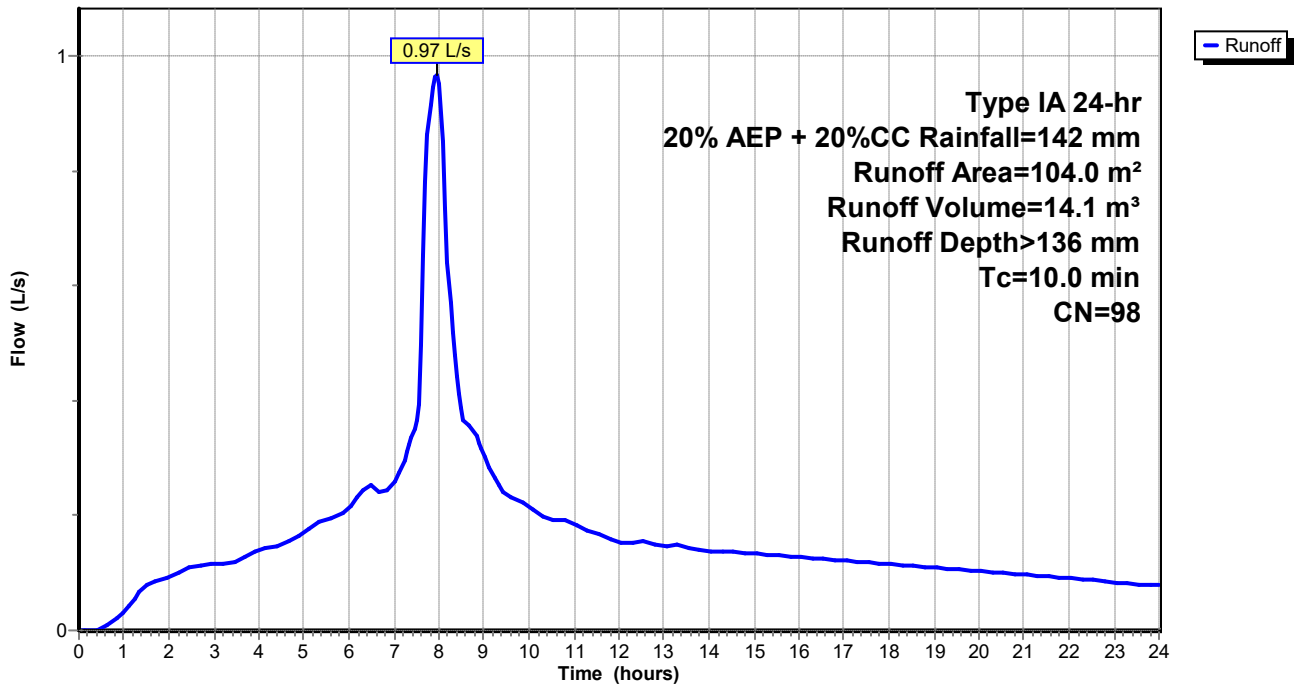
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 104.0	98	Roof Area
104.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 80S: Recreation Room Roof Area

Hydrograph



Summary for Subcatchment 82S: Cabins 3-6 & 8 Roof Areas

Runoff = 1.51 L/s @ 7.94 hrs, Volume= 22.0 m³, Depth> 136 mm

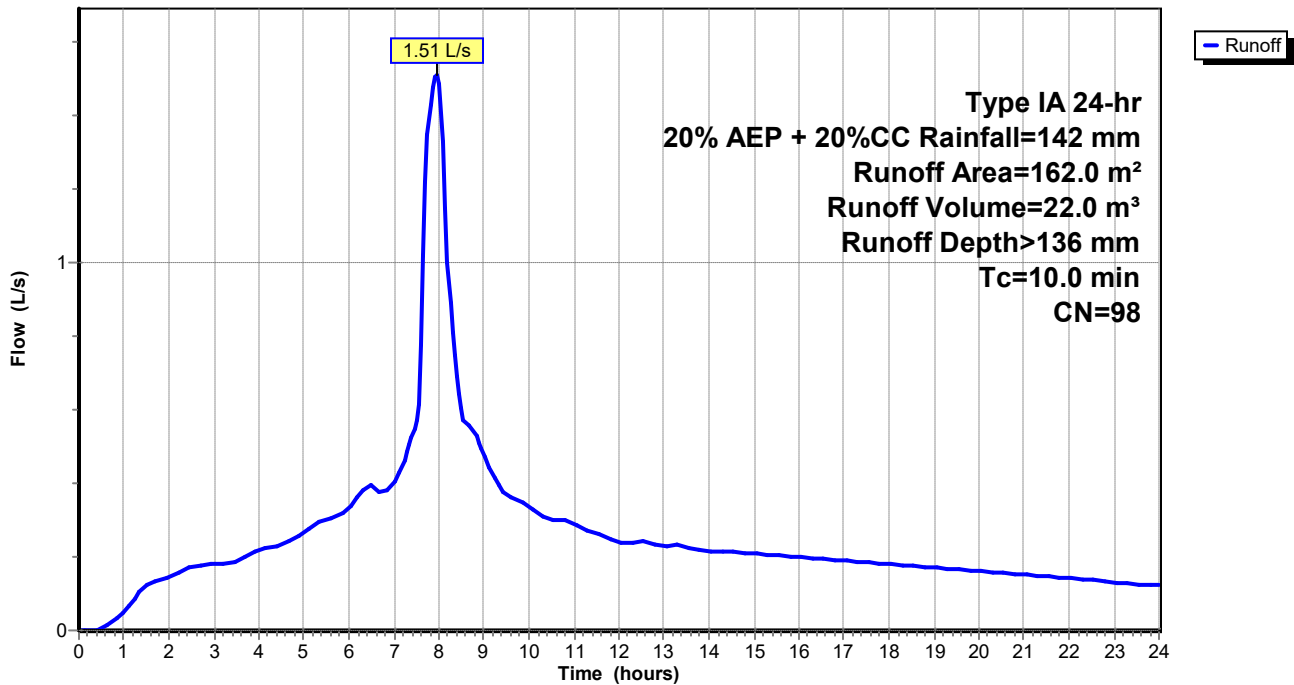
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 162.0	98	Roof Area
162.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 82S: Cabins 3-6 & 8 Roof Areas

Hydrograph



Summary for Subcatchment 86S: Relocated Cabins & Cabin 7 Roof Areas

Runoff = 0.88 L/s @ 7.94 hrs, Volume= 12.9 m³, Depth> 136 mm

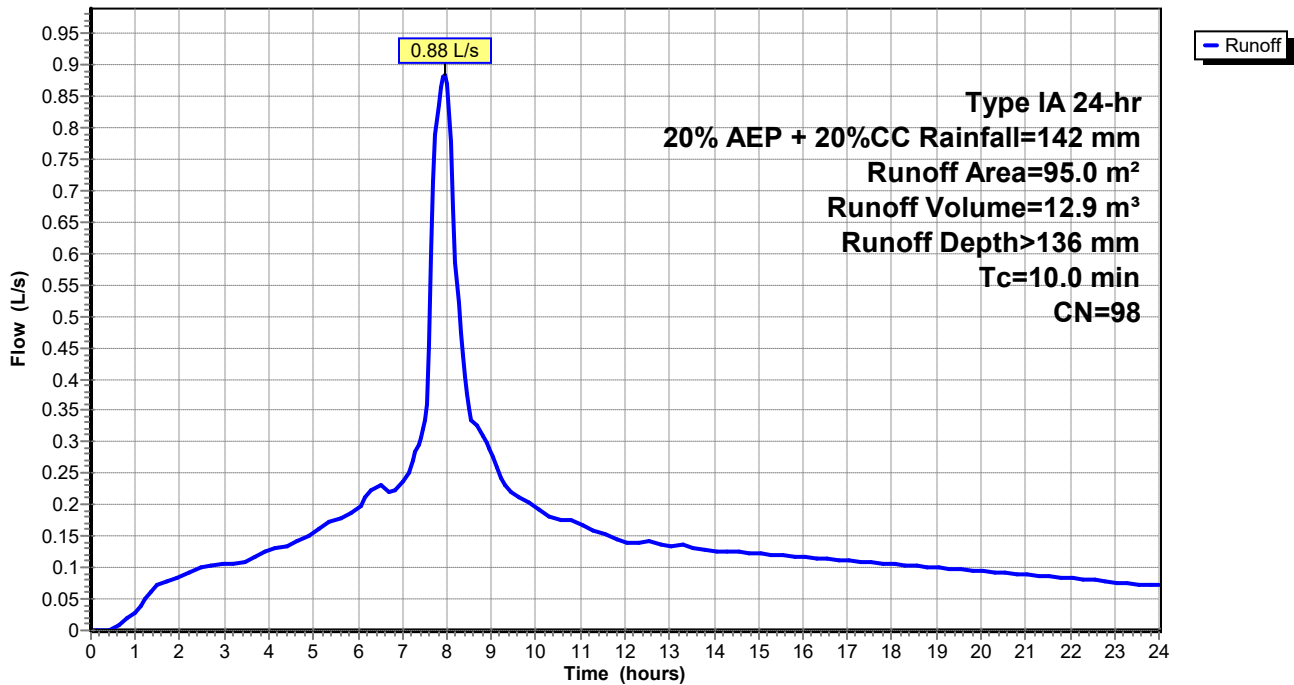
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 20% AEP + 20%CC Rainfall=142 mm

Area (m ²)	CN	Description
* 95.0	98	Roof Area
95.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 86S: Relocated Cabins & Cabin 7 Roof Areas

Hydrograph



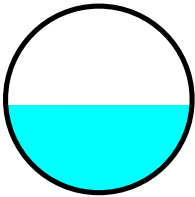
Summary for Reach 74R: RT_DL01 100Ø @ >1%

Inflow Area = 350.0 m², 0.00% Impervious, Inflow Depth > 110 mm for 20% AEP + 20%CC event
 Inflow = 2.76 L/s @ 7.97 hrs, Volume= 38.5 m³
 Outflow = 2.76 L/s @ 7.97 hrs, Volume= 38.5 m³, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.76 m/s, Min. Travel Time= 0.2 min
 Avg. Velocity = 0.44 m/s, Avg. Travel Time= 0.4 min

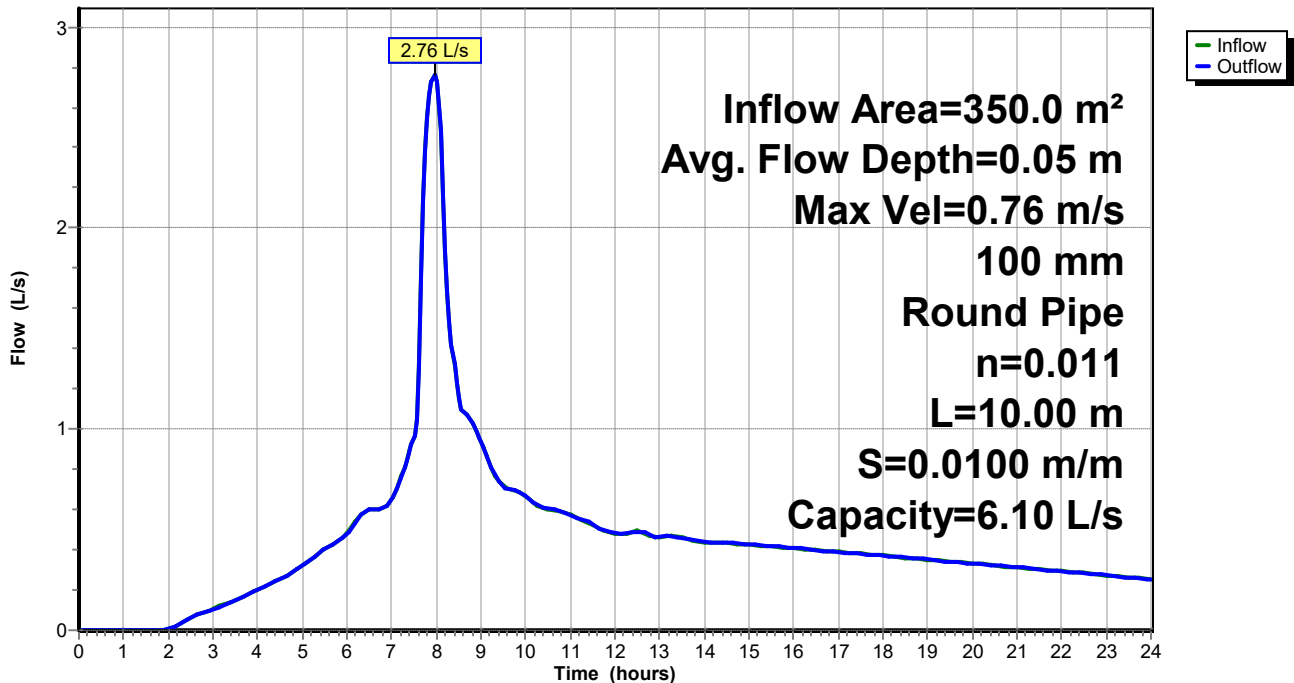
Peak Storage= 0.0 m³ @ 7.97 hrs
 Average Depth at Peak Storage= 0.05 m
 Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
 n= 0.011
 Length= 10.00 m Slope= 0.0100 m/m
 Inlet Invert= 7.500 m, Outlet Invert= 7.400 m



Reach 74R: RT_DL01 100Ø @ >1%

Hydrograph



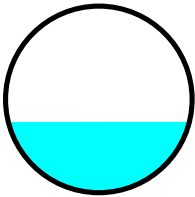
Summary for Reach 78R: ROOF_DL02 100Ø @ >1%

Inflow Area = 201.0 m², 100.00% Impervious, Inflow Depth > 136 mm for 20% AEP + 20%CC event
 Inflow = 1.87 L/s @ 7.94 hrs, Volume= 27.3 m³
 Outflow = 1.87 L/s @ 7.94 hrs, Volume= 27.3 m³, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.68 m/s, Min. Travel Time= 0.2 min
 Avg. Velocity = 0.40 m/s, Avg. Travel Time= 0.4 min

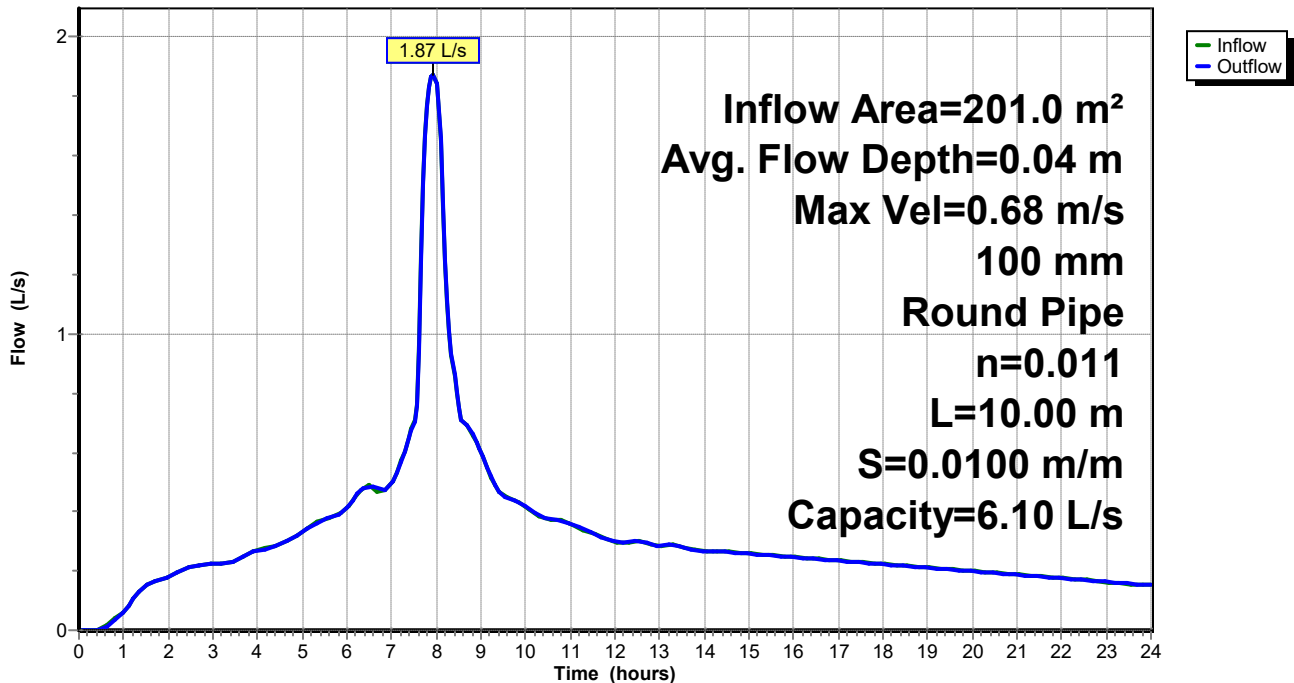
Peak Storage= 0.0 m³ @ 7.94 hrs
 Average Depth at Peak Storage= 0.04 m
 Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
 n= 0.011
 Length= 10.00 m Slope= 0.0100 m/m
 Inlet Invert= 8.000 m, Outlet Invert= 7.900 m



Reach 78R: ROOF_DL02 100Ø @ >1%

Hydrograph



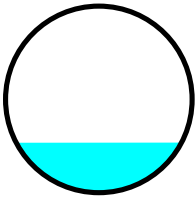
Summary for Reach 81R: ROOF_DL03 100Ø @ >1%

Inflow Area = 104.0 m², 100.00% Impervious, Inflow Depth > 136 mm for 20% AEP + 20%CC event
 Inflow = 0.97 L/s @ 7.94 hrs, Volume= 14.1 m³
 Outflow = 0.97 L/s @ 7.94 hrs, Volume= 14.1 m³, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 0.57 m/s, Min. Travel Time= 0.3 min
 Avg. Velocity = 0.33 m/s, Avg. Travel Time= 0.5 min

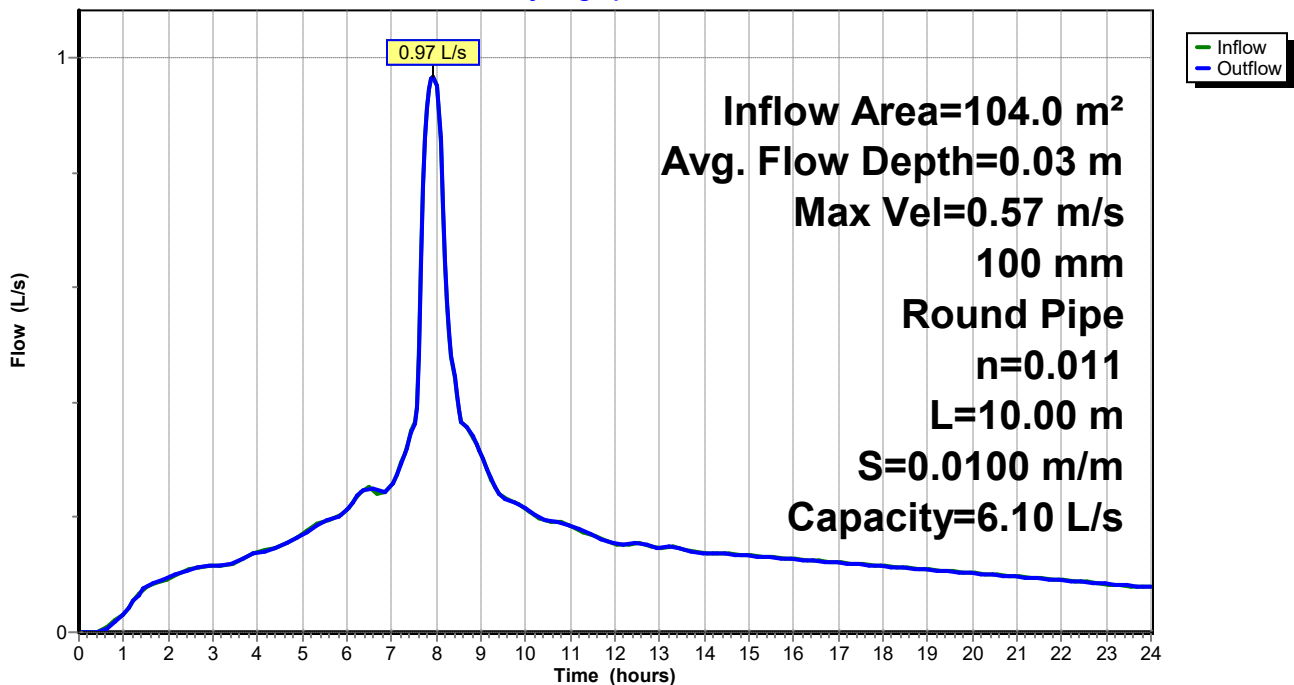
Peak Storage= 0.0 m³ @ 7.94 hrs
 Average Depth at Peak Storage= 0.03 m
 Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
 n= 0.011
 Length= 10.00 m Slope= 0.0100 m/m
 Inlet Invert= 7.600 m, Outlet Invert= 7.500 m



Reach 81R: ROOF_DL03 100Ø @ >1%

Hydrograph



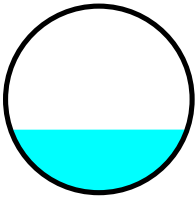
Summary for Reach 83R: ROOF_DL04 100Ø @ >1%

Inflow Area = 162.0 m², 100.00% Impervious, Inflow Depth > 136 mm for 20% AEP + 20%CC event
Inflow = 1.51 L/s @ 7.94 hrs, Volume= 22.0 m³
Outflow = 1.51 L/s @ 7.94 hrs, Volume= 22.0 m³, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.64 m/s, Min. Travel Time= 0.3 min
Avg. Velocity = 0.37 m/s, Avg. Travel Time= 0.4 min

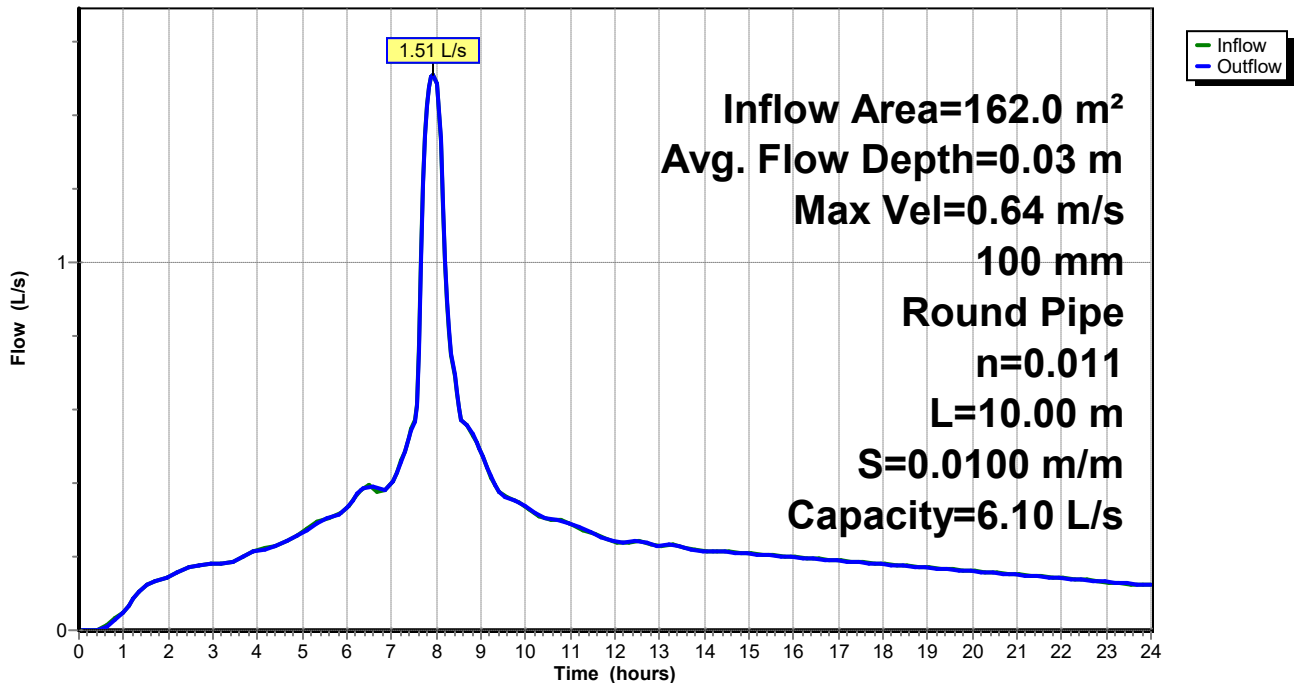
Peak Storage= 0.0 m³ @ 7.94 hrs
Average Depth at Peak Storage= 0.03 m
Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
n= 0.011
Length= 10.00 m Slope= 0.0100 m/m
Inlet Invert= 6.000 m, Outlet Invert= 5.900 m



Reach 83R: ROOF_DL04 100Ø @ >1%

Hydrograph



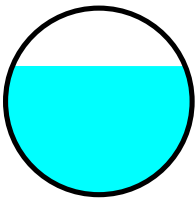
Summary for Reach 84R: DL05 100Ø @ >2% OR 150Ø @ >1%

Inflow Area = 817.0 m², 57.16% Impervious, Inflow Depth > 125 mm for 20% AEP + 20%CC event
 Inflow = 7.10 L/s @ 7.95 hrs, Volume= 101.8 m³
 Outflow = 7.10 L/s @ 7.96 hrs, Volume= 101.8 m³, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.23 m/s, Min. Travel Time= 0.1 min
 Avg. Velocity = 0.74 m/s, Avg. Travel Time= 0.2 min

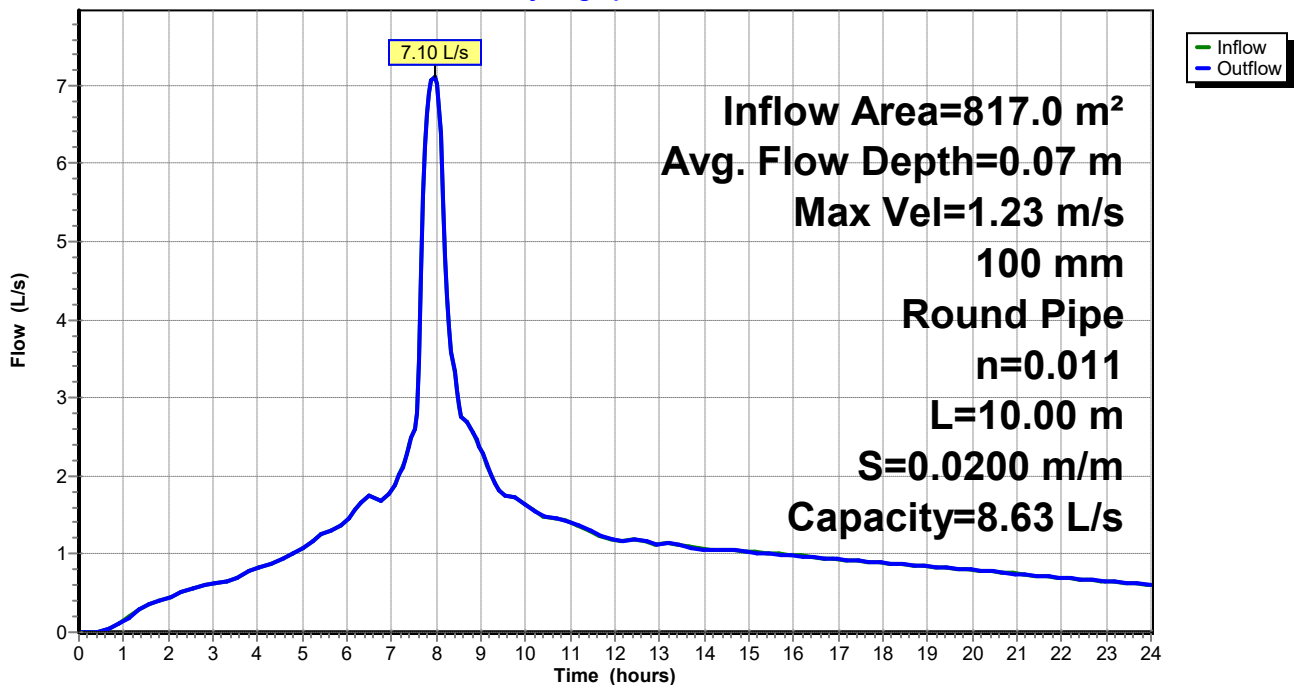
Peak Storage= 0.1 m³ @ 7.96 hrs
 Average Depth at Peak Storage= 0.07 m
 Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 8.63 L/s

100 mm Round Pipe
 n= 0.011
 Length= 10.00 m Slope= 0.0200 m/m
 Inlet Invert= 5.800 m, Outlet Invert= 5.600 m



Reach 84R: DL05 100Ø @ >2% OR 150Ø @ >1%

Hydrograph



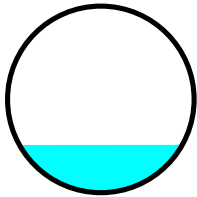
Summary for Reach 85R: ROOF_DL06 100Ø @ >1%

Inflow Area = 95.0 m², 100.00% Impervious, Inflow Depth > 136 mm for 20% AEP + 20%CC event
Inflow = 0.88 L/s @ 7.94 hrs, Volume= 12.9 m³
Outflow = 0.88 L/s @ 7.94 hrs, Volume= 12.9 m³, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.55 m/s, Min. Travel Time= 0.3 min
Avg. Velocity = 0.32 m/s, Avg. Travel Time= 0.5 min

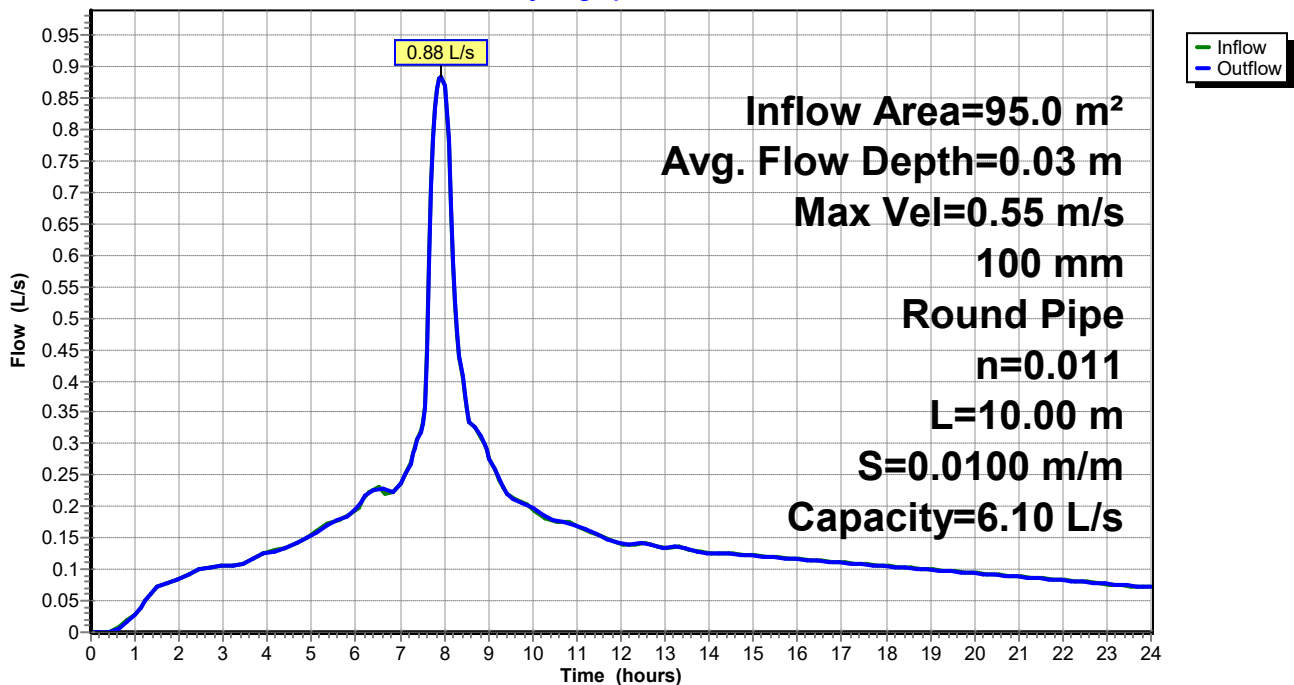
Peak Storage= 0.0 m³ @ 7.94 hrs
Average Depth at Peak Storage= 0.03 m
Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
n= 0.011
Length= 10.00 m Slope= 0.0100 m/m
Inlet Invert= 3.800 m, Outlet Invert= 3.700 m



Reach 85R: ROOF_DL06 100Ø @ >1%

Hydrograph



Summary for Pond 77P: DL09: 300Ø CULVERT

Inflow Area = 15,630.0 m², 3.60% Impervious, Inflow Depth > 84 mm for 20% AEP + 20%CC event
 Inflow = 89.26 L/s @ 8.00 hrs, Volume= 1,313.8 m³
 Outflow = 89.26 L/s @ 8.00 hrs, Volume= 1,313.8 m³, Atten= 0%, Lag= 0.0 min
 Primary = 89.26 L/s @ 8.00 hrs, Volume= 1,313.8 m³

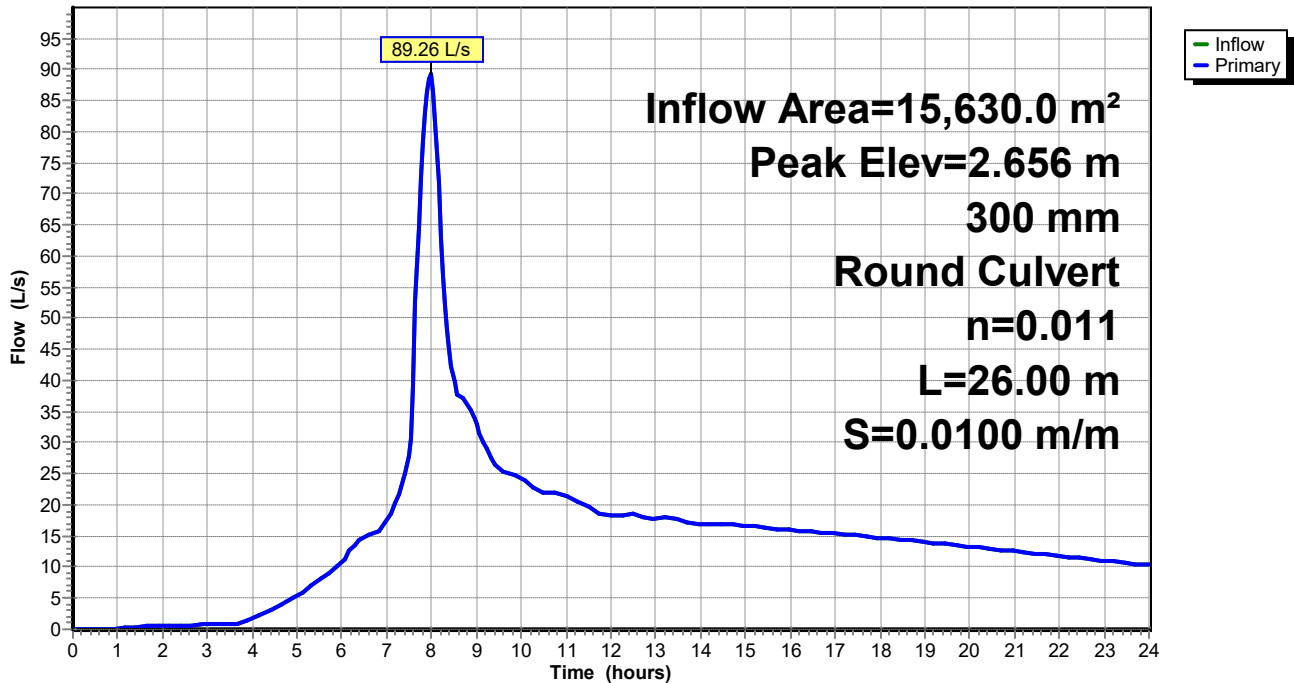
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.656 m @ 8.00 hrs
 Flood Elev= 2.940 m

Device #	Routing	Invert	Outlet Devices
#1	Primary	2.280 m	300 mm Round Culvert L= 26.00 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 2.280 m / 2.020 m S= 0.0100 m/m Cc= 0.900 n= 0.011, Flow Area= 0.071 m ²

Primary OutFlow Max=89.21 L/s @ 8.00 hrs HW=2.656 m (Free Discharge)
 ↑1=Culvert (Inlet Controls 89.21 L/s @ 1.26 m/s)

Pond 77P: DL09: 300Ø CULVERT

Hydrograph



Summary for Pond 87P: DL08: 300Ø CULVERT

Inflow Area = 14,813.0 m², 0.64% Impervious, Inflow Depth > 82 mm for 20% AEP + 20%CC event
 Inflow = 82.19 L/s @ 8.00 hrs, Volume= 1,212.1 m³
 Outflow = 82.19 L/s @ 8.00 hrs, Volume= 1,212.1 m³, Atten= 0%, Lag= 0.0 min
 Primary = 82.19 L/s @ 8.00 hrs, Volume= 1,212.1 m³

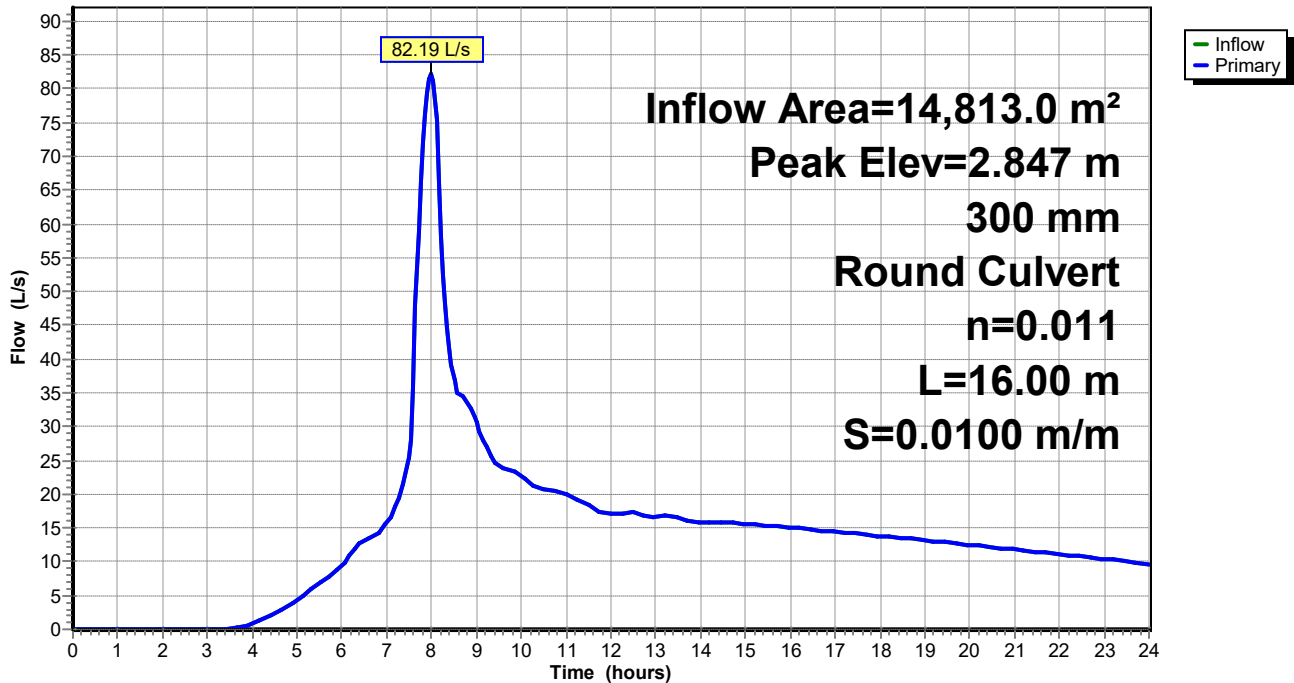
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 2.847 m @ 8.03 hrs
 Flood Elev= 2.940 m

Device #	Routing	Invert	Outlet Devices
#1	Primary	2.440 m	300 mm Round Culvert L= 16.00 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 2.440 m / 2.280 m S= 0.0100 m/m Cc= 0.900 n= 0.011, Flow Area= 0.071 m ²

Primary OutFlow Max=81.26 L/s @ 8.00 hrs HW=2.843 m TW=2.656 m (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 81.26 L/s @ 1.15 m/s)

Pond 87P: DL08: 300Ø CULVERT

Hydrograph



Summary for Pond 89P: CP02: TYPE 2 INLET COVER 675x460mm

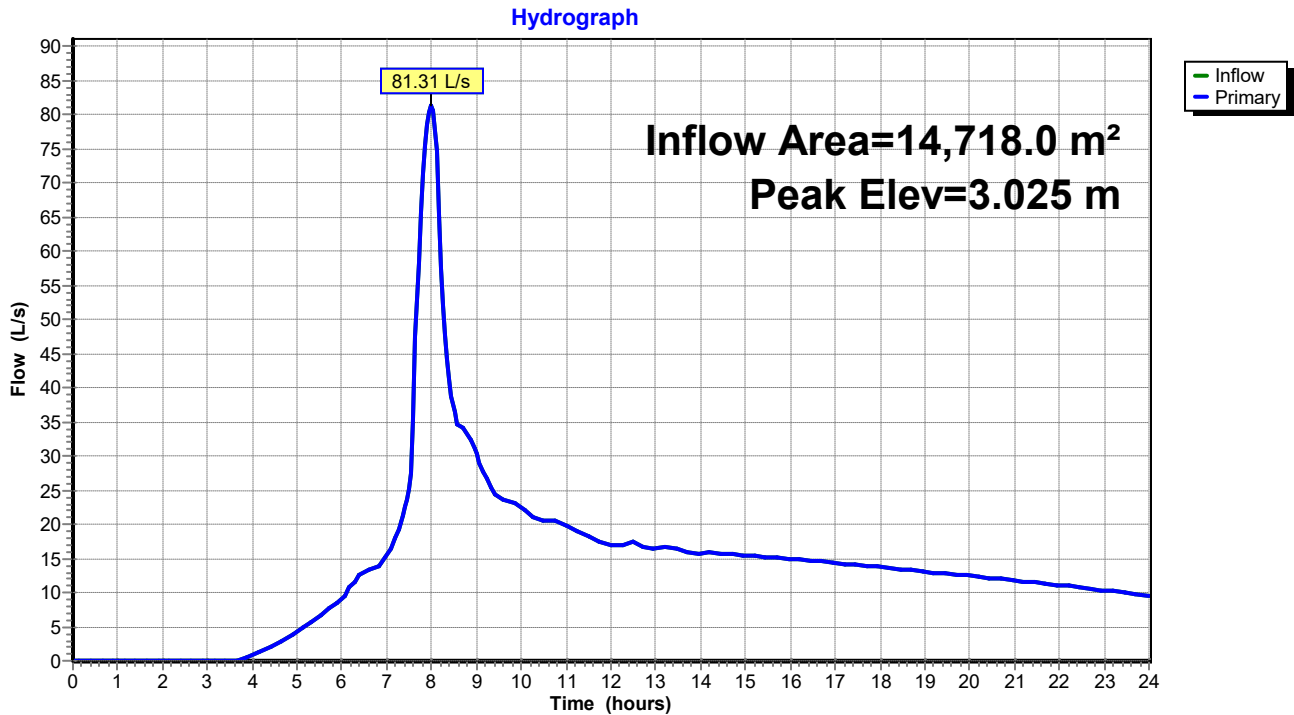
Inflow Area = 14,718.0 m², 0.00% Impervious, Inflow Depth > 81 mm for 20% AEP + 20%CC event
 Inflow = 81.31 L/s @ 8.00 hrs, Volume= 1,199.2 m³
 Outflow = 81.31 L/s @ 8.00 hrs, Volume= 1,199.2 m³, Atten= 0%, Lag= 0.0 min
 Primary = 81.31 L/s @ 8.00 hrs, Volume= 1,199.2 m³

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 3.025 m @ 8.00 hrs
 Flood Elev= 2.940 m

Device #1	Routing	Invert	Outlet Devices
	Primary	2.940 m	20 mm x 350 mm Horiz. Orifice/Grate X 15.00 C= 0.600 in 460 mm x 650 mm Grate (35% open area) Limited to weir flow at low heads

Primary OutFlow Max=81.31 L/s @ 8.00 hrs HW=3.025 m TW=2.843 m (Dynamic Tailwater)
 ←1=Orifice/Grate (Orifice Controls 81.31 L/s @ 0.77 m/s)

Pond 89P: CP02: TYPE 2 INLET COVER 675x460mm



ADDRESS: Hihi Beach Campground
Hihi Beach

REFERENCE: Outlet protection design as per TP10
*In accordance with section 13.4

JOB NO.: 145269
DATE: 06.03.2026
DESIGNER: PM
CHECKER: BGS

Discharge velocity

	90	l/s	calculated flow rate from outlet (Q)	(peak flow for 20% AEP)
	0.3	m	size of outlet (D _o)	
	0.0707	m ²	outlet area = $\pi r^2 \times (x/2)^2$	
	5	%	maximum grade on pipe	
	0.011		pipe material mannings (n)	
Dv	2.366	m/s	discharge velocity from pipe outlet	

Equivalent Aggregate Diameter (d_s)

Where: $d_s = 0.25 \times D_o \times F_o$

	0.3	m	Outlet diameter (m)
	1.89	m	Froude number = $V / (g \times d_p)^{0.5}$
	0.159	m	depth of flow in pipe
	2.366	m/s	velocity of flow in pipe
D _s	0.142	m	required aggregate diameter to avoid scour

Thickness of Aggregate Layer

Where: $D_a = 2d_s$

D _a	0.284	m	depth of aggregate at base of rip-rap
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Width of Mouth of Rip-Rap (W_a)

Where: $W_a = 3D_o$

W _a	0.900	m	as per above
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Rip-Rap Outfall Length (L_a)

Where: $D_o (8 + 17 \times \log F_o)$

L _a	3.815	m	
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