Te Kaunihera o Te Hiku o te Ika
Far North District Council

Office Use Only
Application Number:

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 Schedule 4). 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**

2. Type of Consent being applied for

(more than one circle can be ticked):

- ✔ **Land Use**
- ◯ **Fast Track Land Use***
- ✔ **Subdivision**
- ◯ **Consent under National Environmental Standard** (e.g. Assessing and Managing Contaminants in Soil)
- ◯ **Discharge**
- ◯ **Change of Consent Notice (s.221(3))**
- ◯ **Extension of time (s.125)**
- ◯ **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?	Ngati Rehia
Who else have you consulted with?	Department of Conservation & Heritage New Zealand

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: Graeme and Fiona Norman

Email: [redacted]

Phone number:

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

6. Address for Correspondence

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

Name/s: Bay of Island Planning

Email: [redacted]

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.***

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: Fiona Maxine Norman and Graeme Bruce Norman

Property Address/ Location: 33 Mission Road, Kerikeri

Postcode

8. Application Site Details

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

Name/s:

Site Address/ Location:

33 MIssion Road

Kerikeri

Postcode

Legal Description: Lot 2 DP 90338 **Val Number:**

Certificate of title: NA47D/96

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.

2 lot subdivision

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** Enter BC ref # here (if known)
- ◯ **Regional Council Consent (ref # if known)** Ref # here (if known)
- ◯ **National Environmental Standard consent** Consent here (if known)
- ◯ **Other (please specify)** Specify 'other' here

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**
- ◯ **Changing the use of a piece of land**
- ◯ **Disturbing, removing or sampling soil**
- ◯ **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**

13. Draft Conditions:

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

If yes, do you agree to extend the processing timeframe pursuant to Section 37 of the Resource Management Act by 5 working days? ◯ **Yes** ✔ **No**

14. 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) Fiona Norman

Email: [redacted]

Phone number: [redacted]

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

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.

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) Fiona Norman

Signature:
(signature of bill payer [redacted]

Date 11-Jun-2025

MANDATORY

15. 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.fndc.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.

15. Important information continued...

Declaration

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

Name: **(please write in full)** Andrew McPhee

Signature:

Date 26-Jun-2025

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

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.

BAY OF ISLANDS PLANNING (2022) LIMITED

Kerikeri House
Suite 3, 88 Kerikeri Road, Kerikeri
Email – office@bayplan.co.nz Website - www.bayplan.co.nz

01 July 2025

Far North District Council
John Butler Centre
Kerikeri

Application seeking consent for a two-lot subdivision on Lot 2 DP 90338 in the Rural Living zone at 33 Mission Road, Kerikeri.

Please find attached an application for a two-lot subdivision at 33 Mission Road, Kerikeri. The site is legally described as Lot 2 DP 90338.

Graeme and Fiona Norman seek consent to subdivide a 4,045m^2 site creating two lots as a Non-Complying activity in the Rural Living zone within the operative Far North District Plan (**ODP**). Under the Proposed Far North District Plan (**PDP**) the application would be assessed as a Discretionary activity.

Land use consent is also required for consequential breaches to stormwater management, building coverage and setback for the existing garage. In terms of the PDP, consent is sought in terms of subdivision within a heritage area.

The proposed subdivision will create the following lots:

Lot 1 – 2,000m^2
Lot 2 – 2,000m^2

The application is supported by the following information –

- **Appendix A - Certificate of Title**
- **Appendix B - Scheme Plan**
- **Appendix C – Site Suitability Report prepared by Wilton Joubert**
- **Appendix D – Geotechnical Report prepared by Wilton Joubert**
- **Appendix E – Record of consultation**
- **Appendix F – Top Energy and Chorus consultation**

Regards,

Andrew McPhee
Consultant Planner

APPLICANT & PROPERTY DETAILS

Applicant	Graeme and Fiona Norman
Address for Service	Bay of Islands Planning [2022] Limited Kerikeri House Suite 3 88 Kerikeri Road Kerikeri C/O – Andrew McPhee andrew@bayplan.co.nz 021-784-331
Legal Description	Lot 2 DP 90338
Certificate Of Title	NA47D/96
Physical Address	33 Mission Road, Kerikeri
Site Area	4,045m^2
Owner of the Site	Graeme and Fiona Norman
Operative District Plan Zone / Features	Rural Living Zone
Proposed District Plan	Rural Residential Zone, Kerikeri Heritage Area Part B
Archaeology	Nil
NRC Overlays	Nil
Soils	2s1
Protected Natural Area	Nil
HAIL	Nil

Schedule 1

SUMMARY OF PROPOSAL

Proposal	A two-lot subdivision in the Rural Living zone at 33 Mission Road, Kerikeri.
Reason for Application	The lot sizes proposed are not provided for within the ODP making the application for subdivision a Non-Complying activity. Land use consent is also required due to breaches to stormwater management, building coverage, and setbacks for the existing garage. Consent is also required under the PDP for subdivision within a heritage area. (The lot sizes proposed are provided for within the PDP and would be assessed as a Discretionary activity.)
Appendices	Appendix A - Certificate of Title Appendix B - Scheme Plan Appendix C – Site Suitability Report prepared by Wilton Joubert Appendix D – Geotechnical Report prepared by Wilton Joubert Appendix E – Record of consultation. Appendix F – Top Energy and Chorus consultation
Consultation	Consultation was undertaken with the Department of Conservation, Heritage New Zealand and Ngati Rehia. A record of consultation is provided in **Appendix E**.
Pre Application Consultation	Not applicable

1.0 INTRODUCTION

The applicant, Graeme and Fiona Norman, seek resource consent to undertake a two-lot subdivision on their property located at 33 Mission Road in Kerikeri, legally described as Lot 2 DP 90338. The title is provided in **Appendix A**.

2.0 DESCRIPTION OF THE SITES AND SURROUNDS

The site is located approximately three quarters of the way down 33 Mission Road, around 500m east of the intersection at Landing Road.

The site and surrounding area are zoned Rural Living in the ODP. The area is well developed and can be best described as 'large lot' residential living. There is no evidence in the immediate surrounds of rural production activities being undertaken.

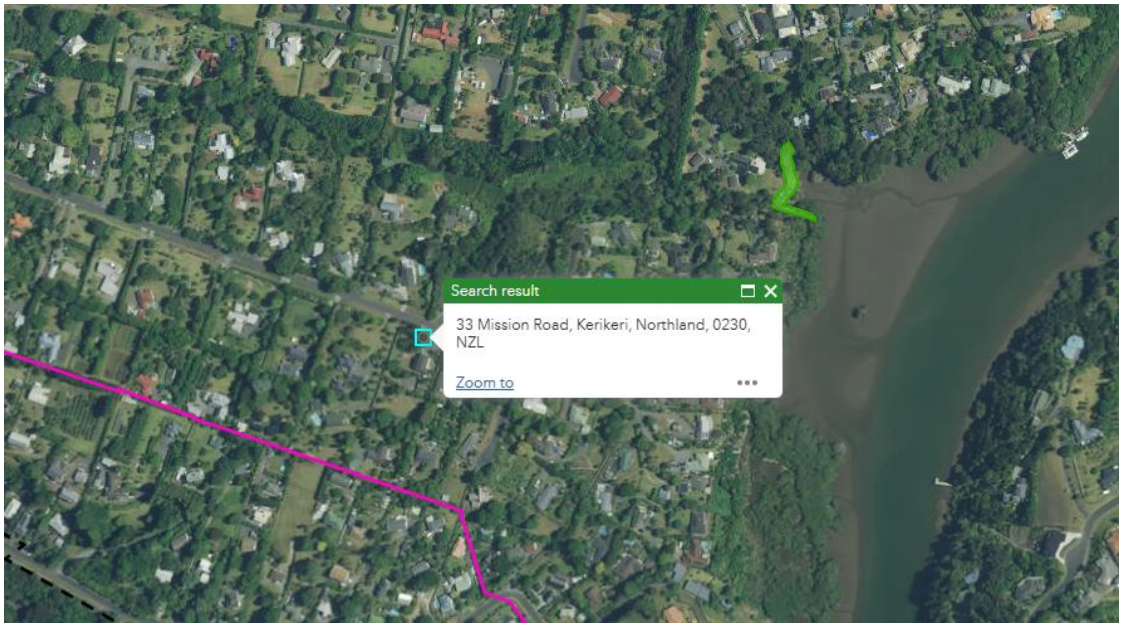


Figure 1: Site Aerial (Source: Far North Maps)

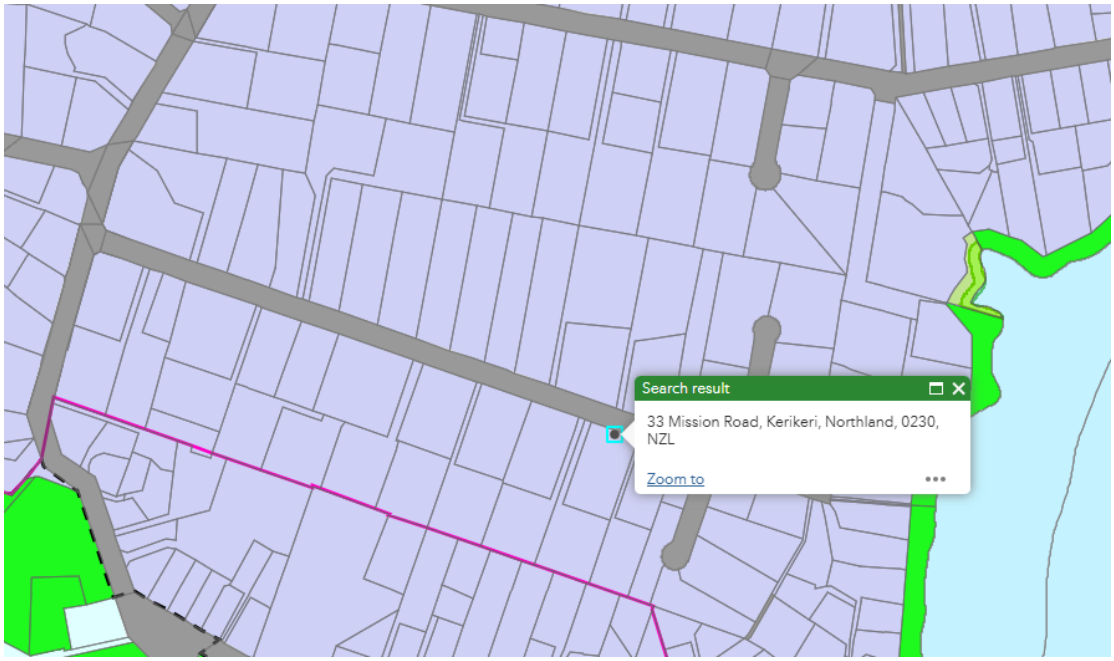


Figure 2: Zoning (Source: Far North Maps)

The site currently accommodates a dwelling and a garage with the remainder of the section grass covered with a selection of trees. The site is surrounded by boundary planting (refer Figures 3, 4 and 5). It is noted that there is a section of the western hedge in the southwestern corner, which has previously died and will be replanted.

Figure 3: Photo of hedge on the western boundary looking north

Figure 4: Photo of the planting along the southern boundary facing southeast

Figure 5: Photo of the planting along the eastern boundary in the location of the proposed building platform

As is evidenced from the from the zoning map (refer Figure 2), the subject site is similar in size to properties to the north and west of Mission Road. However, the properties to the south and east are more fragmented with lot sizes less than the discretionary standard in the ODP, and more commensurate with that being provided for in the PDP. The wider surrounds demonstrate smaller sites ranging in size between 812m^2 and 2,978m^2 (refer Figures 6 and 7).

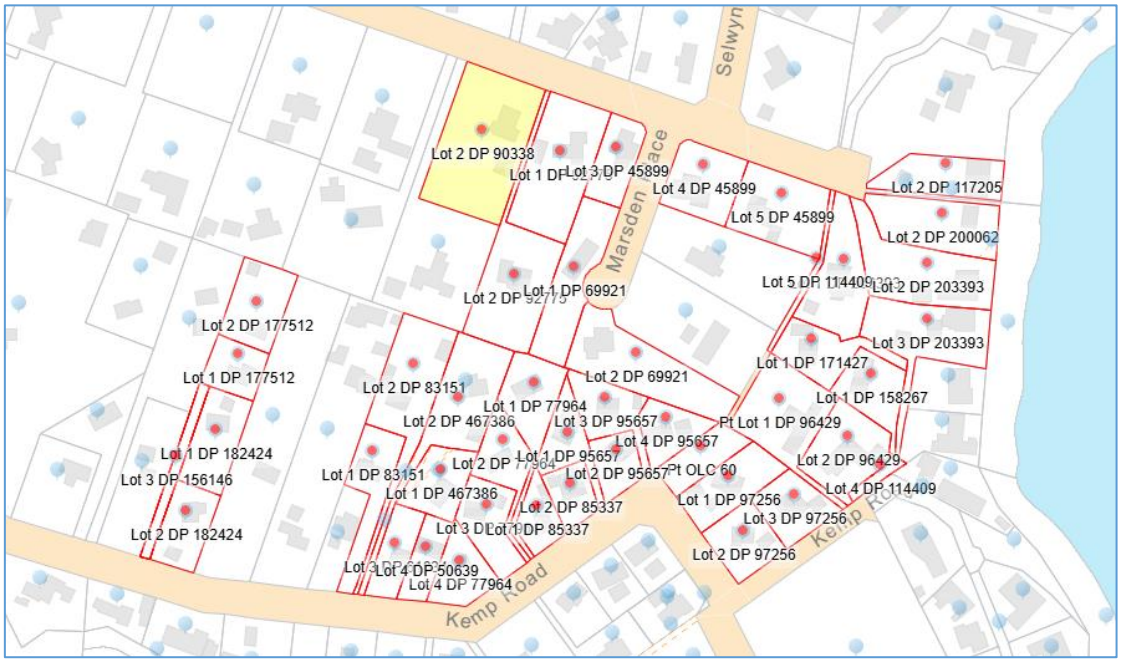


Figure 6: Land use pattern of surrounding properties (Source: Prover)

Address	Suburb	Town	Capital Value	Last Sale Date	Last Sale Price	Land Area	Floor Area
3 Marsden Place	Kerikeri	Far North	760000	06 Jun 2018	590000	2,096 m²	180 m²
39 Mission Road	Kerikeri	Far North	690000	19 Feb 2001	190000	1,128 m²	120 m²
37 Mission Road	Kerikeri	Far North	780000	10 Jul 2007	460000	2,978 m²	120 m²
35 Mission Road	Kerikeri	Far North	1190000	05 Mar 2019	835000	2,978 m²	235 m²
0 Kemp Road	Kerikeri	Far North	1060000			2,567 m²	205 m²
54 Kemp Road	Kerikeri	Far North	730000	01 Jan 1900	174000	2,634 m²	90 m²
58 Kemp Road	Kerikeri	Far North	850000	27 Nov 2015	470000	1,254 m²	164 m²
68 Kemp Road	Kerikeri	Far North	800000	09 Aug 2004	270000	1,203 m²	100 m²
70 Kemp Road	Kerikeri	Far North	740000	23 Mar 2012	280000	1,676 m²	104 m²
76 Kemp Road	Kerikeri	Far North	730000	01 Jan 1900	200000	1,057 m²	140 m²
80 Kemp Road	Kerikeri	Far North	670000	01 Jan 1900	138000	1,235 m²	100 m²
78 Kemp Road	Kerikeri	Far North	760000	27 Nov 2008	317750	850 m²	101 m²
82 Kemp Road	Kerikeri	Far North	760000	21 Dec 2015	380000	1,018 m²	110 m²
6 Marsden Place	Kerikeri	Far North	1010000	01 Jan 1900	295000	2,824 m²	210 m²
41 Mission Road	Kerikeri	Far North	760000	28 Jul 2014	458000	1,608 m²	120 m²
43 Mission Road	Kerikeri	Far North	940000	20 Apr 2016	575000	2,163 m²	160 m²
49 Mission Road	Kerikeri	Far North	980000	05 Apr 2002	80000	1,963 m²	166 m²
98 Kemp Road	Kerikeri	Far North	700000	12 Oct 2005	328000	1,330 m²	115 m²
90 Mission Road	Kerikeri	Far North	17000	01 Jan 1900	800	454 m²	
94 Kemp Road	Kerikeri	Far North	1230000	15 Aug 2015	630000	1,817 m²	250 m²
96 Kemp Road	Kerikeri	Far North	770000	21 Jun 2019	587000	1,295 m²	130 m²
84 Kemp Road	Kerikeri	Far North	970000	21 Jul 2017	580000	1,470 m²	130 m²
66 Mission Road	Kerikeri	Far North	1370000	03 May 2019	1000000	1,514 m²	245 m²
68 Mission Road	Kerikeri	Far North	1540000	18 Jan 2013	469000	2,072 m²	80 m²
51 Mission Road	Kerikeri	Far North	1550000	22 May 2019	1150000	2,607 m²	202 m²
100 Kemp Road	Kerikeri	Far North	1110000	22 Sep 2020	855000	2,492 m²	210 m²
32 Kemp Road	Kerikeri	Far North	610000	28 May 2005	275000	1,545 m²	80 m²
32A Kemp Road	Kerikeri	Far North	690000	27 Jul 2021	700000	954 m²	80 m²
86 Kemp Road	Kerikeri	Far North	690000	01 Jan 1900	165000	1,248 m²	110 m²
88 Kemp Road	Kerikeri	Far North	920000	26 Mar 2001	238000	1,251 m²	140 m²
66 Kemp Road	Kerikeri	Far North	610000	04 Aug 1996	140000	1,328 m²	90 m²
52 Kemp Road	Kerikeri	Far North	730000	01 Jan 1900	165000	1,492 m²	150 m²
32B Kemp Road	Kerikeri	Far North	700000	24 Dec 2019	540000	1,500 m²	80 m²
74 Kemp Road	Kerikeri	Far North	760000	10 Mar 2025	680000	812 m²	125 m²
32C Kemp Road	Kerikeri	Far North	730000	01 Oct 2006	127500	1,250 m²	100 m²
60 Kemp Road	Kerikeri	Far North	730000	27 Apr 2013	315000	984 m²	100 m²
62 Kemp Road	Kerikeri	Far North	680000	01 Jan 1900	146000	842 m²	100 m²
64 Kemp Road	Kerikeri	Far North	840000	27 Sep 2012	324000	1,132 m²	200 m²

Figure 7: Land use pattern of surrounding properties (Source: Prover)

The site is not subject to any known hazards.

The site is currently accessed via two vehicle crossings on Mission Rd (refer Figure 8 below). Mission Road has a footpath along its southern boundary representative of the residential density that has taken place to date. Mission Road has streetlighting and is provided waste management services representing its urban form.

Figure 8: Photograph of current access to 33 Mission Road

The topography can best be described as generally flat with a slight fall from the southwest to the northeast.

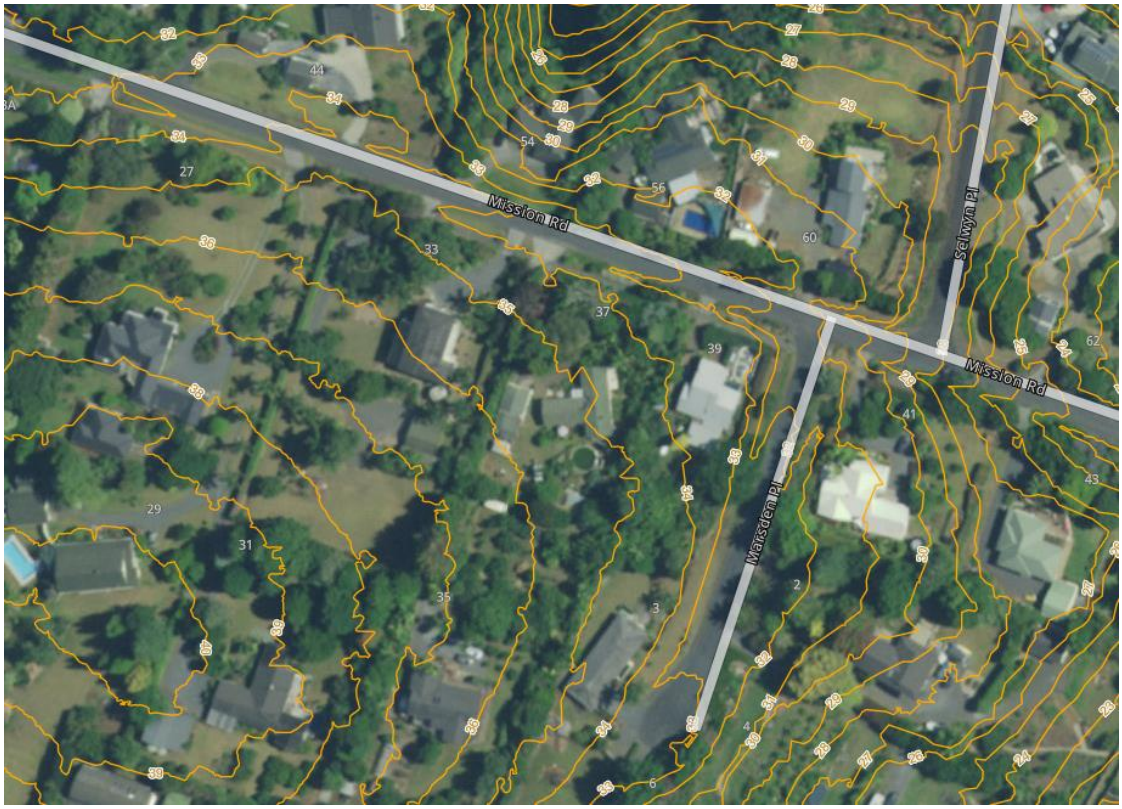


Figure 9: Site topography (Source: NRC Maps)

The landholding is identified as having Class 2 soils and considered to be highly productive in accordance with the National Policy Statement for Highly Productive Land (NPS-HPL) (refer Figure 10 below).

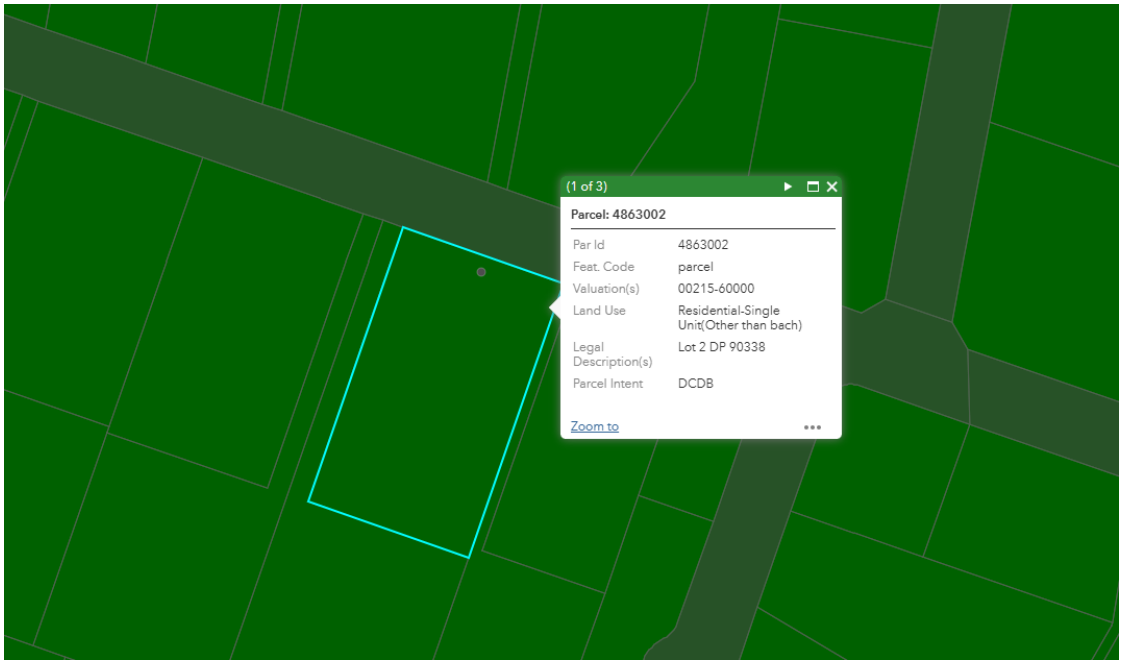


Figure 10: Land Use Classification (Source: Far North Maps)

3.0 RECORD OF TITLE, CONSENT NOTICES AND LAND COVENANTS

The Record of Title is attached at **Appendix A**. There are no consent notices or covenants that apply.

4.0 DESCRIPTION OF PROPOSAL

The proposal seeks to subdivide a 4,045m^2 site creating two lots as a non-complying activity in the Rural Living zone within the ODP. Noting that the same application is provided for under the PDP as a Discretionary activity.

The proposed subdivision will create the following lots:

- Lot 1 – ~2,000m^2
- Lot 2 – ~2,000m^2

The proposal will be in accordance with the scheme plan provided in **Appendix B**.

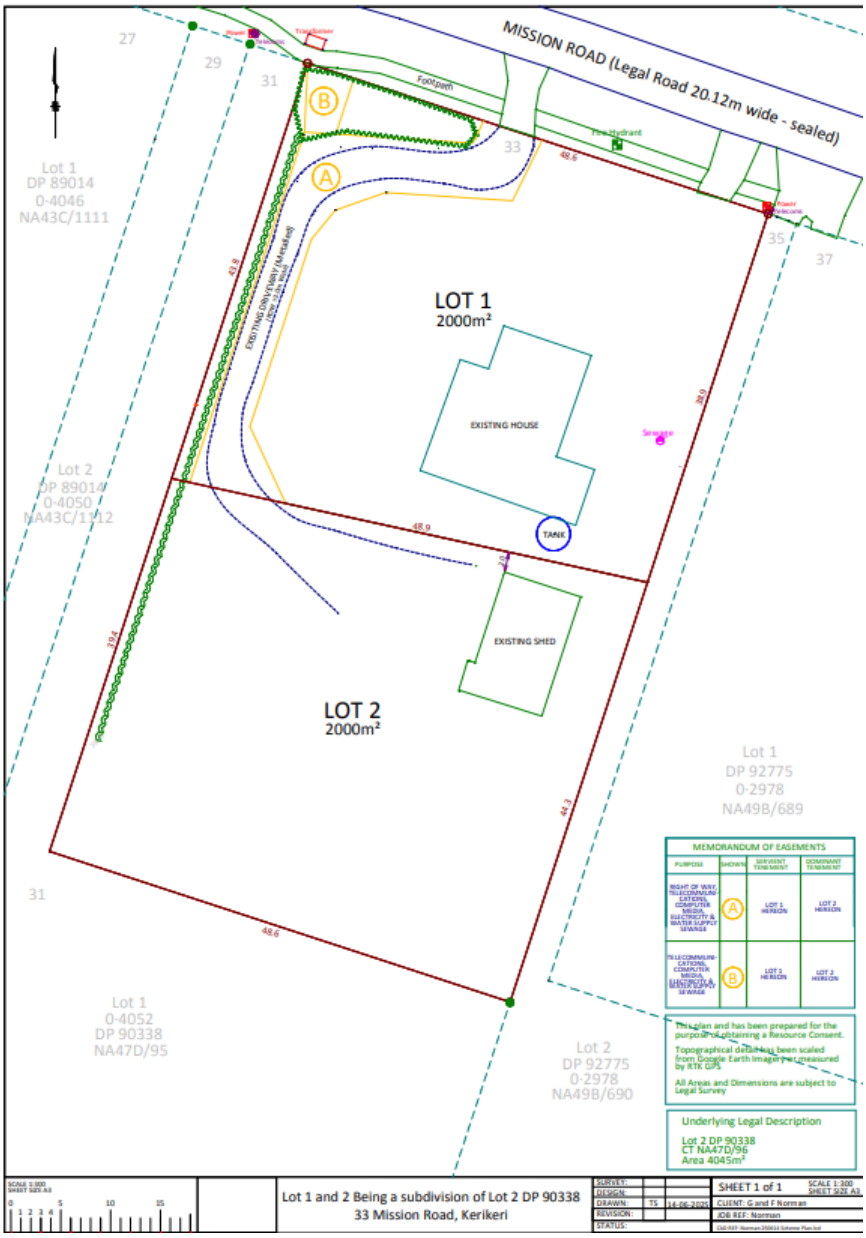


Figure 11: Proposed scheme plan

Access, power, telecommunications and Council reticulated water supply are currently provided to the existing dwelling (proposed Lot 1). The applicant seeks Council reticulated water supply for proposed Lot 2, but this is subject to Council approval. If approval is not given, then potable water supply can be provided by rainwater tanks.

Easements 'A' and 'B' provide right of way, telecommunications, computer media, electricity, water supply and sewage to proposed Lot 2 if and when applicable (refer the scheme plan in **Appendix B)**.

Connection details have been provided by Top Energy and Chorus and are attached at **Appendix F**.

The subdivision is considered to be a Non-complying under the ODP. Consent is also required under the PDP as a Restricted Discretionary activity due to subdivision within a heritage area overlay.

Based on the assessment of environmental effects provided below, it is concluded than any potential adverse effects arising from the subdivision would be less than minor and can be mitigated through appropriate conditions.

5.0 DISTRICT PLAN ASSESSMENT [OPERATIVE AND PROPOSED]

The Far North District Council (FNDC) zones the sites Rural Living in the ODP and Rural Residential in the PDP. There are no identified Resource features in the ODP. The PDP identifies the site as being within the Kerikeri Heritage Area – Part B.

Figure 12: ODP zone – Rural Living (Source: Far North Maps)

Figure 13: PDP zone – Rural Residential (Source: PDP Maps)

The subdivision is subject to performance standards as set out in Table 1 below:

Table 1 - Subdivision Performance Standards

Subdivision Performance Standard	**Comment**
Rule 13.6.1 Definition of Subdivision of Land	The application meets the definition of subdivision as defined in the Resource Management Act 1991 (**RMA**).
Rule 13.6.2 Relevant Sections of Act	These are applied to the application.
Rule 13.6.3 Relevant Sections of the District Plan	These are applied to the application.
Rule 13.6.4 Other Legislation	There are no other pieces of legislation which are triggered by the proposal.
Rule 13.6.5 Legal Road Frontage	The site is currently accessed on Mission Road.
Rule 13.6.6 Bonds	Not applicable
Rule 13.6.7 Consent Notices	There are no consent notices that apply to the site.
Rule 13.6.8 Subdivision consent before work commences	Minimal physical works will be required to complete the subdivision (if any).
Rule 13.6.9 Assessing Resource Consents	The application is non-complying so Council may impose conditions to address effects of the proposal.

Subdivision Performance Standard	Comment
Rule 13.6.10 Joint Applications	Not applicable
Rule 13.6.11 Joint Hearings	Not applicable
Rule 13.6.12 Suitability for Proposed Land Use	The application does not create significant risk form natural hazards and has made sufficient provision for legal and physical access to each of the allotments proposed.
Rule 13.7.2 Allotment Sizes, Dimensions and Other Standards	
Performance Standard	**Comment**
Rule 13.7.2.1 – Minimum Lot Sizes	The proposed two lot subdivision creates lots that are greater than 2,000m^2 in size. Minimum lot size for a discretionary subdivision is 3,000m^2. ***Non-complying***
Rule 13.7.2.2 – Allotment dimensions	Proposed Lot 2 can contain a 30m x 30m allotment dimension. An indicative site plan demonstrating a future building site and disposal area is provided within the Site Suitability Report in **Appendix C**.
Rule 13.7.2.3 - Amalgamation of land in a rural zone with land in an urban or coastal zone	Not applicable.
Rule 13.7.2.4 – Lots divided by zone boundaries	Not applicable.
Rule 13.7.2.5 - Sites divided by an outstanding landscape, outstanding landscape feature or outstanding natural feature	Not applicable
Rule 13.7.2.6 – Activities, Utilities, Roads and Reserves	Not applicable
Rule 13.7.2.7 – Savings as to previous approvals	Not applicable
Rule 13.7.2.8 – Proximity to Top Energy transmission lines	Not applicable
Rule 13.7.2.9 – Proximity to National Grid	Not applicable

Table 2 - Natural and Physical Resources - Performance Standards

Chapter 12 – Natural and Physical Resources	
12.1 Landscapes and Natural Features	Not applicable
12.2 Indigenous Flora and Fauna	The sites do not contain any significant areas of indigenous vegetation. No vegetation clearance is proposed as part of the subdivision. The site does not contain any habitats of indigenous fauna.
12.3 Soils and Minerals	No earthworks are required to form access onto Proposed Lot 2 as it is existing. As such, earthworks will not exceed 300m^3 or a cut or filled face exceeding 1.5m.
12.4 Natural Hazards	Not applicable
12.5 Heritage	Not applicable
12.6 Air	Not applicable
12.7 Lakes, Rivers Wetlands and the Coastline	Not applicable
12.8 Hazardous Substances	Not applicable
12.9 Renewable Energy and Energy Efficiency	Not applicable

Table 3 - Transportation Performance Standards

Chapter 15 - Transportation	
15.1.6A.2 Traffic Intensity	The proposed subdivision will only generate one additional lot. While no development is proposed at this juncture, standard residential units generate 10 one-way vehicle movements per unit in accordance with Appendix 3A – Traffic Intensity Factors. One dwelling can be reasonably expected per site and would be exempt. **Complies**
15.1.6B.1 Parking	No development is proposed at this juncture, however the proposed sites are of sufficient size to provide parking and manoeuvring for two vehicles. **Complies**
15.1.6C Access	As shown on the scheme plan, a ROW easement will be created providing access to Proposed Lot 2. The Site Suitability report in **Appendix C** confirms both existing crossings are in general accordance with Councils engineering standards. **Complies**

15.1.6C.1.8 Frontage to Existing Roads	Both Proposed Lots 1 and 2 will be accessed off Mission Road, which is an established public road with a minimum legal with of >20m, a carriageway of 6.5m and a pedestrian footpath. **Complies**

An assessment of the proposal against the relevant land-use rules of the ODP is provided where it relates to potential built development:

Table 4 – Land-Use Performance Standards

Rural Living Zone	
Rule 8.7.5.1.1 Residential Intensity	No development on Lot 2 is proposed at this juncture, however it is anticipated that this site will accommodate a dwelling. The Site Suitability Report in **Appendix C** shows an indicative site plan demonstrating that Proposed Lot 2 can accommodate a dwelling. **Complies**
Rule 8.7.5.1.2 Scale of Activities	Not applicable at this stage as no land use is proposed for the vacant site. It is envisaged that the sites will be used in a residential capacity. **Complies**
Rule 8.7.5.1.3 Building Height	9m is permitted on each site. No development is proposed at this juncture on the vacant site. **Complies**
Rule 8.7.5.1.4 Sunlight	No development is proposed at this juncture on the vacant site. The existing garage on proposed Lot 2 does not infringe this standard. **Complies**
Rule 8.7.5.1.5 Stormwater Management	Lot 1- Existing impermeable areas including the dwelling and driveway total ~549m^2 Lot 2 – The existing impermeable surface coverage is ~304m^2. Consideration of future development would bring the impermeable coverage to ~ 654m^2. 12.5% is permitted on each site. 20% is a controlled activity status. While no development on Lot 2 is proposed at this juncture an indicative allowance for an additional 350m^2 for additional driveway and an indicative future dwelling is provided within the Site Suitability Report in **Appendix C.** The Report demonstrates that stormwater can be appropriately managed on both sites.

Rural Living Zone	
	Discretionary
Rule 8.7.5.1.6 Setback from Boundaries	No development on Lot 2 is proposed at this juncture, however the site contains an existing garage, which is ~2m from the boundary of proposed Lot 1. The Site Suitability Report in **Appendix C** shows an indicative future dwelling which can accommodate the setback requirements for the Rural Living zone. Technically there is an internal setback from boundary infringement between proposed Lots 1 and 2. ***Restricted Discretionary***
Rule 8.7.5.1.7 Screening for Neighbours – Non-Residential Activities	Not applicable at this stage as no land use is proposed on Lot 2. Lot 1 is being used in a residential capacity. **Complies**
Rule 8.7.5.1.8 Transportation	Refer to Chapter 15 – Transportation for Traffic, Parking and Access above.
Rule 8.7.5.1.9 Hours of Operation – Non-Residential Activities	It is envisaged that the sites will be used in a residential capacity. **Complies**
Rule 8.7.5.1.10 Keeping of Animals	Not proposed. **Complies**
Rule 8.7.5.1.11 Noise	It is envisaged that the sites will be used in a residential capacity. **Complies**
Rule 8.7.5.1.12 Helicopter Landing Area	It is envisaged that the sites will be used in a residential capacity. **Complies**
Rule 8.7.5.1.13 Building Coverage	10% is permitted on each site. 15% is a Restricted Discretionary activity. Lot 1 contains a dwelling with a footprint of 214m^2(10.7%). Lot 2 contains an existing garage of 101m2 (5%). No further development is proposed on Lot 2 at this juncture. ***Restricted Discretionary***

Overall, this subdivision application falls to be considered as a Non-complying activity.

In terms of the PDP, the following rules are assessed in Table 5 below.

Table 5 – PDP Standards

Proposed District Plan				
Matter	**Rule/Std Ref**	**Relevance**	**Compliance**	**Evidence**
Hazardous Substances Majority of rules relates to development within a site that has heritage or cultural items scheduled and mapped however Rule HS-R6 applies to any development within an SNA – which is not mapped	Rule HS-R2 has immediate legal effect but only for a new significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a scheduled heritage resource HS-R5, HS-R6, HS-R9	N/A	Yes	Not proposed **Permitted Activity**
Heritage Area Overlays (Property specific) This chapter applies only to properties within identified heritage area overlays (e.g. in the operative plan they are called precincts for example)	All rules have immediate legal effect (HA-R1 to HA-R14) All standards have immediate legal effect (HA-S1 to HA-S3)	Yes	Yes	Identified within the Kerikeri Heritage Area – Part B. No land use is proposed. Not within 20m of a scheduled heritage resource. **Permitted Activity**
Historic Heritage (Property specific and applies to adjoining sites (if the boundary is within 20m of an identified heritage item)). Rule HH-R5 Earthworks within 20m of a scheduled heritage resource. Heritage resources are shown as a historic item on the maps) This chapter applies to scheduled heritage resources – which are called heritage items in the map legend	All rules have immediate legal effect (HH-R1 to HH-R10) Schedule 2 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan. Not within 20m of a scheduled heritage resource **Permitted Activity**
Notable Trees (Property specific) Applied when a property is showing a scheduled notable tree in the map	All rules have immediate legal effect (NT-R1 to NT-R9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan **Permitted Activity**

Sites and Areas of Significance to Māori (Property specific) Applied when a property is showing a site / area of significance to Maori in the map or within the Te Oneroa-a Tohe Beach Management Area (in the operative plan they are called site of cultural significance to Maori)	All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan **Permitted Activity**
Ecosystems and Indigenous Biodiversity SNA are not mapped – will need to determine if indigenous vegetation on the site for example	All rules have immediate legal effect (IB-R1 to IB-R5)	N/A	Yes	No proposed vegetation clearance. **Permitted Activity**
Activities on the Surface of Water	All rules have immediate legal effect (ASW-R1 to ASW-R4)	N/A	Yes	Not indicated on Far North Proposed District Plan **Permitted Activity**
Earthworks all earthworks (refer to new definition) need to comply with this	The following rules have immediate legal effect: EW-R12, EW-R13 The following standards have immediate legal effect: EW-S3, EW-S5	Yes	Yes	With respect of EW-R12, this requires that the proposed earthworks comply with EW-S3. In effect, EW-S3 triggers the need for an ADP to be applied. It is confirmed that the proposed earthworks will comply with an ADP and this is volunteered as a condition of consent. EW-R13 links to EW-S5. EW-S5 requires earthworks to be controlled in accordance with GD-05.

				No earthworks are required for the subdivision. **Permitted Activity**
Signs (Property specific) as rules only relate to situations where a sign is on a scheduled heritage resource (heritage item), or within the Kororareka Russell or Kerikeri Heritage Areas	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	N/A	Yes	Not indicated on Far North Proposed District Plan **Permitted Activity**
Orongo Bay Zone (Property specific as rule relates to a zone only)	Rule OBZ-R14 has partial immediate legal effect because RD-1(5) relates to water	N/A	Yes	Not indicated on Far North Proposed District Plan **Permitted Activity**
Subdivision	SUB-R6, R13-R15, and R17	Yes		Identified within the Kerikeri Heritage Area – Part B. SUB-R13 – Consultation has been undertaken with Heritage NZ, The Department of Conservation and Ngati Rehia (See **Appendix E**) ***Restricted Discretionary Activity***
Comments:				
Consent is triggered under SUB-R13 (Subdivision of a site within a heritage area overlay) under the PDP. An assessment of the matters of discretion is made later in this report. ***Restricted Discretionary***				

6.0 STATUTORY CONSIDERATIONS

Section 104B of the RMA governs the determination of applications for Non-complying activities:

104B Determination of applications for discretionary or non-complying activities

After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority—

(a) may grant or refuse the application; and

(b) if it grants the application, may impose conditions under section 108.

With respect to Non-complying activities, a consent authority may grant or refuse the application, and may impose conditions under section 108 of the RMA.

Section 104 of the RMA states that when considering an application for a resource consent, "the consent authority must, subject to Part II, have regard to –

(i) any actual and potential effects on the environment of allowing the activity; and
(ii) any relevant provisions of –
(iii) a national environment standard:
(iv) other regulations:
(v) a national policy statement: and
(vi) a New Zealand Coastal Policy Statement:
(vii) a regional policy statement or proposed regional policy statement:
(viii) a plan or proposed plan; and
(ix) any other matter the consent authority considers relevant and reasonably necessary to determine the application."

The matters to be addressed under s104 are discussed below which has been guided, where relevant, by the assessment criteria in section 13.10 of the ODP.

No Regional Plan matter is considered to be pertinent to the considerations as no consents are required in this respect.

Those relevant s104 considerations are addressed and followed by an assessment of Part II matters as they apply to the application.

Section 104 (1)(a) Assessment of Effects on the Environment

Visual character and amenity effects

The proposed lots are smaller than the minimum area required for controlled activity subdivision in the Rural Living zone, therefore regard should be had to the effects of the development upon visual character and amenity of the wider environment.

As identified earlier in the report, the landholding is located in a Rural Living environment, surrounded by large lot residential development. While the lot sizes proposed are smaller than that provided for in the ODP, they are commensurate with the lot sizes in the surrounding environs (refer Figure 6 and 7 above).

The lot sizes proposed are provided for within the PDP as a discretionary activity in the Rural Residential zone. Councils position, as notified in SUB-S1, is to provide for minimum allotment sizes of 2,000m^2 as a discretionary activity in the Rural Residential zone. There do not appear to be any submissions in opposition to the minimum allotment sizes in the Rural Residential zone for the PDP.

The site is currently surrounded by a variety of boundary planting, which limit the visibility of built development to and from the site, save from the roadside where the existing dwelling is visible. The applicant is willing to accept a condition to retain a vegetated boundary to ensure that the existing situation remains and the character and amenity of the Rural Living zone is retained.

The site is not within the coastal environment and not within the visual catchment of the Kororipo-Kerikeri Basin and the Kororipo Pa site. It is not possible to see the water or landmarks from the site. As such, there is not considered to be a connection to this in a visual amenity capacity. A landscape assessment has not been considered necessary, however consultation was undertaken with Heritage New Zealand. Heritage New Zealand confirmed they did not anticipate any negative heritage effects from the proposal (refer email correspondence in **Appendix E**).

The proposal will result a very limited localised change in the character of the wider Riverview area and is considered to reflect the land use and built character of the area. Further, it is consistent with a density provided for in the PDP.

It is therefore considered that any visual character and amenity effects will be less than minor as a result of the proposed subdivision.

Allotment sizes and dimensions

The land is being subdivided with the intent of providing for large lot residential development. An indicative site plan has been provided as part of the Site Suitability Report (**Appendix C**) which demonstrates that the proposed new lot can accommodate a generous indicative future dwelling as well as an indicative disposal area, including reserve area. Consideration was also given to access, stormwater, wastewater and potable water provision, which is addressed later in this report.

It is considered that that the proposed allotment sizes and dimensions are sufficient to accommodate future land use, or the intended use, of the land in the Rural Living zone (Rural Residential zone in the PDP).

Natural Hazards

Regard has been had to the hazard information held by both FNDC and the Regional Council, which revealed there are no identified natural hazards, contaminated sites or other hazards associated with the landholding.

Water Supply

The FNDC on-line GIS Water Services Map indicates that public potable water services are available to service the property. The existing dwelling is connected to this service.

Figure 14: FNDC services (Source: Far North Maps)

No further development is proposed at this juncture and FNDC has not yet been approached to ascertain whether reticulated water supply can/will be provided to site. As such, it is considered that two options for water supply may be available to the proposed lots, being either reticulated water supply by FNDC or rainwater tanks. The Site Suitability Report (**Appendix C**) has considered both options and concludes that either option is acceptable, and recommends if no reticulated services are available that each lot should have a minimum of 2 x 25,000L rainwater tanks.

It is considered that that the proposal can accommodate appropriate potable water supply for both lots, either through reticulated supply from Council (upon approval) or from onsite collection to rainwater tanks. The applicant's preference is for reticulated supply to be made available for any future dwelling on proposed Lot 2.

Stormwater disposal

A comprehensive analysis of stormwater options has been undertaken within section 7 the Site Suitability Report (**Appendix C**). The report discusses approaches and recommends managing stormwater runoff generated from roof areas and from hardstand areas.

Section 7.4 of the Site Suitability Reports undertakes a comprehensive assessment of the matters in 13.10.4 of the ODP, as such there is no need to repeat the assessment in this report. It is considered that the effects of the proposal in terms of stormwater disposal will be less than minor provided that the solutions are designed in general accordance

with the Site Suitability Report.

Sanitary sewage disposal

An assessment of wastewater for proposed Lots 1 and 2 has been undertaken within section 6 the Site Suitability Report (**Appendix C**). In terms of proposed Lot 1, the existing dwelling is currently serviced by an on-site wastewater treatment system that is functioning as intended and continues to operate. This application does not affect the status quo.

As no development is proposed on Lot 2 at this time it is appropriate that any new site-specific wastewater management system is designed in accordance with the ASNZS: 1547 / TP58 design manual. A preliminary design has been provided within the Site Suitability Report (**Appendix C**) based on a moderate size dwelling containing six persons to demonstrate feasibility.

The Site Suitability Report assesses the existing and proposed wastewater disposal systems against sections C6.1.1 and C6.1.3 of the Proposed Regional Plan for Northland, concluding that both should meet the compliance points stipulated within the permitted standard.

While no development is proposed at this time it considered that any future development, in terms of wastewater disposal, will incur effects that are less than minor provided that the recommendations in the Site Suitability Report are followed.

Energy supply and transmission lines

Contact has been made with Top Energy in respect of the application (see **Appendix F**) and confirms that the proposed two lot subdivision can be accommodated. Their requirements for design and cost would be provided after the application and an on-site survey have been completed.

Telecommunications

Contact has been made with Chorus in respect of the application (see **Appendix F**) and confirms that the proposed two lot subdivision can be accommodated and outlines the total contribution necessary as nil.

Easements

The Scheme Plan in **Appendix B** identifies a memorandum of easements for the proposal. Areas ‘A’ and ‘B’ have been identified for a ROW, telecommunications, computer media, electricity, water supply and sewage. It is considered that a further easement for drainage for any future dwelling, in accordance with the recommendations in the Site Suitability Report, will be required at time of s223.

Provision of access

Provision of access for both Lots are demonstrated on the Scheme Plan (**Appendix B**), utilising the two formed access points off Mission Road for the site. A ROW easement is proposed over Lot 1 providing access for Lot 2.

Section 9 of the Site Suitability Report in **Appendix C** assesses the vehicle crossings and the sight distance requirements, concluding the existing vehicle crossings can continue to be utilised.

Provision of access for both lots is able to comply with the FNDC Engineering Standards' sight distance requirements of >45m.

It is assumed that the formed width of Mission Road complies with the Standards for Roads to Vest (Public Roads) in Appendix 3B-2 of the ODP as there significantly more than 15 household equivalents that currently gain access from Mission Road. Mission Road like most roads in the Riverview (Riverview Road, Kendall Road and Kemp Road for example) are similar in construction and supply a pedestrian footpath.

Effect of Earthworks and Utilities

There are no earthworks required to give effect to the proposed subdivision. Utilities to service Lot 2 are identified through easements identified in the Scheme Plan in **Appendix B**. It is considered that the subdivision will incur less than minor effects on the environment in respect of earthworks and utilities.

Building locations

While no development is proposed at this juncture the Site Suitability Report in **Appendix C** has demonstrated that a generous indicative future dwelling on proposed Lot 2, as well as demonstrating that on site services can be accommodated.

Heritage resources, vegetation, fauna and landscape

While the site is not located within any identified heritage overlays in the ODP, it is identified within the Kerikeri Heritage Area – Part B in the PDP. Consultation has been undertaken with the Department of Conservation, Heritage New Zealand and Ngati Rehia in respect of the proposed subdivision (refer the record of consultation in **Appendix E**). No issues have been raised by any party.

The site is not within the coastal environment and not within the visual catchment of the Kororipo-Kerikeri Basin and the Kororipo Pa site. As such, there is not considered to be a connection to this in a visual amenity capacity. A landscape assessment has not been considered necessary. Consultation was undertaken with Heritage New Zealand, and they did not foresee any visual amenity issues with Kororipo (refer email correspondence

in **Appendix E**).

There is no identified vegetation or habitats of indigenous fauna affected by the proposed subdivision.

It is considered that there will be less than minor effects on heritage and landscape character.

Soil

While the landholding contains Class 2 soils and is considered to be highly productive in accordance with the NPS-HPL, the site is not subject to the NPS-HPL as it is not zoned General Rural or Rural Production. The site is zoned for 'large lot residential' through the ODP zoning of Rural Living and the PDP zoning of Rural Residential. The purpose of these two zones is to accommodate a large lot residential property.

Nonetheless, the size of the site and the surrounding land use have rendered the ability of the site to be used in a productive manner fanciful. It is therefore considered that the life supporting capability of the soil is a redundant consideration in this locale, which can be best described as a well-established large lot residential community.

Access to waterbodies

The landholding does not abut any waterbodies, nor does it prevent public access to and along the coastal marine area or to and along the banks of lakes or rivers.

Land use incompatibility

The proposed subdivision is considered to be compatible with the receiving zone and surrounding land use, which can be best described as large lot residential properties.

Proximity to airports

The site is over 7km northeast of the Kerikeri Airport, as such there is not considered to be any adverse effects from being in proximity to the airport.

Natural character of the coastal environment

The site is not located within a coastal zone in the ODP, nor is it identified as being within the coastal environment within the Regional Policy Statement for Northland. As such there are not considered to be any effects on the natural character of the coastal environment.

Energy efficiency and renewable energy

No further development is proposed at this juncture. The subdivision is not of a scale

where the consideration of energy efficiency and renewable energy are relevant to the application.

National grid corridor

The national grid does not apply in Kerikeri. Transpower New Zealand Limited assets are confined to Kaikohe south. Consultation has been undertaken with Top Energy (see **Appendix F**), who confirm that the proposed subdivision can be accommodated.

Building coverage

The building coverage for proposed Lot 1 is 14m^2 or 0.7% more than the permitted standard in the ODP. It is considered that such a small quantum over the permitted baseline for the existing dwelling on proposed Lot 1 is not discernible in terms of any effect on the environment. Further, under the PDP there would be no breach for the existing dwelling as the threshold is 12.5%. On balance it is considered that any effect from building coverage is negligible.

Setback from Boundaries

The existing garage, which will be located within proposed Lot 2, is setback ~2m from the internal boundary of proposed Lot 1. This is a technical breach within the proposed subdivision under the same landowner. There is no effect on any other person aside from the landowner/applicant. No further consideration of this breach is required.

Subdivision of a site within a heritage area overlay

Subdivision of a site within a heritage area overlay is restricted discretionary activity under the PDP (SUB-R13) and has been identified as having immediate legal effect. The land holding is identified as being within the Kerikeri Heritage Area – Part B. The following is an assessment of the matters of discretion identified in the PDP:

a. *the heritage values of the Heritage Area Overlay;*

   The PDP identifies that the Kerikeri Heritage Area overlay derives its historic significance as one of the first areas in New Zealand characterised by contact between Māori and European colonial settlement. Part B covers the archaeology surrounding Kororipo Pā and the Church Missionary Settlement. The north and east ridge line also provide the sight lines from Kororipo Pā. Consultation was undertaken with Heritage New Zealand, The Department of Conservation and Ngati Rehia in respect to of the application and no issues were raised (see **Appendix E**). It is considered that a consent notice referring to the accidental discovery protocol can be applied to the future lot.

b. *whether the allotments are of a size that will ensure sufficient land is provided around any scheduled Heritage Resource to provide a suitable heritage setting and protect associated heritage values;*

   There is no scheduled heritage resources identified in the vicinity of the site.

c. *whether there are measures to minimise obstruction of views of any scheduled Heritage Resource from adjoining public spaces that may result from any future land use or development;*

   It is clear through the location of the site that development will not obstruct views of a scheduled heritage resource from adjoining public spaces.

d. *any consultation with Heritage New Zealand Pouhere Taonga, Department of Conservation and tangata whenua; and*

   A record of consultation is contained in **Appendix E**. No issues with the proposal have been identified.

e. *provision of legal and physical access to any scheduled Heritage Resource within the subdivision if appropriate to maintain, protect, or enhance it.*

   There are no scheduled heritage resources located on the site.

It is concluded that the effects of the proposed subdivision will incur effects on the environment that are less than minor.

Section 104 (1)(ab) Any measures to achieve positive effects

Positive effects arising from the subdivision include enabling the efficient use of land in the Rural Living zone and providing sections for much needed housing in the Kerikeri. The Rural Living zone is described in the ODP as an area of transition between town and country and the large lot residential land use pattern in the area is commensurate with the lot sizes proposed in the application.

Section 104 (b)(i) and (ii) National Environmental Standards & Other Regulations

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS). A review of Council records has revealed no evidence to suggest that a HAIL activity has previously been undertaken on site and is described in the Landcover database as 'Built-up Area (settlement)'. Further, historic photography of the site suggests that the land has not previously been used for horticultural purposes (see Figures 15 and 16 below).

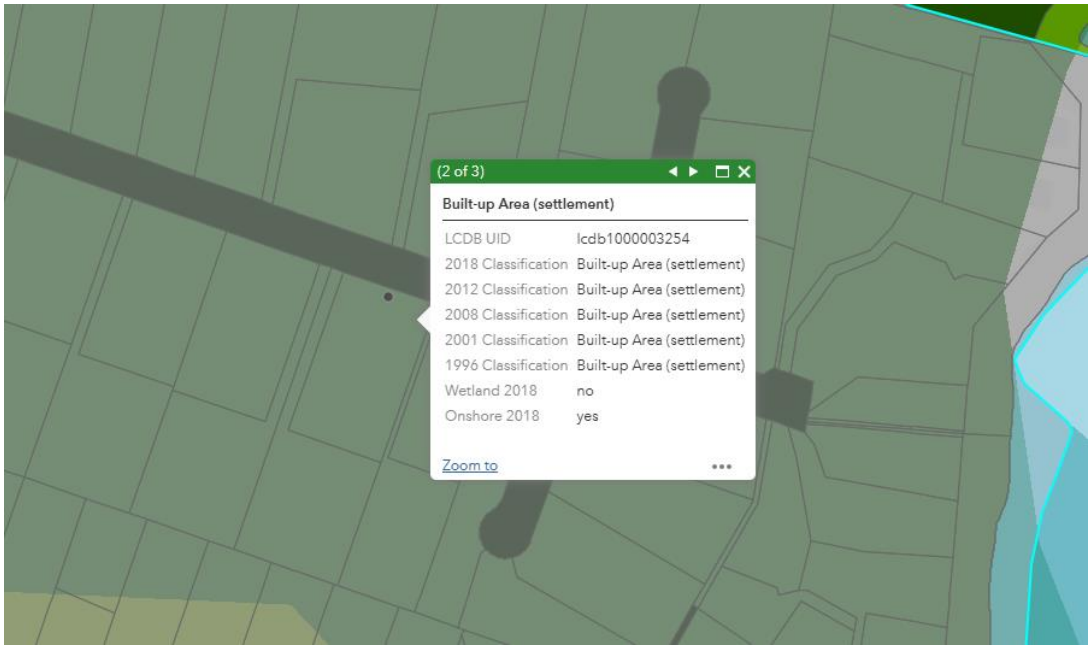


Figure 15: Land Cover Database (Source: Far North Maps)

Figure 16: Historic aerial photographs 1951 (left), 1972 (right) (Source: Retrolens)

It is considered that the NESCS is not applicable to this application.

The NES for Freshwater (NESFW). A review of aerial images, including NRC's wetland maps, reveal no evidence to suggest that there are any wet areas that may be subject to the NESFW provisions. Therefore, no further assessment is required under the NESFW.

Section 104 (b)(iii) National Policy Statement(s)

The NPS-HPL is considered to be relevant insofar as the Class 2 soils are presented on the site, as per Figure 9 above. While the NPSHPL is relevant in terms of the underlying soil, the proposal is not on land zoned General Rural or Rural Production zone. The site is zoned Rural Living in the ODP and Rural Residential in the PDP. The purpose of these two zones is to accommodate a large lot residential property. Therefore, the NES-HPL does not apply.

Section 104 (b)(iv) New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement is not relevant to this application.

Section 104 (b)(v) Regional Policy Statement or Proposed Regional Policy Statement

The Northland Regional Policy Statement is the applicable regional statutory document that applies to the Northland region. Jurisdiction for subdivision is governed by the FNDC and the policy framework for establishing an appropriate land use pattern across the district is set out in the ODP. This Plan is subject to the governing regional policy framework set out in the Northland Regional Policy Statement.

Table 6 – NRC Regional Policy Statement Review Assessment

Regional Policy Statement for Northland	
Objective / Policy	**Assessment**
Integrated Catchment Management	Not relevant.
Region Wide Water Quality	Not relevant.
Ecological Flows and Water Quality	Not relevant.
Enabling Economic Wellbeing	The proposal will increase economic wellbeing for the applicants, local building and construction suppliers at a later juncture when land use is undertaken.
Economic Activities – Reverse Sensitivity and Sterilisation.	The purpose of the subdivision is to provide large lot residential sections commensurate with the surrounding land use pattern. There are no reverse sensitivity or sterilisation effects from the proposal as it is being development in accordance the zones intent.
Regionally Significant Infrastructure	Not relevant.
Efficient and Effective Infrastructure	Council reticulated services are available at the boundary of the site for potable water supply. The subdivision has been designed so it can utilise these services if acceptable to Council, otherwise infrastructure can be accommodated on site (see the Site Suitability Report in **Appendix C**).
Security of Energy Supply	Top Energy have confirmed that the proposed Lot 2 can also be connected (see **Appendix F**).
Use and Allocation of	Not relevant.

Common Resources	
Regional Form	The proposal does not result in any reverse sensitivity or change in character. The subdivision will provide for large lot residential lots, which is the intent of the zone in which it sits.
Tangata Whenua Role in Decision Making	A record of support is supplied in **Appendix E**.
Natural Hazard Risk	Natural Hazards are not considered to be a factor for this application.
Natural Character, Outstanding Natural Features, Outstanding Natural Landscapes and Historic Heritage	While the site is not located within any identified heritage overlays in the ODP, it is identified within the Kerikeri Heritage Area – Part B in the PDP. Consultation has been undertaken with the Department of Conservation, Heritage New Zealand and Ngati Rehia in respect of the proposed subdivision (see the record of consultation in **Appendix E**). No issues have been raised by any party.

Section 104 (b)(vi) Plans or Proposed Plans

This subdivision application is subject to the provisions of the ODP and is subject to consideration (limited weight) of the PDP objectives and policies. The site is zoned Rural Living in the ODP and Rural Residential in the PDP. In terms of the ODP it is to be assessed in terms of the objectives and policies for the Rural Environment and Rural Living Zone and the district-wide subdivision provisions.

The following objectives and policies are relevant to the assessment of this application:

Rural Environment

Table 7 – ODP - Rural Environment Objectives and Policies

OBJECTIVE OR POLICY		**Assessment**
OBJECTIVES		
8.3.1	To promote the sustainable management of natural and physical resources of the rural environment while enabling activities to establish in the rural environment.	The rural environment includes provision for both rural production and rural-lifestyle activities where reverse sensitivity effects are avoided. Sustainable management of the rural environment would include both forms of rural activity where adverse effects can be avoided, remedied or mitigated.

OBJECTIVE OR POLICY		Assessment
8.3.2	To ensure that the life supporting capacity of soils is not compromised by inappropriate subdivision, use or development.	The site is zoned Rural Living so the NPS-HPL is not relevant. The subdivision of land in the Rural Living zone for the purpose of large lot residential section is considered appropriate use of land in this zone and is commensurate with the surrounding land use.
8.3.3	To avoid, remedy or mitigate adverse effects of activities on the rural environment.	The assessment of effects concludes that any effects would be less than minor on the rural environment.
8.3.4	To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna.	The site does not contain any areas of significant indigenous vegetation or habitats of indigenous fauna.
8.3.5	To protect outstanding natural features and landscapes.	The area does not contain any outstanding landscapes or outstanding natural features.
8.3.6	To avoid actual and potential conflicts between land use activities in the rural environment.	The proposed subdivision is considered to be compatible with the receiving zone and surrounding land use, which can be best described as large lot residential properties.
8.3.7	To promote the amenity values of the rural environment.	The landholding is situated within a land use environment that is best described as large lot residential. This land use pattern will remain. The proposed lot sizes in their locations are comparable with those surrounding the subject site.
8.3.8	To facilitate the sustainable management of natural and physical resources in an integrated way to achieve superior outcomes to more traditional forms of subdivision, use and development through management plans and integrated development.	This objective is not relevant to the size and scale of this proposed subdivision.
POLICIES		
8.4.1	That activities which will contribute to the sustainable management of the natural and physical resources of the rural environment are enabled to locate in that environment.	Refer to 8.3.1 above.

OBJECTIVE OR POLICY		Assessment
8.4.2	That activities be allowed to establish within the rural environment to the extent that any adverse effects of these activities are able to be avoided, remedied or mitigated and as a result the life supporting capacity of soils and ecosystems is safeguarded.	The proposed subdivision will not generate adverse effects on local productive soil or ecosystem values. While the site does contain Class 2 soils, the site zoned Rural Living and is not subject to the NPS-HPL. There are no highly valued eco-systems as mapped by FNDC.
8.4.3	That any new infrastructure for development in rural areas be designed and operated in a way that safeguards the life supporting capacity of air, water, soil and ecosystems while protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna, outstanding natural features and landscapes.	All necessary infrastructure is existing for development in this location. The proposal does not include any new infrastructure.
8.4.4	That development which will maintain or enhance the amenity value of the rural environment and outstanding natural features and outstanding landscapes be enabled to locate in the rural environment.	There are no outstanding landscapes or outstanding natural features present on the site or in the vicinity. The amenity values of the local environment will not be affected by the proposal.
8.4.5	That plan provisions encourage the avoidance of adverse effects from incompatible land uses, particularly new developments adversely affecting existing land-uses (including by constraining the existing land-uses on account of sensitivity by the new use to adverse effects from the existing use – i.e., reverse sensitivity).	The purpose of the subdivision is to provide large lot residential sections commensurate with the surrounding land use pattern. There are no reverse sensitivity or sterilisation effects from the proposal as it is being development in accordance the zones intent. It is considered compatible with the surrounding land use pattern and would not generate adverse reverse sensitivity effects, nor in context is it considered to incur any precedent effect.
8.4.6	That areas of significant indigenous vegetation and significant habitats of indigenous fauna habitat be protected as an integral part of managing the use, development and protection of the natural and physical resources of the rural environment.	The site does not contain any areas of significant indigenous vegetation or habitats of indigenous fauna.

OBJECTIVE OR POLICY		Assessment
8.4.7	That Plan provisions encourage the efficient use and development of natural and physical resources.	The proposed subdivision would enable efficient use of Rural Living land in this location, commensurate with the surrounding land use pattern.
8.4.8	That, when considering subdivision, use and development in the rural environment, the Council will have particular regard to ensuring that its intensity, scale and type is controlled to ensure that adverse effects on habitats (including freshwater habitats), outstanding natural features and landscapes, on the amenity value of the rural environment, and where appropriate on natural character of the coastal environment, are avoided, remedied or mitigated.	The proposed subdivision is considered appropriate in this location and would avoid or mitigate adverse effects on the amenity of the local rural environment. There are no outstanding landscapes, outstanding natural features or habitats that would be affected by the proposal.

Rural Living Zone

The Rural Living zone is described in the ODP as an area of transition between town and country and is generally applied to land on the periphery of urban zoning.

The relevant expected outcomes listed within the ODP for the Rural Living zone are:

8.7.2.1 A Rural Living Zone where residential living on small rural lots is compatible with those other rural activities that have an emphasis on production rather than lifestyle.

8.7.2.2 A Rural Living Zone where the controls on the activities ensure a high standard of privacy and amenity for residential activities.

8.7.2.3 A Rural Living Zone where activities are self sufficient in terms of water supply, sewerage and drainage, while not causing adverse effects on the environment.

The relevant objectives and policies for the Rural Living Zone are discussed in Table 8 below:

Table 8 - Rural Living Zone Objectives and Policies

OBJECTIVE OR POLICY	PERFORMANCE OF PROPOSAL
OBJECTIVES	

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
8.7.3.1	To achieve a style of development on the urban periphery where the effects of the different types of development are compatible.	The purpose of the subdivision is to provide large lot residential sections commensurate with the surrounding land use pattern and type of development.
8.7.3.2	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 proposed subdivision will create large lot residential sections commensurate with the surrounding land use pattern. Large lot residential sections are considered to be low density and are of a size consistent with that provided for in the PDP.
8.7.3.3	To protect the special amenity values of the frontage to Kerikeri Road between SH10 and the urban edge of Kerikeri.	The site is not located on the frontage of Kerikeri Road.
POLICIES		
8.7.4.1	That a transition between residential and rural zones is achieved where the effects of activities in the different areas are managed to ensure compatibility.	Refer to 8.7.3.1 above.
8.7.4.2	That the Rural Living Zone be applied to areas where existing subdivision patterns have led to a semi-urban character but where more intensive subdivision would result in adverse effects on the rural and natural environment.	The proposed subdivision is similar to the surrounding subdivision pattern, which can be described as large lot residential (refer to Figures 6 and 7 above).
8.7.4.3	That residential activities have sufficient land associated with each household unit to provide for outdoor space, and where a reticulated sewerage system is not provided, sufficient land for onsite effluent disposal.	The Site Suitability Report in **Appendix C** has demonstrated that proposed Lot 2 can accommodate a generous indicative future dwelling and areas for disposal fields.
8.7.4.4	That no limits be placed on the types of housing and forms of accommodation in the Rural Living Zone, in recognition of the diverse needs of the community.	No development is proposed at this juncture. The Site Suitability Report in **Appendix C** has demonstrated that proposed lot 2 can accommodate a generous indicative future dwelling and areas for disposal fields.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
8.7.4.5	That non-residential activities can be established within the Rural Living Zone subject to compatibility with the existing character of the environment.	No land use is proposed at this time.
8.7.4.6	That home-based employment opportunities be allowed in the Rural Living Zone.	No land use is proposed at this time.
8.7.4.7	That provision be made for ensuring that sites, and the buildings and activities which may locate on those sites, have adequate access to sunlight and daylight.	No land use is proposed at this time. This can be demonstrated at a time when development is proposed.
8.7.4.8	That the scale and intensity of activities other than a single residential unit be commensurate with that which could be expected of a single residential unit.	No land use is proposed at this time.
8.7.4.9	That activities with effects on amenity values greater than a single residential unit could be expected to have, be controlled so as to avoid, remedy or mitigate those adverse effects on adjacent activities.	No land use is proposed at this time.
8.7.4.10	That provision be made to ensure a reasonable level of privacy for inhabitants of buildings on adjoining sites.	No land use is proposed at this time.
8.7.4.11	That the built form of development allowed on sites with frontage to Kerikeri Road between its intersection with SH10 and Cannon Drive be maintained as small in scale, set back from the road, relatively inconspicuous and in harmony with landscape plantings and shelter belts.	The site is not located on the frontage of Kerikeri Road.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
8.7.4.12	That the Council maintains discretion over new connections to a sewerage system to ensure treatment plant discharge quality standards are not compromised (refer to Rule 13.7.3.5).	Connection to Councils reticulated sewerage system is not available in this location.

In summary, it is considered that the proposal would achieve the outcomes sought by the objectives and policies for the Rural Living zone, particularly in this location where the surrounding land use pattern is similar. Further, the lot sizes proposed are consistent with Council direction in providing for large lot residential sections in the Rural Residential zone in the PDP.

Subdivision

The objectives and policies for subdivision are assessed in Table 9 below.

Table 9 – Subdivision Objectives and Policies

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
OBJECTIVES		
13.3.1	To provide for the subdivision of land in such a way as will be consistent with the purpose of the various zones in the Plan and will promote the sustainable management of the natural and physical resources of the District, including airports and the social, economic and cultural wellbeing of people and communities.	The assessments above demonstrates that sustainable management of the physical land resource would be achieved. The subdivision pattern is consistent with sites in the area. It is considered that the proposal is appropriate within the zone and will not generate adverse effects in this location.
13.3.2	To ensure that subdivision of land is appropriate and is carried out in a manner that does not compromise the life-supporting capacity of air, water, soil or ecosystems, and that any actual or potential adverse effects on the environment which result directly or indirectly from subdivision, including reverse sensitivity effects, are avoided, remedied or mitigated.	As per the assessment of effects, the proposed subdivision will not result in adverse effects on the life-supporting capacity of air, water, soil or ecosystems, nor will the proposal give rise to reverse sensitivity effects.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
13.3.3	To ensure that the subdivision of land does not jeopardise the protection of outstanding landscapes or natural features in the coastal environment.	The sites do not possess such values or features and is not part of the coastal environment.
13.3.4	To ensure that subdivision does not adversely affect scheduled heritage resources through alienation of the resource from its immediate setting/context.	While the site is not located within any identified heritage overlays in the ODP, it is identified within the Kerikeri Heritage Area – Part B in the PDP. Consultation has been undertaken with the Department of Conservation, Heritage New Zealand and Ngati Rehia in respect of the proposed subdivision (see the record of consultation in **Appendix E**). No issues have been raised by any party.
13.3.5	To ensure that all new subdivisions provide a reticulated water supply and/or on-site water storage sufficient to meet the needs of the activities that will establish all year round.	Either option can be provided at time of development for proposed Lot 2. Reticulated supply will require agreement from Council.
13.3.6	To encourage innovative development and integrated management of effects between subdivision and land use which results in superior outcomes to more traditional forms of subdivision, use and development, for example the protection, enhancement and restoration of areas and features which have particular value or may have been compromised by past land management practices.	As the sites do not possess any significant values or characteristics, special forms of subdivision are not necessary.
13.3.7	To ensure the relationship between Maori and their ancestral lands, water, sites, wahi tapu and other taonga is recognised and provided for.	No sites of significance to Māori have been identified in the District Plan on the land or in the vicinity of the properties. A record of support by Ngati Rehia is supplied in **Appendix E**.
POLICIES		

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
13.4.1	That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on: (a) natural character, particularly of the coastal environment; (b) ecological values; (c) landscape values; (d) amenity values; (e) cultural values; (f) heritage values; and (g) existing land uses.	The relevant items are the amenity and heritage values of the locality and surrounds. The AEE did not identify any adverse effects on these identified values.
13.4.2	That standards be imposed upon the subdivision of land to require safe and effective vehicular and pedestrian access to new properties.	Appropriate access arrangements can be attained to achieve both safe and effective vehicular movement.
13.4.3	That natural and other hazards be taken into account in the design and location of any subdivision.	The site is not affected by hazards.
13.4.4	That in any subdivision where provision is made for connection to utility services, the potential adverse visual impacts of these services are avoided.	Utilities can be provided on site. Power and telecommunications delivery can be provided in accordance with the consultation with Top Energy and Chorus (see **Appendix F**).
13.4.5	That access to, and servicing of, the new allotments be provided for in such a way as will avoid, remedy or mitigate any adverse effects on neighbouring property, public roads, and the natural and physical resources of the site caused by silt runoff, traffic, excavation and filling and removal of vegetation.	Work on the sites will be managed to avoid effects of this nature however it considered that these would be minimal as most infrastructure is existing.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
13.4.6	That any subdivision proposal provides for the protection, restoration and enhancement of heritage resources, areas of significant indigenous vegetation and significant habitats of indigenous fauna, threatened species, the natural character of the coastal environment and riparian margins, and outstanding landscapes and natural features where appropriate.	Consultation has been undertaken with The Department of Conservation, Heritage New Zealand and Ngati Rehia. It is considered that a standard accidental discovery protocol can be applied to future development on proposed Lot 2 to ensure the protection of heritage resources should they be uncovered at a time when development is proposed. Consultation with said agencies have not raised any issues with the proposal.
13.4.7	That the need for a financial contribution be considered only where the subdivision would: (a) result in increased demands on car parking associated with non-residential activities; or (b) result in increased demand for esplanade areas; or (c) involve adverse effects on riparian areas; or (d) depend on the assimilative capacity of the environment external to the site.	Not applicable
13.4.8	That the provision of water storage be taken into account in the design of any subdivision.	See Objective 13.3.5 above.
13.4.9	That bonus development donor and recipient areas be provided for so as to minimise the adverse effects of subdivision on Outstanding Landscapes and areas of significant indigenous flora and significant habitats of fauna.	N/A
13.4.10	The Council will recognise that subdivision within the Conservation Zone that results in a net conservation gain is generally appropriate.	N/A

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
13.4.11	That subdivision recognises and provides for the relationship of Maori and their culture and traditions, with their ancestral lands, water, sites, waahi tapu and other taonga and shall take into account the principles of the Treaty of Waitangi.	See Objective 13.3.7 above.
13.4.12	That more intensive, innovative development and subdivision which recognises specific site characteristics is provided for through the management plan rule where this will result in superior environmental outcomes.	N/A
13.4.13	Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regard to s6 matters, and shall avoid adverse effects as far as practicable by using techniques including: (a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns; (b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area; (c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas; (d) through siting of buildings and development, design of subdivisions, and provision of access that recognise and provide for the relationship of Maori with their	This report has demonstrated that the proposal does not generate any adverse effects that are more than minor. The techniques described in the policies have either been addressed earlier in the report or are not necessary as this juncture, as land use is not proposed. The proposed subdivision is located within a land use pattern similar to what is being proposed.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
	culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District (refer ***Chapter 2*** and in particular ***Section 2.5*** and Council's *"Tangata Whenua Values and Perspectives" (2004)*; (e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests; (f) protecting historic heritage through the siting of buildings and development and design of subdivisions.	
13.4.14	That the objectives and policies of the applicable environment and zone and relevant parts of ***Part 3*** of the Plan will be taken into account when considering the intensity, design and layout of any subdivision.	These have been taken into account as described in the assessments above**.**

Overall, it is considered that the proposal is consistent with the ODP objective or policy framework.

Table 10 – PDP Rural Residential Zone

OBJECTIVES	
RRZ-O1	The Rural Residential zone is used predominantly for rural residential activities and small scale farming activities that are compatible with the rural character and amenity of the zone.

RRZ-O2	The predominant character and amenity of the Rural Residential zone is maintained and enhanced, which includes: a. peri-urban scale residential activities; b. small-scale farming activities with limited buildings and structures; c. smaller lot sizes than anticipated in the Rural Production or Rural Lifestyle zones; and d. a diverse range of rural residential environments reflecting the character and amenity of the adjacent urban area.
RRZ-O3	The Rural Residential zone helps meet the demand for growth around urban centres while ensuring the ability of the land to be rezoned for urban development in the future is not compromised.
RRZ-O4	Land use and subdivision in the Rural Residential zone: a. maintains rural residential character and amenity values; b. supports a range of rural residential and small-scale farming activities; and c. is managed to control any reverse sensitivity issues that may occur within the zone or at the zone interface.
POLICIES	
RRZ-P1	Enable activities that will not compromise the role, function and predominant character and amenity of the Rural Residential zone, while ensuring their design, scale and intensity is appropriate, including: a. rural residential activities; b. small-scale farming activities; c. home business activities; d. visitor accommodation; and e. small-scale education facilities.
RRZ-P2	Avoid activities that are incompatible with the role, function and predominant character and amenity of the Rural Residential zone including: a. activities that are contrary to the density anticipated for the Rural Residential zone; b. primary production activities, such as intensive indoor primary production or rural industry, that generate adverse amenity effects that are incompatible with rural residential activities; and c. commercial or industrial activities that are more appropriately located in an urban zone or a Settlement zone.
RRZ-P3	Avoid where possible, or otherwise mitigate, reverse sensitivity effects from sensitive and other non-productive activities on primary production activities in adjacent Rural Production zones and Horticulture zones.
RRZ-P4	Require all subdivision in the Rural Residential zone to provide the following reticulated services to the boundary: a. telecommunications: i. fibre where it is available; ii. copper where fibre is not available; iii. copper where the area is identified for future fibre deployment. b. local electricity distribution network.

RRZ-P5	Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application: a. consistency with the scale and character of the rural residential environment; b. location, scale and design of buildings or structures; c. at zone interfaces: i. any setbacks, fencing, screening or landscaping required to address potential conflicts; ii. the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable; d. the capacity of the site to cater for on-site infrastructure associated with the proposed activity; e. the adequacy of roading infrastructure to service the proposed activity; f. managing natural hazards; g. any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity; and h. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

The application is for a two-lot subdivision that will cater for rural residential activities at a scale commensurate with the surrounding land use pattern. The density proposed is provided for as a discretionary activity within the PDP subdivision rules, being a large lot residential development compatible with the surrounding rural character and amenity. (refer Figures 6 and 7 earlier in the report).

No primary production activities are being undertaken in the vicinity of the site. The surrounding land use is best described as large lot residential, which this application for subdivision supports. As such it is considered that there will be no reverse sensitivity effects resulting from the application.

Top Energy and Chorus have confirmed that electricity and telecommunications can be provided for the proposed Lots (see **Appendix F**).

No development is proposed at this juncture, however the Site Suitability Report (**Appendix C**) has demonstrated that an indicative allotment and disposal field can be provided on proposed Lot 2. Further, each site is capable of providing on site infrastructure (reticulated potable water is available at the boundary, however connection for Lot 2 will need to be agreed with Council).

As mentioned, the size of the sites is commensurate with surrounding landholdings and any perceived heritage effects have been addressed in consultation with Heritage New Zealand, The Department of Conservation and Ngati Rehia.

Overall, it is considered that the proposal is consistent with the PDP Rural Residential objective and policy framework.

Table 11 – PDP Subdivision Chapter

OBJECTIVES	
SUB-O1	Subdivision results in the efficient use of land, which: a. achieves the objectives of each relevant zone, overlays and district wide provisions; b. contributes to the local character and sense of place; c. avoids reverse sensitivity issues that would prevent or adversely affect activities already established on land from continuing to operate; d. avoids land use patterns which would prevent land from achieving the objectives and policies of the zone in which it is located; e. does not increase risk from natural hazards or risks are mitigates and existing risks reduced; an f. manages adverse effects on the environment.
SUB-O2	Subdivision provides for the: a. Protection of highly productive land; and b. Protection, restoration or enhancement of Outstanding Natural Features, Outstanding Natural Landscapes, Natural Character of the Coastal Environment, Areas of High Natural Character, Outstanding Natural Character, wetland, lake and river margins, Significant Natural Areas, Sites and Areas of Significance to Māori, and Historic Heritage.
SUB-O3	Infrastructure is planned to service the proposed subdivision and development where: a. there is existing infrastructure connection, infrastructure should provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and b. where no existing connection is available infrastructure should be planned and consideration be given to connections with the wider infrastructure network.
SUB-O4	Subdivision is accessible, connected, and integrated with the surrounding environment and provides for: a. public open spaces; b. esplanade where land adjoins the coastal marine area; and c. esplanade where land adjoins other qualifying waterbodies.
POLICIES	
SUB-P1	Enable boundary adjustments that: a. do not alter: b. the degree of non compliance with District Plan rules and standards; c. the number and location of any access; and d. the number of certificates of title; and e. are in accordance with the minimum lot sizes of the zone and comply with access, infrastructure and esplanade provisions.
SUB-P2	Enable subdivision for the purpose of public works, infrastructure, reserves or access.

SUB-P3	Provide for subdivision where it results in allotments that: a. are consistent with the purpose, characteristics and qualities of the zone; b. comply with the minimum allotment sizes for each zone; c. have an adequate size and appropriate shape to contain a building platform; and d. have legal and physical access.
SUB-P4	Manage subdivision of land as detailed in the district wide, natural environment values, historical an cultural values and hazard and risks sections of the plan.
SUB-P5	Manage subdivision design and layout in the General Residential, Mixed Use and Settlement zone to provide for safe, connected and accessible environments by a. minimising vehicle crossings that could affect the safety and efficiency of the current and future transport network; b. avoid cul-de-sac development unless the site or the topography prevents future public access and connections; c. providing for development that encourages social interaction, neighbourhood cohesion, a sense of place and is well connected to public spaces; d. contributing to a well connected transport network that safeguards future roading connections; and e. maximising accessibility, connectivity by creating walkways, cycleways and an interconnected transport network.
SUB-P6	Require infrastructure to be provided in an integrated and comprehensive manner by: a. demonstrating that the subdivision will be appropriately serviced and integrated with existing and planned infrastructure if available; and b. ensuring that the infrastructure is provided is in accordance the purpose, characteristics and qualities of the zone.
SUB- P7	Require the vesting of esplanade reserves when subdividing land adjoining the coast or other qualifying waterbodies.
SUB-P8	Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision: a. will protect a qualifying SNA in perpetuity and result in the SNA being added to the District Plan SNA schedule; and b. will not result in the loss of versatile soils for primary production activities.
SUB-P9	Avoid subdivision rural lifestyle subdivision in the Rural Production zone and Rural residential subdivision in the Rural Lifestyle zone unless the development achieves the environmental outcomes required in the management plan subdivision rule.
SUB-P10	To protect amenity and character by avoiding the subdivision of minor residential units from principal residential units where resultant allotments do not comply with minimum allotment size and residential density.

SUB-P11	Manage subdivision to address the effects of the activity requiring resource consent including (but not limited to) consideration of the following matters where relevant to the application: a. consistency with the scale, density, design and character of the environment and purpose of the zone; b. the location, scale and design of buildings and structures; c. the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity; or the capacity of the site to cater for on-site infrastructure associated with the proposed activity; d. managing natural hazards; e. Any adverse effects on areas with historic heritage and cultural values, natural features and landscapes, natural character or indigenous biodiversity values; and f. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

For the reasons already provided through this report, the proposal is considered to be consistent with the objectives and policies for subdivision under the PDP.

In terms of the heritage area matters under the PDP, these are not formally provided for and tabulated, however they have been assessed on the basis that there are no concerns with the proposal from Heritage New Zealand or local tangata whenua. On this basis, the effects resulting are likely to align with the outcomes sought for the chapter within the PDP.

Overall, the proposal is consistent with higher order documents.

Section 104 (c) Other Matters

There are no other matters that are considered relevant.

7.0 NOTIFICATION (S95A-95D)

S95A of the RMA determines circumstances when public or limited notification of an application may be appropriate. Section 95A sets out a series of steps for determining public notification. These include:

- *Step 1* – Mandatory public notification in certain circumstances. In respect of this application, the applicant is not seeking public notification, nor is it subject to a mandatory notification requirement.

- *Step 2* – Public notification precluded in certain circumstances. Overall the application is for a non-complying subdivision, so none of the circumstances in this step apply.

- *Step 3* – Public notification required in certain circumstances. In respect of clause

8(a) the application is not subject to a rule or national environmental standard that requires public notification. In respect of clause 8(b), this assessment of effects on the environment concludes that any adverse effects would be less than minor. For these reasons, it is considered that the application can be processed without public notification.

- *Step 4* – Public notification in special circumstances. 'Special circumstances' are those that are unusual or exceptional, but they may be less than extraordinary or unique. (Peninsula Watchdog Group Inc v Minister of Energy [1996] 2NZLR 5290). It is considered that there are no unusual or exceptional circumstances that would warrant notification of this application.

Section 95B sets out a series of steps for determining limited notification. These include:

- *Step 1* – certain affected groups and affected persons must be notified. These include affected customary rights groups or marine title groups (of which there are none relating to this application). Affected groups and persons may also include owners of adjacent land subject to statutory acknowledgement if that person is affected in accordance with s95E. There are no groups or affected persons that must be notified with this application.

- *Step 2* – limited notification precluded in certain circumstances. These include any rule or national environmental standard that precludes limited notification, or the activity is solely for a controlled activity or a prescribed activity. These circumstances do not apply to this application.

- *Step 3* – certain other persons must be notified. An affected person is determined in accordance with s95E. A person is affected if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). Adverse effects on a person may be disregarded if a rule or a national environmental standard permits an activity with that effect or is a controlled or RDA with an adverse effect that does not relate to a matter over which a rule or standard reserves control or discretion. Those circumstances do not apply to this application. S95E(3) states that a person is not affected if the person has given, and not withdrawn their written approval for a proposed activity or a consent authority is satisfied that it is unreasonable in the circumstances for an applicant to seek a person's written approval.

- *Step 4* – Public notification in special circumstances. As above no special circumstances exist.

The assessment of effects above has concluded that the effects on the environment will be less then minor. The proposed subdivision density is commensurate with surrounding land use (see Figures 6 and 7 above) so is consistent within the built development in this

locale. It is therefore reasonable to conclude that any future development at a density and scale commensurate with the existing environment is consistent with the character and amenity of the surrounding area, and the proposed two lot subdivision would incur less than minor effects on the adjacent landowners.

Section 95C relates to the public notification after a request for further information which does not apply to this application. Section 95D provides the basis for determining notification under Section 95A(8)(b) if adverse effects are likely to be more than minor.

This assessment concludes that potential adverse effects arising from this subdivision proposal would be less than minor, as such it can proceed on a non-notified basis.

PART II – RMA

Purpose of the RMA

The proposal can promote the sustainable management of natural and physical resources on site, as current and future owners and users of the land are able to provide for their social, cultural and economic wellbeing and their health and safety. The proposed subdivision will support the provision of housing in the Kerikeri area.

Matters of National Importance

Consultation has been undertaken in respect of heritage, the result of which concludes that there are no foreseen issues with the application. Ngati Rehia have been consulted and are in support of the proposed subdivision.

Other Matters

The development will enable the landowner to subdivide their property, releasing land for large lot residential development zoned for that purpose.

8.0 'Gateway' Assessment

Section 104D – Particular Restrictions for Non-Complying Activities

When dealing with non-complying activities, before granting an application Council must be satisfied that either the adverse effects of the activity on the environment will be minor (s104D(1)(a)), or the proposed activity will not be contrary to the objectives and policies of a proposed plan and/or plan (s104D(1)(b)).

This consideration for non-complying activities is commonly known as the 'threshold test' or the 'gateway test '. If either of the limbs of the test can be passed, then the application is eligible for approval, but the proposed activity must still be considered under s104. There is no primacy given to either of the two limbs, so if one limb can be passed then the 'test ' can be considered to be passed.

In this instance it has been demonstrated that both the effects of the proposal are less than minor and that there is positive consistency with all objective and policies of relevance to the proposal. Therefore, FNDC in this instance has both 'limbs' to appropriately decide in favour of this application.

9.0 OVERALL CONCLUSION

This application seeks resource consent to undertake a two-lot subdivision in the Rural Living zone as a non-complying activity in the ODP. The application triggers a subdivision rule with immediate legal effect in the PDP for 'subdivision of a site within a heritage overlay area' (Restricted Discretionary activity). Consent is also required for a breach to stormwater management, building coverage and setback for the existing garage.

Based on the assessment of effects above, it is concluded that any potential adverse effects on the existing environment would be less than minor and can be managed in terms of appropriate conditions.

Adverse effects on adjacent neighbours would be less than minor as the proposed subdivision is commensurate with existing development density in this general location.

The proposal is consistent with the relevant objectives of policies of the ODP and the PDP.

An assessment of Part II of the RMA has also been completed with the proposal generally able to satisfy this higher order document also.

On this basis, it is considered that the application is able to be processed on a non-notified basis.

Please do not hesitate to contact me should you require any additional information.

Kind regards

Andrew McPhee
Consultant Planner

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General
of Land

Identifier **NA47D/96**

Land Registration District **North Auckland**

Date Issued 09 April 1980

Prior References
NA1983/41

Estate Fee Simple

Area 4045 square metres more or less

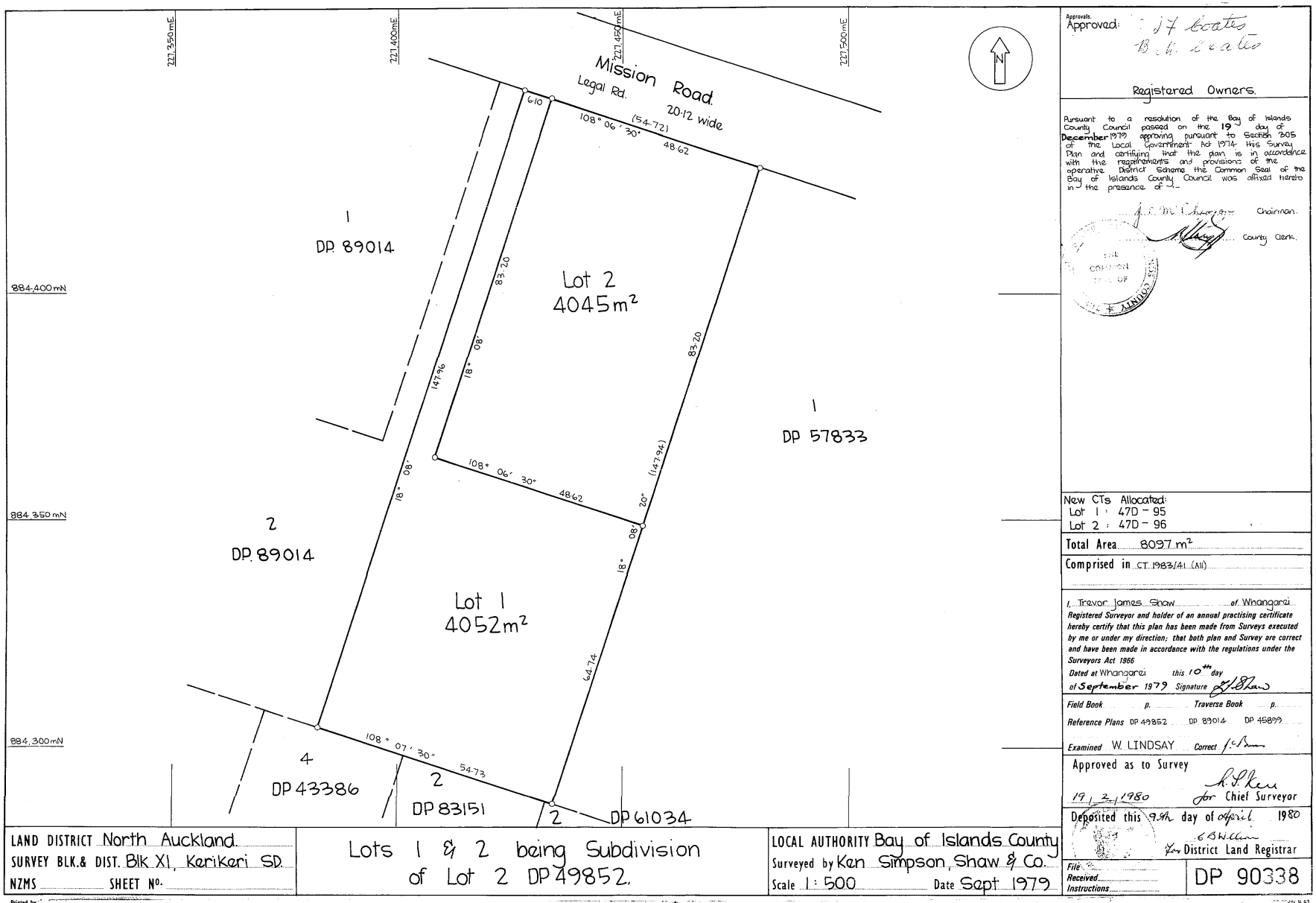
Legal Description Lot 2 Deposited Plan 90338

Registered Owners

Fiona Maxine Norman and Graeme Bruce Norman

Interests

11985584.3 Mortgage to ASB Bank Limited - 11.2.2021 at 11:41 am



Approvals.
Approved: J.M. Coates
B.H. Coates

Registered Owners.

Pursuant to a resolution of the Bay of Islands County Council passed on the 19 day of December 1979 approving pursuant to Section 305 of the Local Government Act 1974 this Survey Plan and certifying that the plan is in accordance with the requirements and provisions of the operative District Scheme the Common Seal of the Bay of Islands County Council was affixed hereto in the presence of :-

J.M. Coates Chairman.
County Clerk.

New CTs Allocated:
Lot 1 : 47D - 95
Lot 2 : 47D - 96

Total Area 8097 m²

Comprised in CT 1983/41 (All)

I, Trevor James Shaw of Whangarei
Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966
Dated at Whangarei this 10th day of September 1979 Signature T.J. Shaw

Field Book p. Traverse Book p.
Reference Plans DP 49852 DP 89014 DP 45899
Examined W. LINDSAY Correct T.J. Shaw

Approved as to Survey
19/2/1980 for Chief Surveyor

Deposited this 9th day of April 1980
E.B. Williams
for District Land Registrar

File
Received
Instructions

DP 90338

LAND DISTRICT North Auckland.
SURVEY BLK.& DIST. Blk XI, Kerikeri SD.
NZMS SHEET No.

Lots 1 & 2 being Subdivision of Lot 2 DP 49852.

LOCAL AUTHORITY Bay of Islands County
Surveyed by Ken Simpson, Shaw & Co.
Scale 1 : 500 Date Sept 1979

Printed by:

21 APR 1980

CENTIMETRES

MISSION ROAD (Legal Road 20.12m wide - sealed)

Power
Telecoms
Transformer
Footpath
Fire Hydrant
Power
Telecoms
Sewage

27
29
31
33
35
37

Lot 1
DP 89014
0·4046
NA43C/1111

Lot 2
DP 89014
0·4050
NA43C/1112

Lot 1
0·4052
DP 90338
NA47D/95

Lot 2
DP 92775
0·2978
NA49B/690

Lot 1
DP 92775
0·2978
NA49B/689

A
B

EXISITING DRIVEWAY (Metalled)
(ROW >3.0m Wide)

LOT 1
2000m²

LOT 2
2000m²

EXISTING HOUSE
EXISTING SHED
TANK

43.8
48.6
38.9
48.9
2.0
39.4
44.3
48.6

MEMORANDUM OF EASEMENTS			
PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNI-CATIONS, COMPUTER MEDIA, ELECTRICITY & WATER SUPPLY SEWAGE	A	LOT 1 HEREON	LOT 2 HEREON
TELECOMMUNI-CATIONS, COMPUTER MEDIA, ELECTRICITY & WATER SUPPLY SEWAGE	B	LOT 1 HEREON	LOT 2 HEREON

This plan and has been prepared for the purpose of obtaining a Resource Consent.

Topographical detail has been scaled from Google Earth Imagery or measured by RTK GPS

All Areas and Dimensions are subject to Legal Survey

Underlying Legal Description

Lot 2 DP 90338
CT NA47D/96
Area 4045m²

SCALE 1:300
SHEET SIZE A3
0 1 2 3 4 5 10 15

Lot 1 and 2 Being a subdivision of Lot 2 DP 90338
33 Mission Road, Kerikeri

SURVEY:		
DESIGN:		
DRAWN:	TS	14-06-2025
REVISION:		
STATUS:		

SHEET 1 of 1 — SCALE 1:300 SHEET SIZE A3
CLIENT: G and F Norman
JOB REF: Norman
CAD REF: Norman 250614 Scheme Plan.lcd

Wilton Joubert Limited
09 527 0196
196 Centreway Road,
Orewa, Auckland, 0931

SITE	**33 Mission Road, Kerikeri**
LEGAL DESCRIPTION	**Lot 2 DP 90338**
PROJECT	**2-Lot Subdivision**
CLIENT	**Fiona & Graeme Norman**
REFERENCE NO.	**140586**
DOCUMENT	**Civil Site Suitability Report**
STATUS/REVISION NO.	**02 – Resource Consent**
DATE OF ISSUE	**17 June 2025**

Report Prepared For	Email
Fiona & Graeme Norman	gfnorman@xtra.co.nz

Authored by	**G.M. Brant** *(Be (Hons) Civil)*	Civil Engineer	gustavo@wjl.co.nz	
Reviewed & 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 2 DP 90338
Lot Sizes:	Proposed Lot 1 – 2,000m² Proposed Lot 2 – 2,000m²
Development Type:	2-Lot Subdivision
Scope:	Civil Site Suitability Investigation: - Wastewater Assessment - Stormwater Assessment - Potable Water - Access
Development Proposals Supplied:	Preliminary Subdivision Scheme Plan supplied by the client (dated: 20.05.2025)
District Plan Zone:	Rural Living Zone
Wastewater:	The following is an indicative Pressure Compensated Drip Irrigation (PCDI) wastewater design for a 4-bedroom dwelling – given the subsoils encountered we recommend Secondary Level Treatment or higher: Daily Wastewater Production: Rainwater Water Supply: 1,080L/day; Reticulated Water Supply: 1,200L/day Daily Application Rate: 4mm/day; 4mm/day Disposal Area: 270m²; 300m² Reserve Area: 135m² (50%); 150m² (50%) Recommendations for wastewater are provided in Section 6.
)Stormwater Management – District Plan Rules:	**Permitted Activity:** 8.7.5.1.5 STORMWATER MANAGEMENT – The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 12.5% or 3,000m², whichever is the lesser. **Controlled Activity:** 8.7.5.2.2 STORMWATER MANAGEMENT – The maximum proportion or amount of the gross site area covered by buildings and other Impermeable Surfaces shall be 20% or 3300m², whichever is the lesser.
Stormwater Management:	To comply with the parameters of the Permitted Activity Rule (8.7.5.1.5), Lots 1 & 2 must not exceed an impermeable area of 250m². Given the above, the existing development within Lot 1 is considered to be a Restricted Discretionary Activity and future development of Lot 2 is expected to fall within the Controlled Activity / Restricted Discretionary Activity range. It is therefore expected that a stormwater attenuation report including a District Plan Assessment will be required for Lot 2 at Building Consent stage. Flow attenuation (50% AEP & 20% AEP) should be provided for runoff resulting from existing / future proposed impermeable areas exceeding the

	Permitted Activity threshold to mitigate adverse effects of runoff on the downstream receiving stormwater network. Stormwater management recommendations are provided in Section 7.
Access:	Lots 1 & 2 are to be accessed via two existing separate vehicle crossings directly off Mission Road.

2 INTRODUCTION

2.1 SCOPE OF WORK

Wilton Joubert Ltd (WJL) was engaged by the client to undertake a civil site suitability assessment (wastewater, stormwater, potable water & access) to support a 1-into-2 lot subdivision of Lot 2 DP 90338, as depicted in the Preliminary Subdivision Scheme Plan supplied by the client (dated: 20.05.2025).

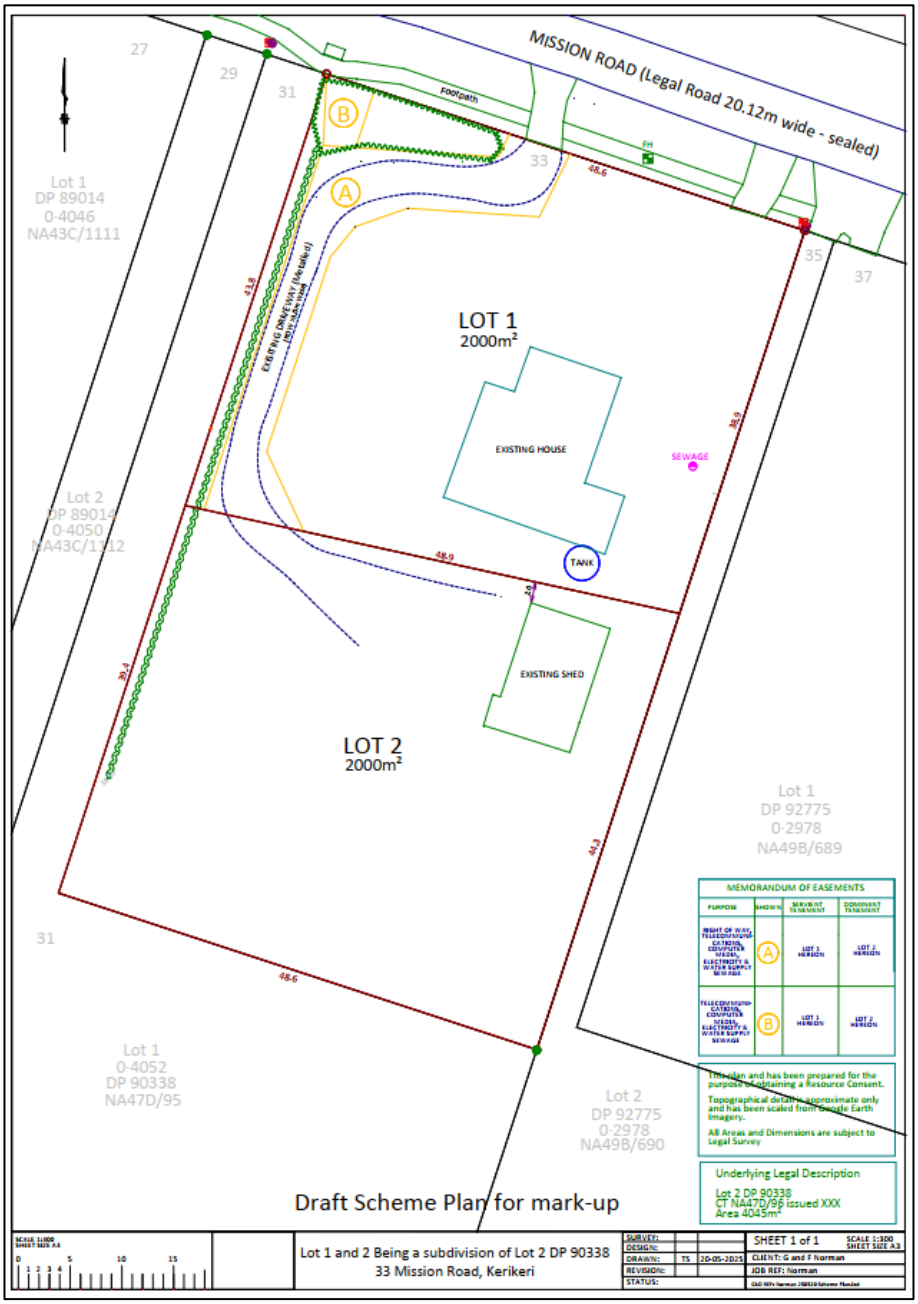


Figure 1: Scheme Plan of proposed subdivision.

A Geotechnical Site Suitability Report (WJL Ref. 140585) has been prepared by WJL for the proposed subdivision which should be read in conjunction with this report.

Any revision of the supplied drawings and/or development proposals with wastewater, stormwater, potable water and/or access implications should be referred back to us for review. This report is not intended to support Building Consent applications for the future proposed lots, and any revision of supplied drawings and/or development proposals including those for Building Consent, which might rely on wastewater stormwater, potable water and/or access assessments herein, should be referred to us for review.

3 SITE DESCRIPTION

The subject 4,045m² rectangular shaped property is located off the southern side of Mission Road, accessed 550m east of the Landing Road intersection, towards the northeastern outskirts of the Kerikeri urban area. The Lot is legally titled Lot 2 DP 90338 and is designated Rural Living in accordance with the Far North District Council (FNDC) on-line GIS Operative District Plan Map.

An existing dwelling is positioned across the northeastern portion of the site and a detached garage is located to the southeast of the dwelling, in proximity to the eastern boundary.

Two vehicle crossings are present along the northern boundary, being centrally located and at the northeastern corner. The crossings lead to an aggregate driveway and parking area directly in front of the existing dwelling. From the central crossing, a branch of the driveway also extends west along the northern boundary, before traversing south along the western boundary towards the central area of the Lot where an additional parking area is present in front of the existing garage.

Topographically speaking, the property is positioned in a northeast facing, gentle sloping volcanic plateau. Inclinations across the site essentially average 3°-4°. Existing ground levels across the site generally range between RL39m (southwest) and RL34 (northeast) New Zealand Vertical Datum (NZVD).

Aside from aggregate driveway coverage, the site is covered in lawn, with maintained gardens, trees and bush scattered throughout. Small hedge shelter belts bound the western and eastern boundaries, whilst a roadside water table drain bounds the northern boundary.

At the time of preparing this report, we note that the FNDC on-line GIS Water Services Map indicates that a main water service line bounds the northern boundary, outside the property confinements.

Figure 2: Snip from FNDC GIS Maps showing parent lot's boundaries (cyan), 1m contours (yellow), public water (blue) & public stormwater (green)

Figure 3: Site photograph from the northeastern boundary corner looking southwest towards the dwelling & driveway.

Figure 4: Site photograph from the western boundary looking northeast towards the dwelling, garage and driveway.

Figure 5: Site photograph from the southwestern boundary looking east towards proposed Lot 2.

4 DEVELOPMENT PROPOSAL

In reviewing the preliminary Subdivision Scheme Plan, it is our understanding that the client intends to subdivide the existing property into two equal halves, of which Lots 1 & 2 will both encompass any area of ~2,000m².

A new right-of-way (ROW), extending west from the central vehicle crossing and along the existing western driveway formation, is to be utilised for Lot 2 access.

Lot 1 will contain the existing dwelling.

Lot 2 will be suitable for new residential construction. Additionally, the Lot will also contain the existing garage at the northeastern boundary.

The client has advised that following a successful subdivision of the property, they intend to construct a prefabricated residential dwelling in the southeastern portion of Lot 2.

5 PUBLISHED GEOLOGY

Local geology across the property and wider surrounding land is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; Kerikeri Volcanic Group Late Miocene Basalt of Kaikohe (Bay of Islands Volcanic Field). These deposits are approximately 1.8 to 9.7 million years in age and described as; "*Basalt lava, volcanic plugs and minor tuff*" (Ref: GNS Science Website).

Figure 6: Screenshot aerial view from the New Zealand Geology Web Map. Blue marker depicts property location.

In addition to the above, geotechnical testing was conducted by WJL within the subject site.

In general terms, the subsoils encountered consisted predominantly of Clayey SILT and SILT. Approximately 200mm of TOPSOIL was overlying the investigated area. Refer to the appended 'BH Logs'. Given the above, the site's soils have been classified as Category 5 in accordance with the TP58 design manual.

6 WASTEWATER

Lot 1

An existing on-site wastewater treatment system currently services Lot 1's residential dwelling. If the existing on-site wastewater treatment system is functional, fit for the existing dwelling and located within Lot 1's proposed boundaries it may continue to operate.

If any part of the wastewater system, including any trenches or disposal fields are not located within proposed Lot 1, the system can either be relocated to Lot 1 and/or upgraded, or it can be decommissioned and replaced with a new on-site wastewater treatment system in accordance with the recommendations in Section 6.1 below.

Lot 2

No existing wastewater management system is present within proposed Lot 2. As such, a new site-specific design in accordance with the ASNZS: 1547 / TP58 design manual will be required by FNDC for any future development within the proposed lot. This should be conditioned as part of the Resource Consent process.

6.1 DESIGN PARAMETERS

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

As no development proposals are available at this stage for the eventual residential development within Lot 2, our recommendations have been based on a moderate size dwelling containing 4 bedrooms.

Given the subsoils encountered during WJL's fieldwork investigation, we recommend secondary treatment or higher for any new wastewater treatment system within the proposed lots.

At the time of report writing, it has not been confirmed whether Lot 2 will be connected to public potable water reticulation. As such, the indicative wastewater design has been completed for a reticulated water source and on-site rainwater tank supply.

Although dripper irrigation is recommended and shown below, alternative trench or bed setup with secondary level treatment is also acceptable subject to specific design.

6.1.1 Summary of Preliminary Design Parameters for a PCDI Secondary Treatment System

Development Type:	Residential Dwellings
Effluent Treatment Level:	Secondary (<BOD5 20 mg/L, TSS 30 mg/L)
Fill Encountered in Disposal Areas:	No
Water Source:	Rainwater Collection Tanks or Reticulated Water Supply
Site Soil Category (TP58):	Category 5 – Clayey SILT –Moderate Drainage
Estimate House Occupancy:	6 Persons
Loading Rate:	PCDI System – 4mm/day
Estimated Total Daily Wastewater Production:	Rainwater Supply: 1,080L/day Reticulated Water Supply: 1,200L/day
Typical Wastewater Design Flow Per Person:	Rainwater Supply: 180L/pp/pd (Estimated –water conservation devices may enable lower design flows)

	Reticulated Water Supply: 200L/pp/pd (Estimated –water conservation devices may enable lower design flows)
Application Method:	Surface Laid PCDI Lines
Loading Method:	Dosed
Minimum Tank size:	Rainwater Supply: >1,080L Reticulated Water Supply: >1,200L
Emergency Storage:	24 hours
Estimated Min. Disposal Area Requirement:	Rainwater Supply: 270m² Reticulated Water Supply: 300m²
Required Min. Reserve Area:	50%
Buffer Zone:	Not anticipated to be required
Cut-off Drain:	Not anticipated to be required

6.2 REQUIRED SETBACK DISTANCES

The disposal and reserve areas must be situated outside the relevant exclusion areas and setbacks described within Table 9 of the PRPN: Exclusion areas and setback distances for on-site domestic wastewater systems:

Table 9 of the PRPN (Proposed Regional Plan for Northland)			
Feature	Primary treated domestic wastewater	Secondary treated domestic wastewater	Greywater
Exclusion areas			
Floodplain	5% AEP	5% AEP	5% AEP
Horizontal setback distances			
Identified stormwater flow paths (downslope of disposal area)	5 meters	5 meters	5 meters
River, lake, stream, pond, dam or wetland	20 meters	15 meters	15 meters
Coastal marine area	20 meters	15 meters	15 meters
Existing water supply bore	20 meters	20 meters	20 meters
Property boundary	1.5 meters	1.5 meters	1.5 meters
Vertical setback distances			
Winter groundwater table	1.2 meters	0.6 meters	0.6 meters

6.3 NORTHLAND REGIONAL PLAN ASSESSMENT

The existing wastewater disposal system servicing Lot 1 should meet the compliance points below, stipulated within Section C.6.1.1 of the Proposed Regional Plan for Northland:

C.6.1.1 Existing on-site domestic type wastewater discharge – permitted activity	
The discharge of domestic type wastewater into or onto land from an on-site system that was a permitted activity at the notification date of this Plan, and the associated discharge of any odour into air from the onsite system, are permitted activities, provided:	
#	Rule
1	the discharge volume does not exceed:
	a) three cubic metres per day, averaged over the month of greatest discharge, and
	b) six cubic metres per day over any 24-hour period, and
2	the following reserve disposal areas are available at all times:
	a) one hundred percent of the existing effluent disposal area where the wastewater has received primary treatment or is only comprised of greywater, or
	b) thirty percent of the existing effluent disposal area where the wastewater has received at least secondary treatment, and
3	the on-site system is maintained so that it operates effectively at all times and maintenance is undertaken in accordance with the manufacturer's specifications, and
4	wastewater irrigation lines are at all times either installed at least 50 millimetres beneath the surface of the disposal area or are covered by a minimum of 50 millimetres of topsoil, mulch, or bark, and
5	the discharge does not contaminate any groundwater supply or surface water, and
6	there is no surface runoff or ponding of wastewater, and
7	there is no offensive or objectionable odour beyond the property boundary.

We envision that there will be no issue meeting the Permitted Activity Status requirements as outlined above.

Any future wastewater disposal system should meet the compliance points below, stipulated within Section C.6.1.3 of the Proposed Regional Plan for Northland:

C.6.1.3 Other on-site treated domestic wastewater discharge– permitted activity	
The discharge of domestic type wastewater into or onto land from an on-site system and the associated discharge of odour into air from the on-site system are permitted activities, provided:	
#	Rule
1	The on-site system is designed and constructed in accordance with the Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012), and
2	The volume of wastewater discharged does not exceed two cubic metres per day, and
3	The discharge is not via a spray irrigation system or deep soakage system, and

4	The slope of the disposal area is not greater than 25 degrees, and
5	The wastewater has received secondary or tertiary treatment and is discharged via a trench or bed in soil categories 3 to 5 that is designed in accordance with Appendix L of Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012); or is via an irrigation line system that is:
	a) dose loaded, and
	b) covered by a minimum of 50 millimetres of topsoil, mulch, or bark, and
6	For the discharge of wastewater onto the surface of slopes greater than 10 degrees:
	a) the wastewater, excluding greywater, has received at least secondary treatment, and
	b) the irrigation lines are firmly attached to the disposal area, and
	c) where there is an up-slope catchment that generates stormwater runoff, a diversion system is installed and maintained to divert surface water runoff from the up-slope catchment away from the disposal area, and
	d) a minimum 10 metre buffer area down-slope of the lowest irrigation line is included as part of the disposal area, and
	e) the disposal area is located within existing established vegetation that has at least 80 percent canopy cover, or
	f) the irrigation lines are covered by a minimum of 100 millimetres of topsoil, mulch, or bark, and
7	the disposal area and reserve disposal area are situated outside the relevant exclusion areas and setbacks in Table 9: Exclusion areas and setback distances for on-site domestic wastewater systems, and
8	for septic tank treatment systems, a filter that retains solids greater than 3.5 millimetres in size is fitted on the outlet, and
9	the following reserve disposal areas are available at all times:
	a) 100 percent of the existing effluent disposal area where the wastewater has received primary treatment or is only comprised of greywater, or
	b) 30 percent of the existing effluent disposal area where the wastewater has received secondary treatment or tertiary treatment, and
10	the on-site system is maintained so that it operates effectively at all times and maintenance is undertaken in accordance with the manufacturer's specifications, and
11	the discharge does not contaminate any groundwater water supply or surface water, and
12	there is no surface runoff or ponding of wastewater, and
13	there is no offensive or objectionable odour beyond the property boundary.

We envision that Lot 2 will have no issue meeting the Permitted Activity Status requirements outlined above.

7 STORMWATER MANAGEMENT

7.1 ASSESSMENT CRITERIA

The site lies within the Far North District. The stormwater assessment has been completed in accordance with the recommendations and requirements contained within the Far North District Engineering Standards and the Far North District Council District Plan.

As below, the site resides in a Rural Living Zone.

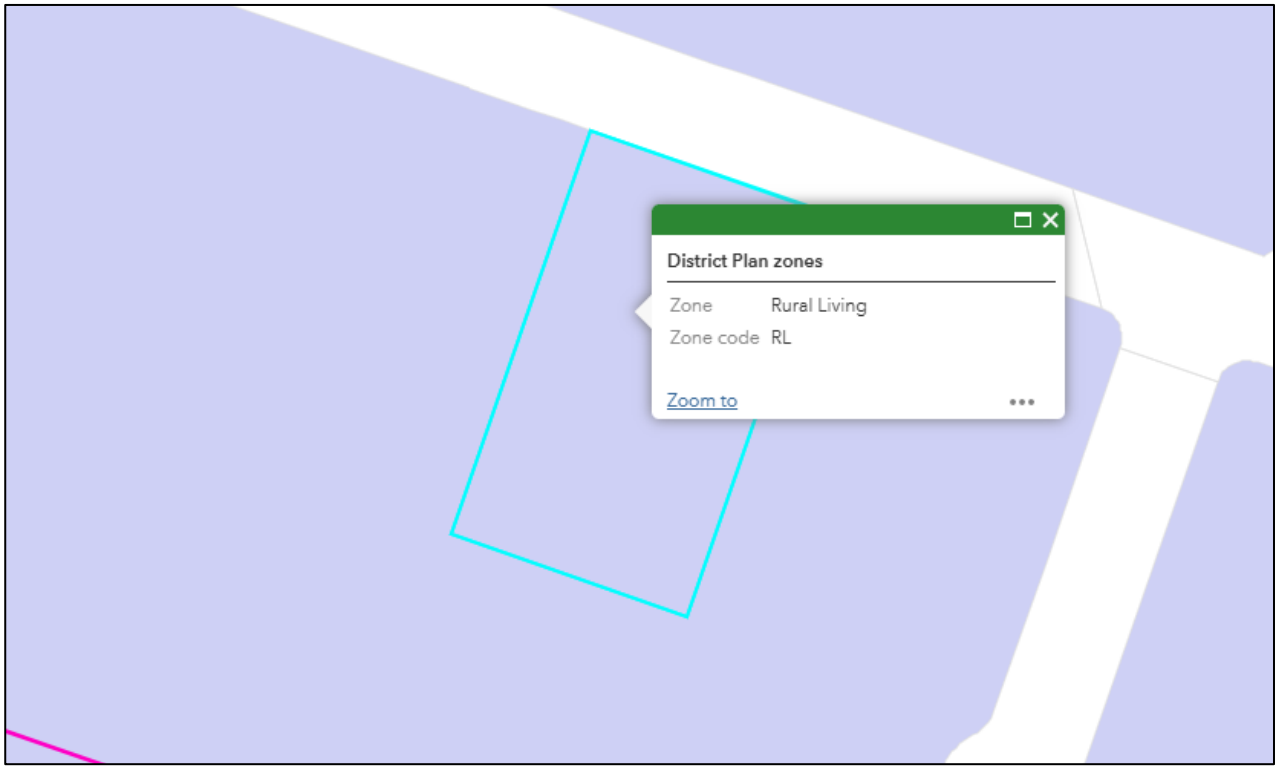


Figure 7: Snip of FNDC Maps showing site in Rural Living Zone.

The following Stormwater Management Rules Apply:

Permitted Activity: 8.7.5.1.5 STORMWATER MANAGEMENT – The maximum proportion or amount of the gross site area covered by buildings and other impermeable surfaces shall be 12.5% or 3,000m², whichever is the lesser.

Controlled Activity: 8.7.5.2.2 STORMWATER MANAGEMENT – The maximum proportion or amount of the gross site area covered by buildings and other Impermeable Surfaces shall be 20% or 3300m², whichever is the lesser.

To comply with the parameters of the Permitted Activity Rule (8.7.5.1.5), Lots 1 & 2 must not exceed an impermeable area of 250m².

Given the above, the existing development within Lot 1 is considered to be a Restricted Discretionary Activity and future development of Lot 2 is expected to fall within the Controlled Activity / Restricted Discretionary Activity range. It is therefore expected that a stormwater attenuation report including a District Plan Assessment will be required for Lot 2 at Building Consent stage.

Flow attenuation (50% AEP & 20% AEP) should be provided for runoff resulting from existing / future proposed impermeable areas exceeding the Permitted Activity threshold to mitigate adverse effects of runoff on the downstream receiving stormwater network.

Indicative tank attenuation design parameters are given below to demonstrate the feasibility of implementing attenuation on-site. The Type IA storm profile was utilised in Flow attenuation calculations in accordance with TR-55. HydroCAD® software has been utilised in calculations for a 50% AEP rainfall value of 129mm with a 24-hour duration and a 20% AEP rainfall value of 170mm with a 24-hour duration. Rainfall data was obtained from HIRDS and increased by 20% to account for climate change.

To appropriately mitigate stormwater runoff from the existing and future proposed impermeable areas, we recommend utilising Low Impact Design Methods as a means of stormwater management. Design guidance should be taken from 'The Countryside Living Toolbox' design document, and where necessary, 'Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual' Auckland Regional Council (2003).

Stormwater management recommendations are provided below.

7.2 PRIMARY STORMWATER

7.2.1 Stormwater Runoff from Roof Areas

Stormwater runoff from the roof of any future buildings must be captured by a gutter system and conveyed to rainwater tanks on the corresponding lot.

Discharge and overflow from the rainwater tanks should be directed to a discharge point as specified below via sealed pipes.

7.2.2 Stormwater Runoff from Hardstand Areas

Where driveways are formed perpendicular to the slope of the topography, the driveway may shed runoff to lower-lying grassed areas via even sheet flow, well clear of any structures. Runoff passed through grassed areas will be naturally filtered of entrained pollutants and will act to mitigate runoff by way of ground recharge and evapotranspiration.

Where even sheet flow is not practicable, concentrated flows must be managed with swales to prevent erosion/scouring. These should be sized to manage and provide capacity for secondary flows and mitigate flow velocity where appropriate. Swales are to direct runoff to silt traps with suitably sized grate / scruffy dome inlets, from which runoff may be piped to the discharge point.

Alternatively, if sealed, driveways may be formed to shed runoff to catchpits installed per E1 of the NZ Building Code. Runoff collected via catchpits is to be directed to an outlet as specified below via sealed pipes.

Due to water quality concerns, runoff resulting from hardstand areas should not be allowed to drain to any potable water tanks.

7.2.3 Lot 1 Attenuation Feasibility

Lot 1's existing impermeable area exceeds the permitted coverage threshold by 299m². On-site runoff attenuation in accordance with the criteria outlined in Section 7.1 of this report is required.

It is recommended that attenuation be provided via a detention volume in the upper section of the existing potable water tank. The existing potable water tank is recommended to be fitted with a 30mmØ orifice located >490mm below the overflow outlet. Refer to 'Lot 1: Option 1' in the appended calculation set for clarification.

Alternatively, a 4,000L Promax Enduro Rainwater tank (or similarly approved) fitted with a 22mmØ orifice located 200mm above the base of the tank should be installed to provide the required detention volume. In this scenario, overflow from the existing potable water tank would need to be directed to the new detention tank. Refer to 'Lot 1: Option 2' in the appended calculation set for clarification.

7.2.4 Lot 2 Attenuation Feasibility

Lot 2 will require attenuation in accordance with the criteria outlined in Section 7.1 of this report for the existing / future impermeable areas exceeding the permitted threshold.

The below detention configurations have been provided for an assumed future development consisting of an additional 250m² dwelling and 100m² driveway to demonstrate that on-site attenuation in compliance with the applicable criteria is feasible.

It is recommended that attenuation be provided via a detention volume in the upper section of any future potable water tanks. For the purposes of this report, it is assumed that 2 x 25,000L Rainwater Tanks with a 3500mmØ are used. In this case, one of the potable water tanks would need to be fitted with a **40mmØ orifice** located >360mm below the overflow outlet. Refer to 'Lot 2: Option 1' in the appended calculation set for clarification.

Alternatively, a 10,000L Promax Enduro Rainwater tank (or similarly approved) fitted with a **27mmØ orifice** located 200mm above the base of the tank could be installed to provide the required detention volume. Refer to 'Lot 2: Option 2' in the appended calculation set for clarification.

The above coverage scenario is only intended to demonstrate the feasibility of on-site attenuation via rainwater tanks and is not an indication of anticipated future development coverage.

7.2.5 Stormwater Runoff Discharge Point

Lot 1

It is our understanding that Lot 1's stormwater runoff is currently discharging to an outlet in the roadside drain along the southern side of Mission Road.

It is recommended that this existing outlet continue to service Lot 1.

Lot 2

It is recommended that stormwater runoff from Lot 2 be directed via sealed pipes to an outlet in the roadside drain along the southern side of Mission Road.

Lot 2's drainage line to the discharge point should be separate to Lot 1's existing drainage line to the roadside drain, unless the existing line is confirmed to have sufficient capacity to service both lots.

It is anticipated that a 100mmØ (minimum >1% grade) outlet would be sufficient to drain the stormwater runoff from the above development scenario.

7.3 SECONDARY STORMWATER

Where required, overland flows and similar runoff from higher ground should be intercepted by means of shallow surface drains or small bunds near structures to protect these from both saturation and erosion.

7.4 DISTRICT PLAN ASSESSMENT

This section has been prepared to demonstrate the likely effects of the activity on stormwater runoff and the means of mitigating runoff.

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

13.10.4 – Stormwater Disposal

(a) Whether the application complies with any regional rules relating to any water or discharge permits required under the Act, and with any resource consent issued to the District Council in relation to any urban drainage area stormwater management plan or similar plan.	No discharge permits are required. No resource consent issued documents stipulating specific requirements are known for the subject site or are anticipated to exist.
(b) Whether the application complies with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009 (to be used in conjunction with NZS 4404:2004).	The application is deemed compliant with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009

(c) Whether the application complies with the Far North District Council Strategic Plan - Drainage.	The application is deemed compliant with the Far North District Council Strategic Plan - Drainage
(d) The degree to which Low Impact Design principles have been used to reduce site impermeability and to retain natural permeable areas.	Stormwater management should be provided for the subject lot by utilising Low Impact Design Methods. Guidance for design should be taken from 'The Countryside Living Toolbox' design document, and where necessary, *"Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual" Auckland Regional Council (2003).* All roof runoff will be collected by rainwater tanks for conveyance to a safe outlet point. Hardstand areas should either be shaped to shed to lower-lying lawn areas as passive mitigation, or to swales for runoff conveyance to a safe outlet location.
(e) The adequacy of the proposed means of disposing of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces.	As above. Runoff from new roof areas will be collected, directed to rainwater tanks and discharged in a controlled manner to a designated outlet, reducing scour and erosion. Hardstand areas should either be shaped to shed to lower-lying lawn areas as passive mitigation, or to swales for runoff conveyance to a safe outlet location.
(f) The adequacy of any proposed means for screening out litter, the capture of chemical spillages, the containment of contamination from roads and paved areas, and of siltation.	Runoff from roof areas is free of litter, chemical spillages, or contaminants from roads. Future proposed hardstand areas are best shaped to shed to large pasture areas via sheet flow to ensure that runoff does not concentrate. Large downslope pasture areas act as bio-filter strips to filter out entrained pollutants.
(g) The practicality of retaining open natural waterway systems for stormwater disposal in preference to piped or canal systems and adverse effects on existing waterways.	No alteration to waterways is proposed.
(h) Whether there is sufficient capacity available in the Council's outfall stormwater system to cater for increased run-off from the proposed allotments.	Not applicable.
(i) Where an existing outfall is not capable of accepting increased run-off, the adequacy of proposals and solutions for disposing of run-off.	Not applicable.
(j) The necessity to provide on-site retention basins to contain surface run-off where the capacity of the outfall is incapable of accepting flows, and where the outfall has limited capacity, any need to restrict the rate of discharge from the subdivision to the same rate of discharge that existed on the land before the subdivision takes place.	Not applicable.

(k) Any adverse effects of the proposed subdivision on drainage to, or from, adjoining properties and mitigation measures proposed to control any adverse effects.	Outlet locations are to be determined during detailed design and are to be located such that there are no adverse effects on adjacent properties.
(l) In accordance with sustainable management practices, the importance of disposing of stormwater by way of gravity pipe lines. However, where topography dictates that this is not possible, the adequacy of proposed pumping stations put forward as a satisfactory alternative.	Not applicable.
(m) The extent to which it is proposed to fill contrary to the natural fall of the country to obtain gravity outfall; the practicality of obtaining easements through adjoining owners' land to other outfall systems; and whether filling or pumping may constitute a satisfactory alternative.	Not applicable.
(n) For stormwater pipes and open waterway systems, the provision of appropriate easements in favour of either the registered user or in the case of the Council, easements in gross, to be shown on the survey plan for the subdivision, including private connections passing over other land protected by easements in favour of the user.	Easement along ROW to be provided. Refer to Scheme Plan.
(o) Where an easement is defined as a line, being the centre line of a pipe already laid, the effect of any alteration of its size and the need to create a new easement.	Not applicable.
(p) For any stormwater outfall pipeline through a reserve, the prior consent of the Council, and the need for an appropriate easement.	Not applicable.
(q) The need for and extent of any financial contributions to achieve the above matters.	Not applicable.
(r) The need for a local purpose reserve to be set aside and vested in the Council as a site for any public utility required to be provided.	Not applicable.

8 POTABLE WATER SUPPLY

It is our understanding that Lot 1 is serviced by a connection to the water main along the southern side of Mission Road.

A new water meter and connection to the water main may be achievable for Lot 2 given approval from FNDC.

Alternatively, Lot 2's potable water may be provided for by rainwater tanks in accordance with the Countryside Living Toolbox requirements. It is recommended to provide at least 2 x 25,000L tanks for potable water usage. The type of tank and volume is for the client to confirm.

9 ACCESS AND VEHICLE CROSSING

9.1 GENERAL

A basic access and vehicle crossing assessment for the proposed Lots has been completed with recommendations provided herein.

It is our understanding that it is proposed for Lot 1 to continue to utilise its existing access off Mission Road.

Access to Lot 2 is proposed to be via an existing vehicle crossing directly off Mission Road.

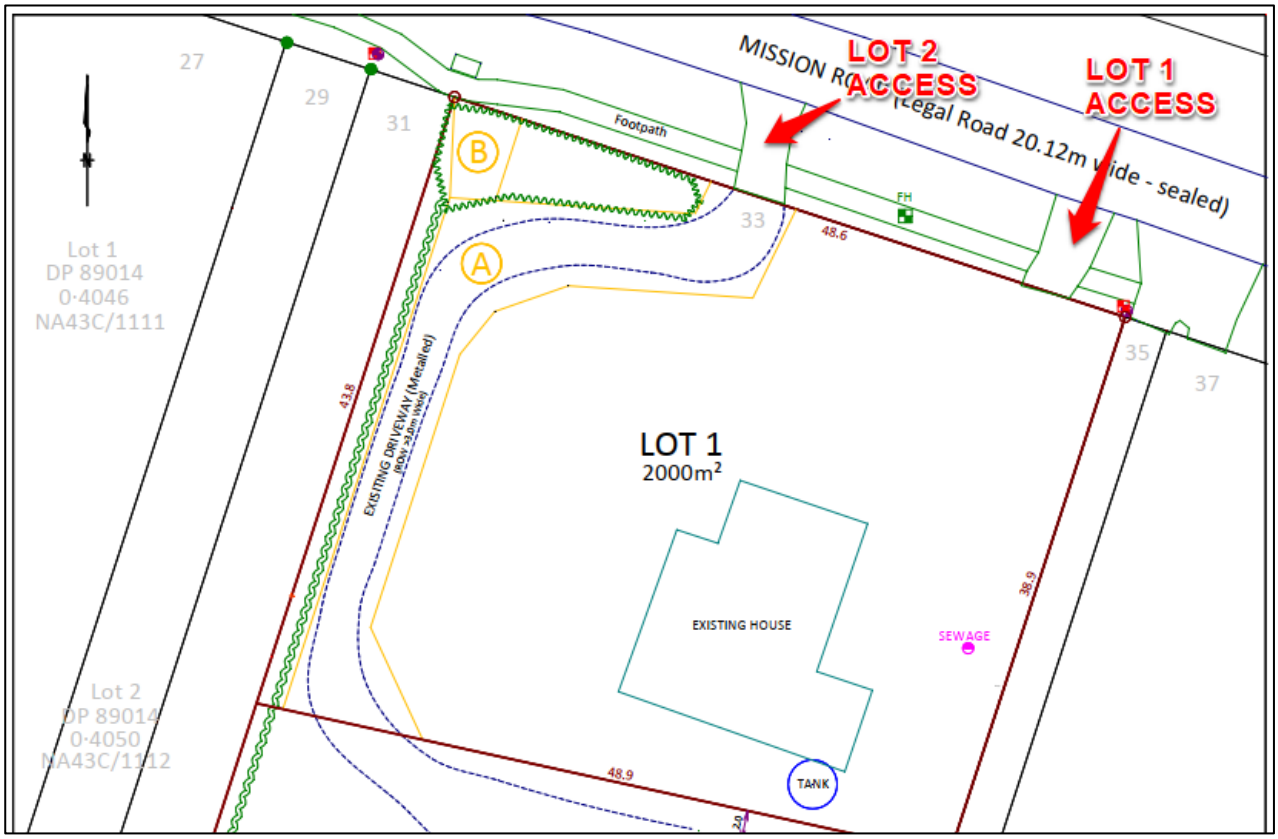


Figure 8: Snip of Scheme Plan showing existing & proposed access locations.

Figure 9: Markup of site photo showing existing vehicle crossings.

9.2 VEHICLE CROSSINGS

Lot 1's and Lot 2's vehicle crossings were checked by WJL in June 2025 and found to be in generally accordance with the Far North District Council Engineering Standards (2023) Sheet 21 Type 1A – Light Vehicles.

As such, it is recommended that the existing vehicle crossings continue to be utilised.

9.3 SIGHT DISTANCES

Mission Road has a general operating speed of 40km/hr (NZTA National Speed Limits Register) and is considered an access road. The Far North District Council Engineering Standards (2023) – Sheet 4 notes that the minimum required sight distance is 45m.

In compliance with the Far North District Council's sight distance requirements, both existing vehicle crossings provide >45m of sight distance to the east and the west.

Figure 10: Existing Lot 1 access location on Mission Road facing east, >45m sight distance available.

Figure 11: Existing Lot 1 access location on Mission Road facing west, >45m sight distance available.

Figure 12: Existing Lot 2 access location on Mission Road facing east, >45m sight distance available.

Figure 13: Existing Lot 2 access location on Mission Road facing west, >45m sight distance available.

10 LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource Consent application.

This report has been commissioned solely for the benefit of our client, in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions, and limitations, when issuing the subject consent.

Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred back to us for further evaluation. Copyright of Intellectual Property remains with Wilton Joubert Limited, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other civil aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

WILTON JOUBERT LIMITED

Enclosures:

- Site Plan – C001 (1 sheet)
- Hand Auger Borehole Records (3 sheets)
- Calculation Set

NOTES:

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION.
3. CONTOURS & LOCAL SERVICES ARE SHOWN INDICATIVELY ONLY.
4. LOT 2 STORMWATER & WASTEWATER SHOWN INDICATIVELY ONLY TO SHOW FEASIBILITY - BOTH SUBJECT TO SPECIFIC DESIGN.

INDICATIVE EXISTING ROADSIDE DRAIN

INDICATIVE OUTLET TO ROADSIDE DRAIN

EXISTING DRIVEWAY ~181m²

LOT 1 ~2,000m²

SUFFICIENT ROOM FOR NEW WW SYSTEM IN FUTURE IF REQUIRED

EXISTING DRIVEWAY ~154m²

APPROXIMATE LOCATION OF EXISTING WW SYSTEM

EXISTING DWELLING ~214m²

DRAINAGE LINE FROM TANK TO OUTLET IN ROADSIDE DRAIN

EXISTING WATER TANK TO BE FITTED WITH DETENTION ORIFICE OR OVERFLOW TO NEW DETENTION TANK

EXISTING DRIVEWAY ~203m²

EXISTING GARAGE ~101m²

LOT 2 ~2,000m²

INDICATIVE WW DISPOSAL AREA 300m²

INDICATIVE FUTURE DRIVEWAY ~100m²

DRAINAGE LINE FROM EXISTING GARAGE TO BE REDIRECTED TO POTABLE WATER / DETENTION TANK(S)

SUBMAIN

INDICATIVE FUTURE DWELLING ~250m²

INDICATIVE WW RESERVE AREA 150m²

INDICATIVE DRAINAGE LINE FROM FUTURE DWELLING GUTTERS TO TANK

RISING MAIN

INDICATIVE SECONDARY LEVEL WASTEWATER TREATMENT PLANT. LOCATION TO BE CONFIRMED

INDICATIVE BLACK & GREY WATER TO TREATMENT PLANT

INDICATIVE POTABLE WATER / DETENTION TANK(S)

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	JUN '25	GMB	CIVIL SITE SUITABILITY REPORT
02	JUN '25	GMB	CIVIL SITE SUITABILITY REPORT REV 02

DESIGNED BY: GMB
DRAWN BY: GMB
CHECKED BY: BGS
SURVEYED BY: N/A

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.

BUILDING CONSENT
DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE: **SITE PLAN**

PROJECT DESCRIPTION: **CIVIL SITE SUITABILITY REPORT**

PROJECT TITLE:
LOT 2 DP 90338
33 MISSION ROAD
KERIKERI
NORTHLAND

ORIGINAL DRAWING SIZE:	OFFICE:
A3	OREWA
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:500	NOT COORDINATED
DRAWING NUMBER:	ISSUE:
140586-C001	02

HAND AUGER : HA01

JOB NO.: 140585 **SHEET:** 1 OF 1

START DATE: 05/06/2025 **NORTHING:** **GRID:**

CLIENT: Fiona & Graeme Norman **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision (1 Lot for Assessment) **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 33 Mission Road, Kerikeri **FACTOR:** 1.57 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
			0.6						
			0.8		220+	-	-		
			1.0						
	SILT, minor clay, brown with occasional purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.2		UTP	-	-		
			1.4						
	EOH: 1.60m - Too Hard To Auger		1.6		UTP	-	-		
			1.8						

REMARKS

End of borehole @ 1.60m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: ANA

▼ Standing groundwater level

▽ GW while drilling

WILTON JOUBERT Consulting Engineers
185 Waipapa Road, Kerikeri 0295
Phone: 09-945 4188
Email: jobs@wjl.co.nz
Website: www.wiltonjoubert.co.nz

HAND AUGER : HA02

JOB NO.: 140585 **SHEET:** 1 OF 1

CLIENT: Fiona & Graeme Norman
PROJECT: 2-Lot Subdivision (1 Lot for Assessment)
SITE LOCATION: 33 Mission Road, Kerikeri

START DATE: 05/06/2025 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: DR4802 **ELEVATION:** Ground
FACTOR: 1.57 **DATUM:**

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
	0.6m: Occasional black weakly fused clast mottles and streaks.		0.6						
			0.8		220+	-	-		
	0.9m: Occasional white weakly fused clast mottles.		1.0						
	SILT, minor clay, brown with purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.2		UTP	-	-		
			1.4						
	EOH: 1.50m - Too Hard To Auger		1.6		UTP	-	-		
			1.8						

REMARKS
End of borehole @ 1.50m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP
CHECKED BY: ANA

▼ Standing groundwater level
▽ GW while drilling

WILTON JOUBERT Consulting Engineers
185 Waipapa Road, Kerikeri 0295
Phone: 09-945 4188
Email: jobs@wjl.co.nz
Website: www.wiltonjoubert.co.nz

HAND AUGER : HA03

JOB NO.: 140585 **SHEET:** 1 OF 1

START DATE: 05/06/2025 **NORTHING:** **GRID:**

CLIENT: Fiona & Graeme Norman **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision (1 Lot for Assessment) **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 33 Mission Road, Kerikeri **FACTOR:** 1.57 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
	0.4m: Occasional black weakly fused clast mottles and streaks.		0.6						
	0.7m: Occasional black weakly fused clast mottles and streaks.		0.8		220+	-	-		
	SILT, minor clay, brown with purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.0						
			1.2		UTP	-	-		
	EOH: 1.30m - Too Hard To Auger		1.4		UTP	-	-		
			1.6						
			1.8						

SOIL DESCRIPTION

TOPSOIL CLAY SAND PEAT

FILL SILT GRAVEL ROCK

REMARKS

End of borehole @ 1.30m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: ANA

▼ Standing groundwater level

▽ GW while drilling

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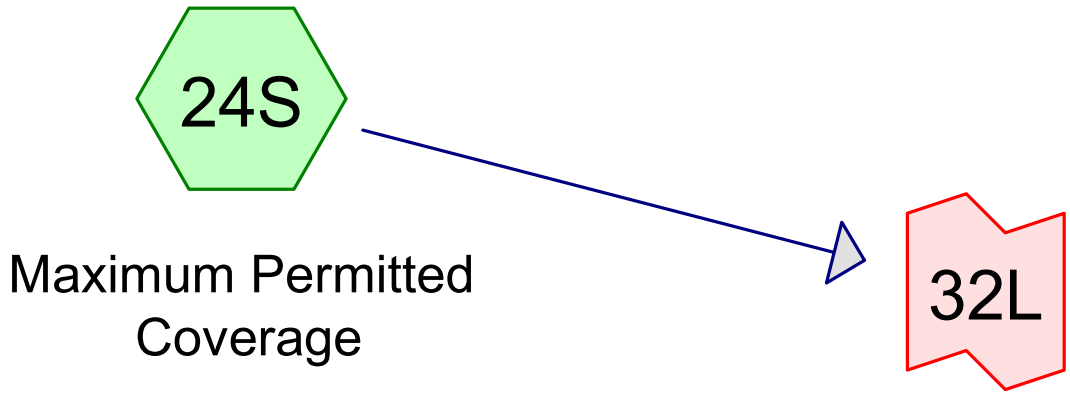
LOT 1

Permitted Peak Flows



Maximum Permitted Coverage

Maximum Permitted Peak Flows

Subcat Reach Pond Link

Routing Diagram for 140586
Prepared by Wilton Joubert Limited, Printed 12/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 24S: Maximum Runoff Area=2,000.0 m² 12.50% Impervious Runoff Depth>104 mm
Tc=10.0 min CN=77 Runoff=14.28 L/s 207.1 m³

Link 32L: Maximum Permitted Peak Flows Inflow=14.28 L/s 207.1 m³
Primary=14.28 L/s 207.1 m³

Summary for Subcatchment 24S: Maximum Permitted Coverage

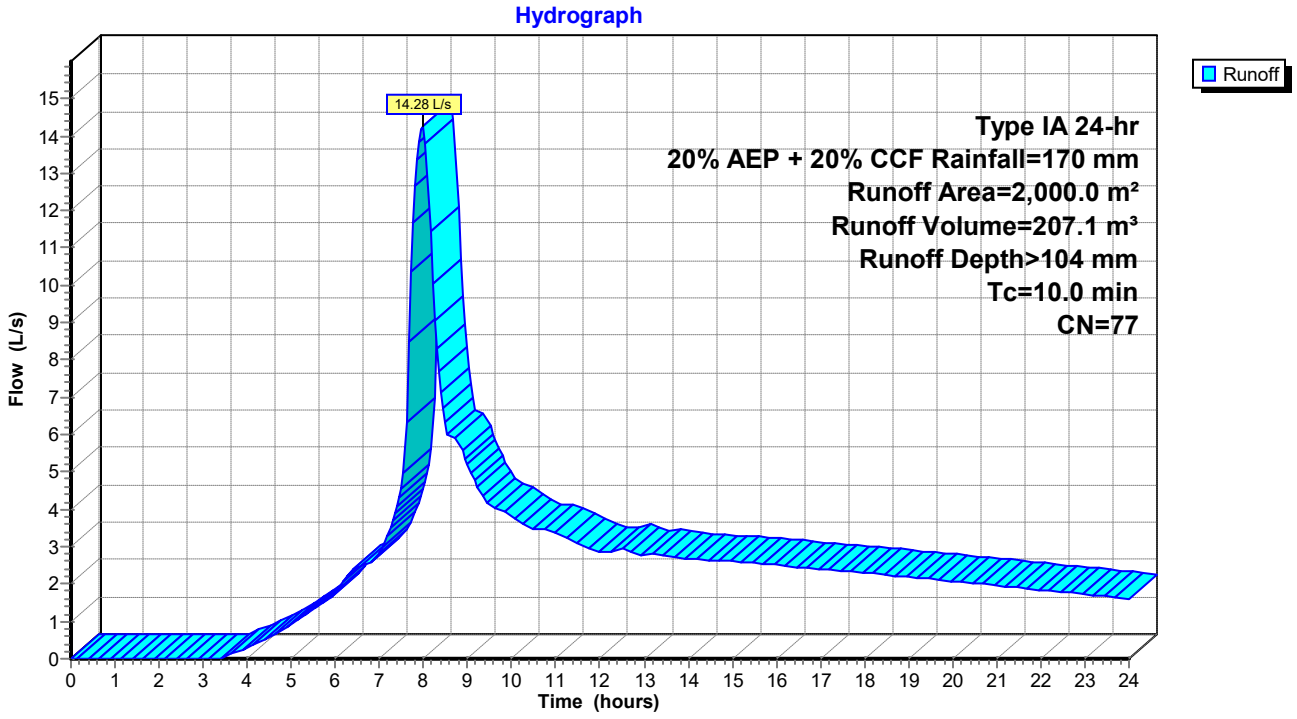
Runoff = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³, Depth> 104 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
1,750.0	74	>75% Grass cover, Good, HSG C
2,000.0	77	Weighted Average
1,750.0		87.50% Pervious Area
250.0		12.50% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 24S: Maximum Permitted Coverage

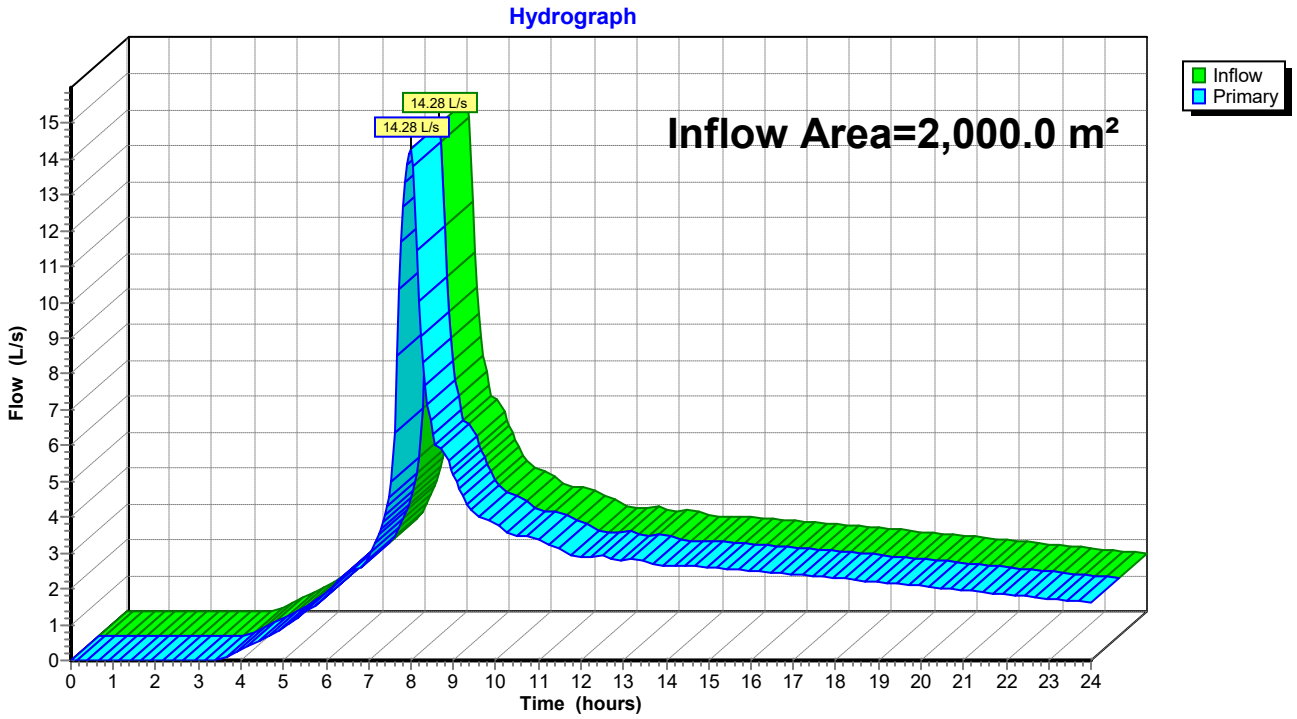


Summary for Link 32L: Maximum Permitted Peak Flows

Inflow Area = 2,000.0 m², 12.50% Impervious, Inflow Depth > 104 mm for 20% AEP + 20% CCF event
Inflow = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³
Primary = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 32L: Maximum Permitted Peak Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 24S: Maximum Runoff Area=2,000.0 m² 12.50% Impervious Runoff Depth>68 mm
Tc=10.0 min CN=77 Runoff=8.98 L/s 136.1 m³

Link 32L: Maximum Permitted Peak Flows Inflow=8.98 L/s 136.1 m³
Primary=8.98 L/s 136.1 m³

Summary for Subcatchment 24S: Maximum Permitted Coverage

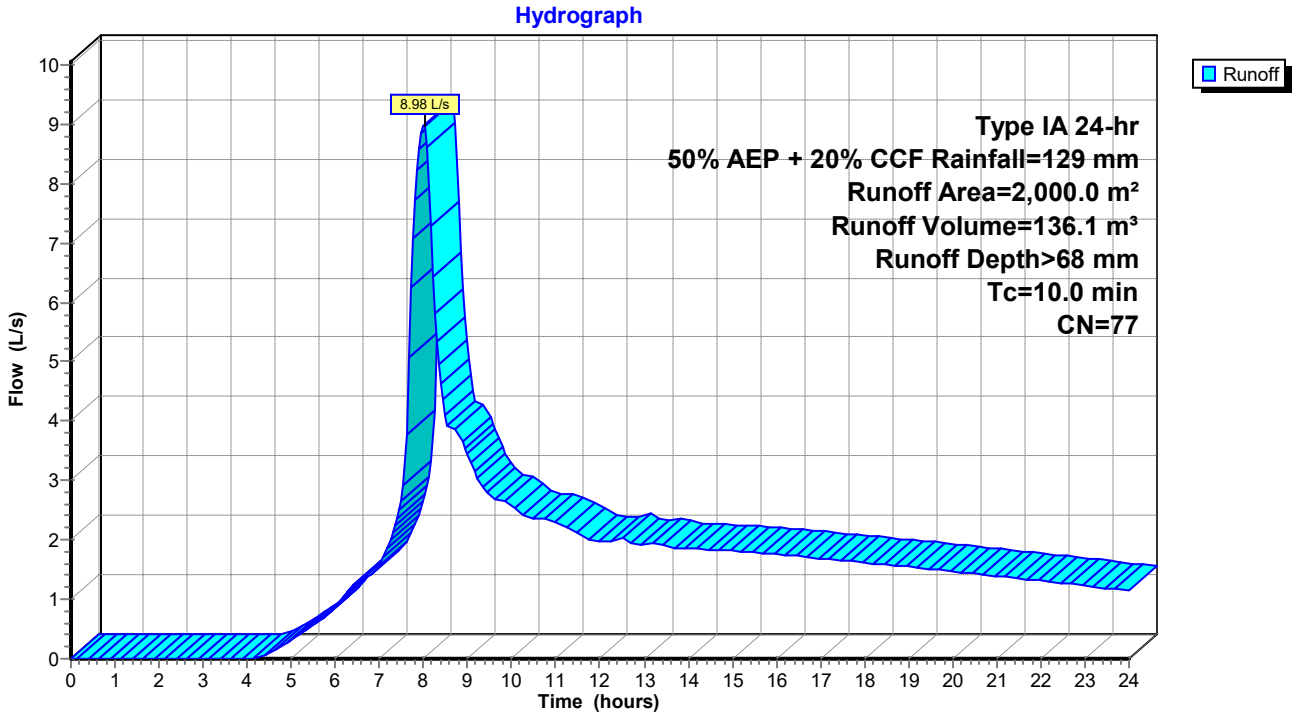
Runoff = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³, Depth> 68 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
1,750.0	74	>75% Grass cover, Good, HSG C
2,000.0	77	Weighted Average
1,750.0		87.50% Pervious Area
250.0		12.50% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 24S: Maximum Permitted Coverage

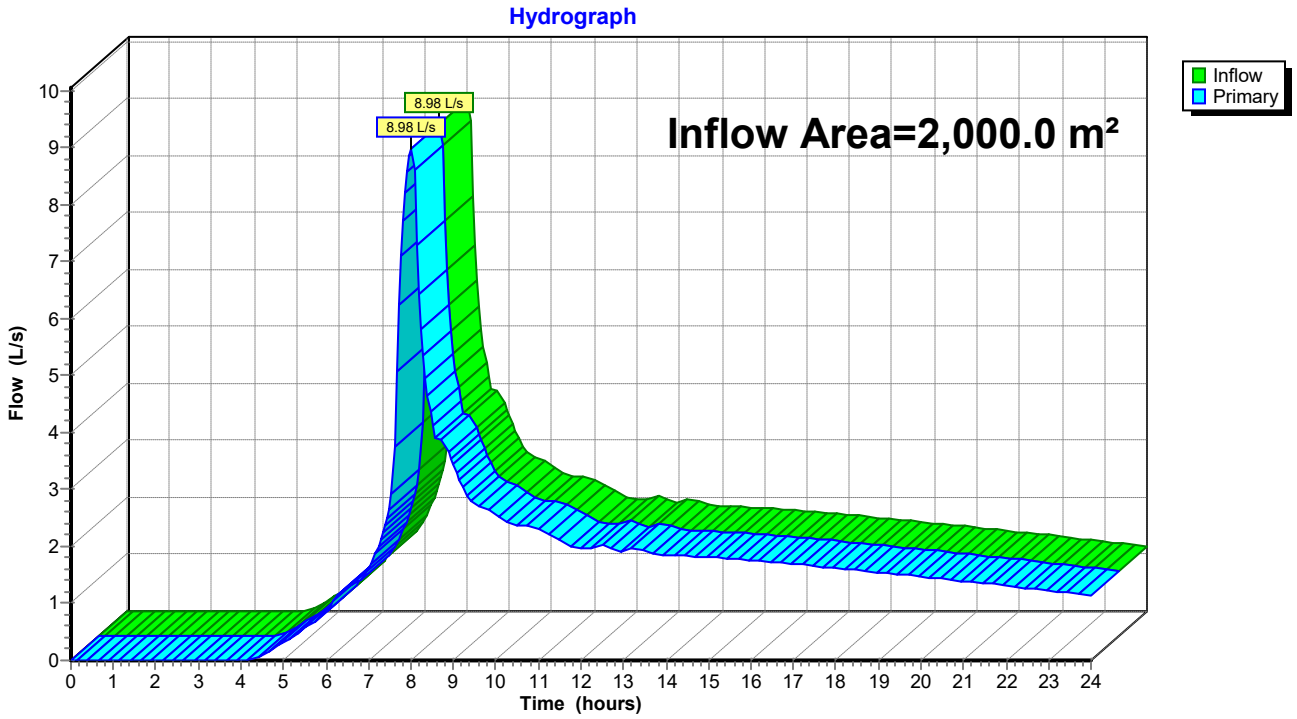


Summary for Link 32L: Maximum Permitted Peak Flows

Inflow Area = 2,000.0 m², 12.50% Impervious, Inflow Depth > 68 mm for 50% AEP + 20% CCF event
Inflow = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³
Primary = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³, Atten= 0%, Lag= 0.0 min

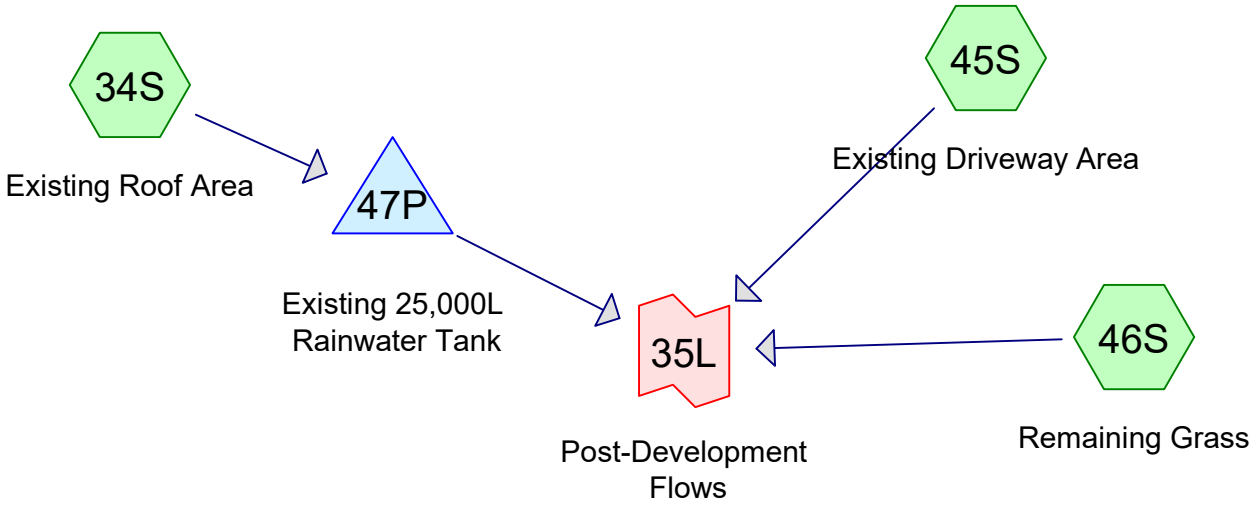
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 32L: Maximum Permitted Peak Flows



LOT 1: OPTION 1

Existing Impermeable Areas



Subcat Reach Pond Link

Routing Diagram for 140586 Lot 1
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=214.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=2.39 L/s 35.0 m³

Subcatchment 45S: Existing Driveway Runoff Area=335.0 m² 0.00% Impervious Runoff Depth>137 mm
Tc=10.0 min CN=89 Runoff=3.30 L/s 45.9 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,451.0 m² 0.00% Impervious Runoff Depth>96 mm
Tc=10.0 min CN=74 Runoff=9.34 L/s 138.6 m³

Pond 47P: Existing 25,000L Rainwater Tank Peak Elev=0.488 m Storage=3.5 m³ Inflow=2.39 L/s 35.0 m³
Outflow=1.29 L/s 34.8 m³

Link 35L: Post-Development Flows Inflow=13.79 L/s 219.3 m³
Primary=13.79 L/s 219.3 m³

Summary for Subcatchment 34S: Existing Roof Area

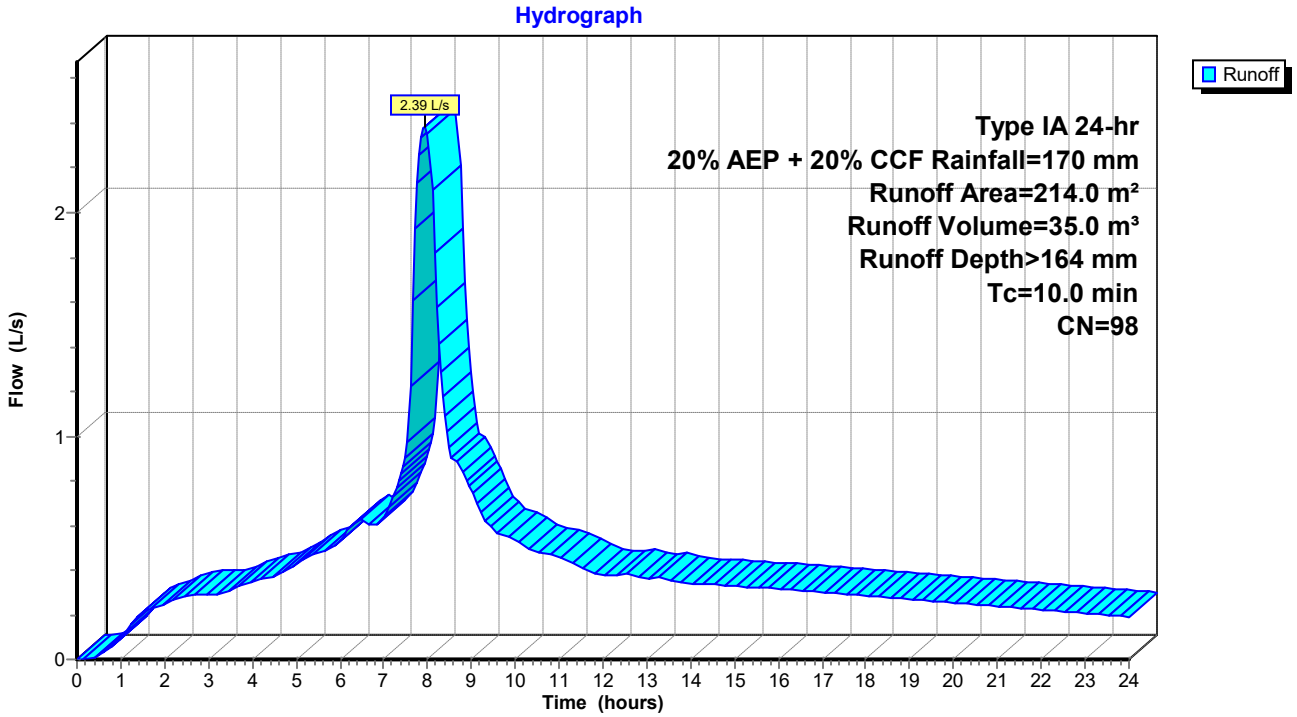
Runoff = 2.39 L/s @ 7.94 hrs, Volume= 35.0 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
214.0	98	Roofs, HSG C
214.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

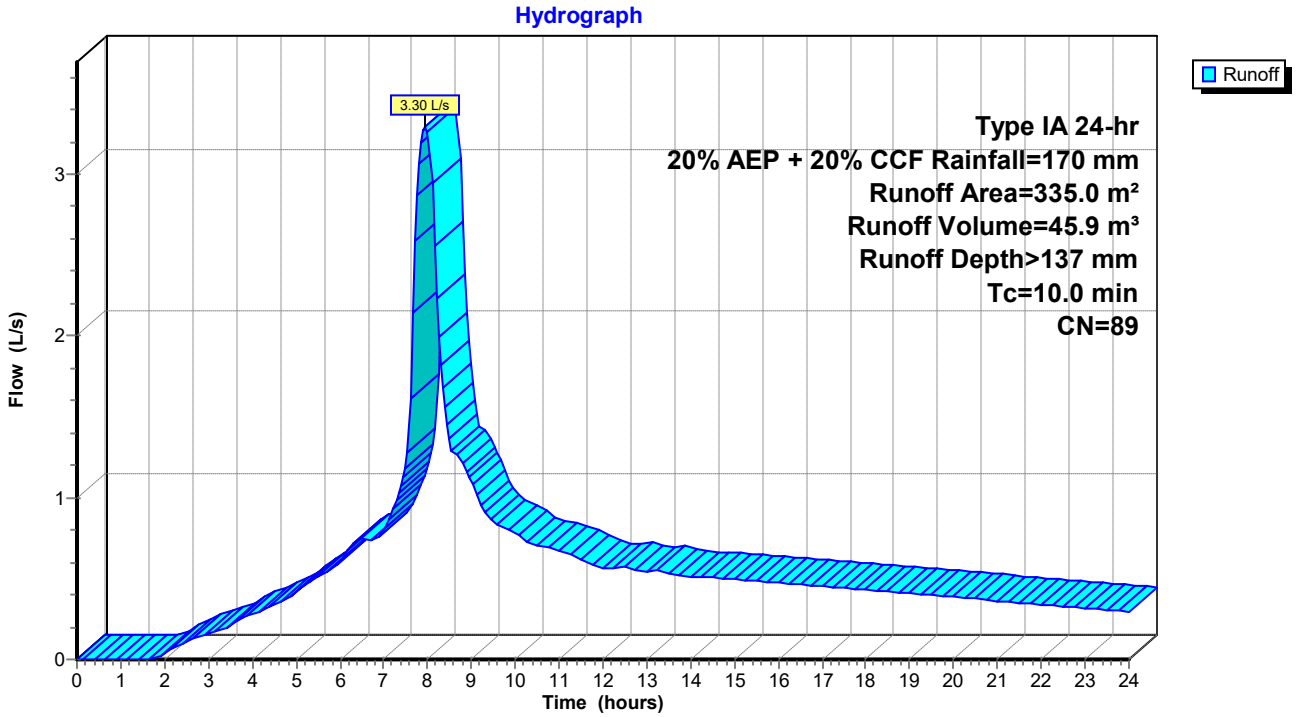
Runoff = 3.30 L/s @ 7.96 hrs, Volume= 45.9 m³, Depth> 137 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
335.0	89	Gravel roads, HSG C
335.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

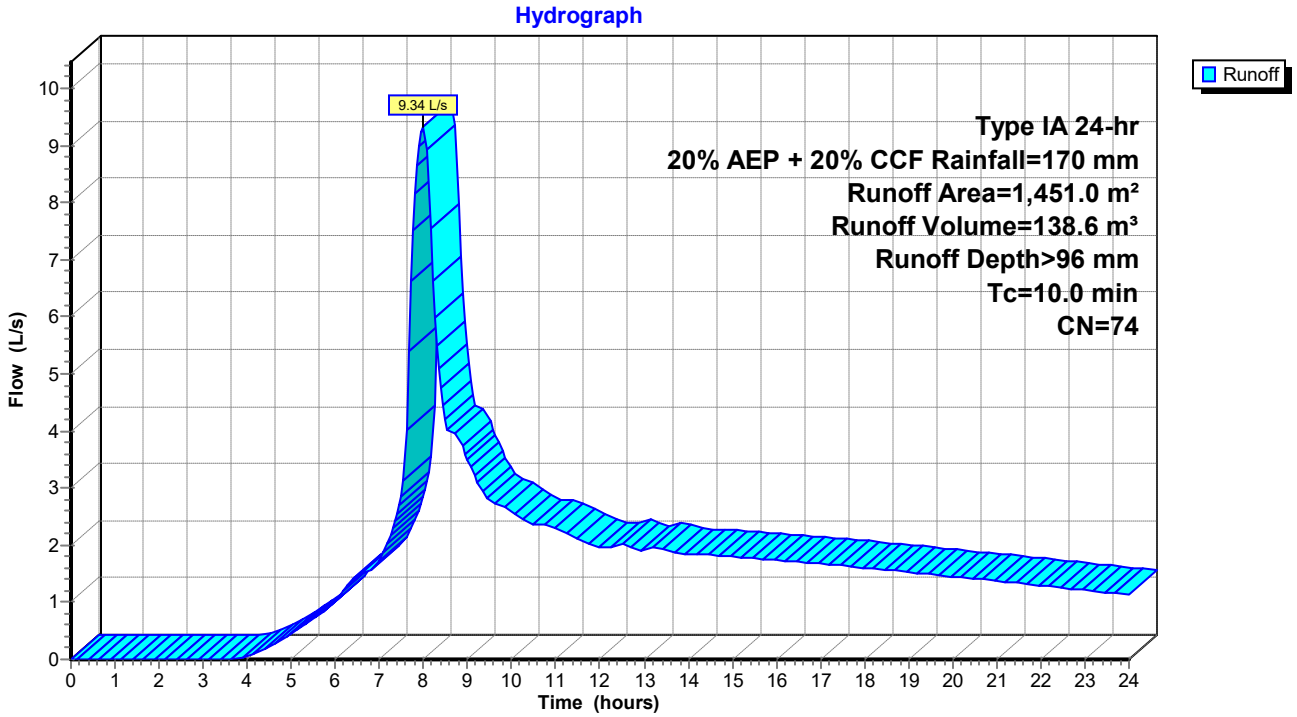
Runoff = 9.34 L/s @ 8.00 hrs, Volume= 138.6 m³, Depth> 96 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
1,451.0	74	>75% Grass cover, Good, HSG C
1,451.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Pond 47P: Existing 25,000L Rainwater Tank

Inflow Area = 214.0 m²,100.00% Impervious, Inflow Depth > 164 mm for 20% AEP + 20% CCF event
Inflow = 2.39 L/s @ 7.94 hrs, Volume= 35.0 m³
Outflow = 1.29 L/s @ 8.30 hrs, Volume= 34.8 m³, Atten= 46%, Lag= 21.6 min
Primary = 1.29 L/s @ 8.30 hrs, Volume= 34.8 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 0.488 m @ 8.30 hrs Surf.Area= 7.1 m² Storage= 3.5 m³

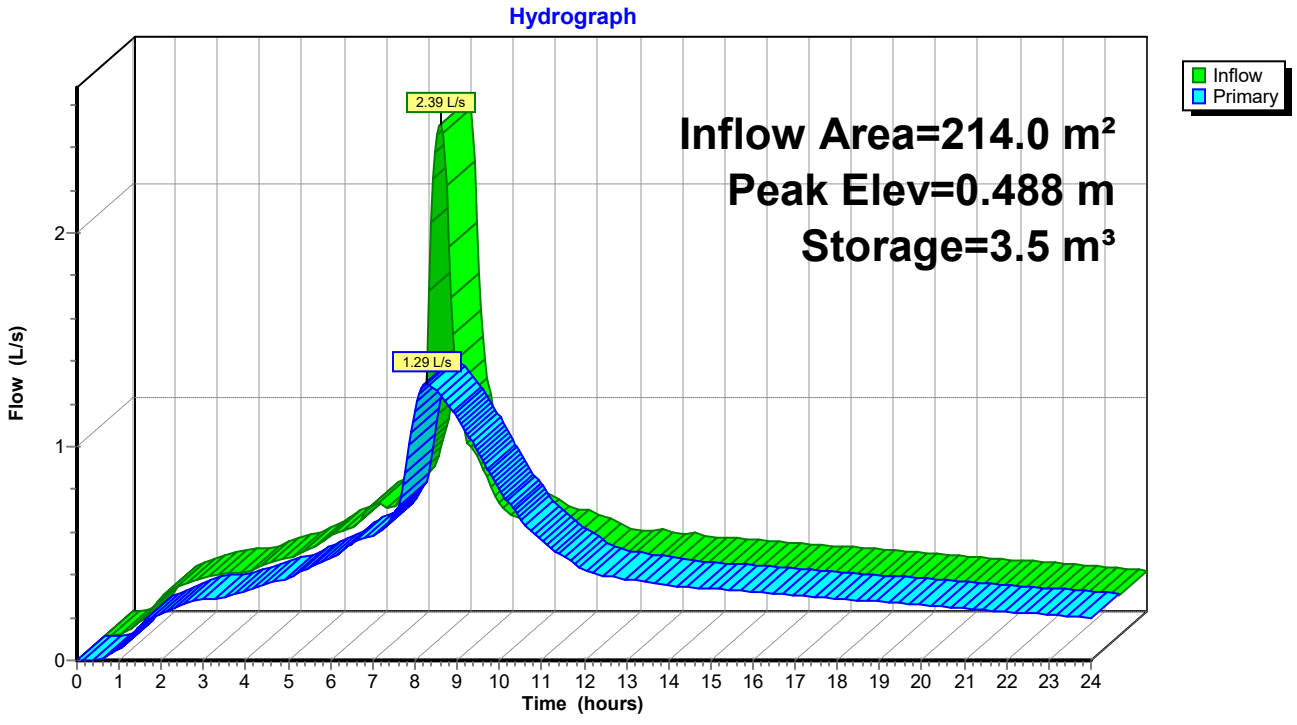
Plug-Flow detention time= 23.8 min calculated for 34.7 m³ (99% of inflow)
Center-of-Mass det. time= 19.7 min (671.1 - 651.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	18.4 m³	**3.00 mD x 2.60 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**30 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.29 L/s @ 8.30 hrs HW=0.488 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.29 L/s @ 1.83 m/s)

Pond 47P: Existing 25,000L Rainwater Tank

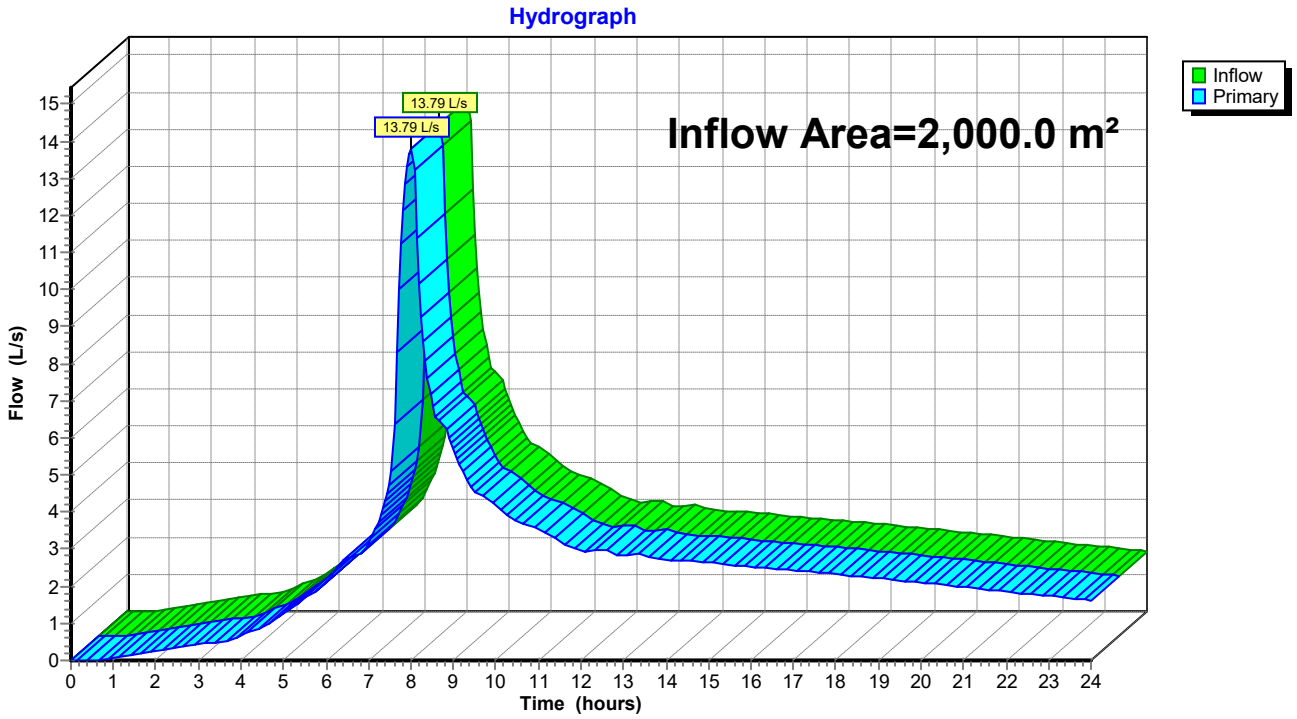


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 10.70% Impervious, Inflow Depth > 110 mm for 20% AEP + 20% CCF event
Inflow = 13.79 L/s @ 8.00 hrs, Volume= 219.3 m³
Primary = 13.79 L/s @ 8.00 hrs, Volume= 219.3 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=214.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=1.81 L/s 26.3 m³

Subcatchment 45S: Existing Driveway Runoff Area=335.0 m² 0.00% Impervious Runoff Depth>97 mm
Tc=10.0 min CN=89 Runoff=2.34 L/s 32.6 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,451.0 m² 0.00% Impervious Runoff Depth>61 mm
Tc=10.0 min CN=74 Runoff=5.66 L/s 89.1 m³

Pond 47P: Existing 25,000L Rainwater Tank Peak Elev=0.331 m Storage=2.3 m³ Inflow=1.81 L/s 26.3 m³
Outflow=1.06 L/s 26.1 m³

Link 35L: Post-Development Flows Inflow=8.95 L/s 147.8 m³
Primary=8.95 L/s 147.8 m³

Summary for Subcatchment 34S: Existing Roof Area

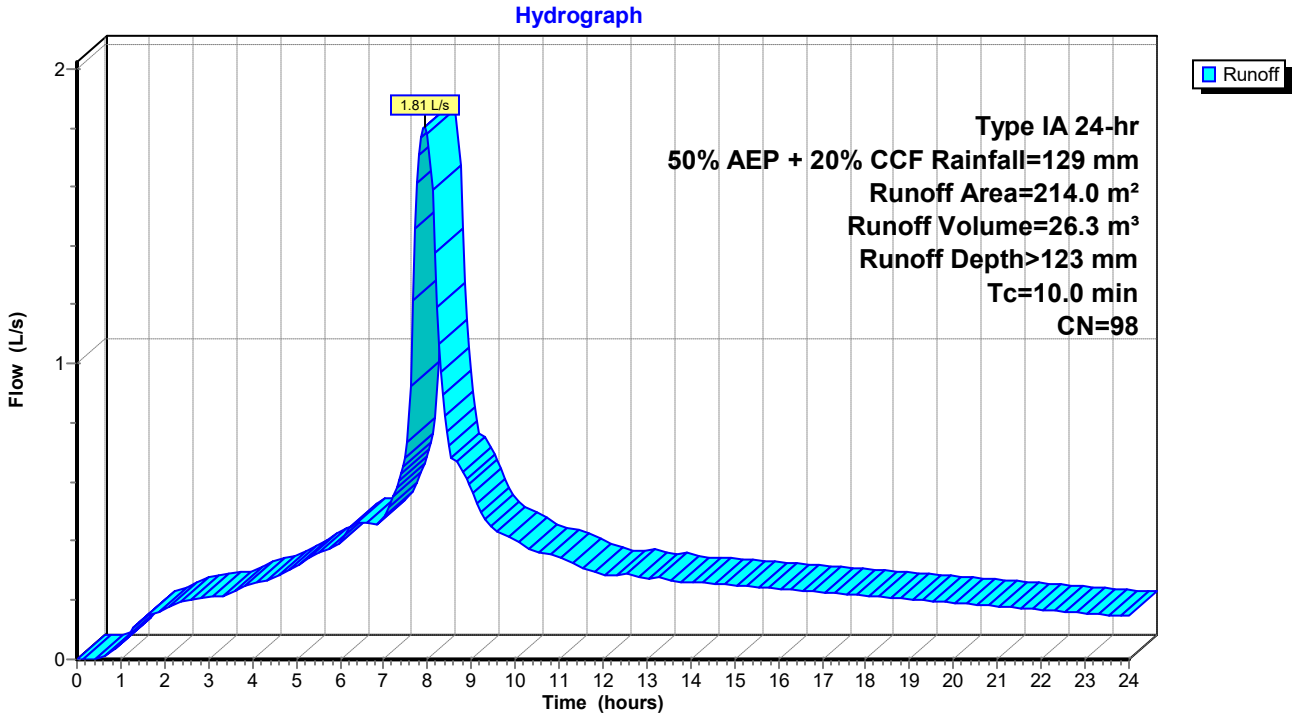
Runoff = 1.81 L/s @ 7.94 hrs, Volume= 26.3 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
214.0	98	Roofs, HSG C
214.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

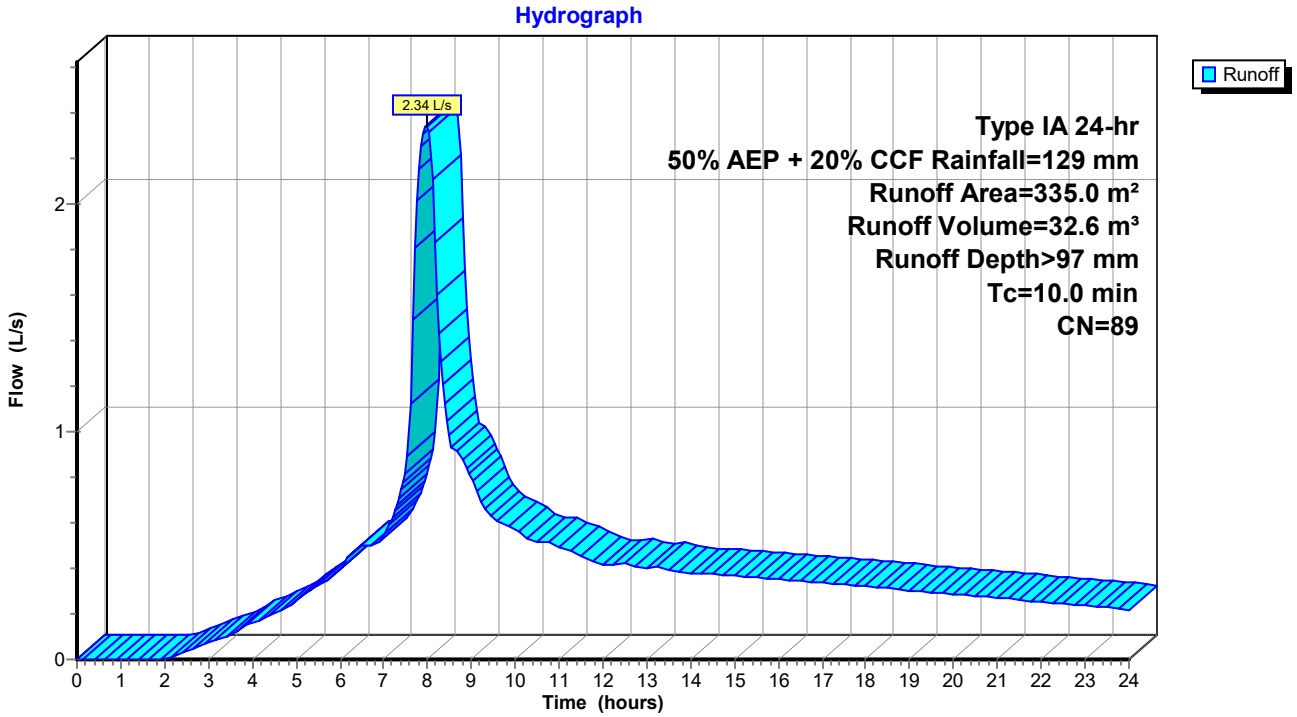
Runoff = 2.34 L/s @ 7.97 hrs, Volume= 32.6 m³, Depth> 97 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
335.0	89	Gravel roads, HSG C
335.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

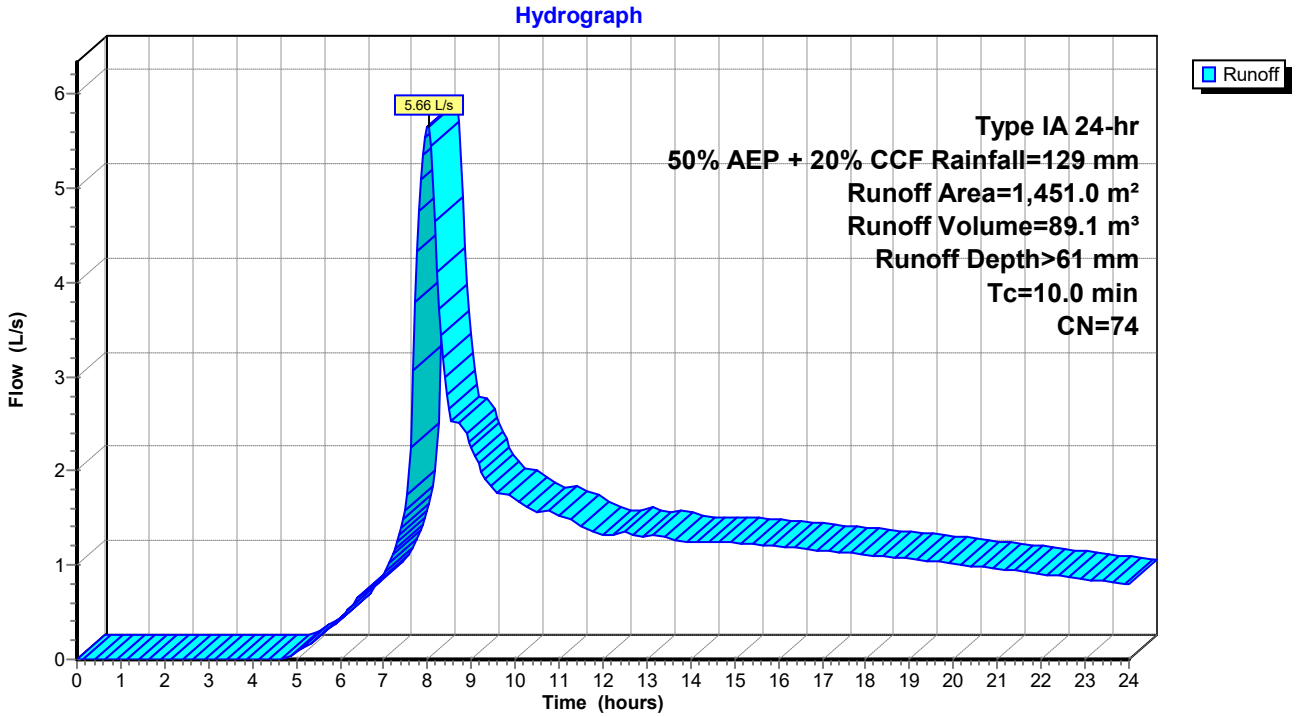
Runoff = 5.66 L/s @ 8.02 hrs, Volume= 89.1 m³, Depth> 61 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
1,451.0	74	>75% Grass cover, Good, HSG C
1,451.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Pond 47P: Existing 25,000L Rainwater Tank

Inflow Area = 214.0 m²,100.00% Impervious, Inflow Depth > 123 mm for 50% AEP + 20% CCF event
Inflow = 1.81 L/s @ 7.94 hrs, Volume= 26.3 m³
Outflow = 1.06 L/s @ 8.26 hrs, Volume= 26.1 m³, Atten= 42%, Lag= 19.2 min
Primary = 1.06 L/s @ 8.26 hrs, Volume= 26.1 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 0.331 m @ 8.26 hrs Surf.Area= 7.1 m² Storage= 2.3 m³

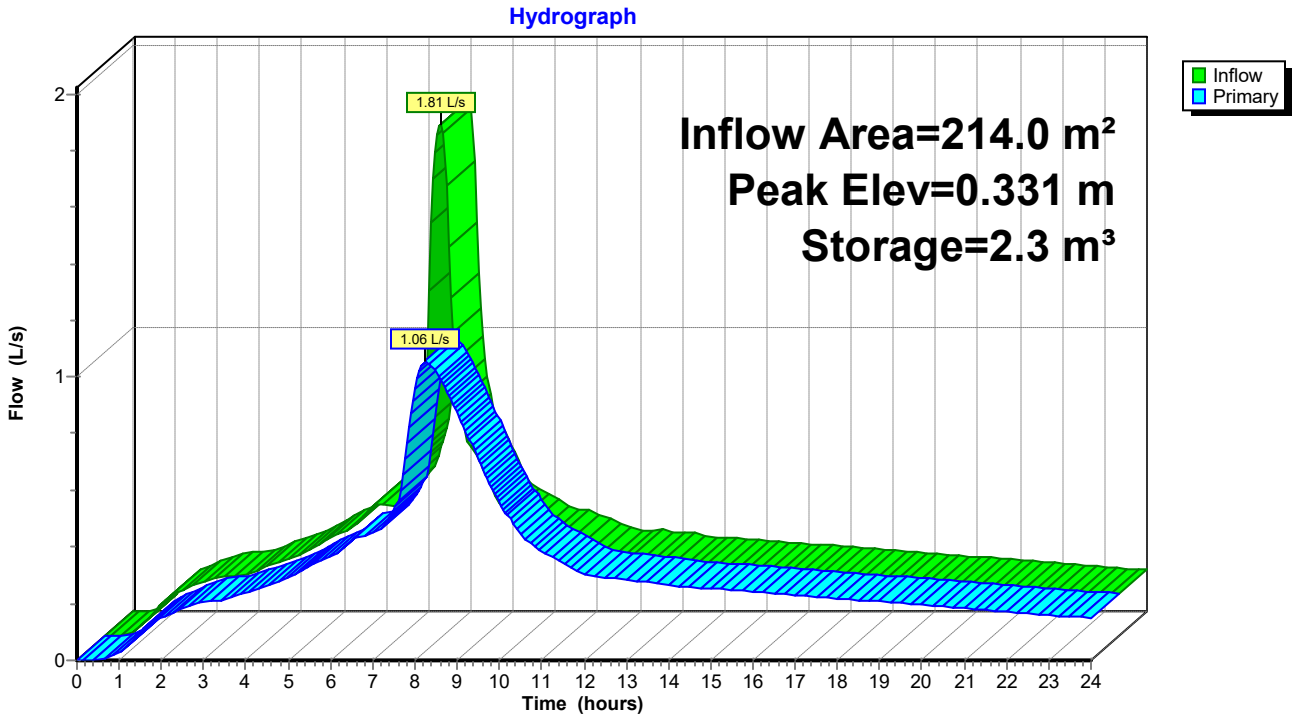
Plug-Flow detention time= 20.7 min calculated for 26.1 m³ (99% of inflow)
Center-of-Mass det. time= 16.6 min (672.9 - 656.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	18.4 m³	**3.00 mD x 2.60 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**30 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.06 L/s @ 8.26 hrs HW=0.331 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.06 L/s @ 1.49 m/s)

Pond 47P: Existing 25,000L Rainwater Tank

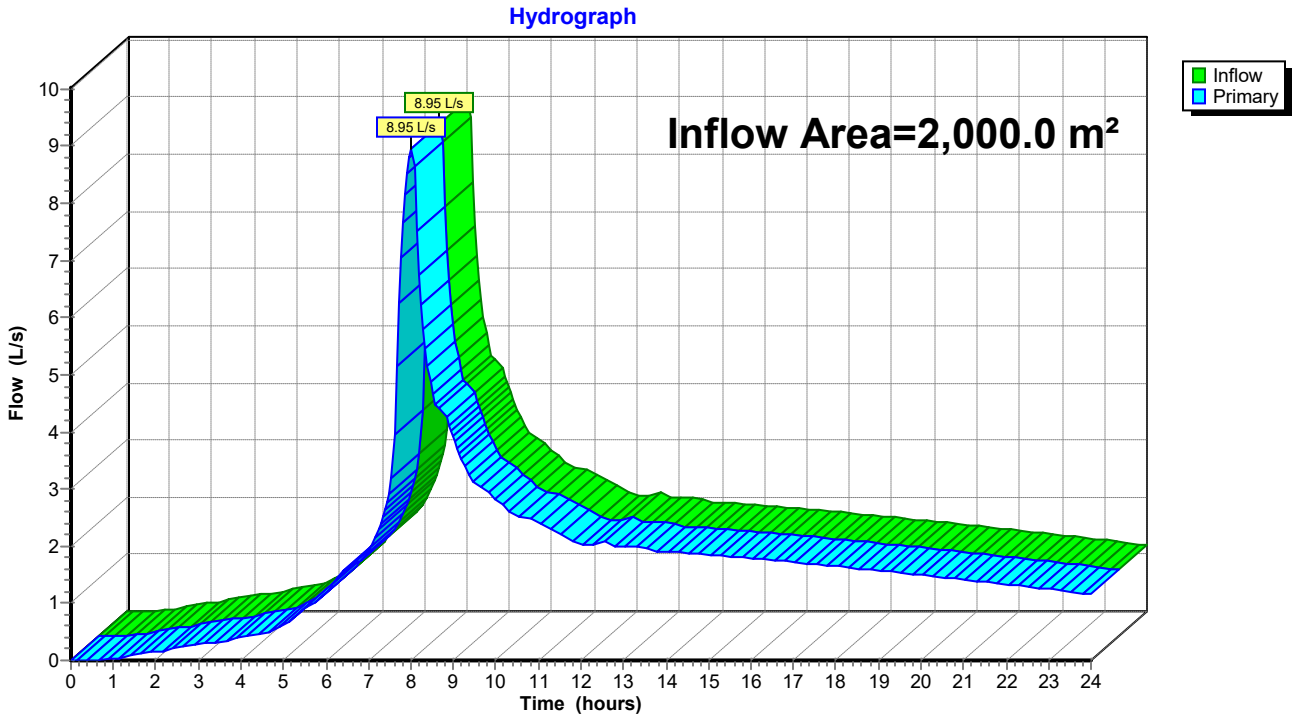


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 10.70% Impervious, Inflow Depth > 74 mm for 50% AEP + 20% CCF event
Inflow = 8.95 L/s @ 8.02 hrs, Volume= 147.8 m³
Primary = 8.95 L/s @ 8.02 hrs, Volume= 147.8 m³, Atten= 0%, Lag= 0.0 min

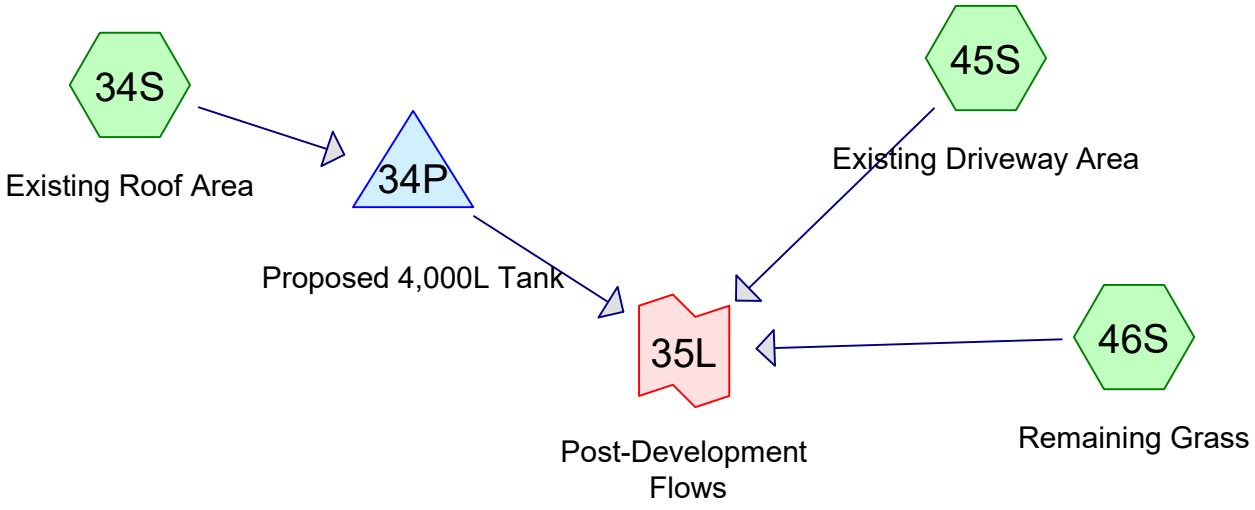
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



LOT 1: OPTION 2

Existing Impermeable Areas



Subcat Reach Pond Link

Routing Diagram for 140586 Lot 1
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Area Listing (selected nodes)

Area (sq-meters)	CN	Description (subcatchment-numbers)
1,451.0	74	>75% Grass cover, Good, HSG C (46S)
335.0	89	Gravel roads, HSG C (45S)
214.0	98	Roofs, HSG C (34S)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=214.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=2.39 L/s 35.0 m³

Subcatchment 45S: Existing Driveway Runoff Area=335.0 m² 0.00% Impervious Runoff Depth>137 mm
Tc=10.0 min CN=89 Runoff=3.30 L/s 45.9 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,451.0 m² 0.00% Impervious Runoff Depth>96 mm
Tc=10.0 min CN=74 Runoff=9.34 L/s 138.6 m³

Pond 34P: Proposed 4,000L Tank Peak Elev=1.663 m Storage=3.3 m³ Inflow=2.39 L/s 35.0 m³
Outflow=1.30 L/s 34.9 m³

Link 35L: Post-Development Flows Inflow=13.79 L/s 219.4 m³
Primary=13.79 L/s 219.4 m³

Summary for Subcatchment 34S: Existing Roof Area

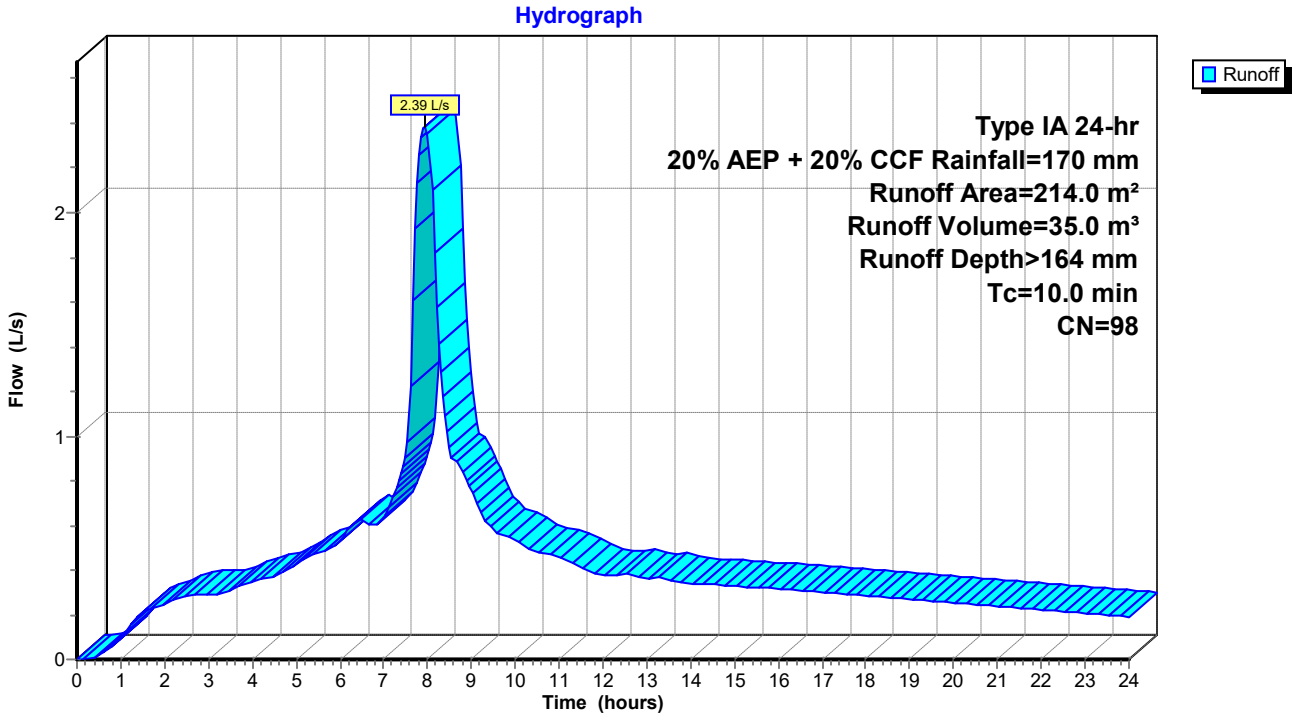
Runoff = 2.39 L/s @ 7.94 hrs, Volume= 35.0 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
214.0	98	Roofs, HSG C
214.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

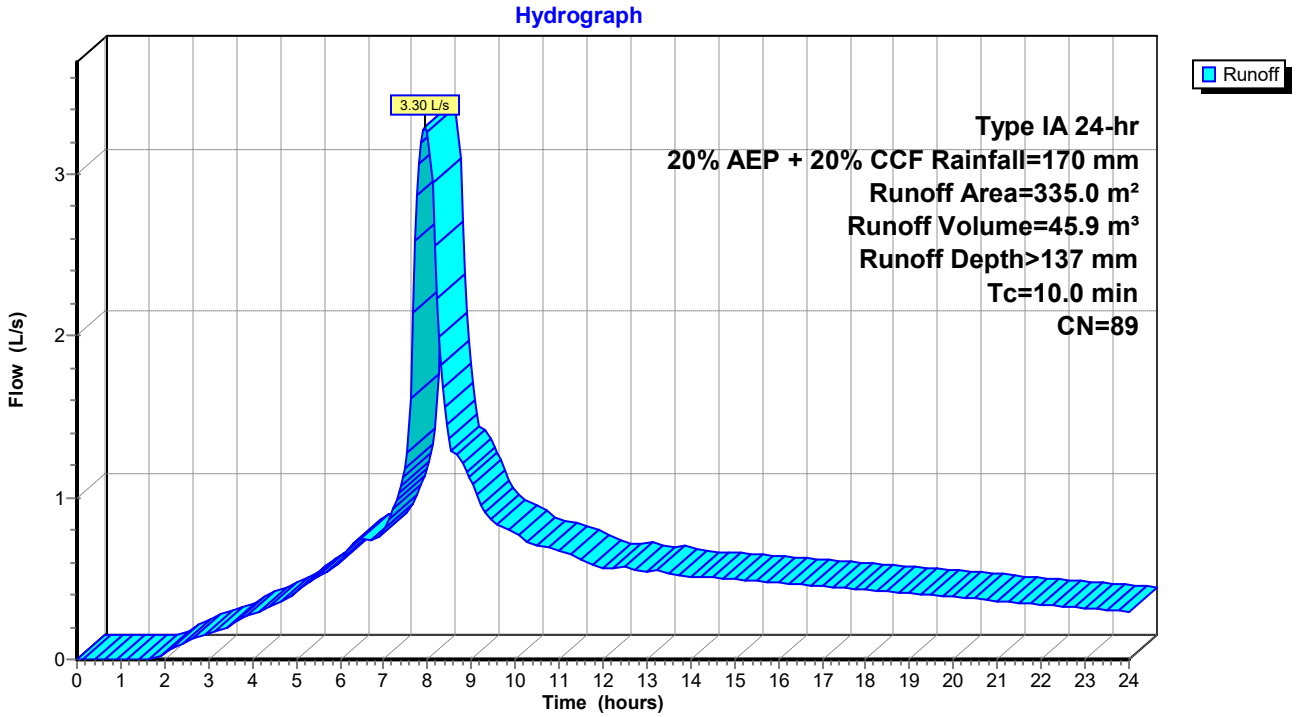
Runoff = 3.30 L/s @ 7.96 hrs, Volume= 45.9 m³, Depth> 137 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
335.0	89	Gravel roads, HSG C
335.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

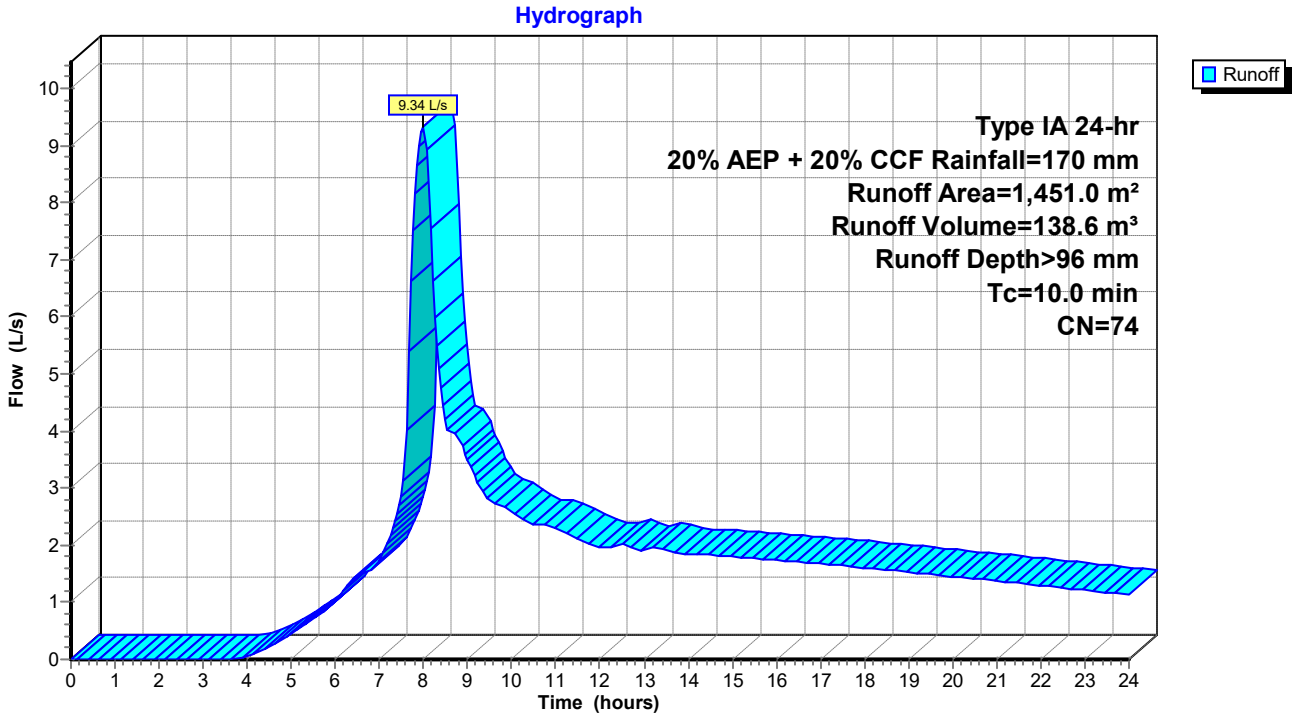
Runoff = 9.34 L/s @ 8.00 hrs, Volume= 138.6 m³, Depth> 96 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
1,451.0	74	>75% Grass cover, Good, HSG C
1,451.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Pond 34P: Proposed 4,000L Tank

Inflow Area = 214.0 m²,100.00% Impervious, Inflow Depth > 164 mm for 20% AEP + 20% CCF event
Inflow = 2.39 L/s @ 7.94 hrs, Volume= 35.0 m³
Outflow = 1.30 L/s @ 8.30 hrs, Volume= 34.9 m³, Atten= 46%, Lag= 21.5 min
Primary = 1.30 L/s @ 8.30 hrs, Volume= 34.9 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.663 m @ 8.30 hrs Surf.Area= 2.0 m² Storage= 3.3 m³

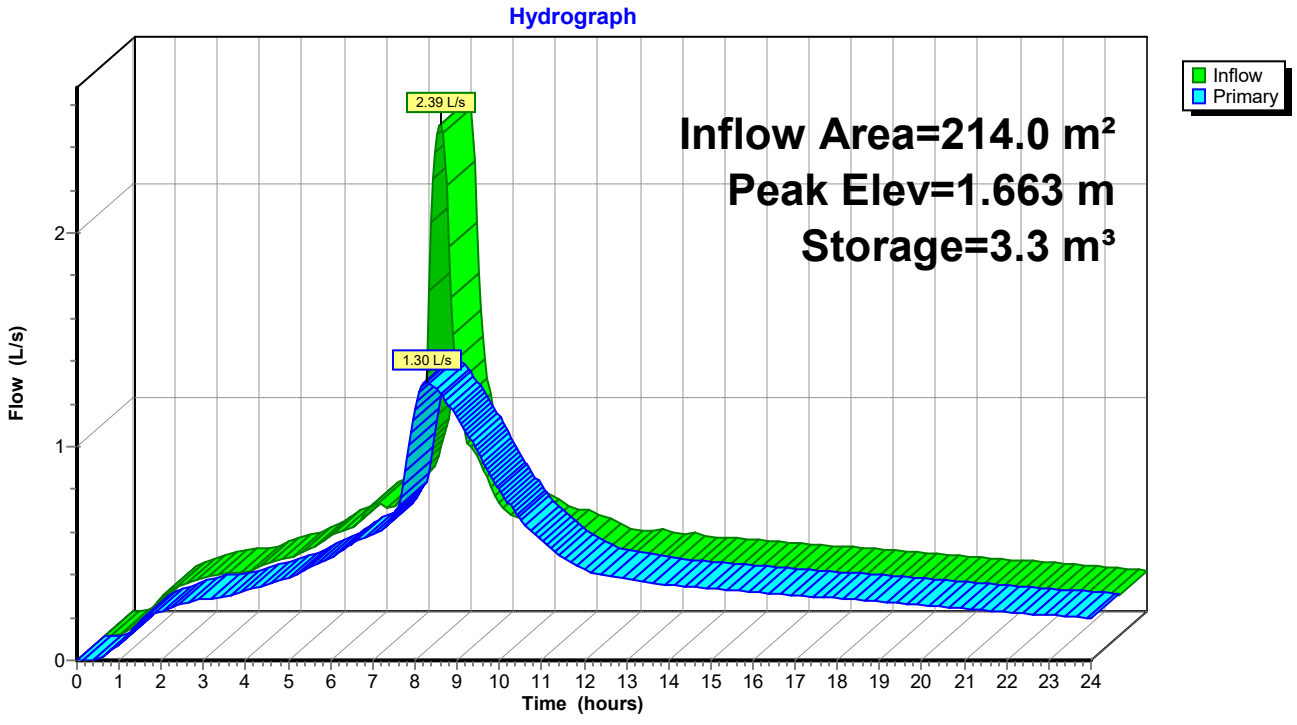
Plug-Flow detention time= 20.0 min calculated for 34.8 m³ (100% of inflow)
Center-of-Mass det. time= 17.7 min (669.2 - 651.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	4.4 m³	**1.60 mD x 2.20 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**22 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.30 L/s @ 8.30 hrs HW=1.663 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.30 L/s @ 3.42 m/s)

Pond 34P: Proposed 4,000L Tank

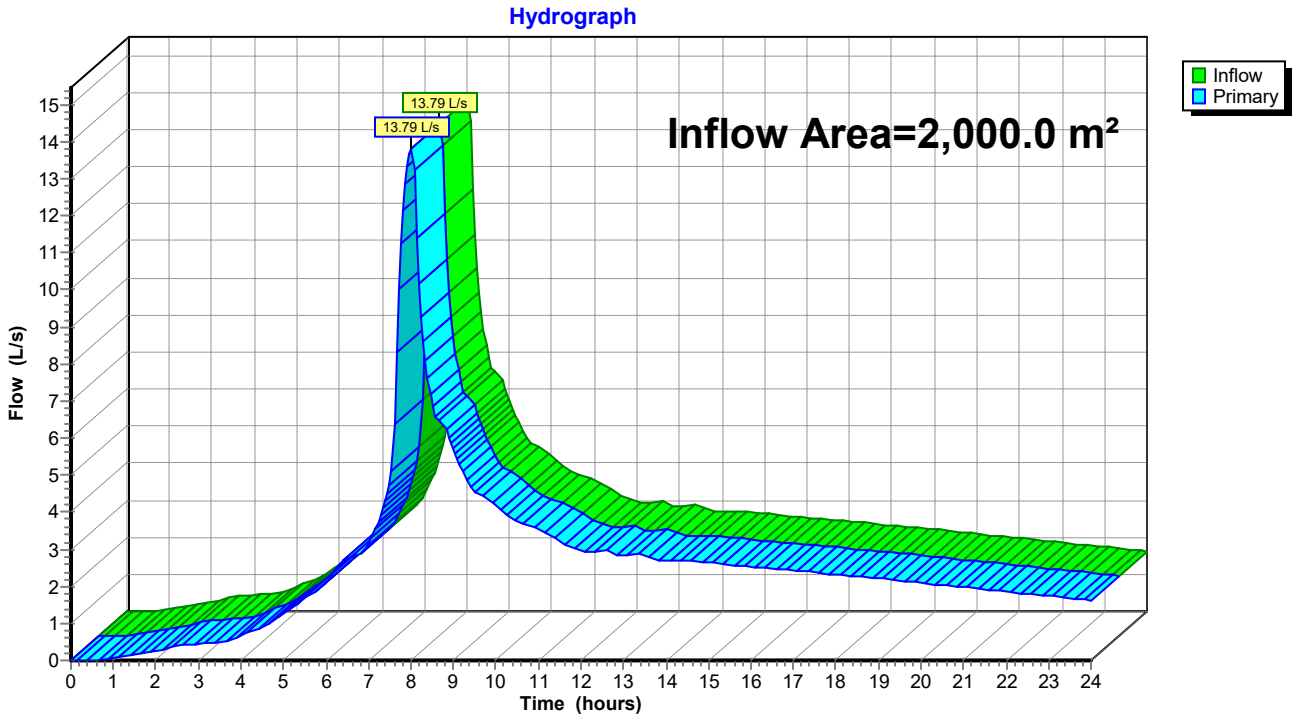


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 10.70% Impervious, Inflow Depth > 110 mm for 20% AEP + 20% CCF event
Inflow = 13.79 L/s @ 8.00 hrs, Volume= 219.4 m³
Primary = 13.79 L/s @ 8.00 hrs, Volume= 219.4 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=214.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=1.81 L/s 26.3 m³

Subcatchment 45S: Existing Driveway Runoff Area=335.0 m² 0.00% Impervious Runoff Depth>97 mm
Tc=10.0 min CN=89 Runoff=2.34 L/s 32.6 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,451.0 m² 0.00% Impervious Runoff Depth>61 mm
Tc=10.0 min CN=74 Runoff=5.66 L/s 89.1 m³

Pond 34P: Proposed 4,000L Tank Peak Elev=1.112 m Storage=2.2 m³ Inflow=1.81 L/s 26.3 m³
Outflow=1.06 L/s 26.2 m³

Link 35L: Post-Development Flows Inflow=8.95 L/s 147.9 m³
Primary=8.95 L/s 147.9 m³

Summary for Subcatchment 34S: Existing Roof Area

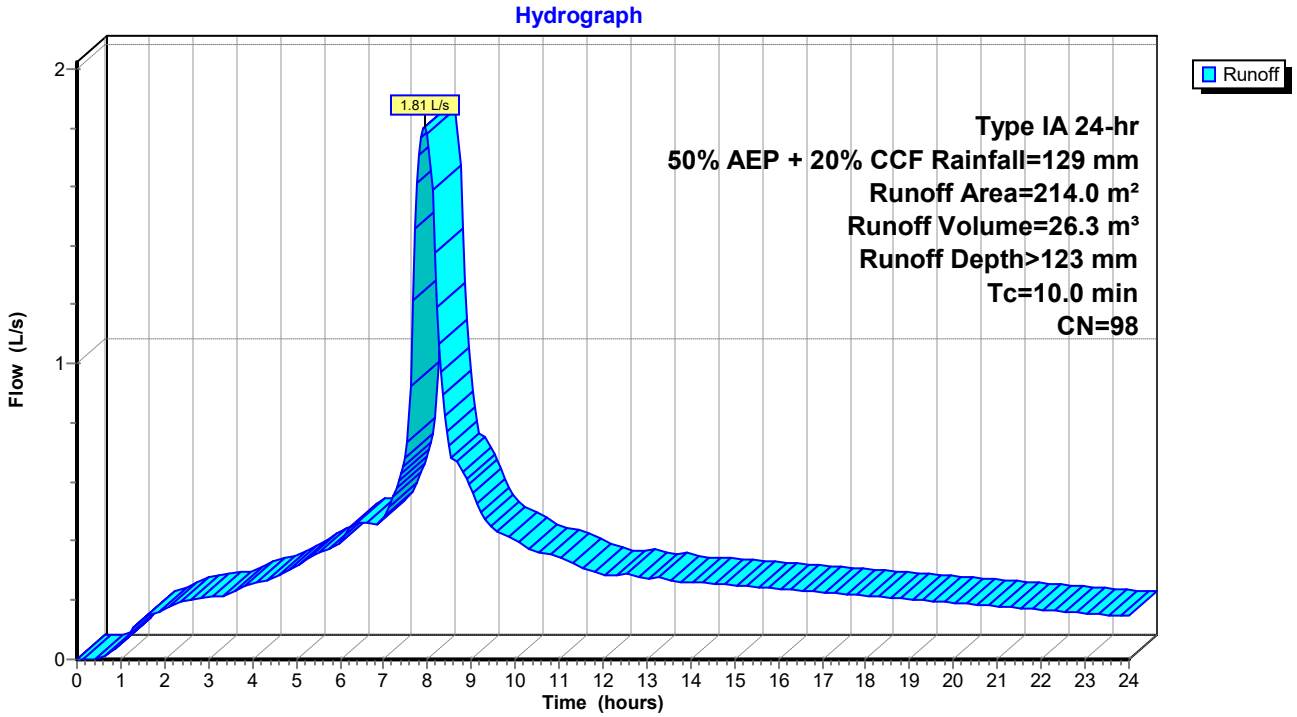
Runoff = 1.81 L/s @ 7.94 hrs, Volume= 26.3 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
214.0	98	Roofs, HSG C
214.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

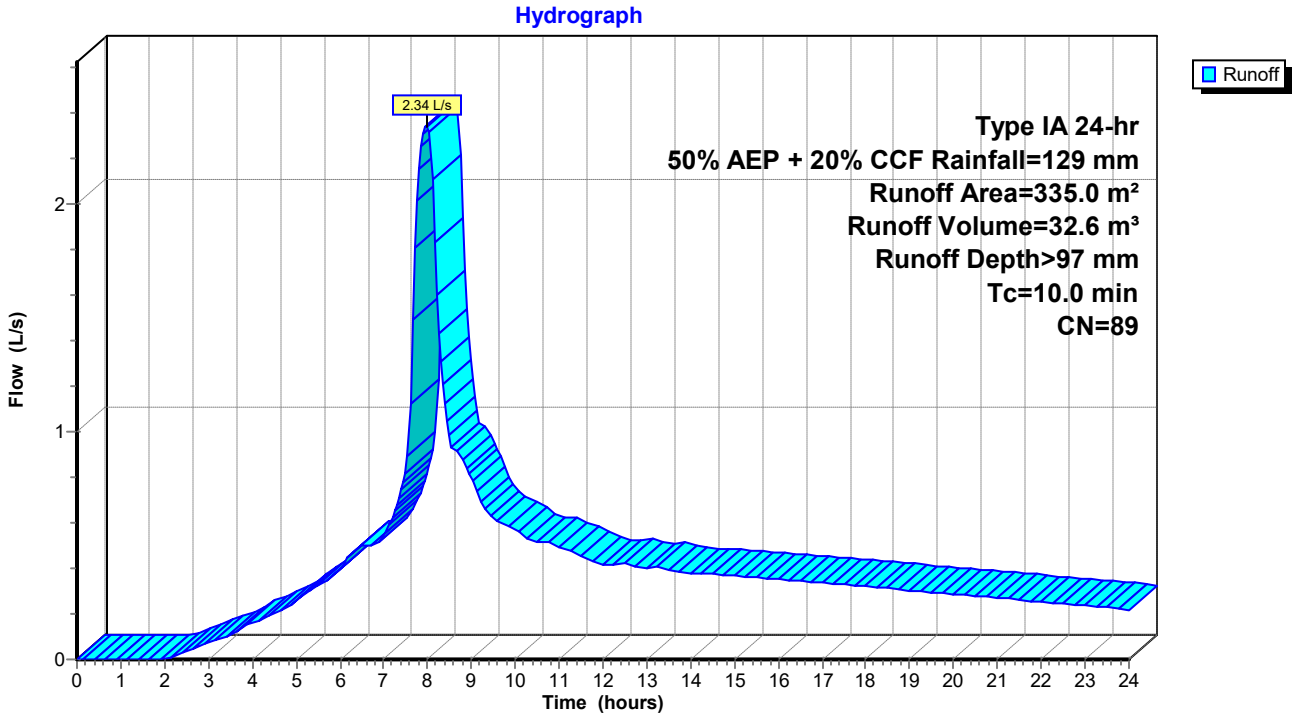
Runoff = 2.34 L/s @ 7.97 hrs, Volume= 32.6 m³, Depth> 97 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
335.0	89	Gravel roads, HSG C
335.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

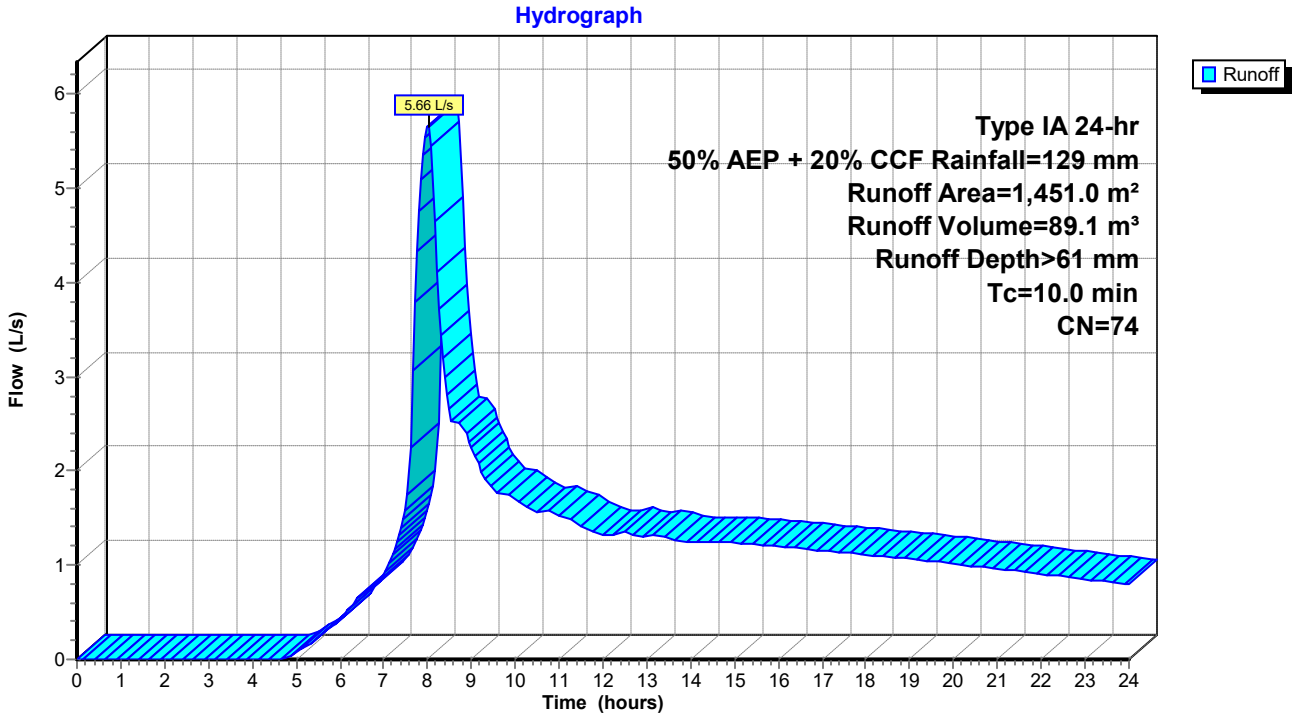
Runoff = 5.66 L/s @ 8.02 hrs, Volume= 89.1 m³, Depth> 61 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
1,451.0	74	>75% Grass cover, Good, HSG C
1,451.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Pond 34P: Proposed 4,000L Tank

Inflow Area = 214.0 m²,100.00% Impervious, Inflow Depth > 123 mm for 50% AEP + 20% CCF event
Inflow = 1.81 L/s @ 7.94 hrs, Volume= 26.3 m³
Outflow = 1.06 L/s @ 8.26 hrs, Volume= 26.2 m³, Atten= 41%, Lag= 19.1 min
Primary = 1.06 L/s @ 8.26 hrs, Volume= 26.2 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.112 m @ 8.26 hrs Surf.Area= 2.0 m² Storage= 2.2 m³

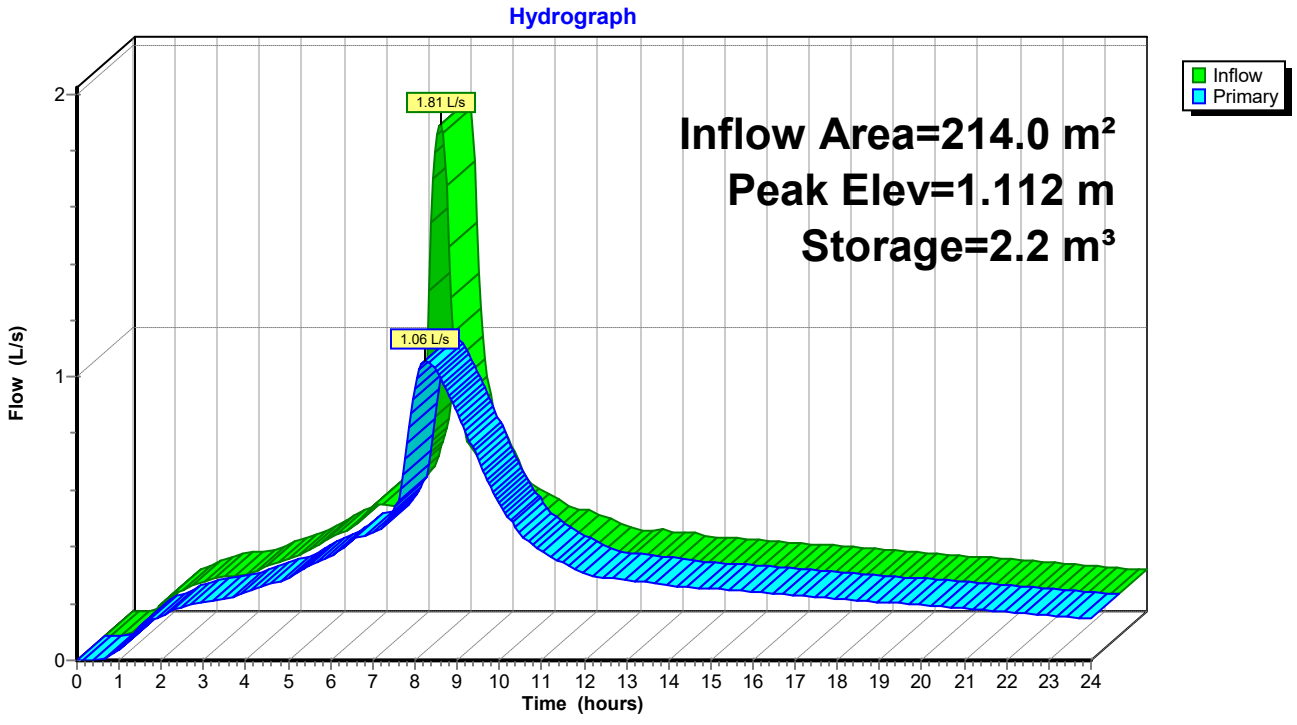
Plug-Flow detention time= 15.9 min calculated for 26.2 m³ (100% of inflow)
Center-of-Mass det. time= 13.9 min (670.3 - 656.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	4.4 m³	**1.60 mD x 2.20 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**22 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.06 L/s @ 8.26 hrs HW=1.112 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.06 L/s @ 2.79 m/s)

Pond 34P: Proposed 4,000L Tank

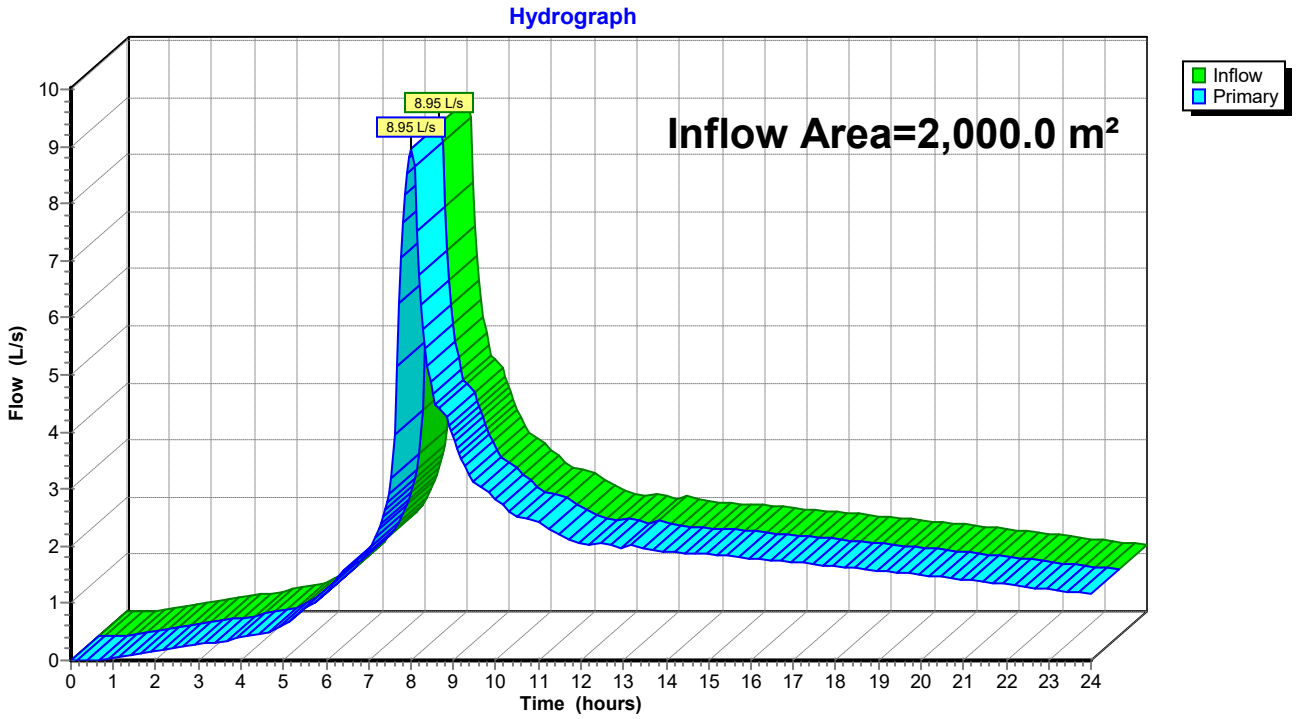


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 10.70% Impervious, Inflow Depth > 74 mm for 50% AEP + 20% CCF event
Inflow = 8.95 L/s @ 8.02 hrs, Volume= 147.9 m³
Primary = 8.95 L/s @ 8.02 hrs, Volume= 147.9 m³, Atten= 0%, Lag= 0.0 min

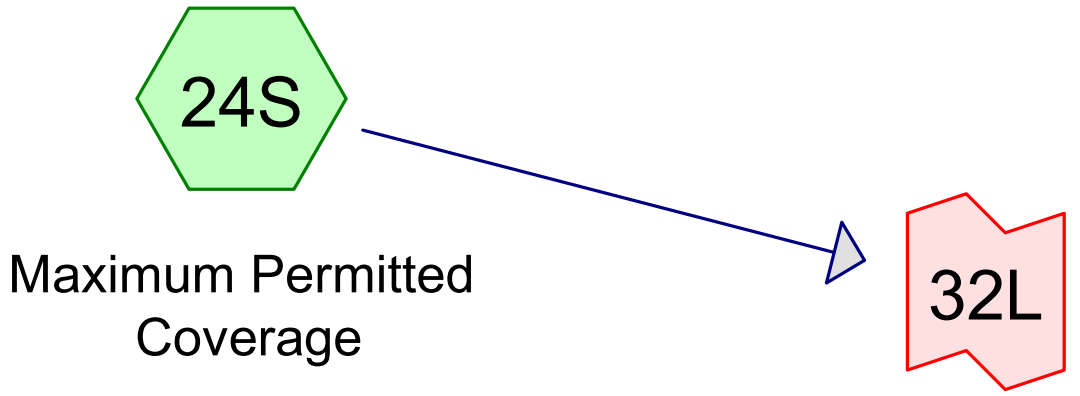
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



LOT 2

Permitted Peak Flows



Maximum Permitted Coverage

Maximum Permitted Peak Flows

Subcat Reach Pond Link

Routing Diagram for 140586 Lot 2
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 24S: Maximum Runoff Area=2,000.0 m² 12.50% Impervious Runoff Depth>104 mm
Tc=10.0 min CN=77 Runoff=14.28 L/s 207.1 m³

Link 32L: Maximum Permitted Peak Flows Inflow=14.28 L/s 207.1 m³
Primary=14.28 L/s 207.1 m³

Summary for Subcatchment 24S: Maximum Permitted Coverage

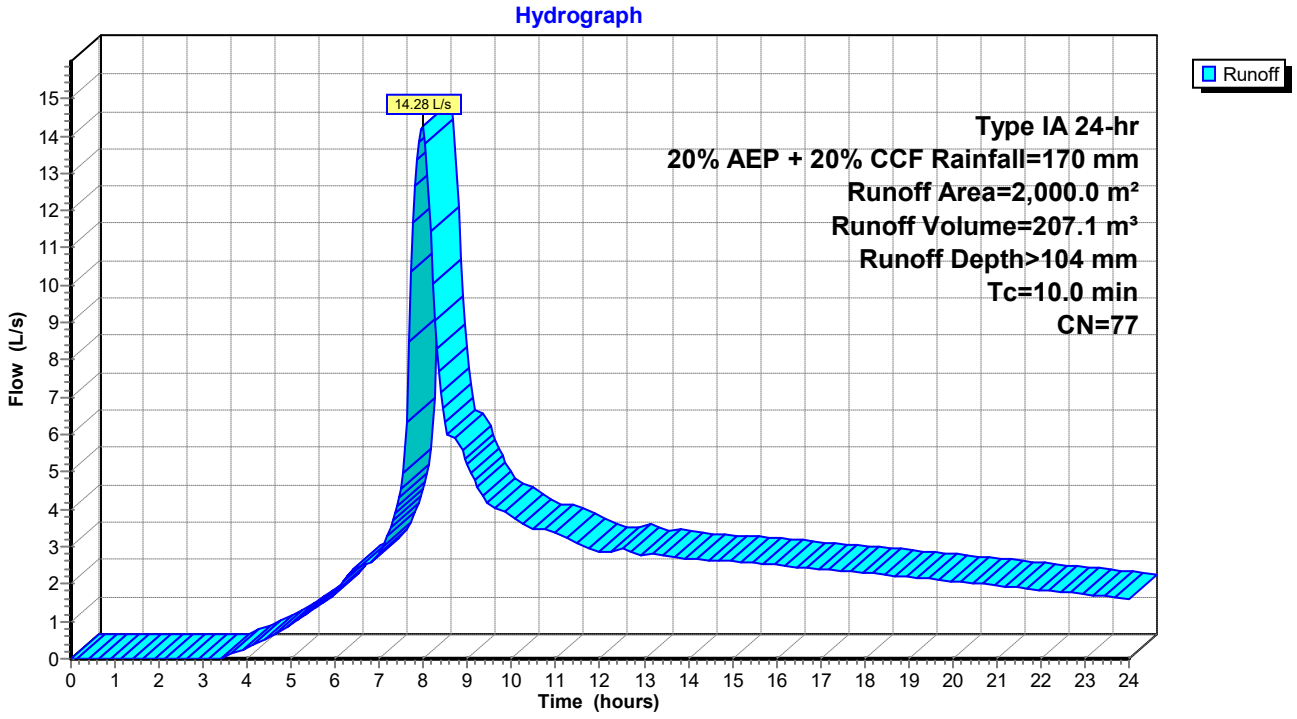
Runoff = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³, Depth> 104 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
1,750.0	74	>75% Grass cover, Good, HSG C
2,000.0	77	Weighted Average
1,750.0		87.50% Pervious Area
250.0		12.50% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 24S: Maximum Permitted Coverage

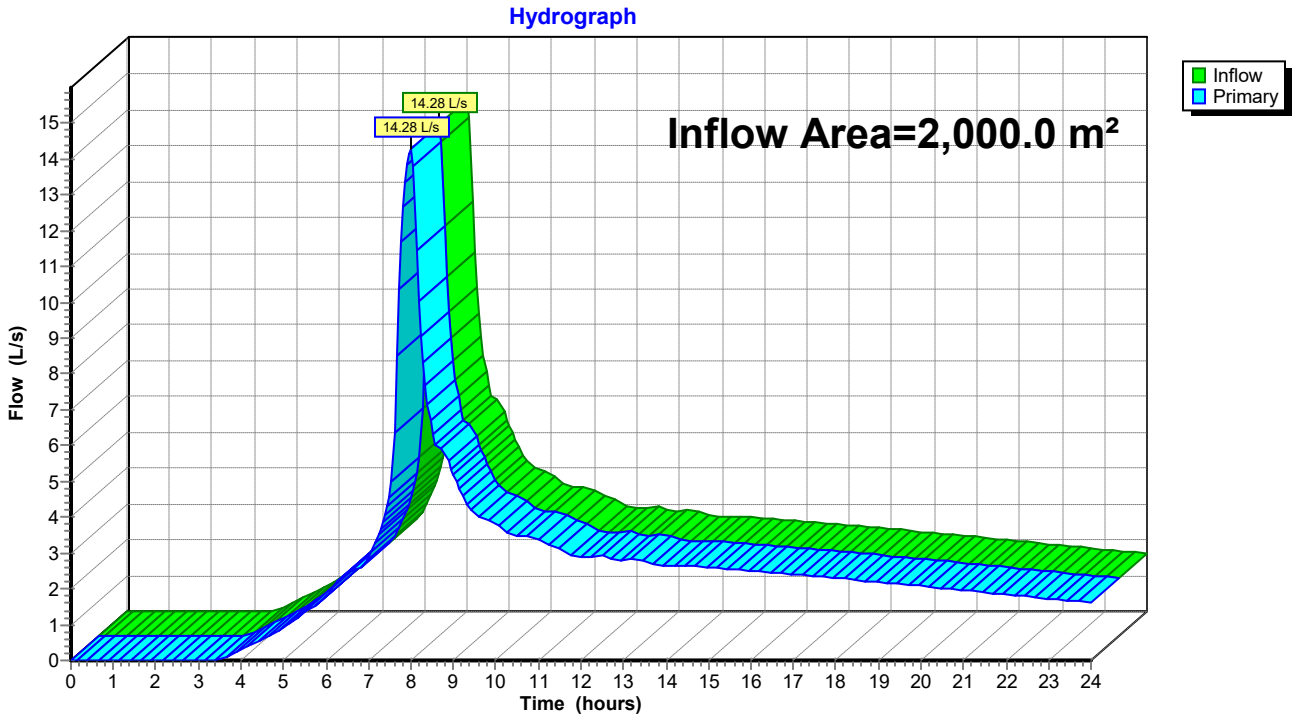


Summary for Link 32L: Maximum Permitted Peak Flows

Inflow Area = 2,000.0 m², 12.50% Impervious, Inflow Depth > 104 mm for 20% AEP + 20% CCF event
Inflow = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³
Primary = 14.28 L/s @ 7.99 hrs, Volume= 207.1 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 32L: Maximum Permitted Peak Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 24S: Maximum Runoff Area=2,000.0 m² 12.50% Impervious Runoff Depth>68 mm
Tc=10.0 min CN=77 Runoff=8.98 L/s 136.1 m³

Link 32L: Maximum Permitted Peak Flows Inflow=8.98 L/s 136.1 m³
Primary=8.98 L/s 136.1 m³

Summary for Subcatchment 24S: Maximum Permitted Coverage

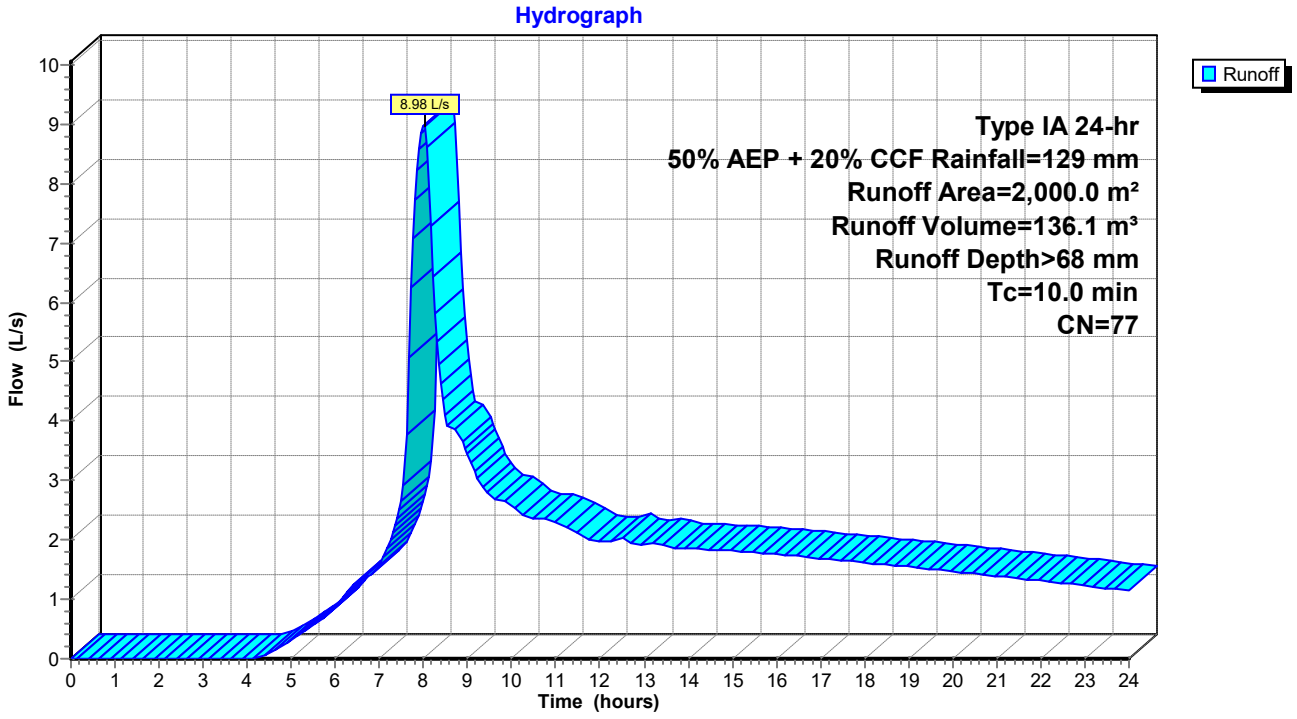
Runoff = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³, Depth> 68 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
1,750.0	74	>75% Grass cover, Good, HSG C
2,000.0	77	Weighted Average
1,750.0		87.50% Pervious Area
250.0		12.50% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 24S: Maximum Permitted Coverage

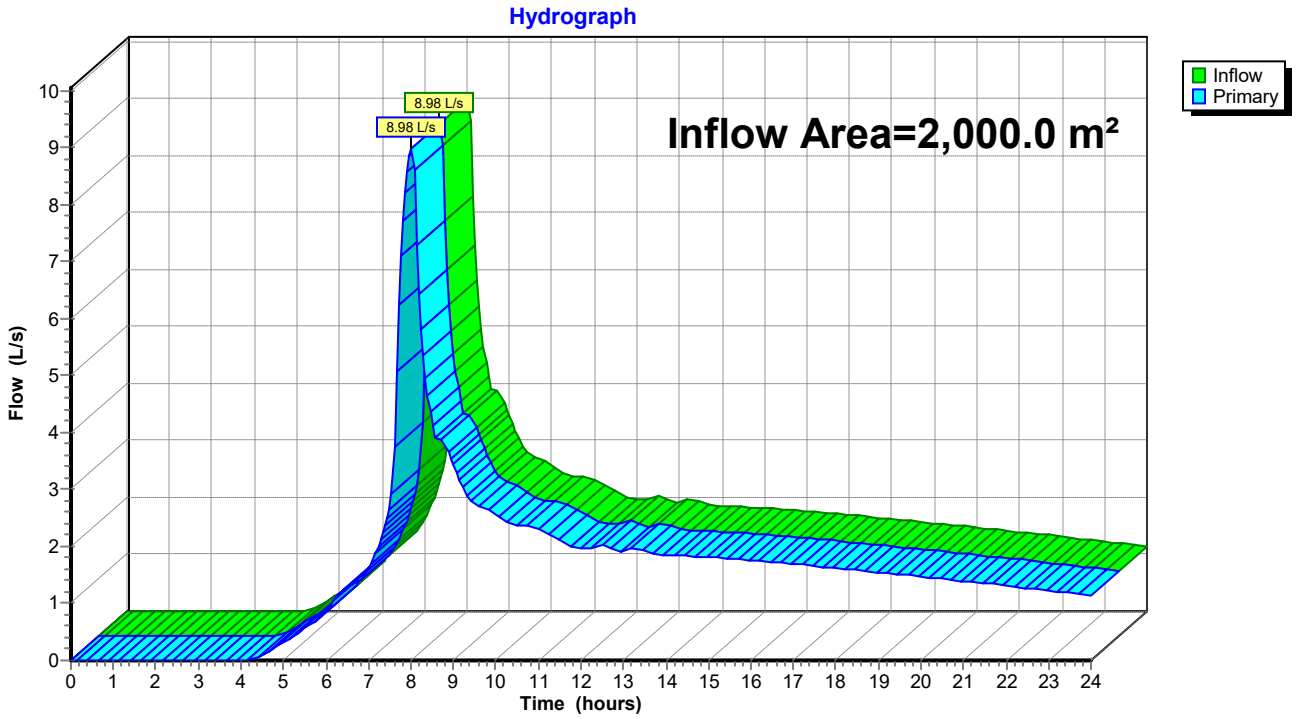


Summary for Link 32L: Maximum Permitted Peak Flows

Inflow Area = 2,000.0 m², 12.50% Impervious, Inflow Depth > 68 mm for 50% AEP + 20% CCF event
Inflow = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³
Primary = 8.98 L/s @ 8.01 hrs, Volume= 136.1 m³, Atten= 0%, Lag= 0.0 min

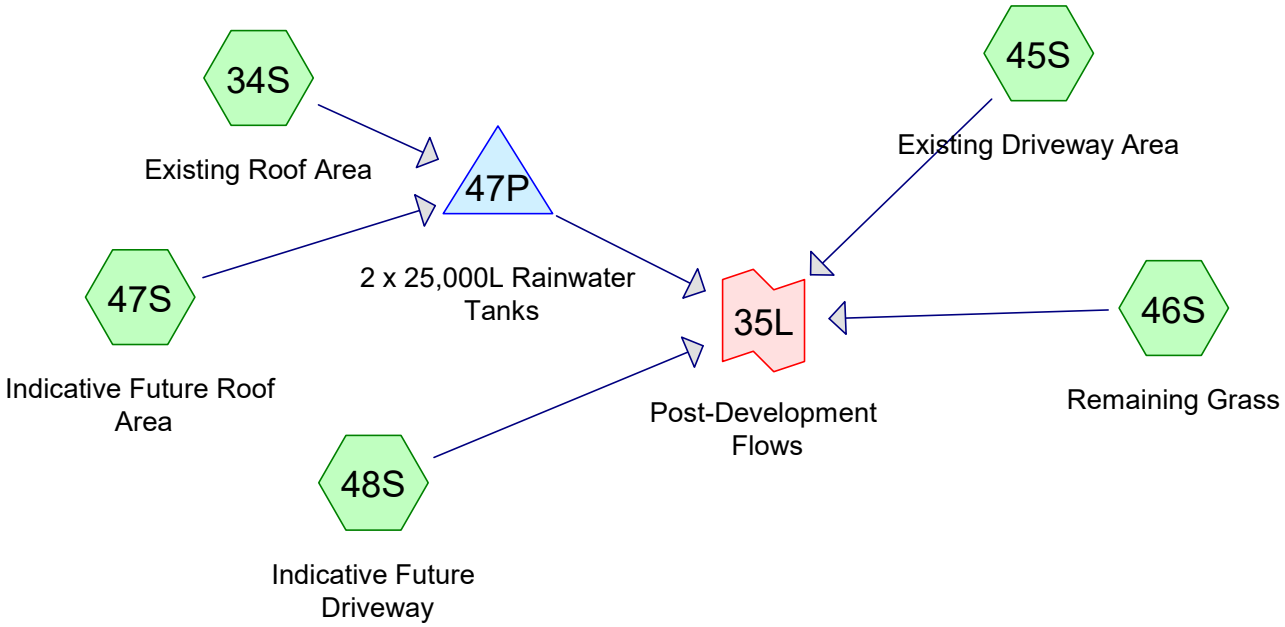
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 32L: Maximum Permitted Peak Flows



LOT 2: OPTION 1

Indicative Future Impermeable Areas



Subcat Reach Pond Link

Routing Diagram for 140586 Lot 2
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=101.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.13 L/s 16.5 m³

Subcatchment 45S: Existing Driveway Runoff Area=203.0 m² 0.00% Impervious Runoff Depth>137 mm
Tc=10.0 min CN=89 Runoff=2.00 L/s 27.8 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,346.0 m² 0.00% Impervious Runoff Depth>96 mm
Tc=10.0 min CN=74 Runoff=8.66 L/s 128.6 m³

Subcatchment 47S: Indicative Future Runoff Area=250.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=2.79 L/s 40.9 m³

Subcatchment 48S: Indicative Future Runoff Area=100.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.12 L/s 16.4 m³

Pond 47P: 2 x 25,000L Rainwater Tanks Peak Elev=0.351 m Storage=6.8 m³ Inflow=3.92 L/s 57.4 m³
Outflow=1.92 L/s 56.8 m³

Link 35L: Post-Development Flows Inflow=13.48 L/s 229.6 m³
Primary=13.48 L/s 229.6 m³

Summary for Subcatchment 34S: Existing Roof Area

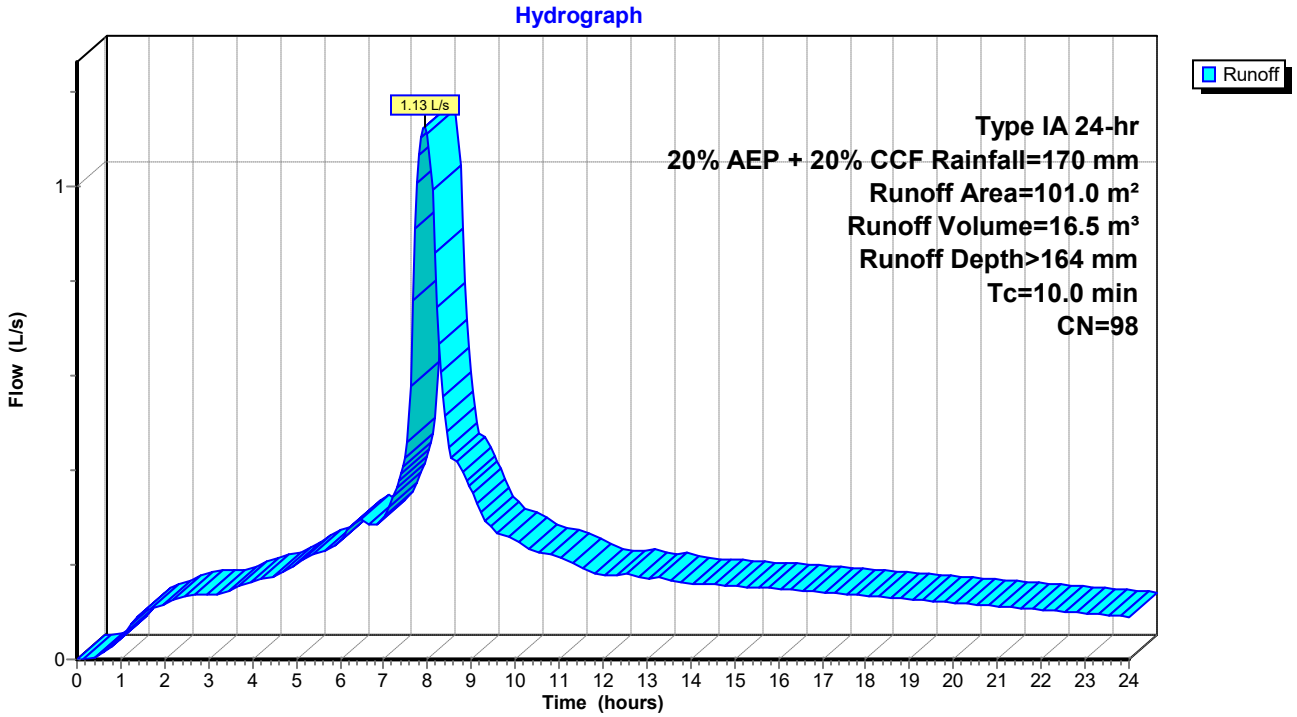
Runoff = 1.13 L/s @ 7.94 hrs, Volume= 16.5 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
101.0	98	Roofs, HSG C
101.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

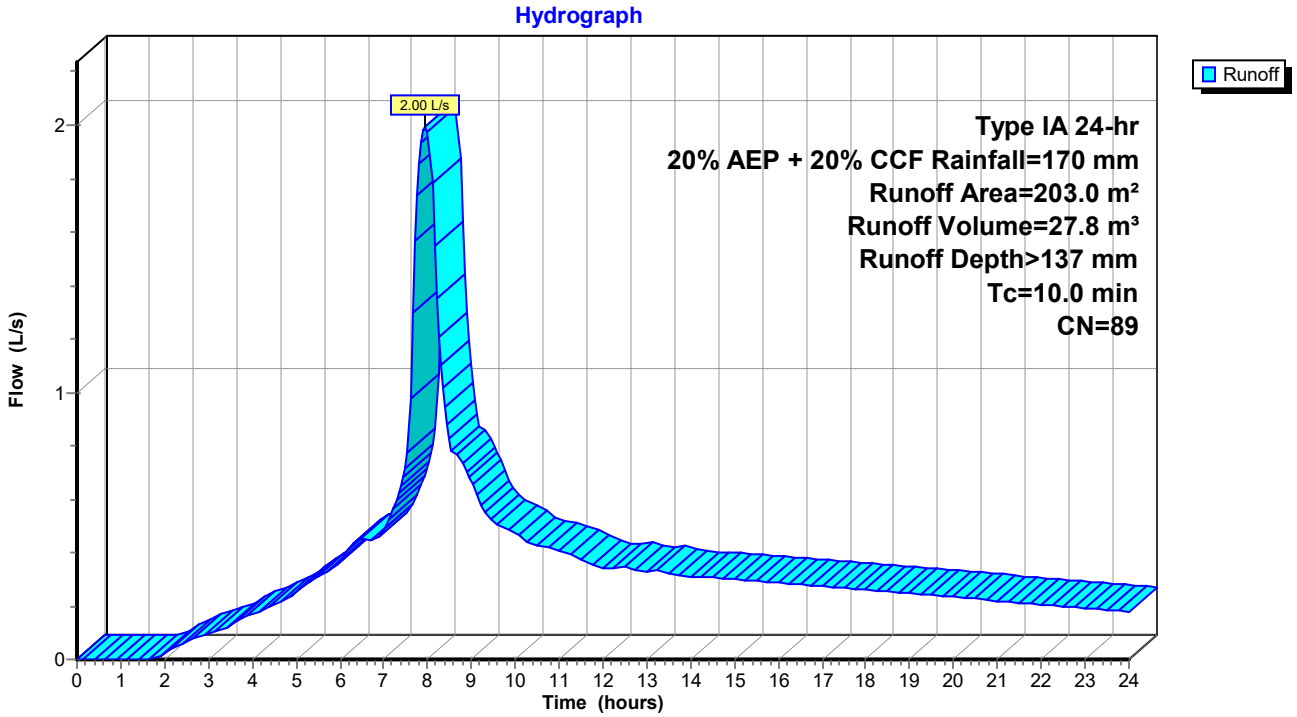
Runoff = 2.00 L/s @ 7.96 hrs, Volume= 27.8 m³, Depth> 137 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
203.0	89	Gravel roads, HSG C
203.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

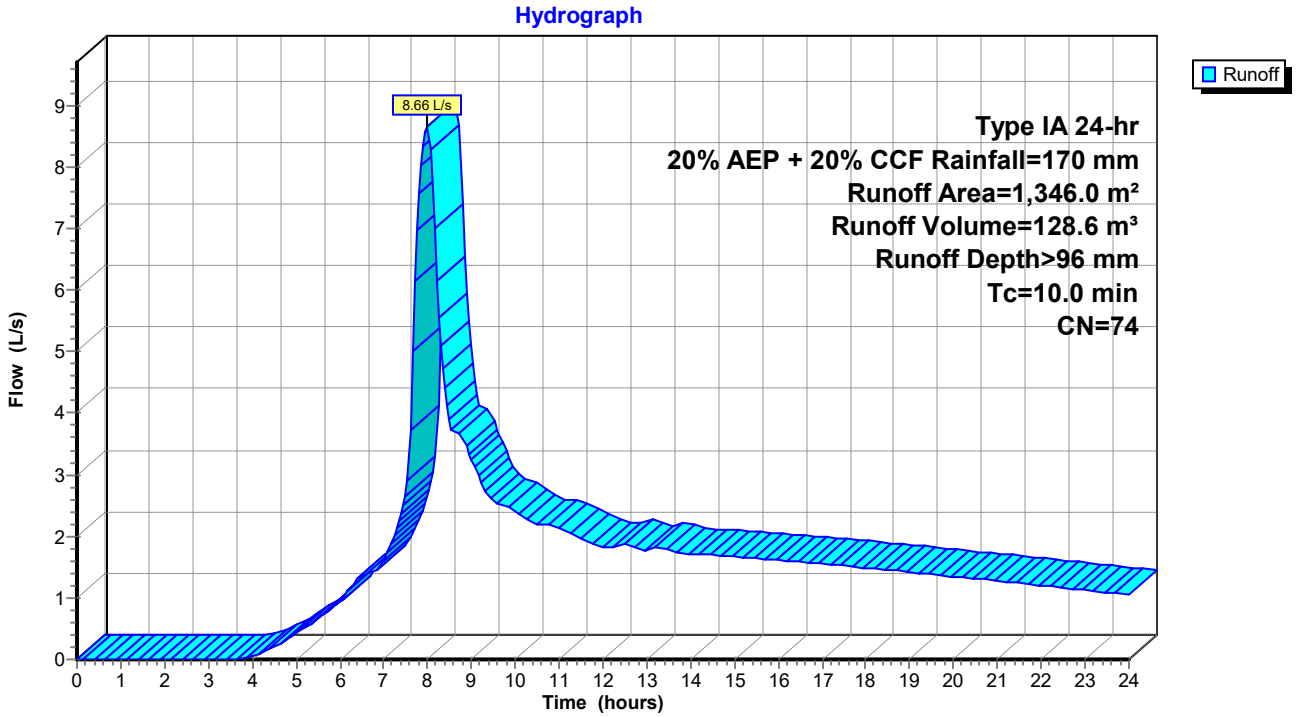
Runoff = 8.66 L/s @ 8.00 hrs, Volume= 128.6 m³, Depth> 96 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
1,346.0	74	>75% Grass cover, Good, HSG C
1,346.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Subcatchment 47S: Indicative Future Roof Area

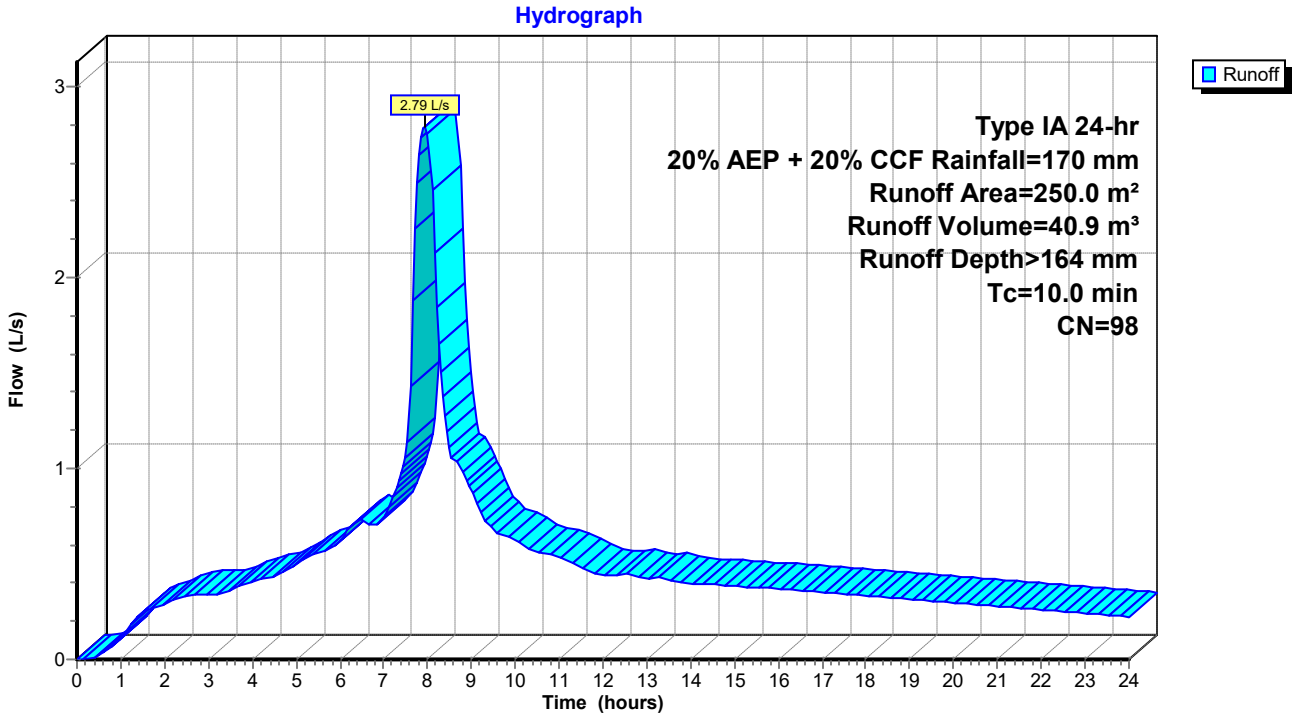
Runoff = 2.79 L/s @ 7.94 hrs, Volume= 40.9 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
250.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 47S: Indicative Future Roof Area



Summary for Subcatchment 48S: Indicative Future Driveway

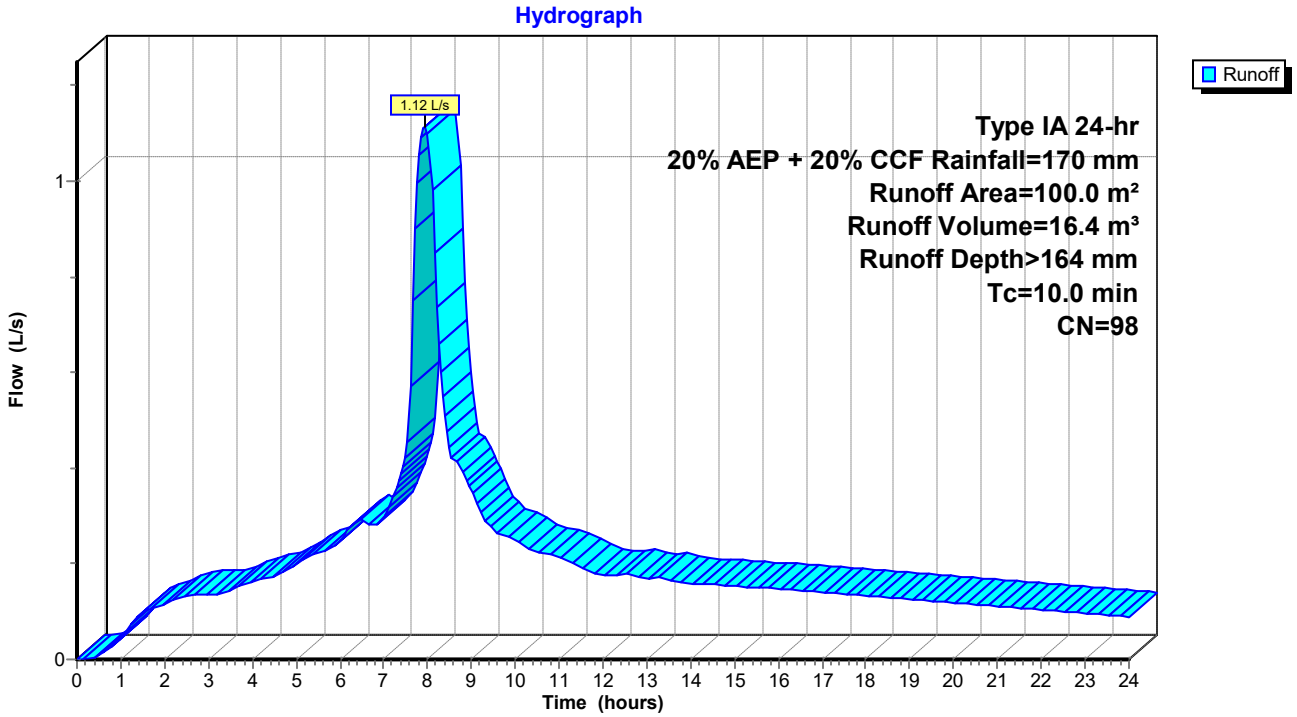
Runoff = 1.12 L/s @ 7.94 hrs, Volume= 16.4 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
100.0	98	Paved roads w/curbs & sewers, HSG C
100.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 48S: Indicative Future Driveway



Summary for Pond 47P: 2 x 25,000L Rainwater Tanks

Inflow Area = 351.0 m²,100.00% Impervious, Inflow Depth > 164 mm for 20% AEP + 20% CCF event
Inflow = 3.92 L/s @ 7.94 hrs, Volume= 57.4 m³
Outflow = 1.92 L/s @ 8.36 hrs, Volume= 56.8 m³, Atten= 51%, Lag= 25.1 min
Primary = 1.92 L/s @ 8.36 hrs, Volume= 56.8 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 0.351 m @ 8.36 hrs Surf.Area= 19.2 m² Storage= 6.8 m³

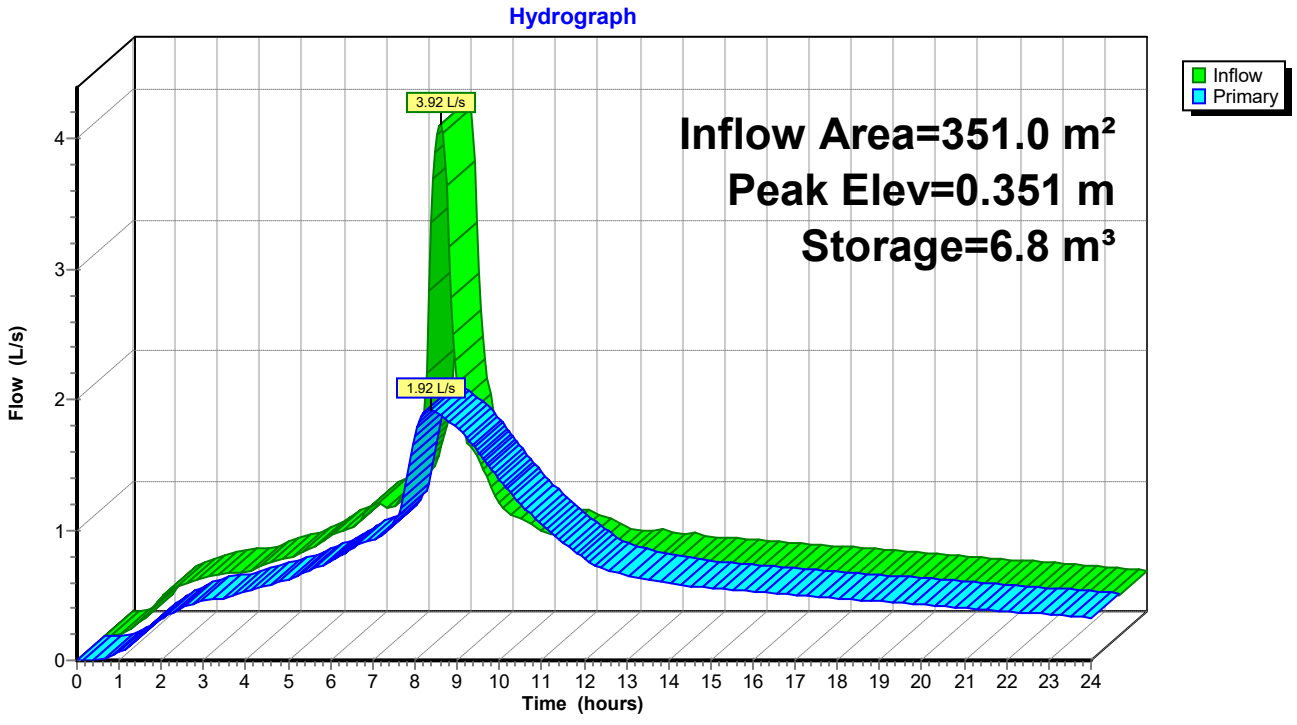
Plug-Flow detention time= 36.4 min calculated for 56.8 m³ (99% of inflow)
Center-of-Mass det. time= 28.3 min (679.7 - 651.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	50.0 m³	**3.50 mD x 2.60 mH Vertical Cone/Cylinder** x 2

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**40 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.92 L/s @ 8.36 hrs HW=0.351 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.92 L/s @ 1.53 m/s)

Pond 47P: 2 x 25,000L Rainwater Tanks

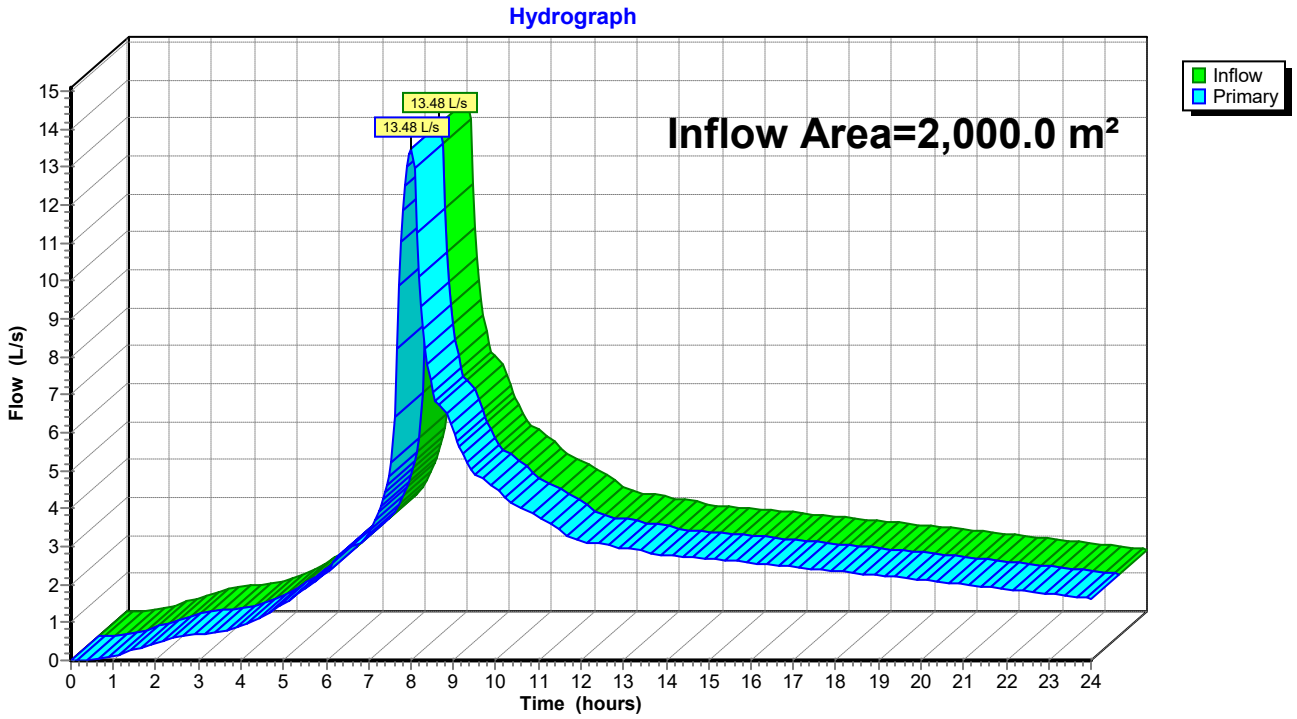


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 22.55% Impervious, Inflow Depth > 115 mm for 20% AEP + 20% CCF event
Inflow = 13.48 L/s @ 8.00 hrs, Volume= 229.6 m³
Primary = 13.48 L/s @ 8.00 hrs, Volume= 229.6 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=101.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=0.85 L/s 12.4 m³

Subcatchment 45S: Existing Driveway Runoff Area=203.0 m² 0.00% Impervious Runoff Depth>97 mm
Tc=10.0 min CN=89 Runoff=1.42 L/s 19.8 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,346.0 m² 0.00% Impervious Runoff Depth>61 mm
Tc=10.0 min CN=74 Runoff=5.25 L/s 82.6 m³

Subcatchment 47S: Indicative Future Runoff Area=250.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=2.11 L/s 30.7 m³

Subcatchment 48S: Indicative Future Runoff Area=100.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=0.84 L/s 12.3 m³

Pond 47P: 2 x 25,000L Rainwater Tanks Peak Elev=0.242 m Storage=4.7 m³ Inflow=2.96 L/s 43.1 m³
Outflow=1.57 L/s 42.6 m³

Link 35L: Post-Development Flows Inflow=8.92 L/s 157.3 m³
Primary=8.92 L/s 157.3 m³

Summary for Subcatchment 34S: Existing Roof Area

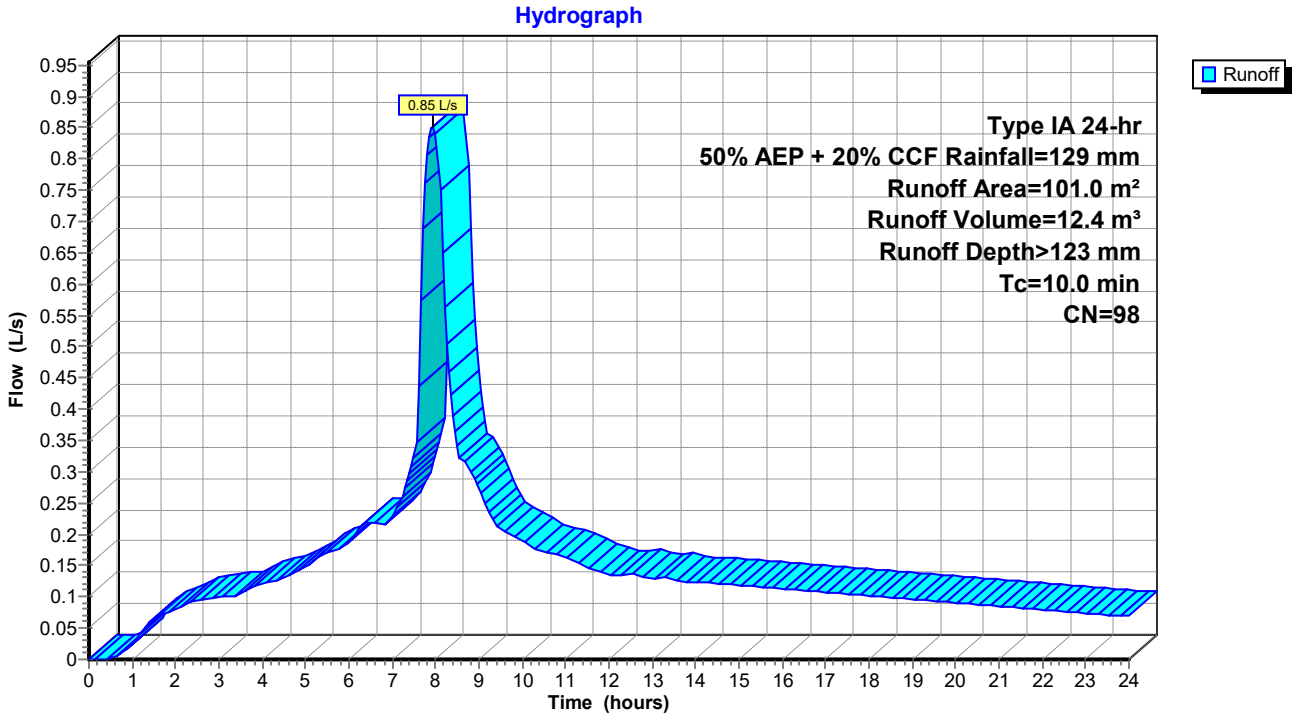
Runoff = 0.85 L/s @ 7.94 hrs, Volume= 12.4 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
101.0	98	Roofs, HSG C
101.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

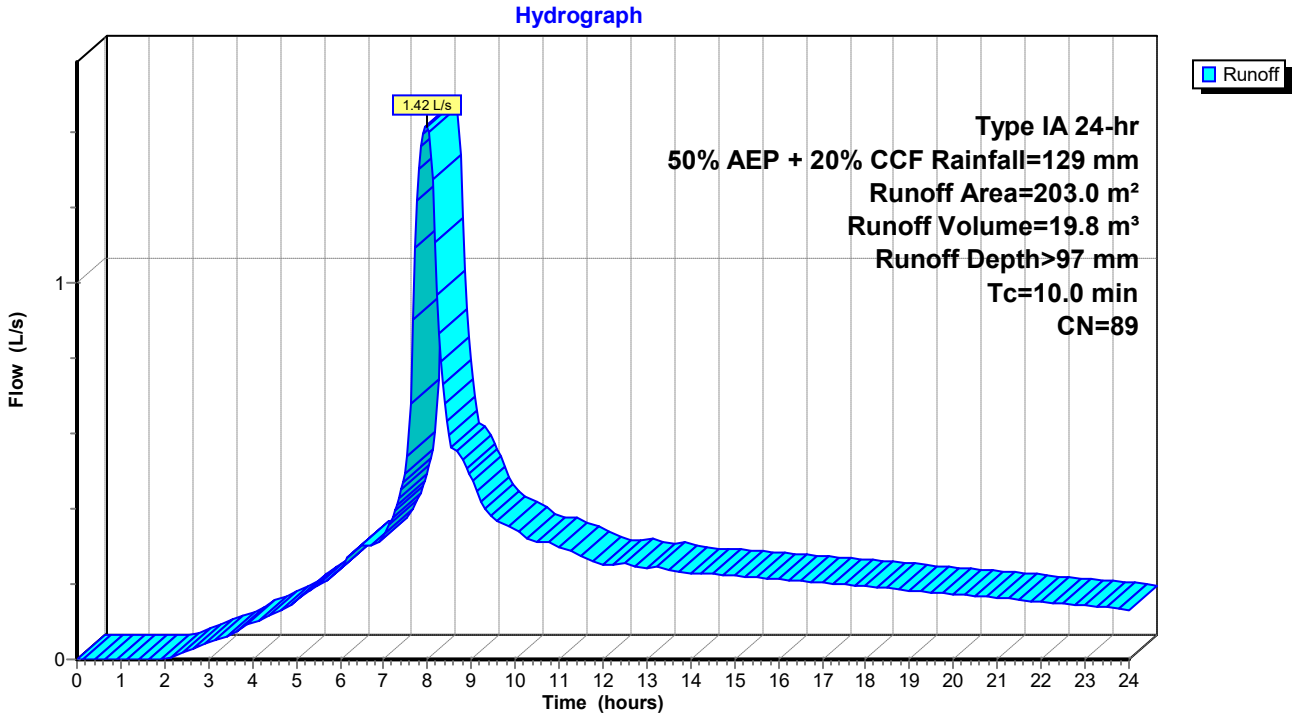
Runoff = 1.42 L/s @ 7.97 hrs, Volume= 19.8 m³, Depth> 97 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
203.0	89	Gravel roads, HSG C
203.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

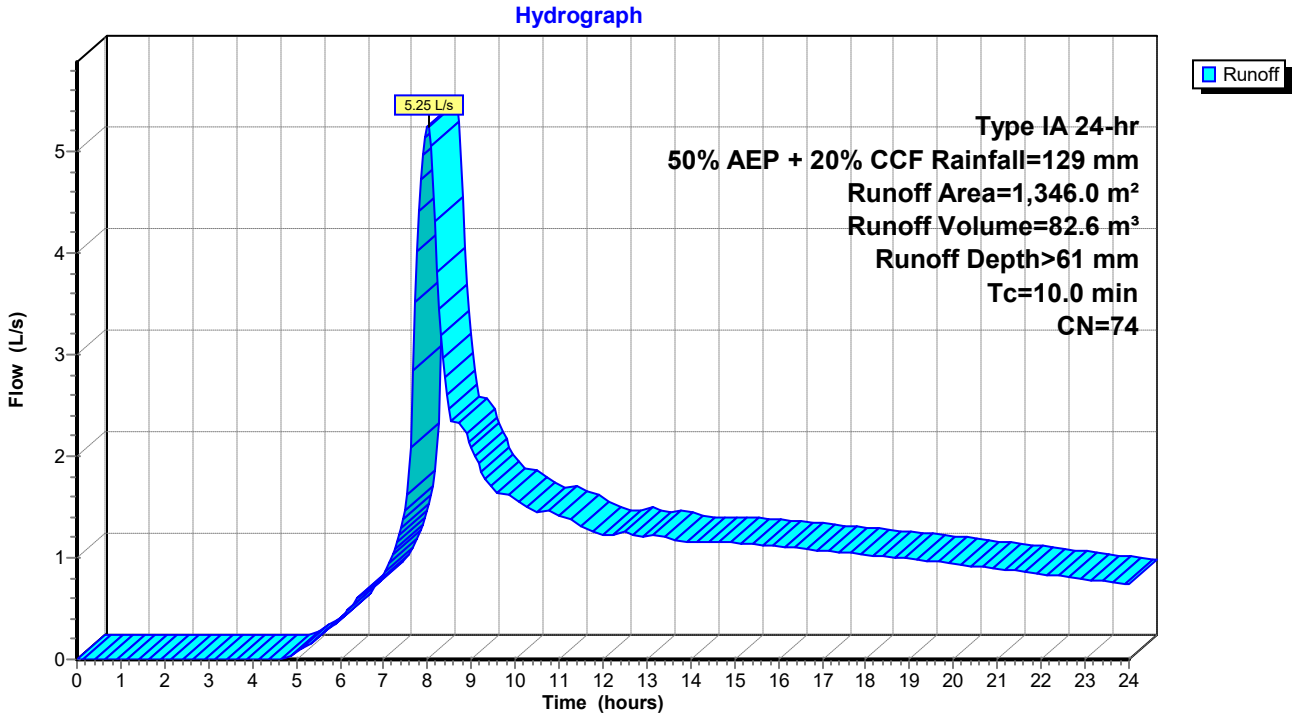
Runoff = 5.25 L/s @ 8.02 hrs, Volume= 82.6 m³, Depth> 61 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
1,346.0	74	>75% Grass cover, Good, HSG C
1,346.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Subcatchment 47S: Indicative Future Roof Area

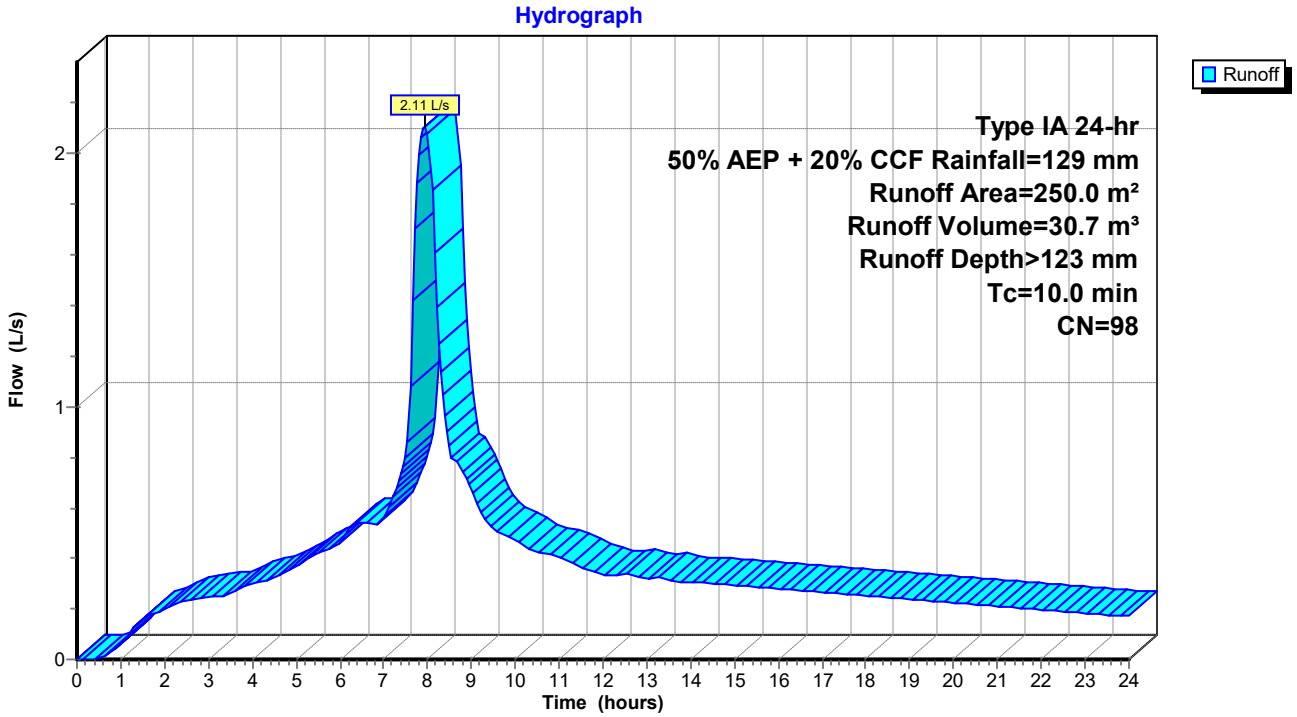
Runoff = 2.11 L/s @ 7.94 hrs, Volume= 30.7 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
250.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 47S: Indicative Future Roof Area



Summary for Subcatchment 48S: Indicative Future Driveway

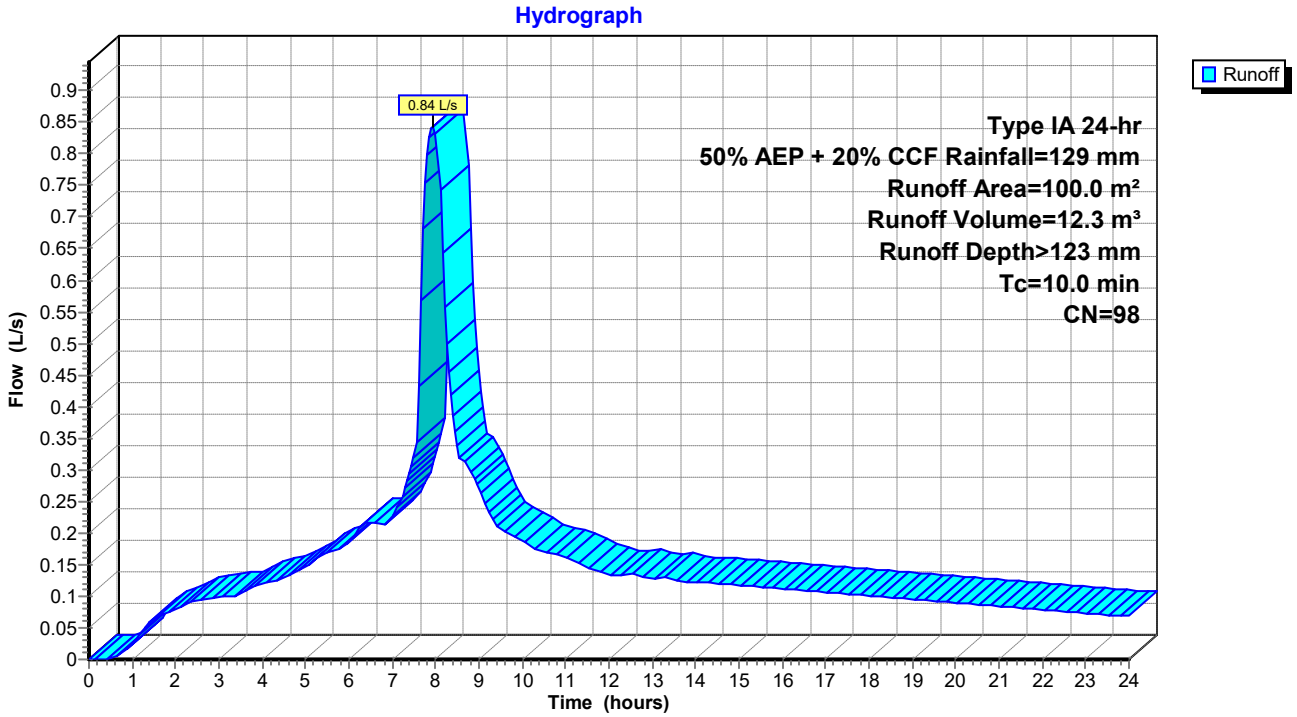
Runoff = 0.84 L/s @ 7.94 hrs, Volume= 12.3 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
100.0	98	Paved roads w/curbs & sewers, HSG C
100.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 48S: Indicative Future Driveway



Summary for Pond 47P: 2 x 25,000L Rainwater Tanks

Inflow Area = 351.0 m²,100.00% Impervious, Inflow Depth > 123 mm for 50% AEP + 20% CCF event
Inflow = 2.96 L/s @ 7.94 hrs, Volume= 43.1 m³
Outflow = 1.57 L/s @ 8.31 hrs, Volume= 42.6 m³, Atten= 47%, Lag= 22.2 min
Primary = 1.57 L/s @ 8.31 hrs, Volume= 42.6 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 0.242 m @ 8.31 hrs Surf.Area= 19.2 m² Storage= 4.7 m³

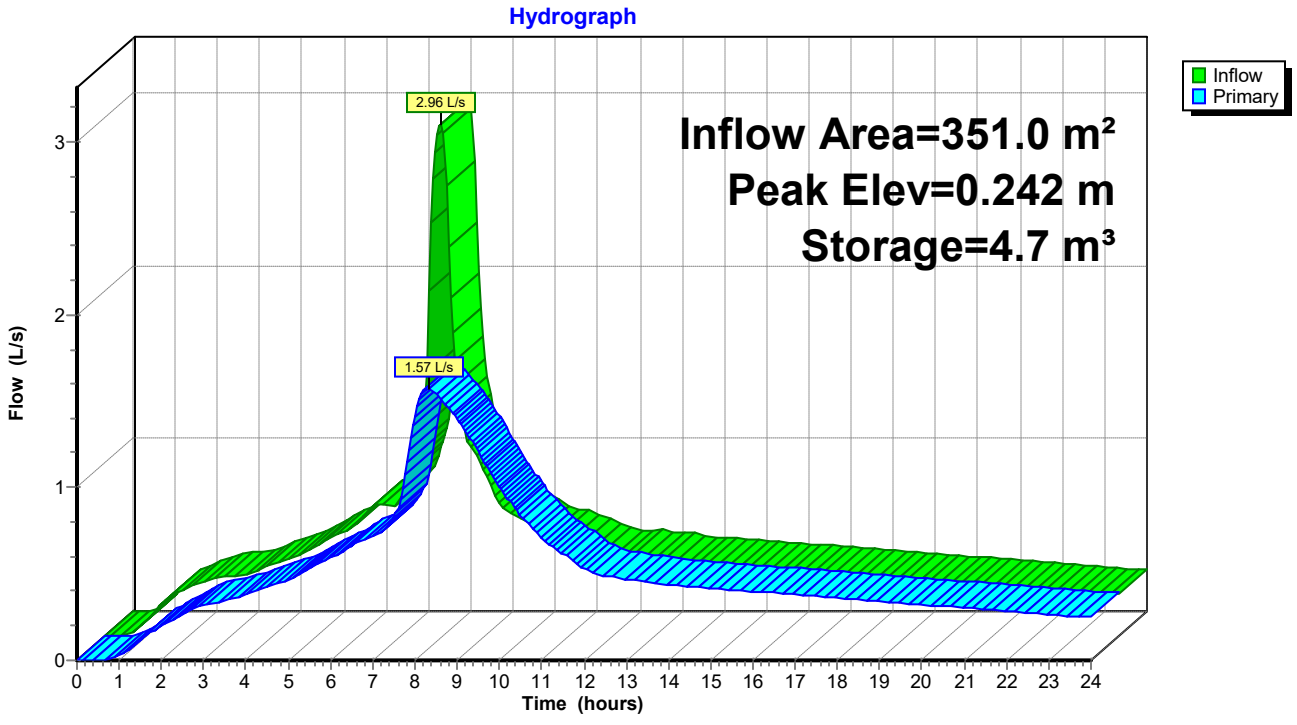
Plug-Flow detention time= 33.5 min calculated for 42.5 m³ (99% of inflow)
Center-of-Mass det. time= 24.9 min (681.3 - 656.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	50.0 m³	**3.50 mD x 2.60 mH Vertical Cone/Cylinder** x 2

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**40 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.57 L/s @ 8.31 hrs HW=0.242 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.57 L/s @ 1.25 m/s)

Pond 47P: 2 x 25,000L Rainwater Tanks

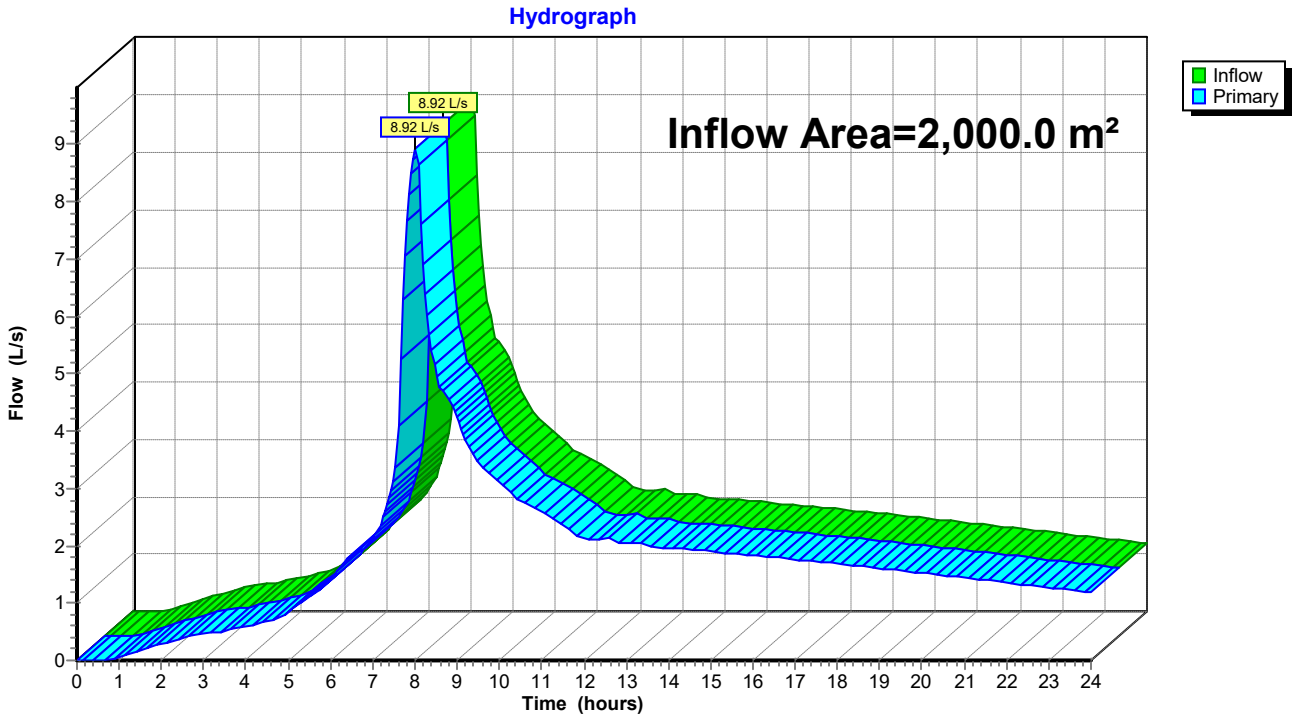


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 22.55% Impervious, Inflow Depth > 79 mm for 50% AEP + 20% CCF event
Inflow = 8.92 L/s @ 8.02 hrs, Volume= 157.3 m³
Primary = 8.92 L/s @ 8.02 hrs, Volume= 157.3 m³, Atten= 0%, Lag= 0.0 min

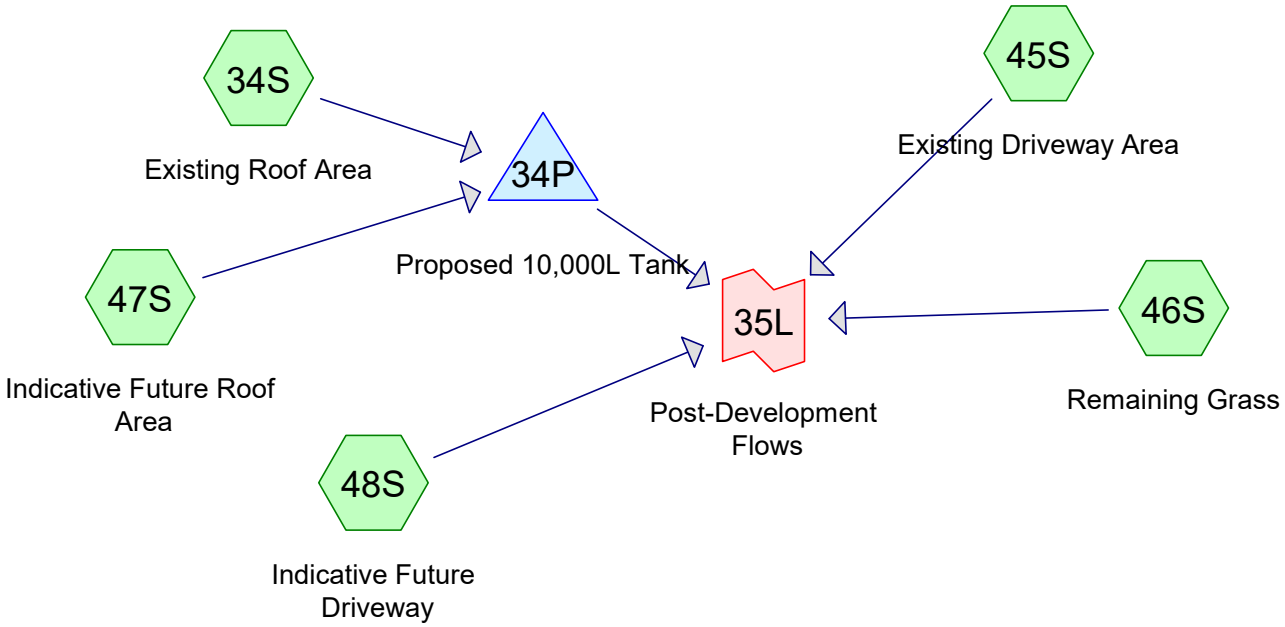
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



LOT 2: OPTION 1

Indicative Future Impermeable Areas



Subcat Reach Pond Link

Routing Diagram for 140586 Lot 2
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=101.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.13 L/s 16.5 m³

Subcatchment 45S: Existing Driveway Runoff Area=203.0 m² 0.00% Impervious Runoff Depth>137 mm
Tc=10.0 min CN=89 Runoff=2.00 L/s 27.8 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,346.0 m² 0.00% Impervious Runoff Depth>96 mm
Tc=10.0 min CN=74 Runoff=8.66 L/s 128.6 m³

Subcatchment 47S: Indicative Future Runoff Area=250.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=2.79 L/s 40.9 m³

Subcatchment 48S: Indicative Future Runoff Area=100.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.12 L/s 16.4 m³

Pond 34P: Proposed 10,000L Tank Peak Elev=1.688 m Storage=6.2 m³ Inflow=3.92 L/s 57.4 m³
Outflow=1.97 L/s 57.2 m³

Link 35L: Post-Development Flows Inflow=13.53 L/s 229.9 m³
Primary=13.53 L/s 229.9 m³

Summary for Subcatchment 34S: Existing Roof Area

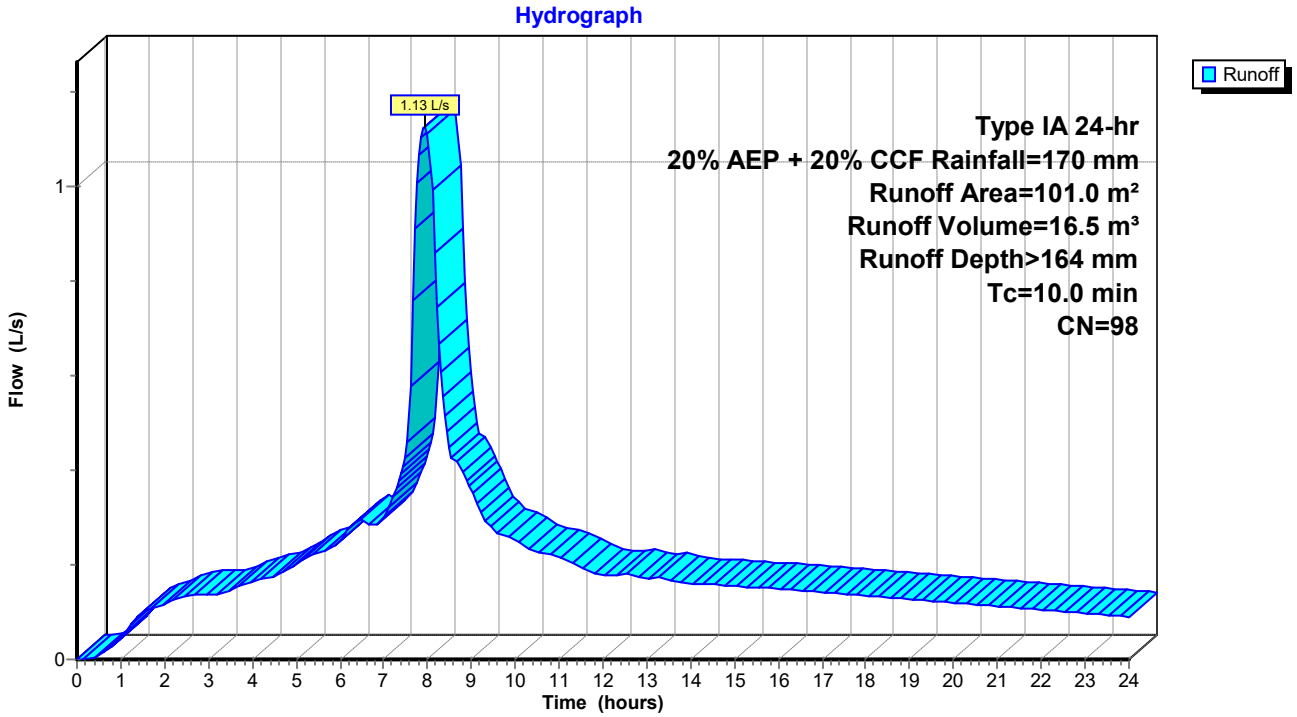
Runoff = 1.13 L/s @ 7.94 hrs, Volume= 16.5 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
101.0	98	Roofs, HSG C
101.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

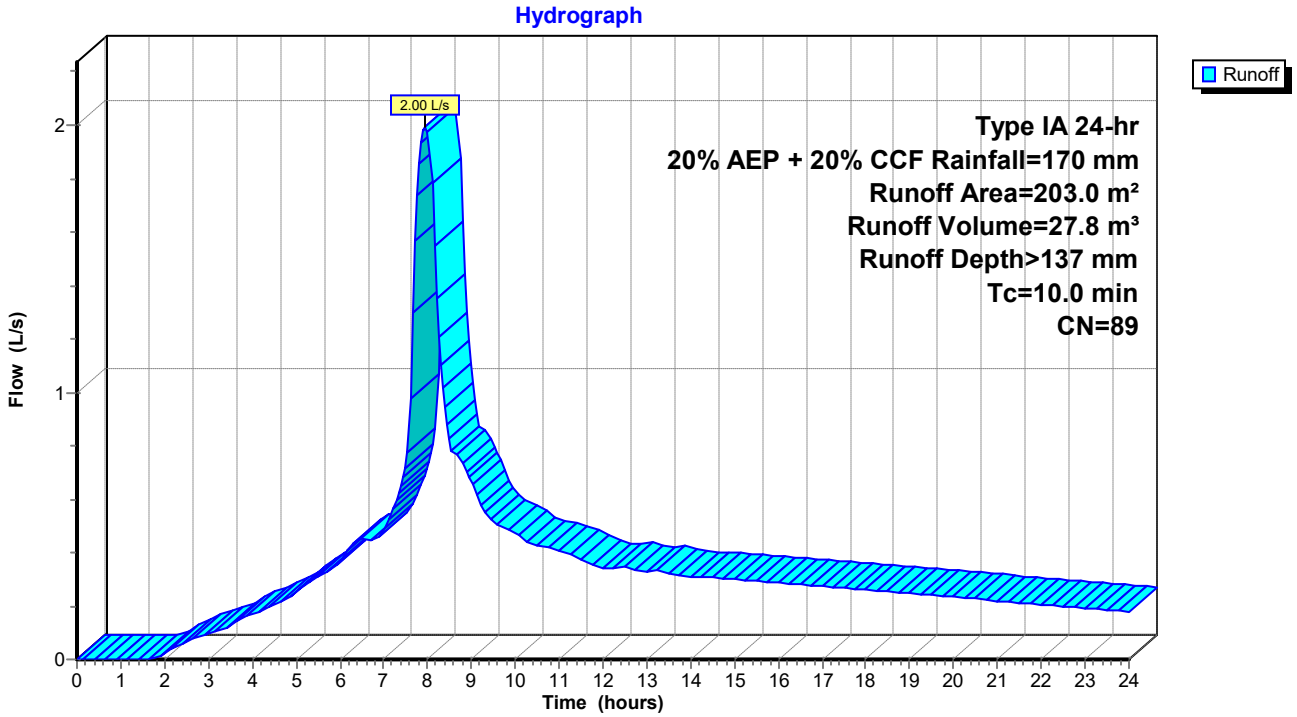
Runoff = 2.00 L/s @ 7.96 hrs, Volume= 27.8 m³, Depth> 137 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
203.0	89	Gravel roads, HSG C
203.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

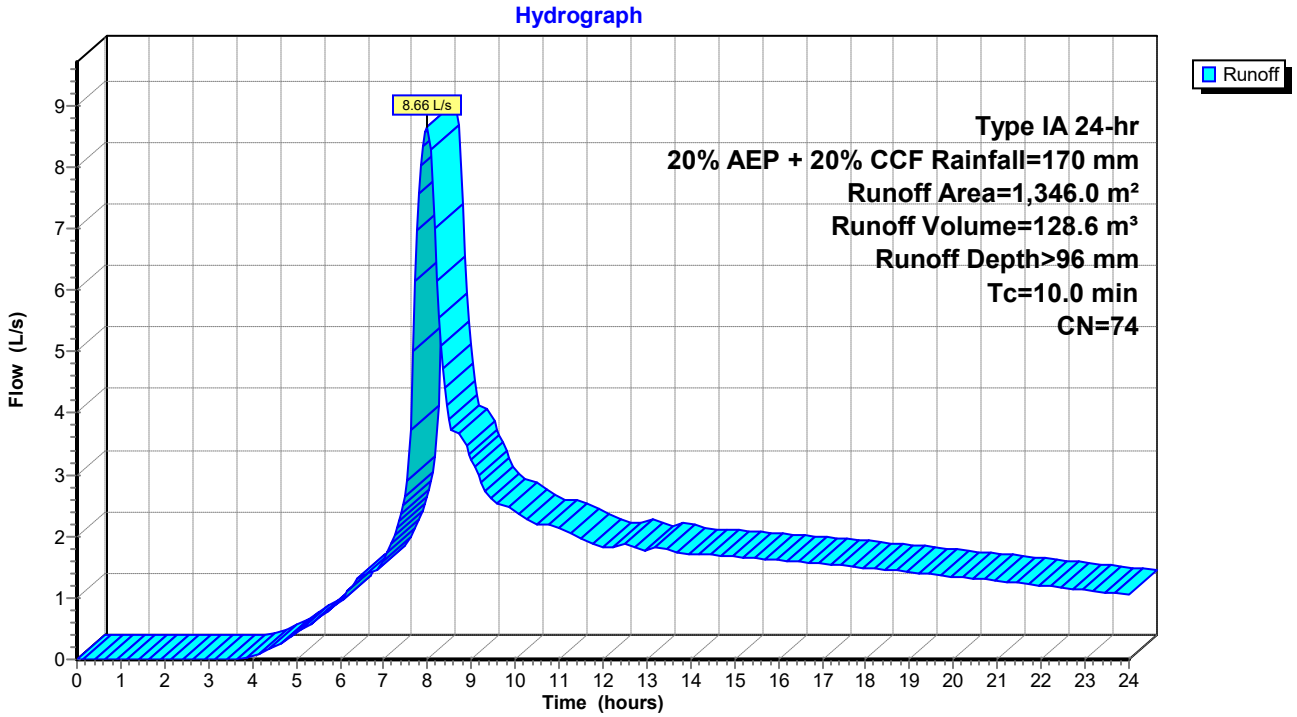
Runoff = 8.66 L/s @ 8.00 hrs, Volume= 128.6 m³, Depth> 96 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
1,346.0	74	>75% Grass cover, Good, HSG C
1,346.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Subcatchment 47S: Indicative Future Roof Area

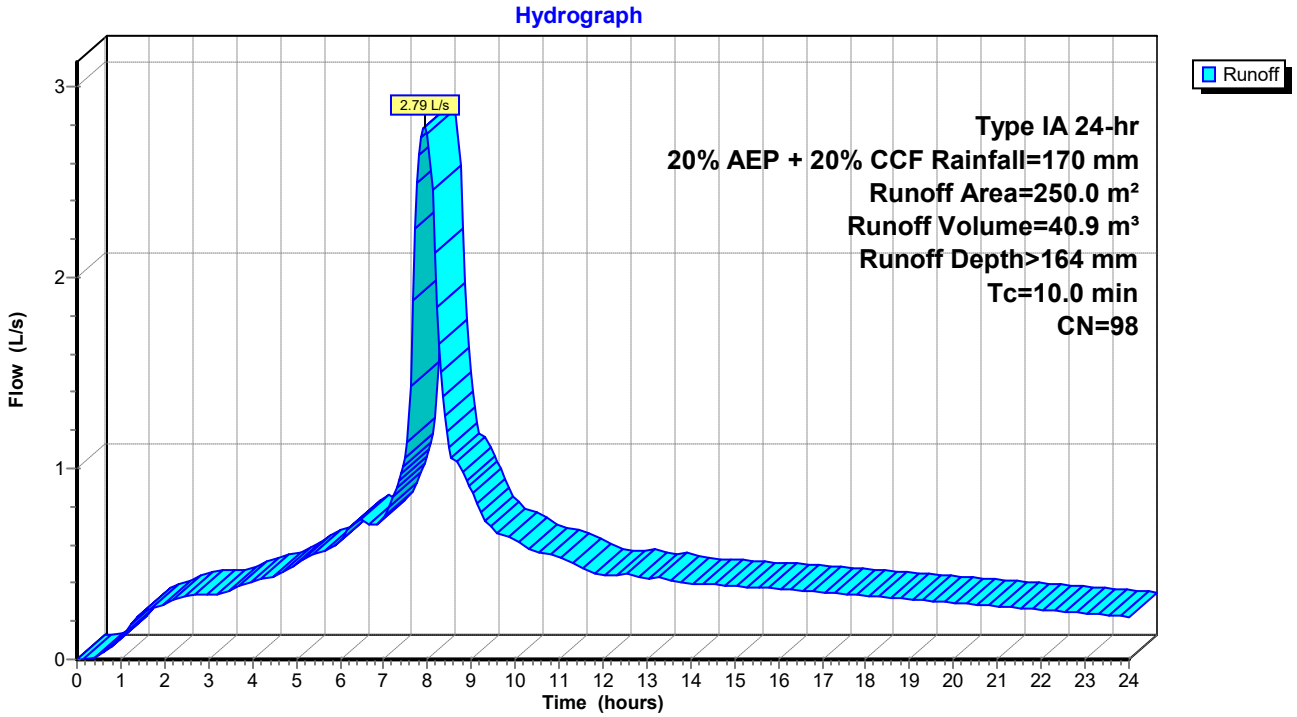
Runoff = 2.79 L/s @ 7.94 hrs, Volume= 40.9 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
250.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 47S: Indicative Future Roof Area



Summary for Subcatchment 48S: Indicative Future Driveway

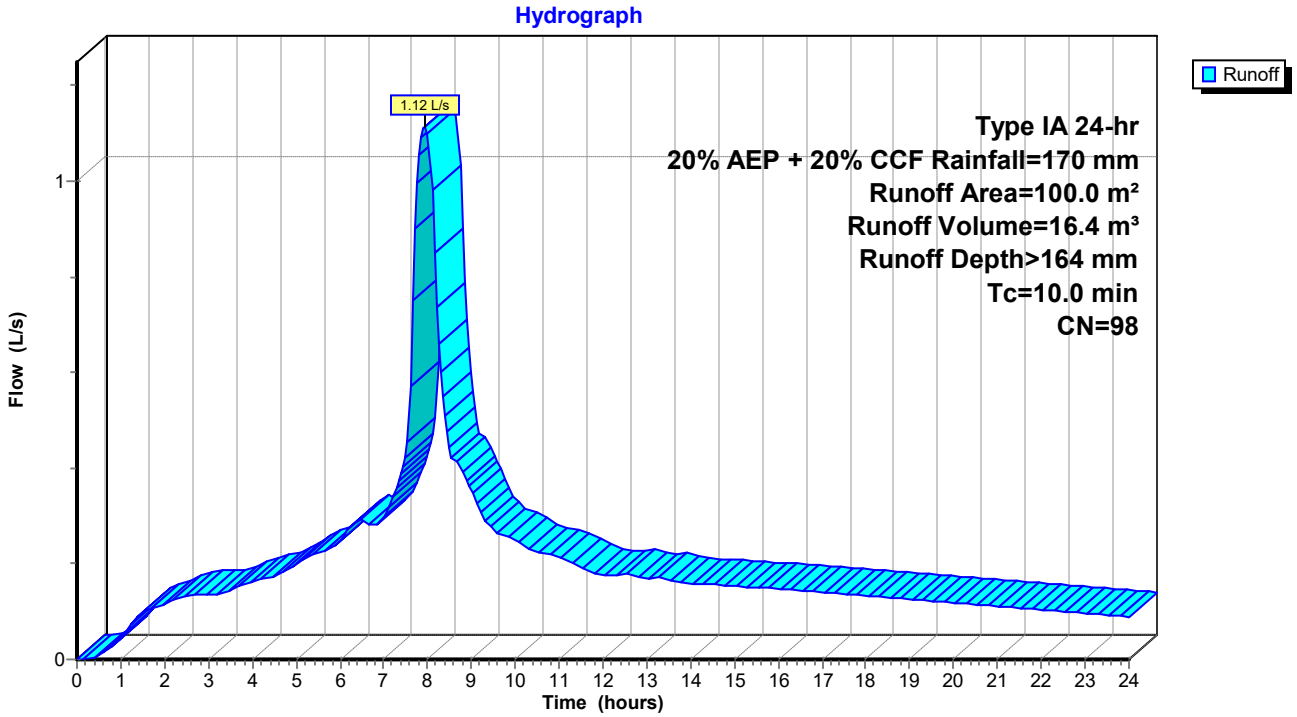
Runoff = 1.12 L/s @ 7.94 hrs, Volume= 16.4 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
100.0	98	Paved roads w/curbs & sewers, HSG C
100.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 48S: Indicative Future Driveway



Summary for Pond 34P: Proposed 10,000L Tank

Inflow Area = 351.0 m²,100.00% Impervious, Inflow Depth > 164 mm for 20% AEP + 20% CCF event
Inflow = 3.92 L/s @ 7.94 hrs, Volume= 57.4 m³
Outflow = 1.97 L/s @ 8.34 hrs, Volume= 57.2 m³, Atten= 50%, Lag= 24.2 min
Primary = 1.97 L/s @ 8.34 hrs, Volume= 57.2 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.688 m @ 8.34 hrs Surf.Area= 3.7 m² Storage= 6.2 m³

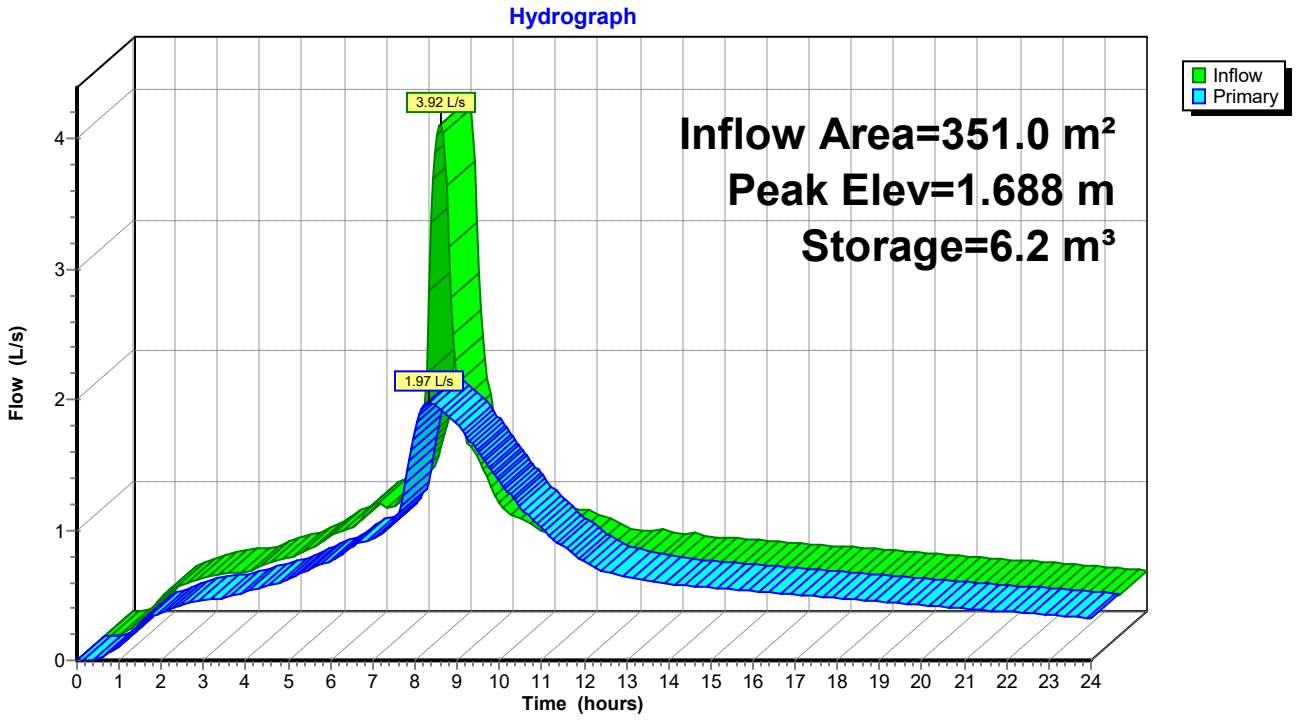
Plug-Flow detention time= 25.8 min calculated for 57.2 m³ (100% of inflow)
Center-of-Mass det. time= 22.9 min (674.3 - 651.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	10.6 m³	**2.16 mD x 2.90 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**27 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.97 L/s @ 8.34 hrs HW=1.687 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.97 L/s @ 3.44 m/s)

Pond 34P: Proposed 10,000L Tank

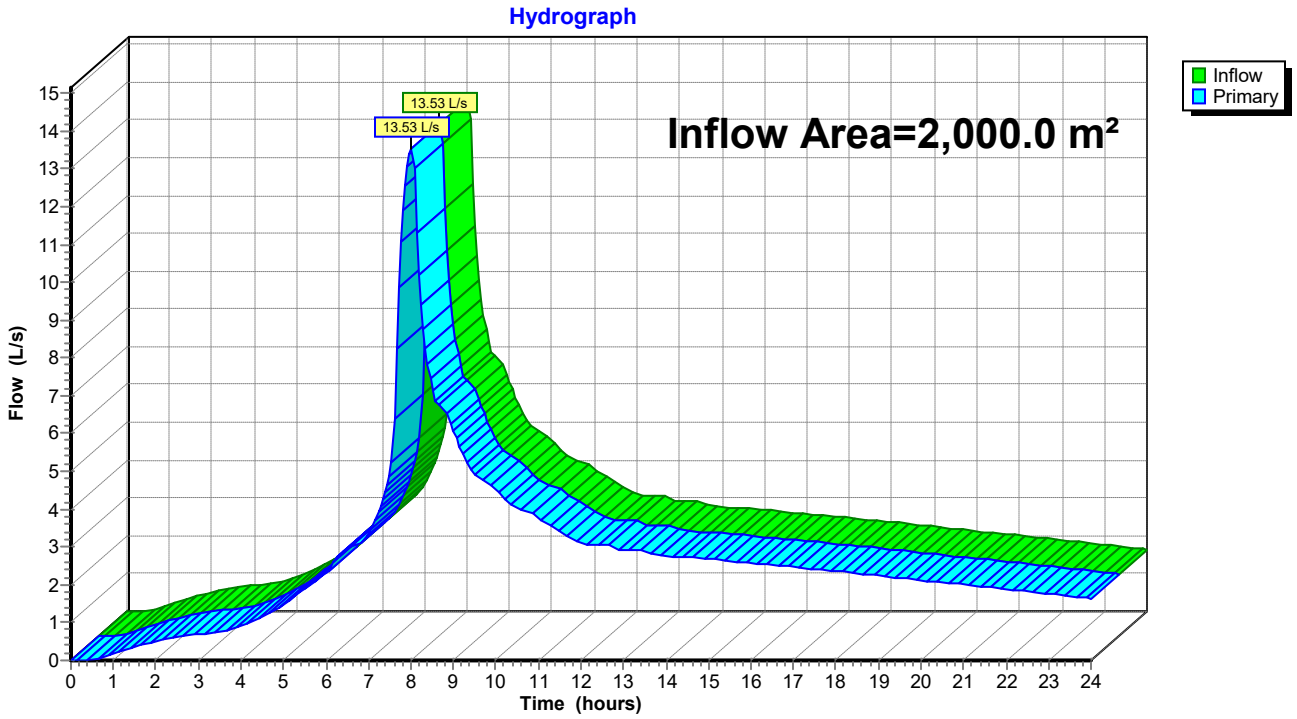


Summary for Link 35L: Post-Development Flows

Inflow Area = 2,000.0 m², 22.55% Impervious, Inflow Depth > 115 mm for 20% AEP + 20% CCF event
Inflow = 13.53 L/s @ 8.01 hrs, Volume= 229.9 m³
Primary = 13.53 L/s @ 8.01 hrs, Volume= 229.9 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 34S: Existing Roof Area Runoff Area=101.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=0.85 L/s 12.4 m³

Subcatchment 45S: Existing Driveway Runoff Area=203.0 m² 0.00% Impervious Runoff Depth>97 mm
Tc=10.0 min CN=89 Runoff=1.42 L/s 19.8 m³

Subcatchment 46S: Remaining Grass Runoff Area=1,346.0 m² 0.00% Impervious Runoff Depth>61 mm
Tc=10.0 min CN=74 Runoff=5.25 L/s 82.6 m³

Subcatchment 47S: Indicative Future Runoff Area=250.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=2.11 L/s 30.7 m³

Subcatchment 48S: Indicative Future Runoff Area=100.0 m² 100.00% Impervious Runoff Depth>123 mm
Tc=10.0 min CN=98 Runoff=0.84 L/s 12.3 m³

Pond 34P: Proposed 10,000L Tank Peak Elev=1.134 m Storage=4.2 m³ Inflow=2.96 L/s 43.1 m³
Outflow=1.61 L/s 42.9 m³

Link 35L: Post-Development Flows Inflow=8.95 L/s 157.6 m³
Primary=8.95 L/s 157.6 m³

Summary for Subcatchment 34S: Existing Roof Area

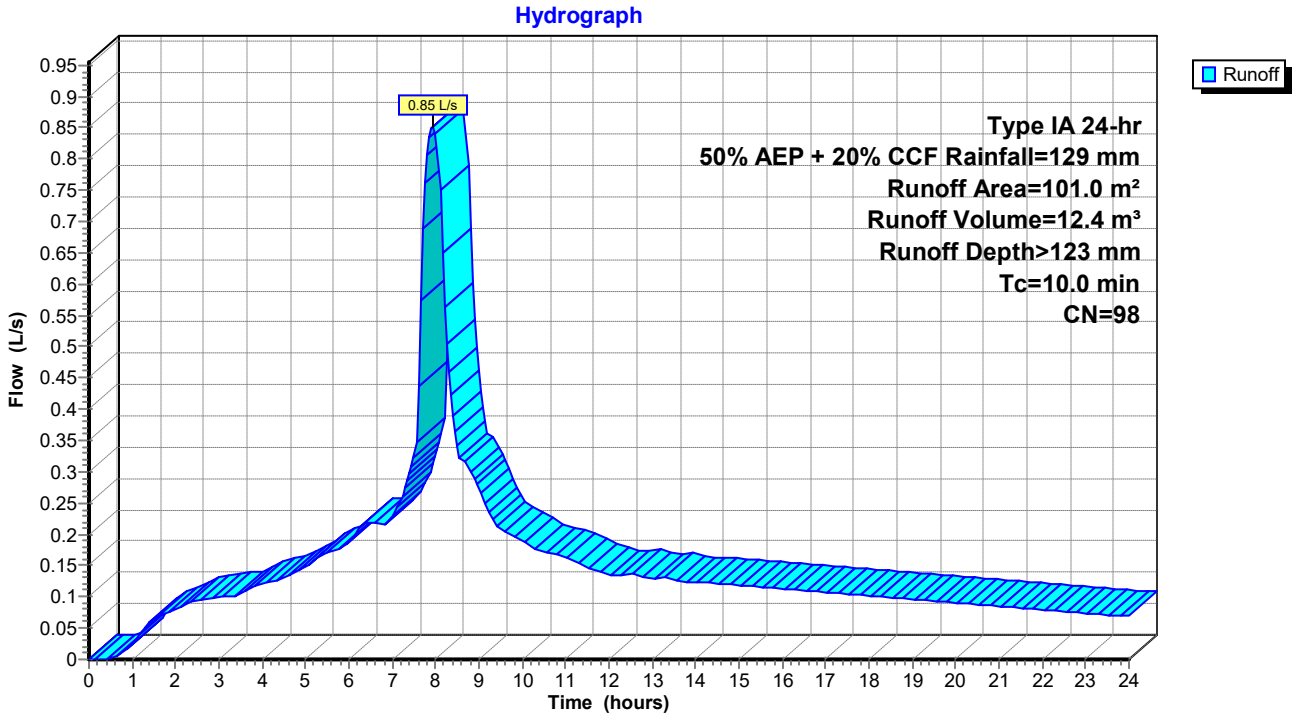
Runoff = 0.85 L/s @ 7.94 hrs, Volume= 12.4 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
101.0	98	Roofs, HSG C
101.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 34S: Existing Roof Area



Summary for Subcatchment 45S: Existing Driveway Area

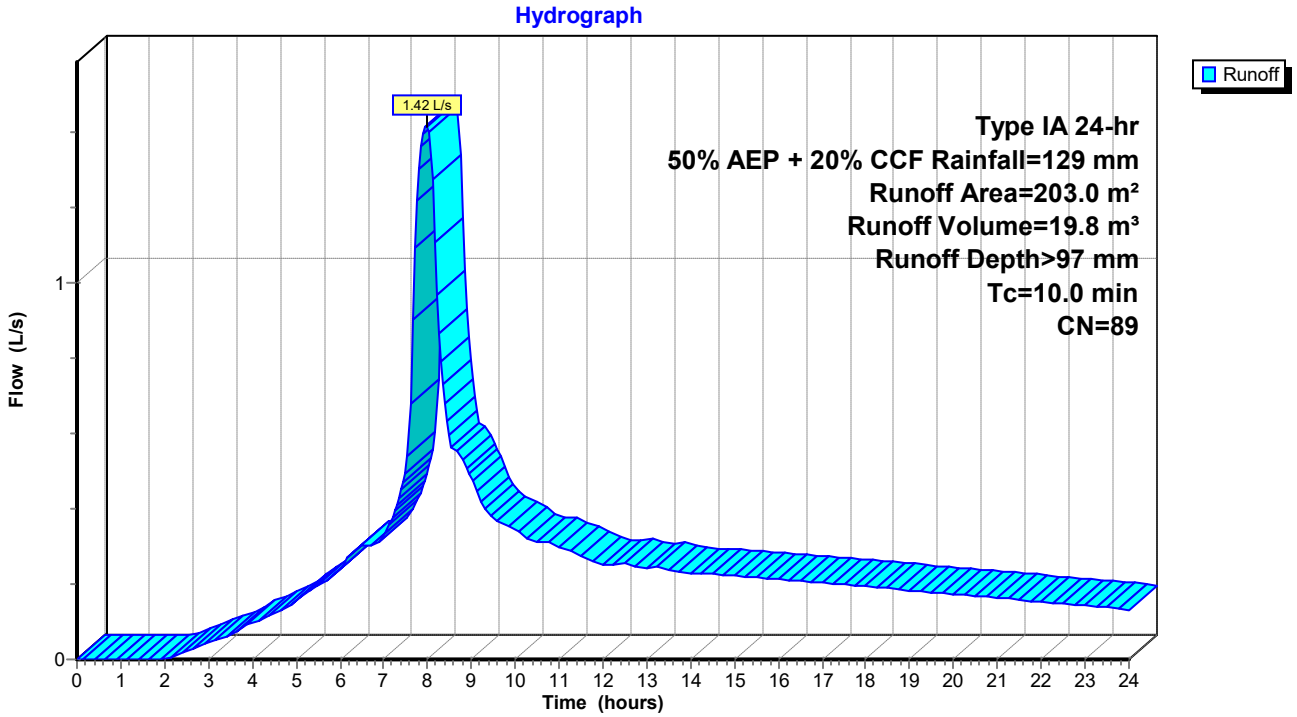
Runoff = 1.42 L/s @ 7.97 hrs, Volume= 19.8 m³, Depth> 97 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
203.0	89	Gravel roads, HSG C
203.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 45S: Existing Driveway Area



Summary for Subcatchment 46S: Remaining Grass

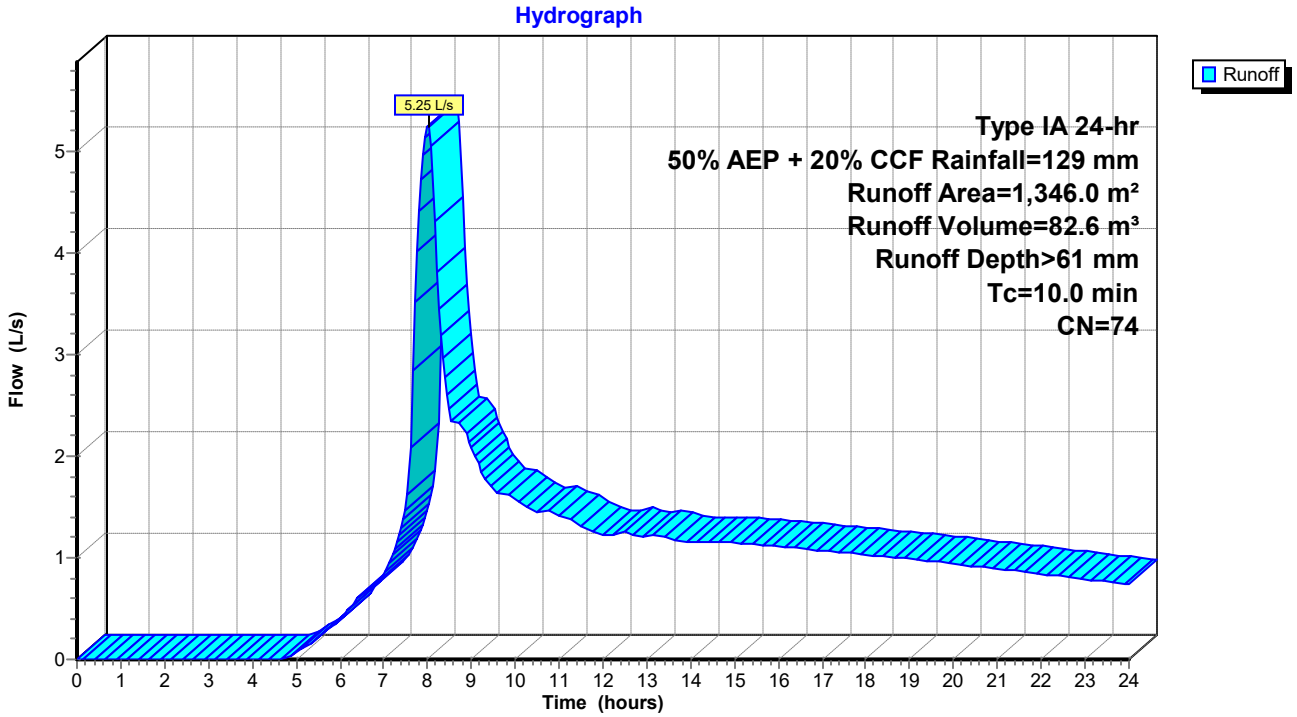
Runoff = 5.25 L/s @ 8.02 hrs, Volume= 82.6 m³, Depth> 61 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
1,346.0	74	>75% Grass cover, Good, HSG C
1,346.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 46S: Remaining Grass



Summary for Subcatchment 47S: Indicative Future Roof Area

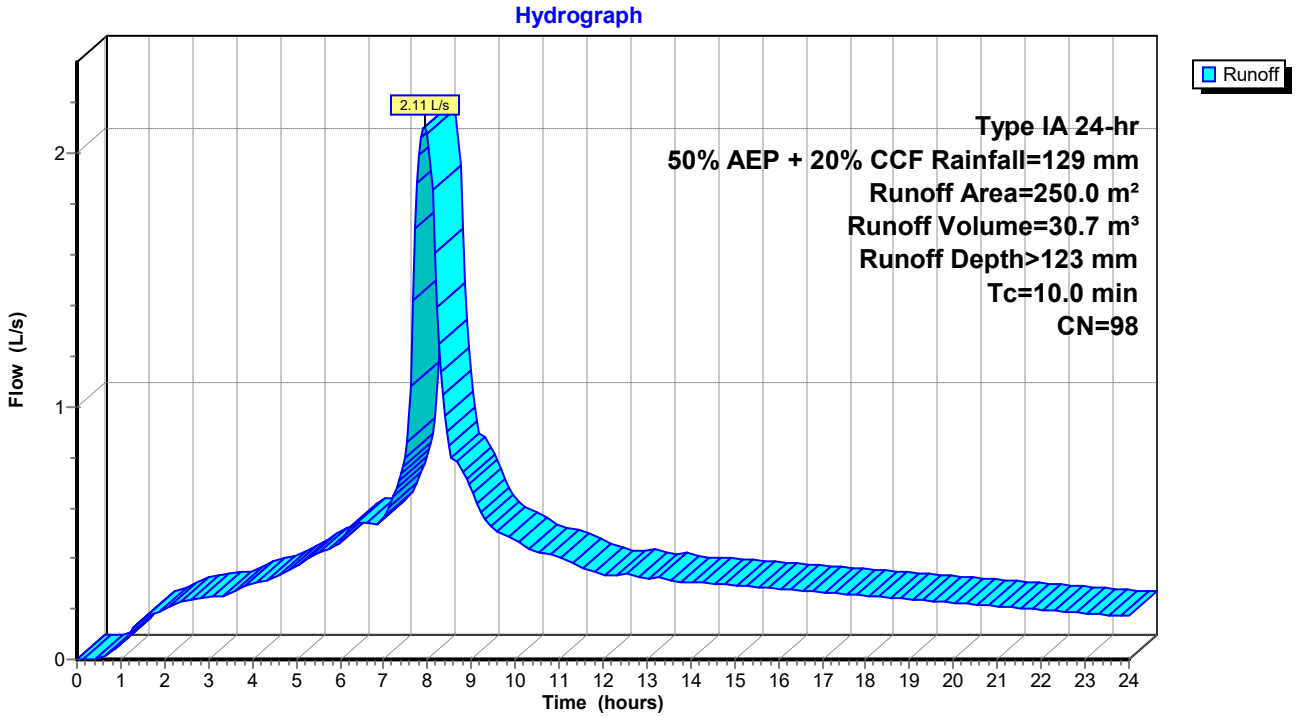
Runoff = 2.11 L/s @ 7.94 hrs, Volume= 30.7 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
250.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 47S: Indicative Future Roof Area



Summary for Subcatchment 48S: Indicative Future Driveway

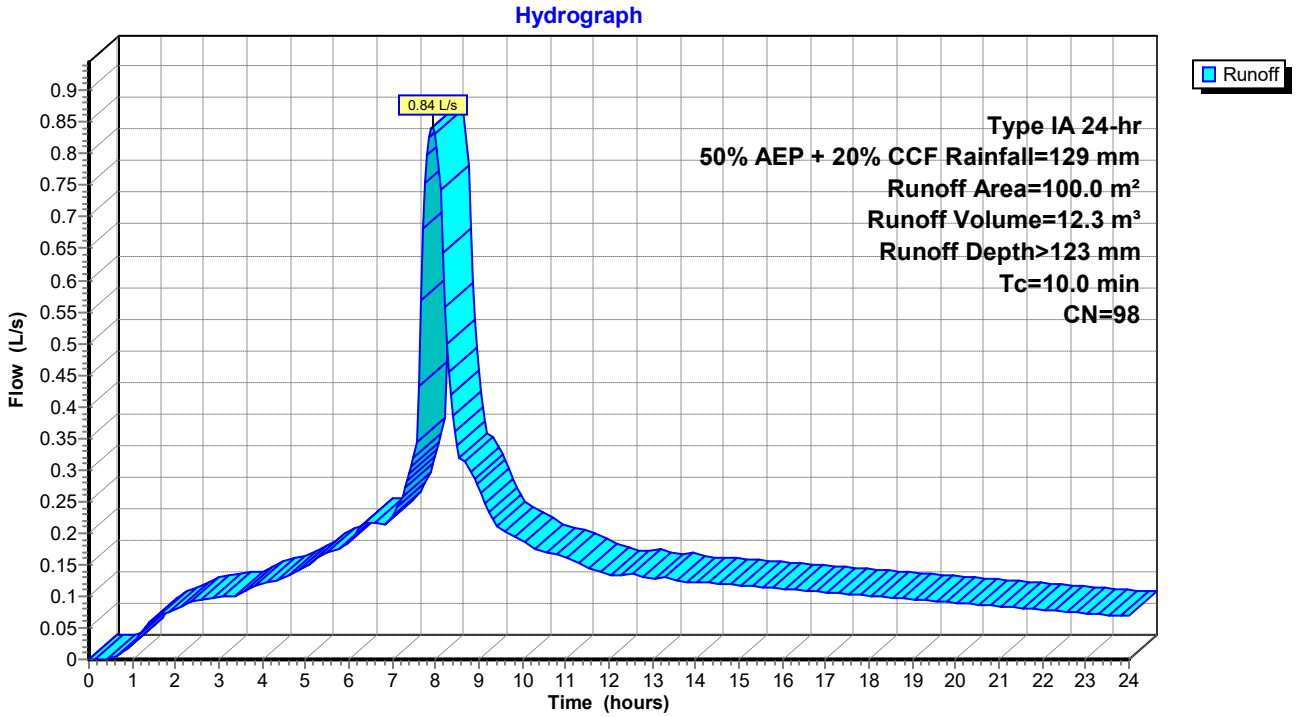
Runoff = 0.84 L/s @ 7.94 hrs, Volume= 12.3 m³, Depth> 123 mm

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 50% AEP + 20% CCF Rainfall=129 mm

Area (m²)	CN	Description
100.0	98	Paved roads w/curbs & sewers, HSG C
100.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 48S: Indicative Future Driveway



Summary for Pond 34P: Proposed 10,000L Tank

Inflow Area = 351.0 m²,100.00% Impervious, Inflow Depth > 123 mm for 50% AEP + 20% CCF event
Inflow = 2.96 L/s @ 7.94 hrs, Volume= 43.1 m³
Outflow = 1.61 L/s @ 8.30 hrs, Volume= 42.9 m³, Atten= 46%, Lag= 21.4 min
Primary = 1.61 L/s @ 8.30 hrs, Volume= 42.9 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.134 m @ 8.30 hrs Surf.Area= 3.7 m² Storage= 4.2 m³

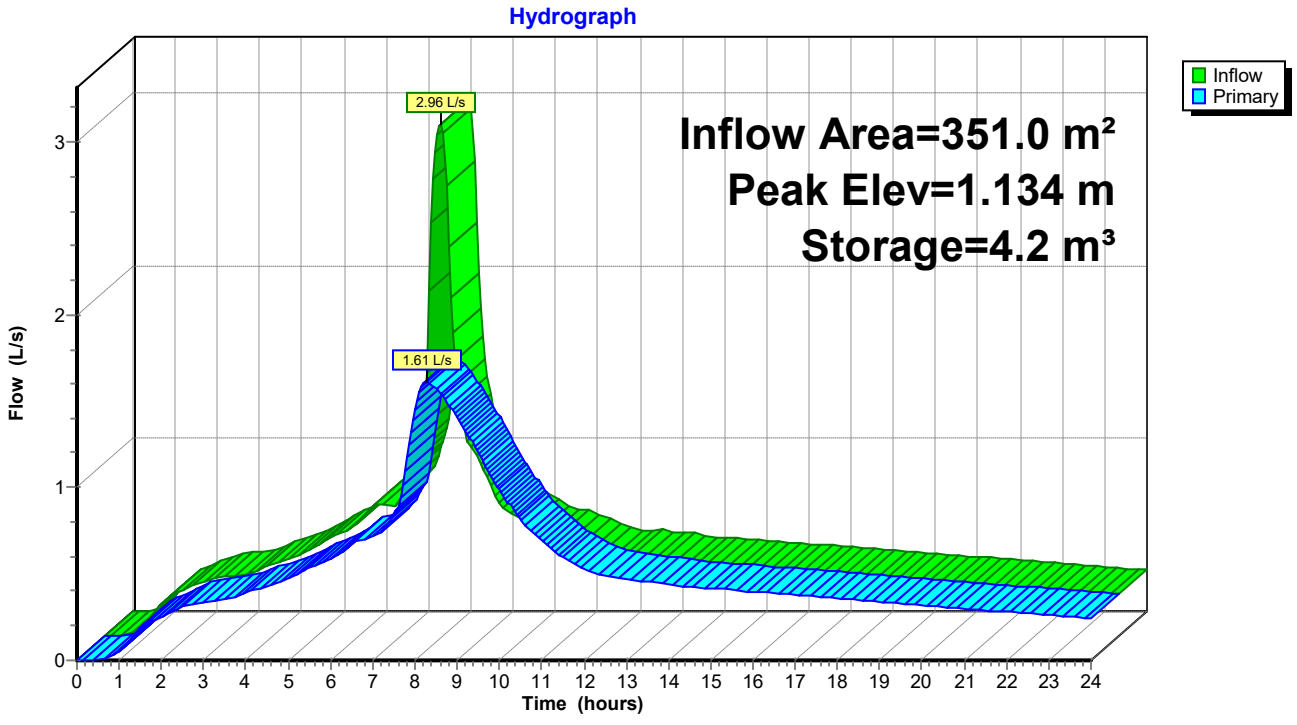
Plug-Flow detention time= 20.7 min calculated for 42.8 m³ (99% of inflow)
Center-of-Mass det. time= 18.0 min (674.3 - 656.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	10.6 m³	**2.16 mD x 2.90 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**27 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.61 L/s @ 8.30 hrs HW=1.134 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.61 L/s @ 2.81 m/s)

Pond 34P: Proposed 10,000L Tank

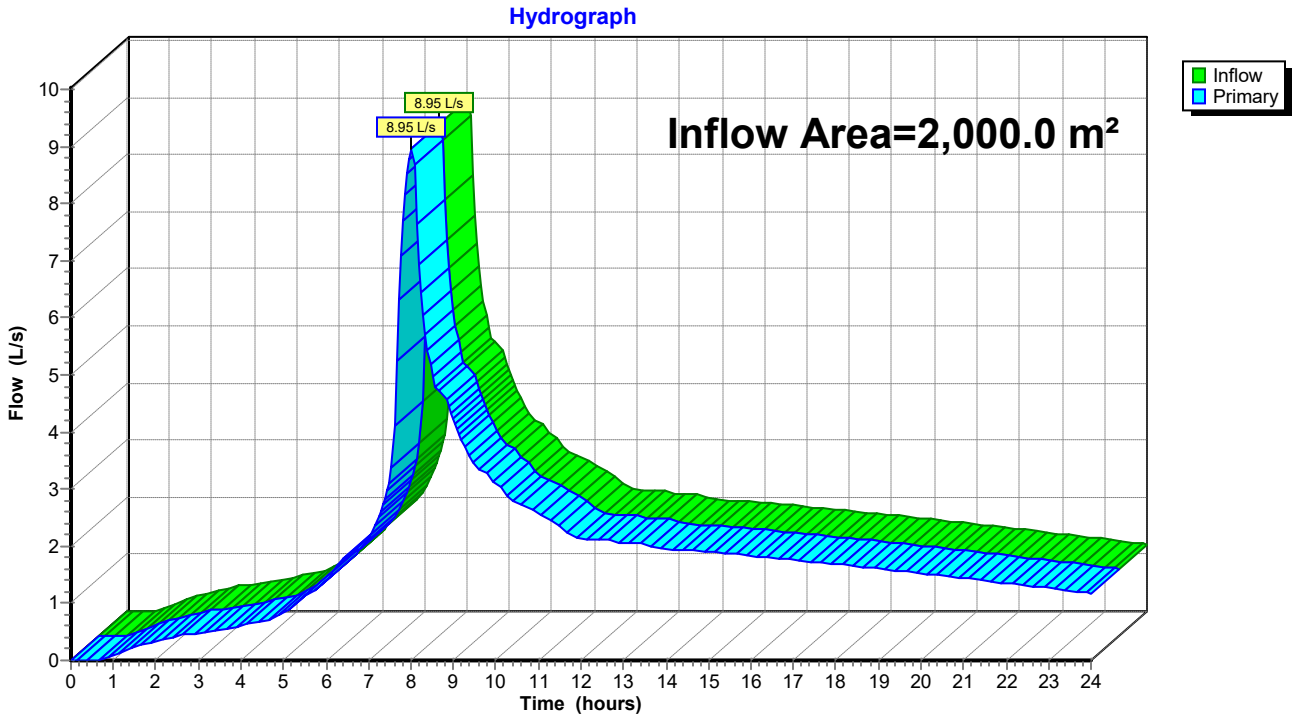


Summary for Link 35L: Post-Development Flows

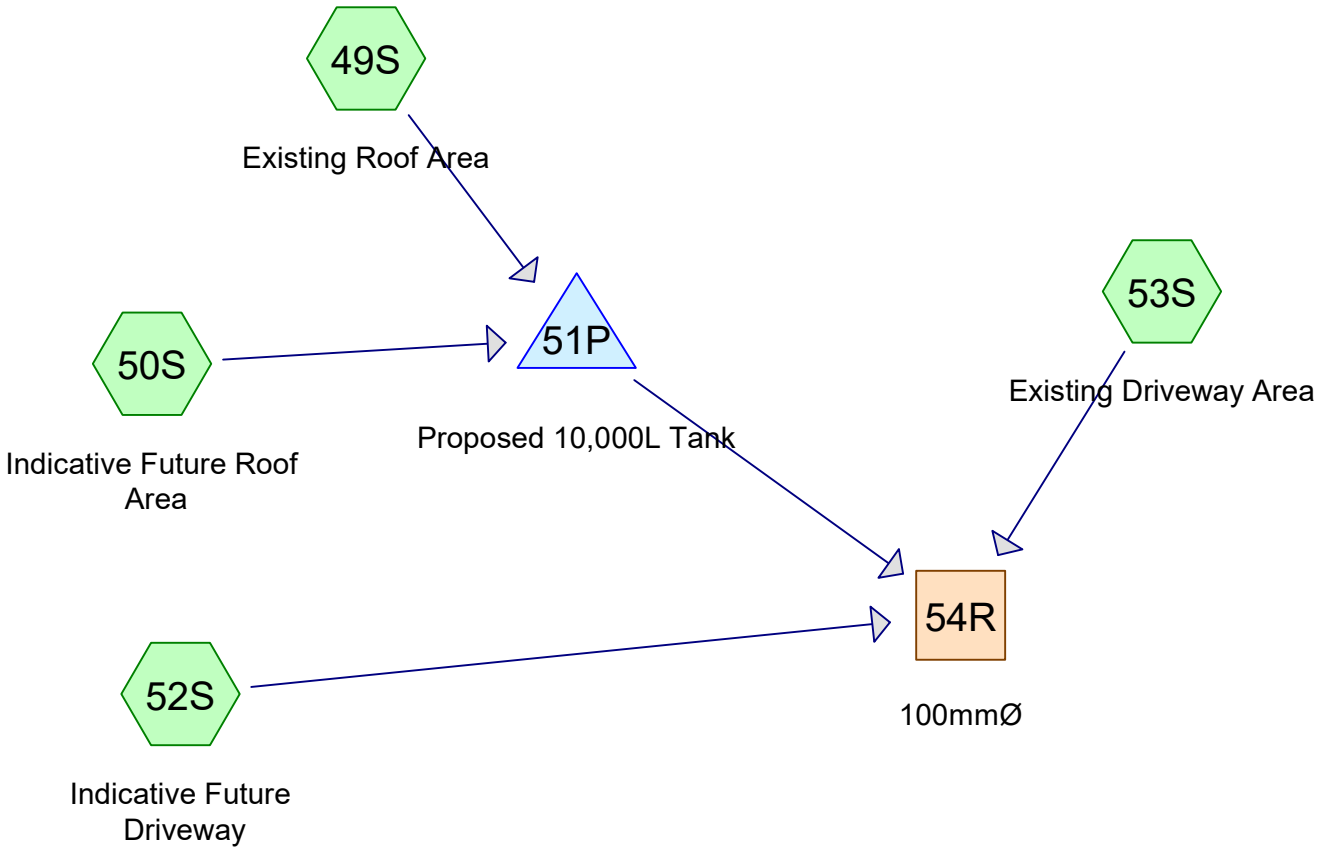
Inflow Area = 2,000.0 m², 22.55% Impervious, Inflow Depth > 79 mm for 50% AEP + 20% CCF event
Inflow = 8.95 L/s @ 8.02 hrs, Volume= 157.6 m³
Primary = 8.95 L/s @ 8.02 hrs, Volume= 157.6 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 35L: Post-Development Flows



LOT 2: PIPE SIZING



Subcat Reach Pond Link

Routing Diagram for 140586 Lot 2
Prepared by Wilton Joubert Limited, Printed 13/06/2025

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 49S: Existing Roof Area Runoff Area=101.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.13 L/s 16.5 m³

Subcatchment 50S: Indicative Future Runoff Area=250.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=2.79 L/s 40.9 m³

Subcatchment 52S: Indicative Future Runoff Area=100.0 m² 100.00% Impervious Runoff Depth>164 mm
Tc=10.0 min CN=98 Runoff=1.12 L/s 16.4 m³

Subcatchment 53S: Existing Driveway Runoff Area=203.0 m² 0.00% Impervious Runoff Depth>137 mm
Tc=10.0 min CN=89 Runoff=2.00 L/s 27.8 m³

Reach 54R: 100mmØ Avg. Flow Depth=0.07 m Max Vel=0.86 m/s Inflow=4.86 L/s 101.3 m³
100 mm Round Pipe n=0.011 L=10.00 m S=0.0100 m/m Capacity=6.10 L/s Outflow=4.86 L/s 101.3 m³

Pond 51P: Proposed 10,000L Tank Peak Elev=1.688 m Storage=6.2 m³ Inflow=3.92 L/s 57.4 m³
Outflow=1.97 L/s 57.2 m³

Summary for Subcatchment 49S: Existing Roof Area

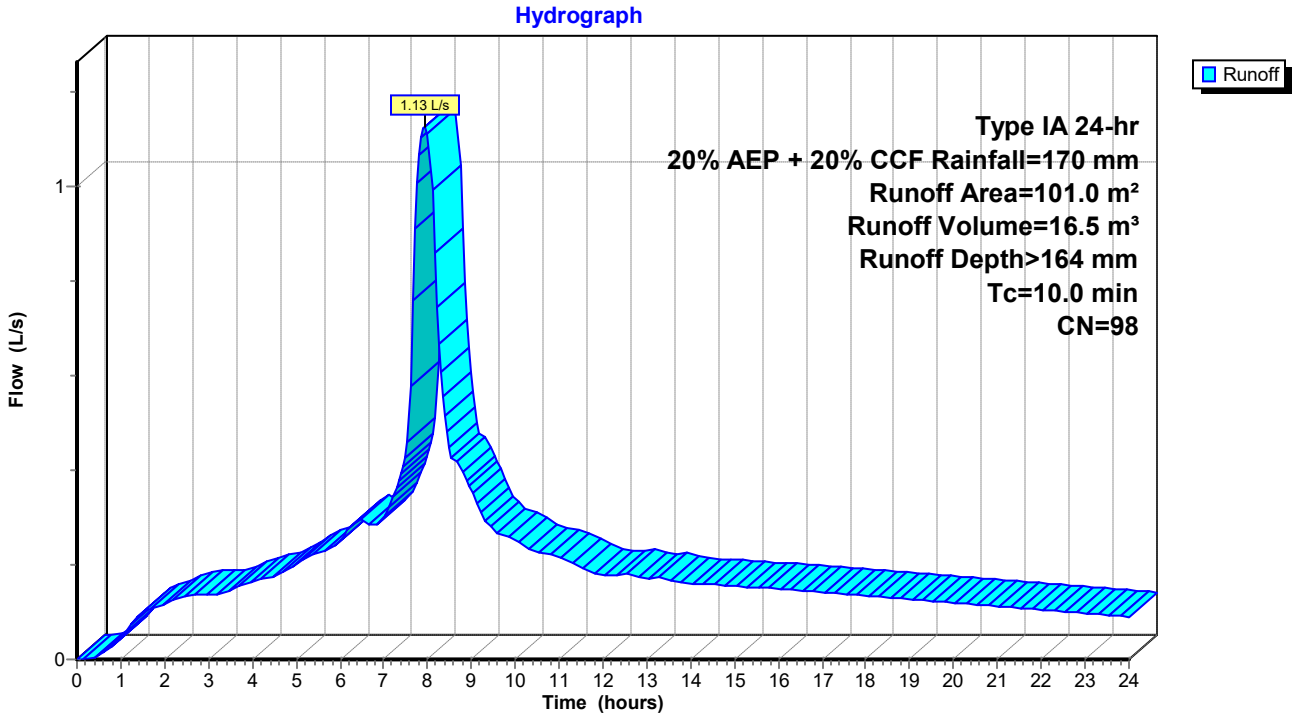
Runoff = 1.13 L/s @ 7.94 hrs, Volume= 16.5 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
101.0	98	Roofs, HSG C
101.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 49S: Existing Roof Area



Summary for Subcatchment 50S: Indicative Future Roof Area

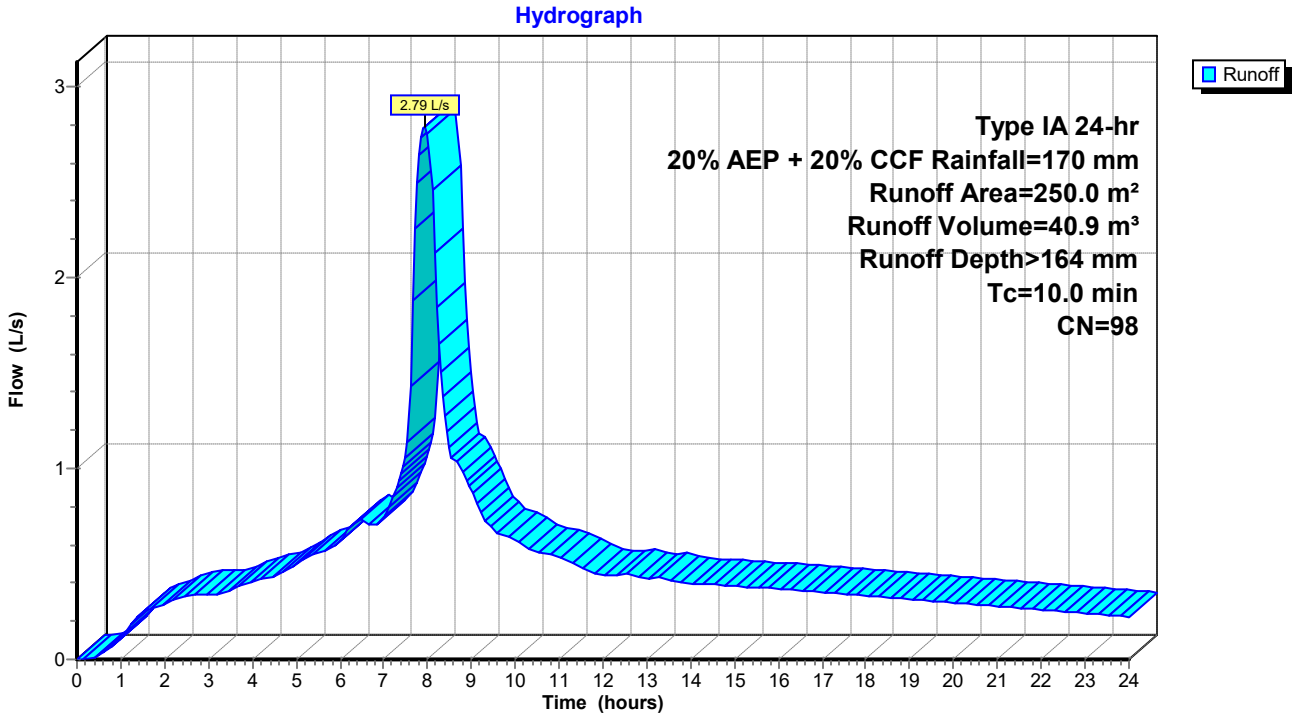
Runoff = 2.79 L/s @ 7.94 hrs, Volume= 40.9 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
250.0	98	Roofs, HSG C
250.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 50S: Indicative Future Roof Area



Summary for Subcatchment 52S: Indicative Future Driveway

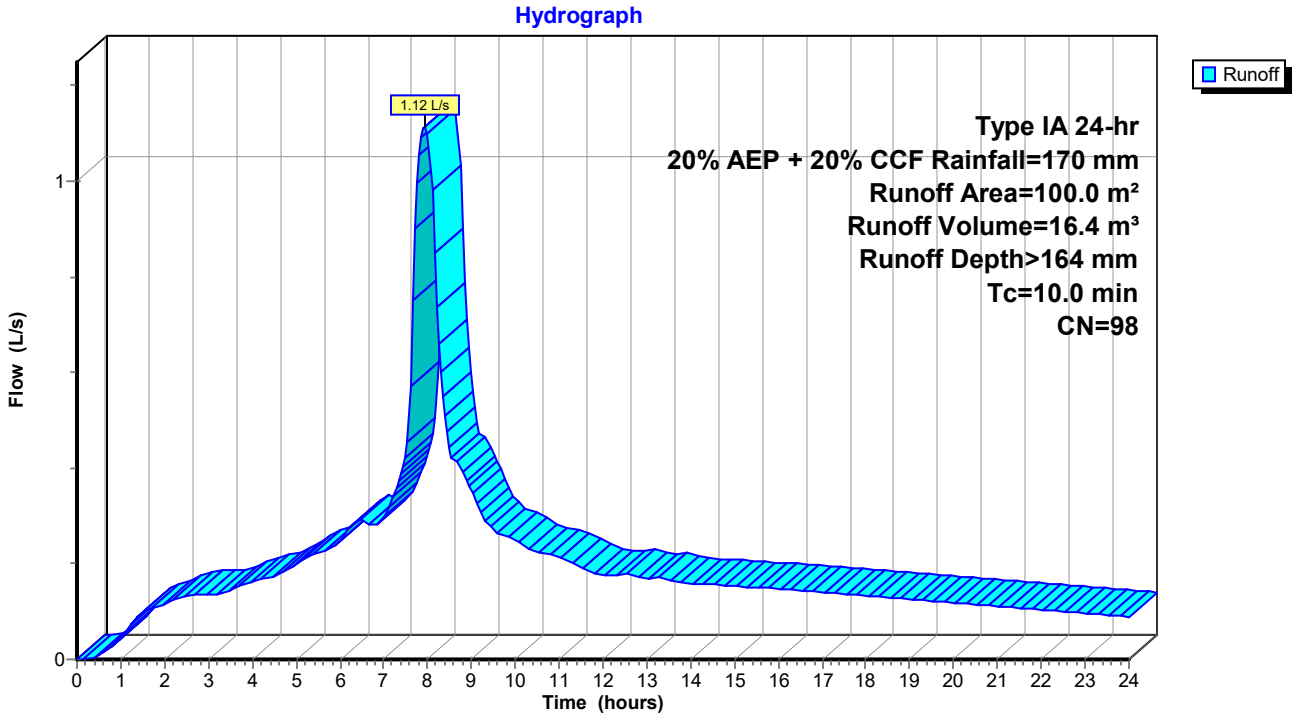
Runoff = 1.12 L/s @ 7.94 hrs, Volume= 16.4 m³, Depth> 164 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
100.0	98	Paved roads w/curbs & sewers, HSG C
100.0		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 52S: Indicative Future Driveway



Summary for Subcatchment 53S: Existing Driveway Area

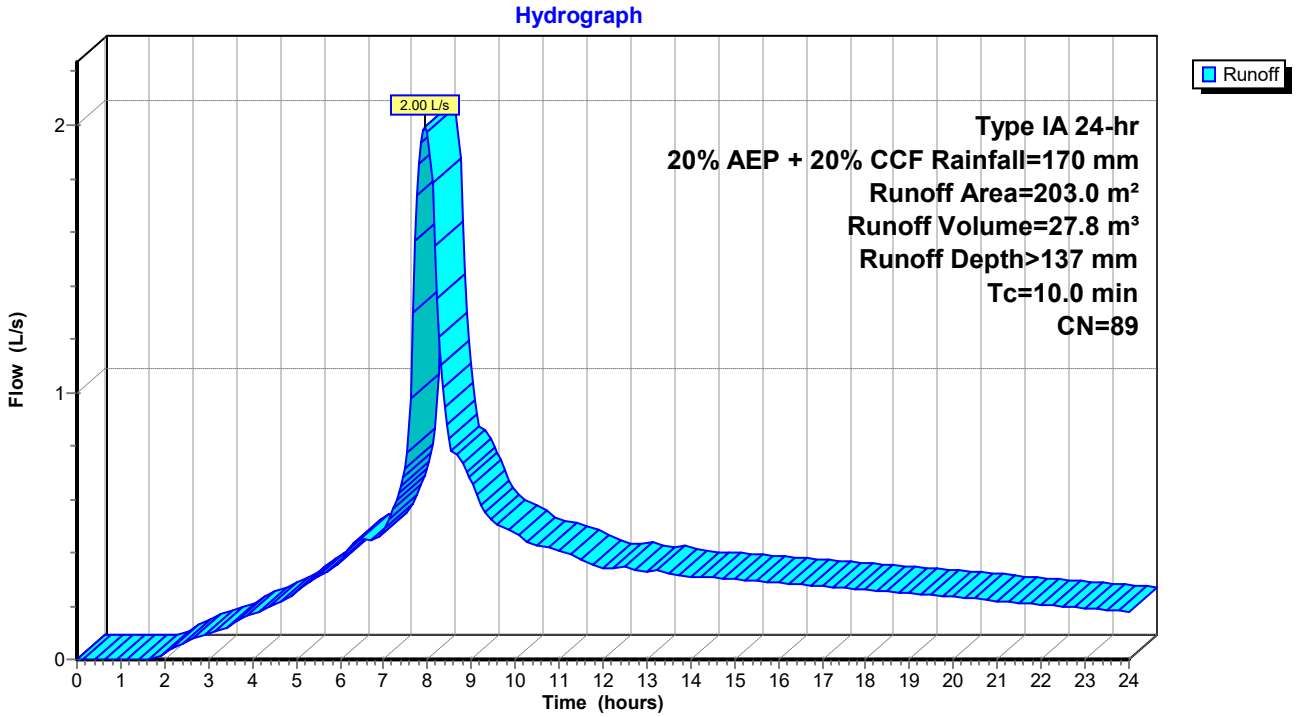
Runoff = 2.00 L/s @ 7.96 hrs, Volume= 27.8 m³, Depth> 137 mm

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% CCF Rainfall=170 mm

Area (m²)	CN	Description
203.0	89	Gravel roads, HSG C
203.0		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 53S: Existing Driveway Area



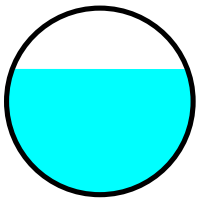
Summary for Reach 54R: 100mmØ

Inflow Area = 654.0 m², 68.96% Impervious, Inflow Depth > 155 mm for 20% AEP + 20% CCF event
Inflow = 4.86 L/s @ 8.01 hrs, Volume= 101.3 m³
Outflow = 4.86 L/s @ 8.02 hrs, Volume= 101.3 m³, Atten= 0%, Lag= 0.2 min

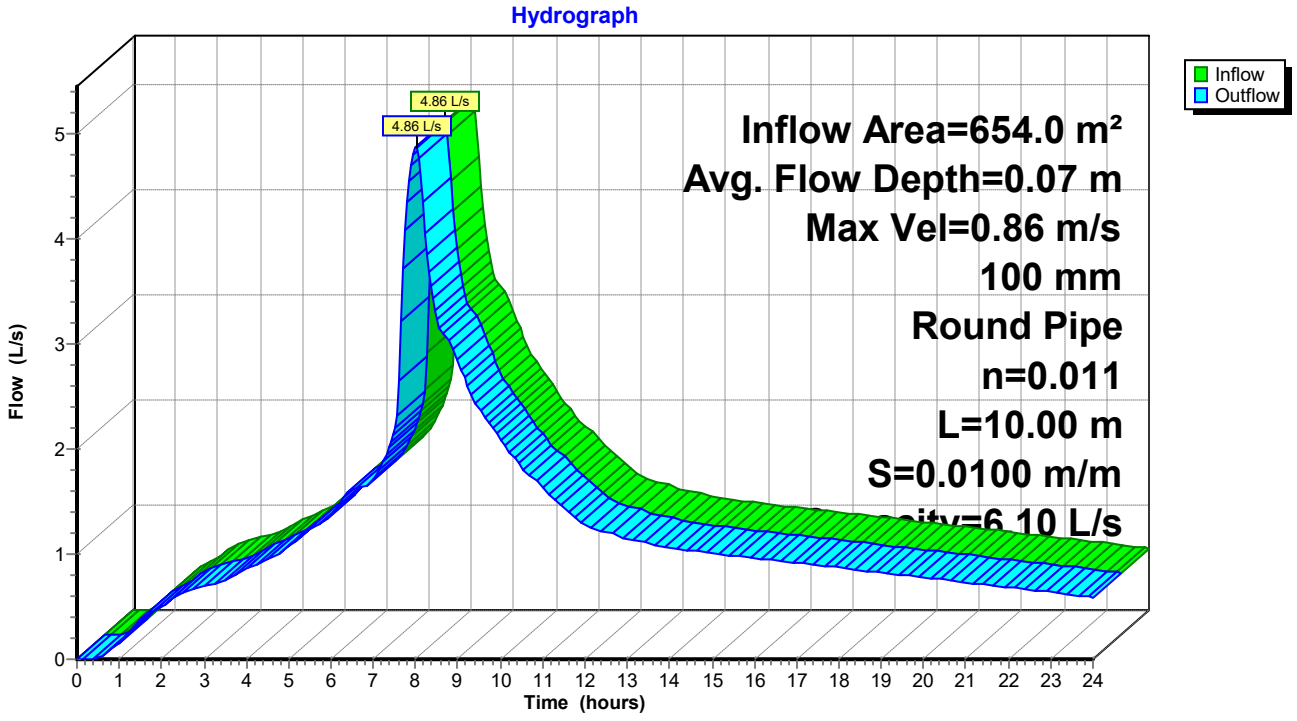
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.86 m/s, Min. Travel Time= 0.2 min
Avg. Velocity = 0.58 m/s, Avg. Travel Time= 0.3 min

Peak Storage= 0.1 m³ @ 8.02 hrs
Average Depth at Peak Storage= 0.07 m
Bank-Full Depth= 0.10 m Flow Area= 0.01 m², Capacity= 6.10 L/s

100 mm Round Pipe
n= 0.011 PVC, smooth interior
Length= 10.00 m Slope= 0.0100 m/m
Inlet Invert= 0.000 m, Outlet Invert= -0.100 m



Reach 54R: 100mmØ



Summary for Pond 51P: Proposed 10,000L Tank

Inflow Area = 351.0 m²,100.00% Impervious, Inflow Depth > 164 mm for 20% AEP + 20% CCF event
Inflow = 3.92 L/s @ 7.94 hrs, Volume= 57.4 m³
Outflow = 1.97 L/s @ 8.34 hrs, Volume= 57.2 m³, Atten= 50%, Lag= 24.2 min
Primary = 1.97 L/s @ 8.34 hrs, Volume= 57.2 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.688 m @ 8.34 hrs Surf.Area= 3.7 m² Storage= 6.2 m³

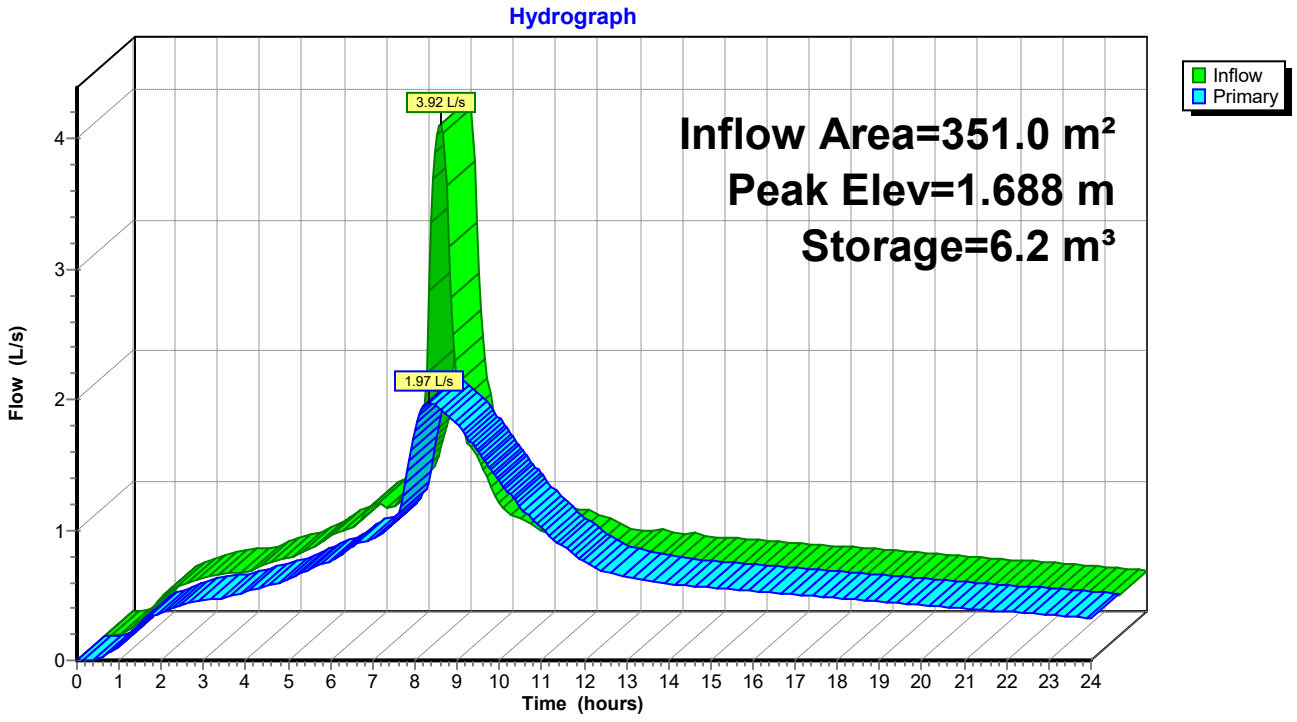
Plug-Flow detention time= 25.8 min calculated for 57.2 m³ (100% of inflow)
Center-of-Mass det. time= 22.9 min (674.3 - 651.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	10.6 m³	**2.16 mD x 2.90 mH Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**27 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.97 L/s @ 8.34 hrs HW=1.687 m (Free Discharge)
1=Orifice/Grate (Orifice Controls 1.97 L/s @ 3.44 m/s)

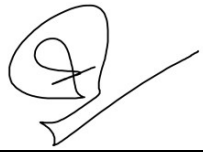
Pond 51P: Proposed 10,000L Tank



Wilton Joubert Limited
09 945 4188
185 Waipapa Road,
Kerikeri

SITE	**33 Mission Road, Kerikeri**
LEGAL DESCRIPTION	**Lot 2 DP 90338**
PROJECT	**2-Lot Subdivision (1 Lot for Assessment)**
CLIENT	**Fiona & Graeme Norman**
REFERENCE NO.	**140585**
DOCUMENT	**Geotechnical Assessment Report for Subdivision**
STATUS/REVISION NO.	**FINAL – Issued for Resource Consent**
DATE OF ISSUE	**6 June 2025**

Report Prepared For	Email
Fiona & Graeme Norman	gfnorman@xtra.co.nz

Authored by	**S. Page** *Pt NZDE (Civil)*	Engineering Technician	shaun@wjl.co.nz	
Reviewed by	**J. Mitchell** *Pt NZDE (Civil)*	Engineering Technician	justin@wjl.co.nz	
Approved by	**A. Asadi** *PhD (Geotech), CPEng, CMEngNZ*	Senior Geotechnical Engineer	afshin@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.

Development Type:	2-Lot subdivision (1 Lot for assessment).
District Plan Zone:	Rual Living.
Development Proposals Supplied:	Yes – Preliminary subdivision scheme plan. No architectural drawings.
NZS3604 Type Structure/s:	Yes.
Geology Encountered:	Kerikeri Volcanic Group deposits.
Surficial Topsoil Encountered:	Yes - 0.20m thick. No fill detected.
Overall Site Gradient in Proximity to Development:	Very gently inclined, averaging 3°-4°.
Site Stability Risk:	No perceivable risk of deep-seated global instability.
Liquefaction Risk:	Negligible risk of liquefaction susceptibility.
Suitable Foundation Type(s):	Timber subfloor, suspended on bored, concrete encased, tanalised timber pile foundations.
Soil Bearing Capacity:	Yes – Competent Natural Ground Only Geotechnical Ultimate Bearing Capacity = 300kPa.
NZBC B1 Expansive Soil Classification:	Class M – Moderately Expansive (y_s = 44mm). Refer report text for design guidance.
Minimum Footing Embedment Depth:	0.60m below finished ground levels and 0.30m into competent natural ground, whichever is deeper.
NZS1170.5:2004 Site Subsoil Classification:	Class C – Shallow soil stratigraphy.
Earthworks:	Due to the very gently inclined nature of the proposed building site, it is generally assumed that earthworks will consist of bored footing excavations, with no significant cut-fill earthworks envisaged.
Consent Application Report Suitable for:	Resource Consent. A review of final architectural drawings that are intended to be submitted as part of a Building Consent application will be required and a supplementary memorandum will be issued to support the application.

2. INTRODUCTION

2.1. SCOPE OF WORK

Wilton Joubert Limited (WJL) was engaged by Fiona and Graeme Norman (the client), to undertake a geotechnical assessment of ground conditions at the above site, where we understand, it is proposed to subdivide the existing residentially developed property into two individual allotments.

The subdivision essentially comprises splitting the existing property in half, with the northern Lot containing the existing dwelling, and the southern Lot being suitable for new residential construction. The southern Lot will also contain the existing detached garage that is southeast of the existing dwelling. For the purposes of this report, we will refer to the northern section as Lot 1 and the southern section as Lot 2.

The primary purpose of this report is to provide Geotechnical assessments and preliminary recommendations pertaining to future residential construction within Lot 2.

It is our understanding that this report will be submitted to support a Resource Consent application for the proposed subdivision.

Our scope does not include any environmental assessments of site subsoils, or civil assessments.

2.2. SUPPLIED INFORMATION

At the time of preparing this report, we were supplied with a preliminary Subdivision Scheme Plan which is appended to this report (see Section 4).

Any revision of the supplied preliminary Subdivision Scheme Plan with geotechnical implications should be referred to WJL for review.

3. SITE DESCRIPTION

The subject 4,045m² rectangular shaped property is located off the southern side of Mission Road, accessed 550m east of the Landing Road intersection, towards the northeastern outskirts of the Kerikeri urban area. The Lot is legally titled Lot 2 DP 90338 and is designated Rural Living in accordance with the Far North District Council (FNDC) on-line GIS Operative District Plan Map.

An existing dwelling is positioned across the northeastern portion of the site and a detached garage is located to the southeast of the dwelling, in proximity to the eastern boundary.

Two vehicle crossings are present along the northern boundary, being centrally located and at the northeastern corner. The crossings lead to an aggregate driveway and parking area directly in front of the dwelling. From the central crossing, a branch of the driveway also extends west along the northern boundary, before traversing south along the western boundary towards the central area of the Lot where an additional parking area is present in front of the garage.

Topographically speaking, the property is positioned in a northeast facing, gentle sloping volcanic plateau. Inclinations across the site essentially average 3°-4°. Existing ground levels across the site generally range between RL39m (southwest) and RL34 (northeast) New Zealand Vertical Datum (NZVD).

Aside from aggregate driveway coverage, the site is covered in lawn, with maintained gardens, trees and bush scattered throughout. Small hedge shelter belts bound the western and eastern boundaries, whilst a roadside water table drain bounds the northern boundary.

At the time of preparing this report, we note that the FNDC on-line GIS Water Services Map indicates that a main water service line bounds the northern boundary, outside the property confinements.

The property is depicted on our appended Site Plan (Ref: 140585-G600) and in Figure 1 below.

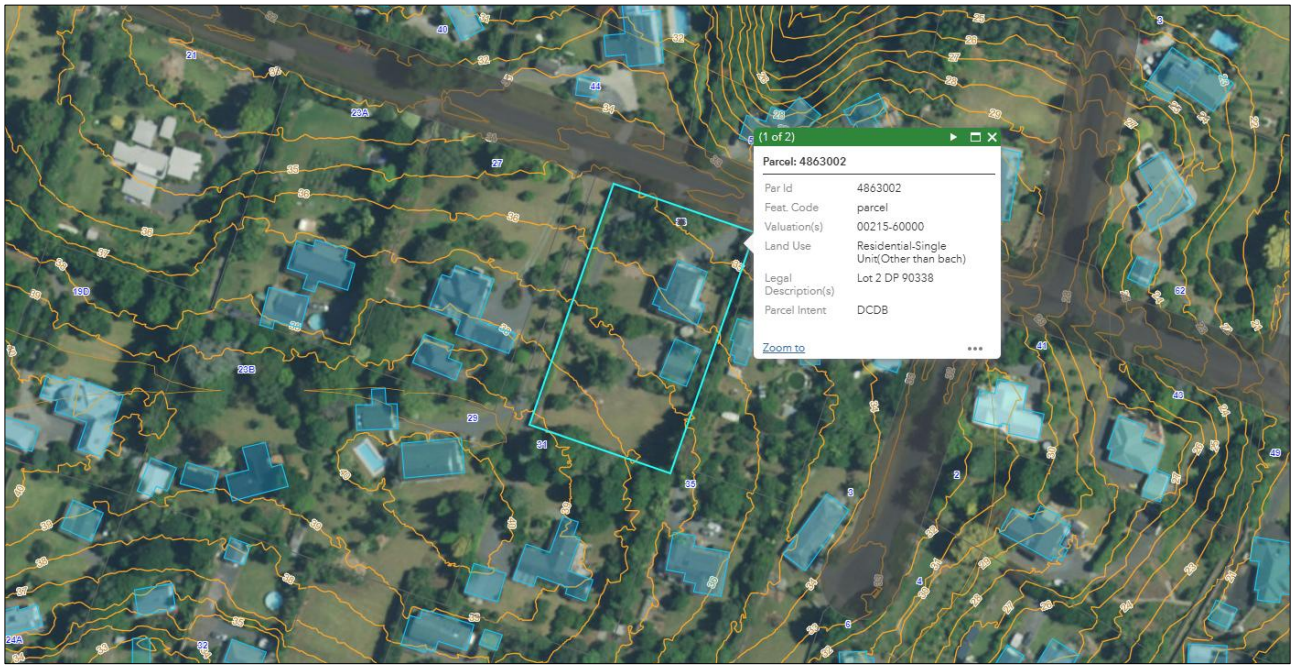


Figure 1: Screenshot from the FNDC on-line GIS Property and Land Map.
Property boundary is highlighted in cyan. 1.0m LiDAR are overlaid.

Figure 2: Site photograph from the northeaster boundary corner looking southwest towards the dwelling and driveway.

Figure 3: Site photograph from the western boundary looking northeast towards the dwelling, garage and driveway.

Figure 4: Site photograph from the southwestern boundary looking east towards proposed Lot 2.

4. DEVELOPMENT PROPOSALS

In reviewing the preliminary Subdivision Scheme Plan, it is our understanding that the client intends to subdivide the existing property into two nearly equal halves. For the purposes of this report, we will refer to the northern section as Lot 1 and the southern section as Lot 2.

A new right-of-way (ROW), extending west from the central vehicle crossing and along the existing western driveway formation, is to be utilised for Lot 2 access.

Lot 1 will encompass an area of 2,011m² and will contain the existing dwelling across the southeastern portion.

Lot 2 will encompass an area of 2,034m² and will be suitable for new residential construction. Additionally, the Lot will also contain the existing garage at the northeastern boundary.

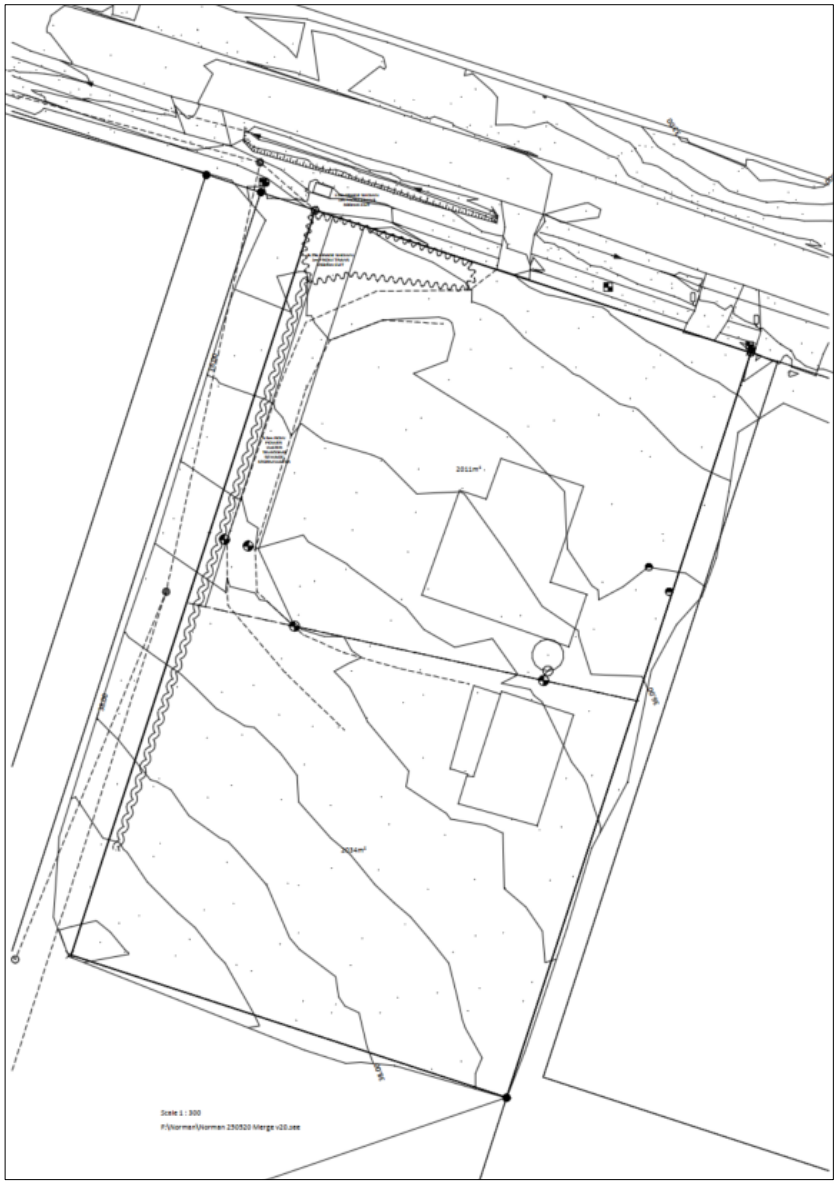


Figure 5: Screenshot of the preliminary Subdivision Scheme Plan.

The client has advised that following a successful subdivision of the property, they intend to construct a prefabricated residential dwelling in the southeastern portion of Lot 2. A proposed building site area of approximately 420m² is depicted on our appended Site Plan (Ref: 140585) and in Figure 6 below.

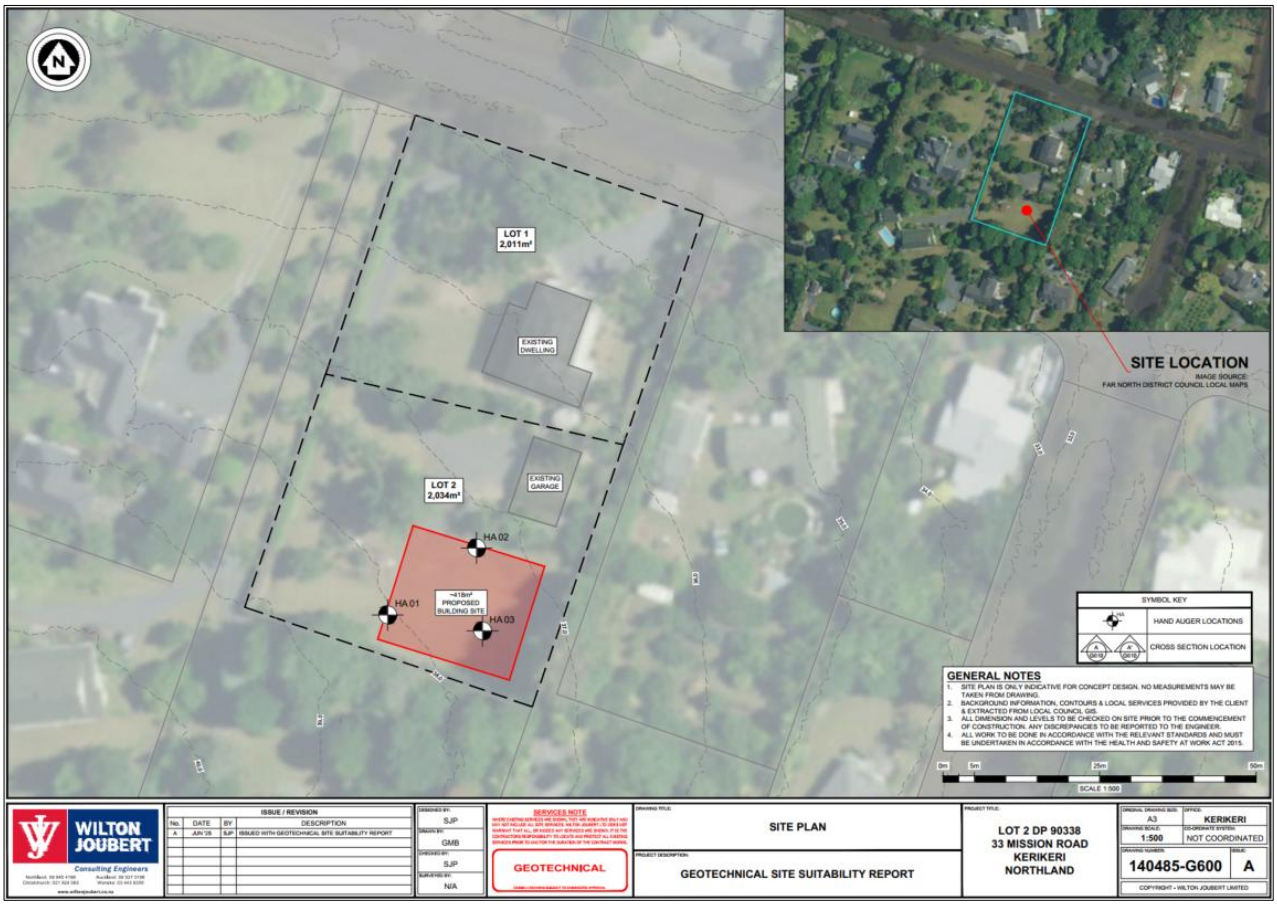


Figure 6: Screenshot of the appended WJL Site Plan. Red square depicts proposed building site location at Lot 2.

At this preliminary stage, we have assumed the prefabricated dwelling will be designed and constructed to apply loads generally in keeping with the requirements of NZS3604:2011 and be found on a timber subfloor, suspended on bored, timber pile foundations, supporting lightweight timber framing, cladding and roofing.

Due to the very gently inclined nature of the proposed building site, it is generally assumed that earthworks will consist of bored footing excavations, with no significant cut-fill earthworks envisaged.

As a result, the principal objectives were to investigate and assess the suitability of foundation options for the site subsoils, not only primarily in terms of bearing capacity, but also for differential foundation movement.

Figure 7: Site photograph of the Lot 2 proposed building site. Orange cones depict development extents.

5. GEOLOGY

Local geology across the property and wider surrounding land is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; Kerikeri Volcanic Group Late Miocene Basalt of Kaikohe (Bay of Islands Volcanic Field). These deposits are approximately 1.8 to 9.7 million years in age and described as; "*Basalt lava, volcanic plugs and minor tuff*" (Ref: GNS Science Website).

Figure 8: Screenshot aerial view from the New Zealand Geology Web Map. Blue marker depicts property location.

6. GEOTECHNICAL INVESTIGATION

We undertook a Geotechnical investigation of the property and surrounding influential land on 5 June 2025, comprising of the following:

- A walkover inspection, and
- Drilling three (no.) 50mm diameter hand auger boreholes (HA01 to HA03 inclusive) at the Lot 2 proposed building site to refusal depths ranging between 1.3m and 1.6m below existing ground level (BEGL).

The soil sample arisings from the HA's were logged in accordance with the "Field Description of Soil and Rock", NZGS, December 2005.

In-situ undrained Vane Shear Strengths were measured at intervals of depth and then adjusted in accordance with the New Zealand Geotechnical Society (NZGS); Guidelines for Handheld Shear Vane Testing, August 2001, with strengths classified in accordance with the NZGS Field Classification Guidelines; Table 2.10, December 2005. The materials identified are described in detail on the appended records, together with the results of the various tests undertaken, plus the groundwater conditions as determined during time on site.

The HA locations are depicted on our appended Site Plan (Ref: 140585-G600) and the logged results are appended to this report.

7. GEOTECHNICAL FINDINGS

The following is a summary of the ground conditions encountered in our investigation. Please refer to the appended logs for greater detail.

7.1. TOPSOIL

Surficial TOPSOIL layers of 0.20m thickness were overlying all three HA's. No fill was detected.

7.2. NATURAL GROUND

The underlying natural deposits encountered across the Lot 2 proposed building site were consistent with our expectations of Kerikeri Volcanic Group deposits, comprising of a very stiff, slightly clayey SILT cap to depths ranging between 0.90m to 1.2m BEGL, overlying, hard SILT, inferred to be completely weathered basalt rock and required quick termination due to the hardness of the material with depth.

Measured in-situ, BS1377 adjusted peak Shear Vane Strengths all exceeded 220kPa, where soil strength was in excess of the shear vane capacity, or the vane was not able to penetrate into the soil (UTP).

No peak to remould Shear Vane Strength ratios were able to be obtained. Based on experience, we generally assess the overlying slightly clayey silt cap as being 'Moderately Sensitive.'

Figure 9: Site photograph of the typical HA soil arisings encountered across the Lot 2 proposed building site (HA01: 0.0m to 1.6m).

7.3. GROUNDWATER

Groundwater was not detected in any of our three HA's.

Our fieldwork investigation was undertaken during dry weather conditions however, a rainfall event of 44m occurred the day prior to our investigation.

Considering the above, together with the elevation and topography of the property, and underlying geological profile encountered, it is generally envisaged that groundwater levels will not be significantly beneath the Lot 2 proposed building site, nor will any potential elevated levels initiate slope instability.

7.4. SUMMARY TABLE

The following table summarises our inferred stratigraphic profiling:

Investigation Hole ID	Termination Depth (m)	Depth to Base of Surficial Topsoil(m)	Vane Shear Strength Range (kPa) within Natural Ground	Standing Groundwater Depth (m)
HA01	1.6 (Refusal)	0.20	220+ / UTP	NE
HA02	1.5 (Refusal)	0.20	220+ / UTP	NE
HA03	1.3 (Refusal)	0.20	220+ / UTP	NE

Note: UTP = Unable to Penetrate, NE = Not Encountered

8. GEOTECHNICAL ASSESSMENTS

8.1. SITE STABILITY

On the basis of:

- No obvious evidence of deep-seated instability within the immediate vicinity of the Lot 2 proposed building site and surrounding influential land,
- Very gently inclined terrain, averaging 3°-4°, across the Lot 2 proposed building site,
- The very stiff in-situ Vane Shear Strengths recorded during our investigation and shallow depth to inferred, hard completely weathered basalt rock, and
- Our groundwater assessment provided in Section 7.3 above,

we perceive no risk of deep-seated global slope instability impacting the Lot 2 proposed building site.

8.2. LIQUEFACTION ASSESSMENT

Liquefaction is a natural phenomenon whereby prolonged seismic shaking induces an increase in pore water pressure, which in turn decreases the effective stress of silt/fine sand-like soil deposits. Excess pore water pressure (EPWP) can build to such an extent that the effective stress of the underlying soil is reduced to near zero, whereby the soils no longer carry shear strength and behave as a semi solid/fluid. In such a scenario, excess pore water pressures will follow the path of least resistance to eventual dissipation, which can lead to the migration of liquefied soils towards the surface, or laterally towards a free-face (edge of slope, riverbank, etc.) or layers that have not yet undergone liquefaction. Examples of these phenomena were experienced in Christchurch and the greater Canterbury Region during the Earthquake Sequence between 2010-2011.

At the time of preparing this report, we note that the FNDC on-line GIS Liquefaction Vulnerability Map indicates that the property and wider surrounding land lies within an '*Unlikely*' zone.

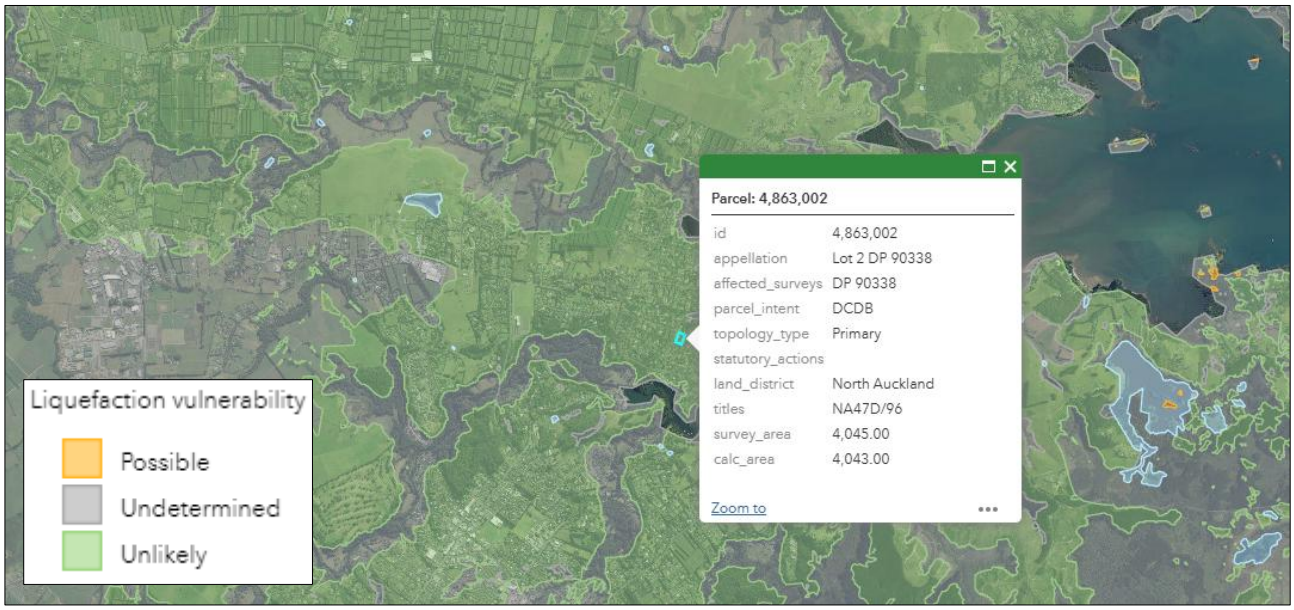


Figure 10: Screenshot from the FNDC on-line GIS Liquefaction Vulnerability Map. Property boundary is highlighted in cyan.

A screening procedure based on geological criteria was adopted to examine whether the proposed development locations might be susceptible to liquefaction, with observations as follows:

- There are no known active faults traversing through the property or wider surrounding land,
- There is no historical evidence of liquefaction at the property,
- The Lot 2 proposed building site is situated in an elevated location, set no less than approximately RL36m NZVD, with good water shedding characteristics down to the northeast,
- Very stiff in-situ measured Vane Shear Strength recorded during our investigation and shallow depth to inferred, hard completely weathered basalt rock,
- Our groundwater assessment provided in Section 7.3 above,
- The subsoils beneath the Lot 2 proposed building site comprise of cohesive soils that are not generally considered susceptible to liquefaction, and
- The subsoils beneath the Lot 2 proposed building site are underlain by Kerikeri Volcanic Group deposits, being 1.8 to 9.7 million years in age, allowing for adequate consolidation in comparison to younger, Holocene age material (10,000 years).

Based on the above, we conclude that the subsoils beneath both proposed development locations have a negligible risk of liquefaction susceptibility and liquefaction damage is therefore considered to be unlikely.

9. CONCLUSIONS AND RECOMMENDATIONS

Based on our fieldwork investigation, subsoil testing results, walkover inspection and stability commentary as described above, we consider on reasonable grounds that this report can be submitted to the Territorial Authority in support of a Resource Consent application for subdividing the subject site, substantiating that in terms of section 106 of the Resource Management Act and its current amendments, either

a) No land in respect of which the consent is sought, nor any structure on that land, is, nor is likely to be subject to material damage by erosion, falling debris, subsidence, or slippage from any source, or
b) No subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to that land, other land, or structure, by erosion, falling debris, subsidence, or slippage from any source,

unless the Territorial Authority is satisfied that sufficient provision has been made or will be made in accordance with section 106(2).

Under section 106(2), the Territorial Authority may grant a subdivision consent if it is satisfied that the effects described above will be avoided, remedied, or mitigated by one or more of the following:

a) Rules in the district plan:
b) Conditions of a resource consent, either generally or pursuant to section 220(1)(d):
c) Other matters, including works.

And we are therefore satisfied that Lot 2 should be generally suitable for future residential construction in terms of NZS3604:2011, subject to review of final architectural drawings that are intended to be submitted as part of a Building Consent application. Following review, a supplementary memorandum will be issued to support the application.

9.1. FOUNDATIONS

At this preliminary stage, we assume the prefabricated dwelling that is to be constructed at Lot 2 will be found on a timber subfloor, suspended on bored, timber pile foundations.

9.1.1. SHALLOW FOUNDATION BEARING CAPACITY

The following bearing capacity values are considered to be appropriate for the design of shallow, bored timber pile foundations, subject to founding directly within competent natural ground, for which careful Geo-Professional inspections of the subgrade should be undertaken to check that the underlying conditions are in keeping with our expectations:

Geotechnical Ultimate Bearing Capacity	300 kPa
ULS Dependable Bearing Capacity (Φ=0.5)	150 kPa

When finalising development proposals, it should be checked that all foundations lie outside 45° envelopes rising up from 0.50m below the invert of service trenches, unless such foundation details are found by specific engineering design (SED) to be satisfactory. Deeper foundation embedment with piles may be required for any surcharging foundations.

During inspections, it is important to exercise caution to verify that the natural ground meets the recommended bearing capacity mentioned in this report. This is crucial for preserving structural integrity.

9.1.2. SHALLOW FOUNDATIONS ON EXPANSIVE SOILS

In this instance:

- Considering the low plasticity of the slightly clayey silt cap and presence of inferred, completely weathered basalt rock deposits from shallow depths ranging between 0.90m and 1.2m BEGL, and
- Our extensive experience within similar volcanic settings across the Kerikeri Region which have yielded Class S and Class M results during laboratory testing,

we recommend a primary conservative classification of Class M (Moderately) expansive soils, as defined in clause 7.5.13.1.2, and introduced to NZS3604 by Amendment 19 of NZBC Structure B1/AS1.

- NZBC B1 Expansive Soil Class M
- Upper Limit of Characteristic surface movement (ys) 44mm

Given that the soils are not considered to lie within the definition of "good ground" in accordance with NZS3604:2011, the design of shallow foundations are no longer covered by NZS3604:2011. Care must be taken to mitigate against the potential seasonal shrinkage and swelling effects of expansive foundation soils on both superstructures and floors. We therefore recommend SED should be undertaken by a qualified engineer for the design of foundations.

Soil expansiveness can be aided in mitigation as follows:

- For Bored, Concrete Encased, Timber Pile Foundations:
  - Minimum embedment of 0.60m below finished ground levels and 0.30m into competent natural ground, whichever is deeper.

9.1.3. NZS1170.5:2004 SITE SUBSOIL CLASSIFICATION

We consider the proposed building site to be underlain with a Class C – Shallow Soil stratigraphy.

9.2. SITE EARTHWORKS

Due to the very gently inclined nature of the proposed building site, it is generally assumed that earthworks will consist of bored footing excavations, with no significant cut-fill earthworks envisaged.

If the above assumptions change, WJL must be contacted prior to the finalisation of architectural drawings and commencement of construction works.

Generally, and as directed by a suitably experienced engineer, all earthworks should be undertaken in accordance with the following standards:

- NZS4431:2022 "Code of Practice for Earth Fill Residential Development",
- Section 2 "Earthworks & Geotechnical Requirements" of NZS4404:2010 "Land Development and Subdivision Infrastructure", and
- Chapter 2 "Site Development Suitability (Geotechnical and Natural Hazards" of the Far North District Council Engineering Standards, (Version 0.6 issued May 2023).

9.3. SITE PREPARATION

The competency of the exposed subgrade at the invert of all bored footings should be confirmed by a Geo-Professional to confirm that the underlying natural subgrade conditions are in keeping with the expectations of this report.

Without such inspections being undertaken, a Chartered Professional Geotechnical Engineer is unable to issue a Producer Statement - Construction Review (PS4) – which could result in the failure to meet Building Consent requirements as set by Council as conditions of consent.

9.4. SUBGRADE PROTECTION

All bored footing inverts should be poured as soon as possible once inspected by a Geo-Professional or covered with a protective layer of site concrete.

9.5. GENERAL SITE WORKS

We stress that all works should be undertaken in a careful and safe manner so that Health & Safety is not compromised, and that suitable Erosion & Sediment control measures should be put in place. Any stockpiles placed should be done so in an appropriate manner so that land stability and/or adjacent structures are not compromised.

Furthermore:

- All works must be undertaken in accordance with the Health and Safety at Work Act 2015,
- Any open excavations should be fenced off or covered, and/or access restricted as appropriate,
- The location of all services should be verified at the site prior to the commencement of construction,
- The Contractor is responsible at all times for ensuring that all necessary precautions are taken to protect all aspects of the works, as well as adjacent properties, buildings and services, and
- Should the contractor require any site-specific assistance with safe construction methodologies, please contact WJL for further assistance.

9.6. LONG-TERM FOUNDATION CARE & MAINTENANCE

The recommendations given above to mitigate the risk of expansive soils do not necessarily remove the risk of external influences affecting the moisture in the subgrade supporting the foundations.

All owners should also be aware of the detrimental effects that significant trees can have on building foundation soils, viz:

- Their presence can induce differential consolidation settlements beneath foundations through localised soil water deprivation, or conversely, and
- Foundation construction too soon after their removal can result in soil swelling and raising foundations as the soil rehydrates.

To this end, care should be taken to avoid:

- Having significant trees positioned where their roots could migrate beneath the house foundations, and
- Constructing foundations on soils that have been differentially excessively desiccated by nearby trees, whether still existing, or recently removed.

We recommend that homeowners make themselves familiar with the appended Homeowners' Guide published by CSIRO, with particular emphasis on maintenance of drains, water pipes, gutters, and downpipes.

10. STORMWATER CONTROL

Uncontrolled stormwater flows must not be allowed to run onto or over site slopes, or to saturate the ground, so as to adversely affect soil bearing conditions.

All stormwater runoff from new roof and paved areas should be collected in sealed pipes and be discharged to a stable disposal point that is well clear of the building site.

Under no circumstances should concentrated overflows from any source be discharged into or onto the ground in an uncontrolled fashion.

11. UNDERGROUND SERVICES

Underground services, public or private, mapped, or unmapped, of any type may be present, hence we recommend staying on the side of caution during the commencement of any work within the proposed development area.

12. FUTURE CONSTRUCTION MONITORING

The foregoing statements are Professional Opinion, based on a limited collection of information, some of which is factual, and some of which is inferred. Because soils are not a homogeneous, manufactured building component, there always exists a level of risk that inferences about soil conditions across the greater site, which have been drawn from isolated "pin-prick" locations, may be subject to localized variations. Generally, any investigation is deemed less complete until the applicability of its inferences and the Professional Opinions arising out of those are checked and confirmed during the construction phase, to an appropriate level.

It is increasingly common for the Building Consent Authorities to require a Producer Statement – Construction (PS4) which is an important document. The purpose of the PS4 is to confirm the Engineers' Professional Opinion to the BCA that specific elements of construction, such as the verification of design assumptions and soil parameters (NZBC clause B1/VM4 2.0.8), are in accordance with the approved Building Consent and its related documents, which should include the subject Geotechnical Report. Where site works will involve the placement of fill, the PS4 should reference NZBC clause B1/VM1 10.1.

For WJL to issue a PS4 to meet the above clauses of the NZBC, we will need to carry out the site inspections as per the Building Consent and Council requirements.

We require at least 48 hours' notice for site inspections.

Site inspections should be undertaken by a Chartered Professional Geotechnical Engineer or their Agent, who is familiar with both this site and the contents of this Geotechnical Report.

Prior to works commencement, the above Engineer should be contacted to confirm the construction methodologies, inspection, and testing frequency.

The primary purpose of the site inspections is to check that the conditions encountered are consistent with those expected from the investigations and adopted for the design as discussed herein. If anomalies or uncertainties are identified, then further Professional advice should be sought from the Geo-Professional, which will allow the timely provision of solutions and recommendations should any engineering problems arise.

Upon satisfactory completion of the above work aspects, WJL would then be in a position to issue the PS4 as required by Council.

At this time, the following Geotechnical site inspections and testing should include, but are not limited to:

- Pre-pour bored footings.

13. LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource Consent application.

This report has been commissioned solely for the benefit of our clients, **Fiona and Graeme Norman**, in relation to the project described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions and limitations, when issuing the subject consent. Any variations from the development proposals described herein as forming the basis of our appraisal should be referred to us for further evaluation. Copyright of Intellectual Property remains with WJL, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other geotechnical aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

The recommendations provided in this geotechnical report are in accordance with the findings from our shallow investigation. However, it is important to acknowledge that additional refinement of the investigation and analysis may be necessary to meet the specific requirements set by the local council.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

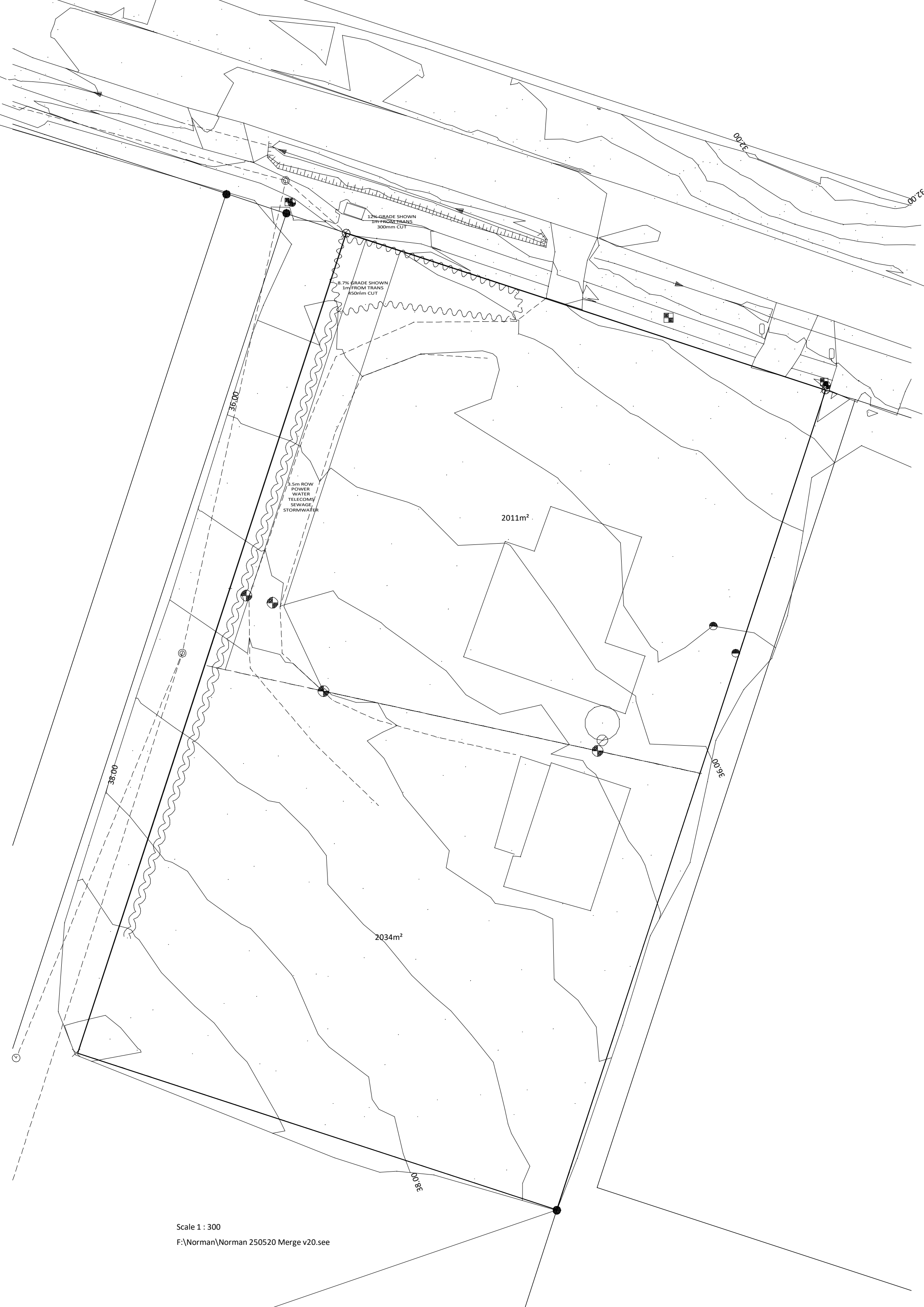
Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

WILTON JOUBERT LIMITED

Enclosures:

Preliminary Subdivision Scheme Plan (1 sheet)
WJL Site Plan (1 sheet)
Hand Auger Borehole Records (2 sheets)
'Foundation Maintenance & Footing Performance' sheet BTF18: A Homeowner's Guide, published by CSIRO (4 sheets)
Construction Monitoring (1 sheet)



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SITE LOCATION

IMAGE SOURCE:
FAR NORTH DISTRICT COUNCIL LOCAL MAPS

LOT 1
2,011m²

EXISTING DWELLING

LOT 2
2,034m²

EXISTING GARAGE

HA 01

HA 02

HA 03

~418m²
PROPOSED BUILDING SITE

32.0
33.0
34.0
35.0
36.0
37.0
38.0
39.0
40.0

SYMBOL KEY	
HA	HAND AUGER LOCATIONS
A G610 / A' G610	CROSS SECTION LOCATION

GENERAL 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.

0m 5m 25m 50m

SCALE 1:500

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
A	JUN '25	SJP	ISSUED WITH GEOTECHNICAL SITE SUITABILITY REPORT

DESIGNED BY: SJP
DRAWN BY: GMB
CHECKED BY: SJP
SURVEYED BY: N/A

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.

GEOTECHNICAL

DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE: **SITE PLAN**

PROJECT DESCRIPTION: **GEOTECHNICAL SITE SUITABILITY REPORT**

PROJECT TITLE:
LOT 2 DP 90338
33 MISSION ROAD
KERIKERI
NORTHLAND

ORIGINAL DRAWING SIZE:	OFFICE:
A3	KERIKERI
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:500	NOT COORDINATED

DRAWING NUMBER: 140485-G600
ISSUE: A

HAND AUGER : HA01

JOB NO.: 140585 **SHEET:** 1 OF 1

START DATE: 05/06/2025 **NORTHING:** **GRID:**

CLIENT: Fiona & Graeme Norman **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision (1 Lot for Assessment) **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 33 Mission Road, Kerikeri **FACTOR:** 1.57 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
			0.6						
			0.8		220+	-	-		
			1.0						
	SILT, minor clay, brown with occasional purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.2		UTP	-	-		
			1.4						
	EOH: 1.60m - Too Hard To Auger		1.6		UTP	-	-		
			1.8						

REMARKS

End of borehole @ 1.60m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: ANA

▼ Standing groundwater level

▽ GW while drilling

WILTON JOUBERT Consulting Engineers
185 Waipapa Road, Kerikeri 0295
Phone: 09-945 4188
Email: jobs@wjl.co.nz
Website: www.wiltonjoubert.co.nz

HAND AUGER : HA02

JOB NO.: 140585 **SHEET:** 1 OF 1

CLIENT: Fiona & Graeme Norman
PROJECT: 2-Lot Subdivision (1 Lot for Assessment)
SITE LOCATION: 33 Mission Road, Kerikeri

START DATE: 05/06/2025 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: DR4802 **ELEVATION:** Ground
FACTOR: 1.57 **DATUM:**

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
	0.6m: Occasional black weakly fused clast mottles and streaks.		0.6						
			0.8		220+	-	-		
	0.9m: Occasional white weakly fused clast mottles.		1.0						
	SILT, minor clay, brown with purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.2		UTP	-	-		
			1.4						
	EOH: 1.50m - Too Hard To Auger		1.6		UTP	-	-		
			1.8						

REMARKS
End of borehole @ 1.50m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP
CHECKED BY: ANA

▼ Standing groundwater level
▽ GW while drilling

WILTON JOUBERT Consulting Engineers
185 Waipapa Road, Kerikeri 0295
Phone: 09-945 4188
Email: jobs@wjl.co.nz
Website: www.wiltonjoubert.co.nz

HAND AUGER : HA03

JOB NO.: 140585 **SHEET:** 1 OF 1

START DATE: 05/06/2025 **NORTHING:** **GRID:**

CLIENT: Fiona & Graeme Norman **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision (1 Lot for Assessment) **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 33 Mission Road, Kerikeri **FACTOR:** 1.57 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, moist.	TS	0.2	Groundwater Not Encountered					
Kerikeri Volcanic Group	NATURAL: Slightly Clayey SILT, brown, very stiff, dry to moist, low plasticity.		0.4		220+	-	-		
	0.4m: Occasional black weakly fused clast mottles and streaks.		0.6						
	0.7m: Occasional black weakly fused clast mottles and streaks.		0.8		220+	-	-		
	SILT, minor clay, brown with purplish grey mottles, very stiff to hard, dry to moist, no plasticity (friable).		1.0						
			1.2		UTP	-	-		
	EOH: 1.30m - Too Hard To Auger		1.4		UTP	-	-		
			1.6						
			1.8						

SOIL DESCRIPTION

TOPSOIL CLAY SAND PEAT

FILL SILT GRAVEL ROCK

REMARKS

End of borehole @ 1.30m (Target Depth: 3.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: ANA

▼ Standing groundwater level

▽ GW while drilling

WILTON JOUBERT Consulting Engineers

185 Waipapa Road, Kerikeri 0295
Phone: 09-945 4188
Email: jobs@wjl.co.nz
Website: www.wiltonjoubert.co.nz

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

PUBLISHING

BTF 18-2011 replaces Information Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870-2011, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

Notes

1. Where controlled fill has been used, the site may be classified A to E according to the type of fill used.
2. Filled sites. Class P is used for sites which include soft fills, such as clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soil subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.
3. Where deep-seated moisture changes exist on sites at depths of 3 m or greater, further classification is needed for Classes M to E (M-D, H1-D, H2-D and E-D).

Tree root growth
Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation
Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

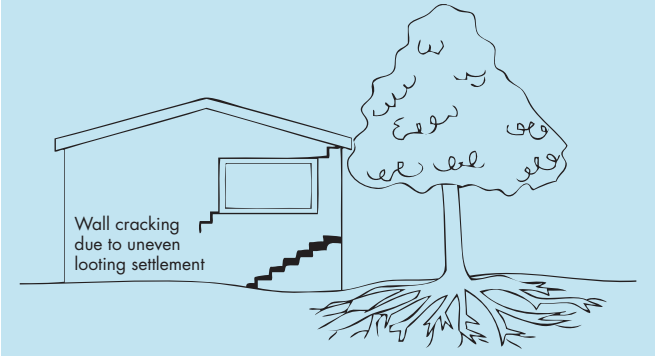
The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Trees can cause shrinkage and damage



Movement caused by tree roots
In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself
Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures
Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

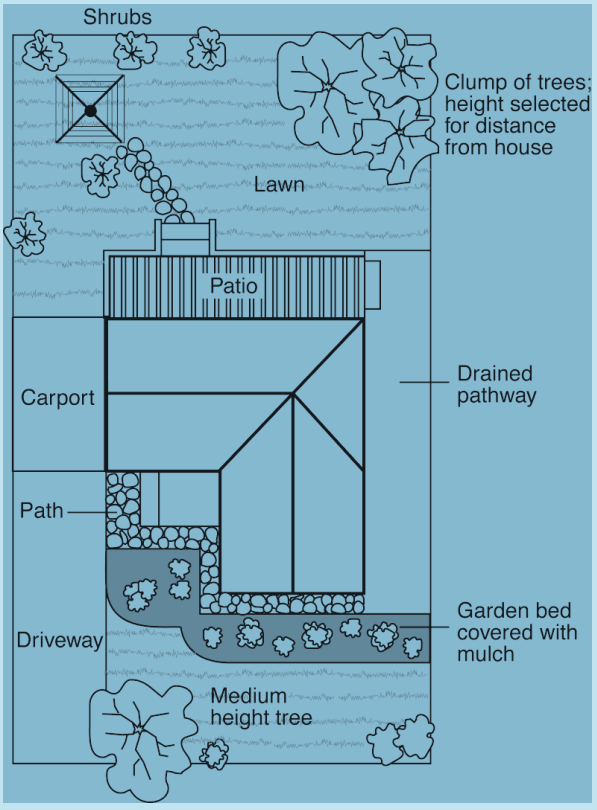
Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4

Gardens for a reactive site



extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

Distributed by

CSIRO PUBLISHING PO Box 1139, Collingwood 3066, Australia

Tel (03) 9662 7666 Fax (03) 9662 7555 www.publish.csiro.au

Email: publishing.sales@csiro.au

WILTON JOUBERT
Consulting Engineers

Construction Monitoring Services

Northland, Auckland-Waikato, Canterbury, Southern Lakes

Need a PS4?

- Please read the conditions of your Building Consent to determine which section of the works Council wants an engineer to sign off on.
- Book an inspection with Wilton Joubert Ltd or with a suitable qualified engineer.
- Have the Consent documents on site at the time of the inspection
- Be sure to verify both the grounding conditions (soil parameters) as well as the structural elements of works in question
- If in doubt what to get inspected please clarify with Council.

Producer Statements 4 - Construction Review Documents (PS4's) relates to Building Consents (BC) only, not Resource Consents (RC), unless there is an element of the RC which requires a BC, e.g. a retaining wall needed to develop a subdivision.
In soils, RC's are usually verified with a "Statement of Professional Opinion as to Suitability for Building Development", or variations on that title.

CONSTRUCTION MONITORING SERVICES

Construction monitoring refers to the physical inspection of selective components of the design or works as required by Council and as specified in the Consented documents. It is up to the Consent holder to read the special conditions set out by Council and arrange for the required inspections to be done. No PS4 can be issued without the physical inspection of works and sighting of Consented plans either by the design engineer, his representative, or another qualified engineer. (download PDF with more info via our website)

It is also important to note that, more often than not, there are two physical components that needs verification:

1. Geotechnical or grounding Conditions –referring to the strength or bearing capacity of the soil
2. Structural Components – verify that works are done as per design and in accordance with the consented plans.

To complicate matters there can be multiple engineers that might be engaged on the same site:

- Civil Engineer – To do storm water and wastewater designs
- Geotechnical Engineer – to do a Geotech report and specificity soil parameters as required
- Structural Engineer – to design structural components such as retaining walls, raft floors, beams and so on.

In cases where engineers from different companies are appointed it is important to make sure all the required boxes are ticked as not to complicate matters when it comes to the issuing of all the relevant PS4's.
Note: sites in the Auckland area might requires multiple PS4's for the same component (e.g. a raft floor requires a Geotechnical Engineer to verify the bearing capacity of the platform and a Structural engineer needs to verify the structural components are according to the design.
Not to mention a Council inspection is also required on the same floor to verify position, plumbing and so on.

In Summary:

- Read the conditions as laid out in the Consent documents to which elements of the design requires a PS4's from the design engineer.
- Have Consented plans on site during inspection time
- Book inspections ahead of time (a minimum of 48 hours in advanced)
- Ensure both grounding conditions as well as structural components are inspected. In some cases, this might mean two separate inspections if different engineers are involved.
- If you have any further questions, feel free to contact us at any time during business hours.

Construction Monitoring Enquiries
Email: *jobs@wjl.co.nz*
or scan QR code to visit our website

NGĀTI RĒHIA

17th June 2025

Bay of Islands Planning
Kerikeri Road
Kerikeri

Attention: Andrew McPhee

Tena koe,

Re: 33 Mission Road, Kerikeri
Two lot subdivision plan

Te Runanga o Ngati Rehia Trust acknowledges your effort to engage, and receipt of your plan for 33 Mission Road, Kerikeri.

We would like to confirm our support for your plan for the two-lot subdivision plan at 33 Mission Road, Kerikeri. We would like to ask you to keep us informed of any work going forward.

Please feel free to reach out if further support from Ngati Rehia may be of help.

Naku noa, na

Jenny Rutherford
Kaiwhakahaere
Te Runanga o Ngati Rehia Trust

Outlook

RE: Two lot subdivision - 33 Mission Rd

From Bill Edwards <BEdwards@heritage.org.nz>
Date Wed 25/06/2025 11:00 AM
To Andrew McPhee <andrew@bayplan.co.nz>; James Robinson <jrobinson@heritage.org.nz>; Stuart Bracey <SBracey@heritage.org.nz>

Kia ora Andrew,

Thank you for the email. We support the two-lot subdivision at 33 Mission Road and do not anticipate any negative heritage affects from this development. Good luck with the project.

Nga mihi

Bill Edwards Area Manager, Northland| Heritage New Zealand Pouhere Taonga |Northland Area Office, 21 Hobson Ave, PO Box 836 Kerikeri 0245, New Zealand | Ph: (64 09) 407 0470| DDI: (64 09) 407 0471| Visit www.heritage.org.nz and learn more about New Zealand's heritage places

Tairangahia a tua whakarere; Tatakihia nga reanga o amuri ake nei- Honouring the past; Inspiring the future

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From: Andrew McPhee <andrew@bayplan.co.nz>
Sent: Wednesday, 25 June 2025 9:41 am
To: Bill Edwards <BEdwards@heritage.org.nz>; James Robinson <jrobinson@heritage.org.nz>
Subject: Fw: Two lot subdivision - 33 Mission Rd

Good morning Gents

Following up on the request below for a two lot subdivision on Mission Rd. We have already received support from Ngati Rehia.

If you can please provide a response it would be greatly appreciated.

Kind regards
Andrew

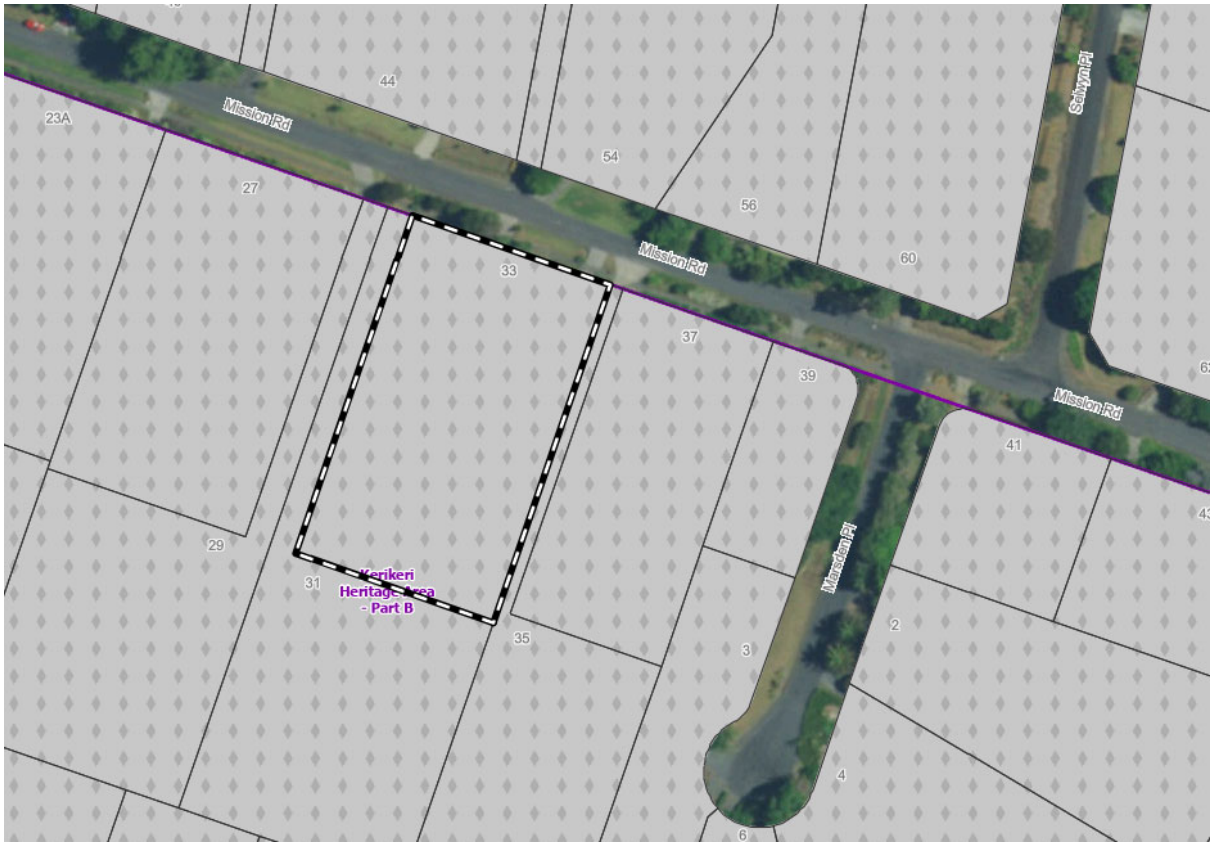
From: Andrew McPhee <andrew@bayplan.co.nz>
Sent: Thursday, 12 June 2025 10:41 am
To: Bill Edwards <bedwards@heritage.org.nz>

Cc: James Robinson <jrobinson@heritage.org.nz>; Mike Butler <mbutler@heritage.org.nz>
Subject: Two lot subdivision - 33 Mission Rd

Hi Bill

My client is proposing a two lot subdivision at 33 Mission Rd, Kerikeri. The proposed lots are greater than 2,000m2. The site is zoned Rural Living.

The site sits outside the heritage area (Kerikeri visual buffer) identified in the Operative District Plan, but is identified in the Proposed District Plan (PDP) Kerikeri Heritage Overlay: Part B. Heritage Area Overlays have immediate legal effect and relevant to this application is SUB-13 - Subdivision of a site within a heritage area overlay (Restricted Discretionary activity). Matters of discretion include any consultation with Heritage New Zealand Pouhere Taonga.



The overview in the PDP states that Kerikeri Heritage Area: Part B "*Covers the archaeologically sensitive slopes surrounding Kororipo Pā and the Church Missionary Settlement (CMS). The north and east ridge line also provide the sight lines from Kororipo Pā. There still remains a legacy of early horticultural subdivision pattern which supports the identity of Kerikeri, predominantly located along the Kerikeri Inlet Road ridgeline.* "

The proposed subdivision is located in a large lot residential environment devoid of horticultural activities. It is commensurate with the land use pattern in this locale and the density of housing found in the immediate surrounds. I also note that a density of 2,000m2 is provided for tin the PDP as a Discretionary activity.

I have attached a copy of the proposed scheme plan for you to consider.

I would appreciate any feedback or comment you have on this application for the purposes of consultation with Heritage New Zealand.

I look forward to hearing from you.

Kind regards

Andrew McPhee (BPlan Hons)

Director | Consultant Planner

Bay of Islands Planning (2022) Ltd

021784331

andrew@bayplan.co.nz

https://www.bayplan.co.nz

Kerikeri House, Suite 3 88 Kerikeri Road, Kerikeri, 0295

Outlook

RE: Two lot subdivision - 33 Mission Rd

From RMA <RMA@doc.govt.nz>
Date Thu 26/06/2025 1:24 PM
To Andrew McPhee <andrew@bayplan.co.nz>

1 attachment (70 KB)
Norman 250520 Scheme Plan.pdf;

Kia Ora,

Your request for comments on the Resource Consent application from G and F Norman was sent to RMA@doc.govt.nz with DOC reference RC3518.

The RMA team considered there are **no comments** regarding the proposal as described on 16 June 2025.

Thank you for your consideration for best interests of the Department.

If you have any questions regarding this email, please contact RMA@doc.govt.nz using the DOC reference number.

Ngā Mihi,

Trix Heigan
Statutory Process Team | Te roopu Tukanga Ture
Hamilton Office | Kirikiriroa
Department of Conservation| Te Papa Atawhai
www.doc.govt.nz
Kia piki te oranga o te ao tūroa, i roto i te ngātahitanga, ki Aotearoa.
To work with others to increase the value of conservation for New Zealanders.

www.doc.govt.nz

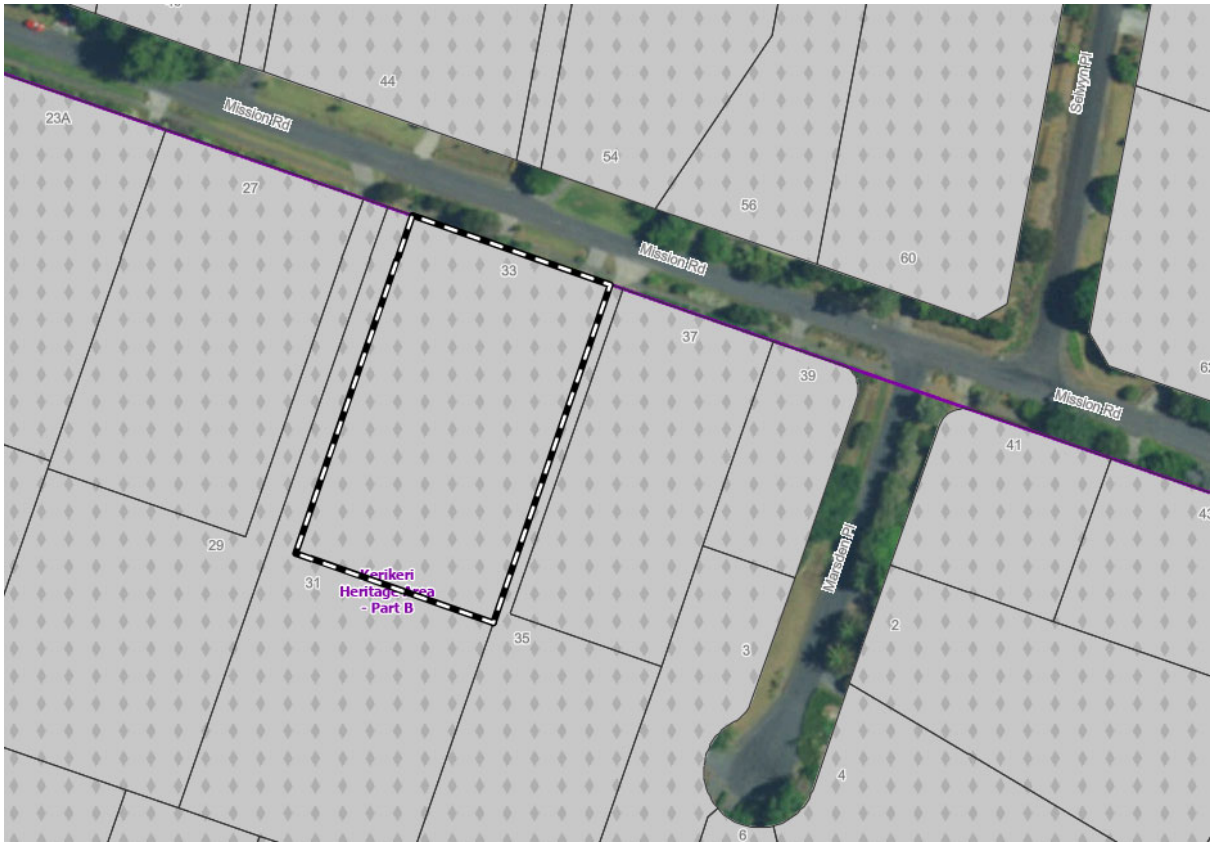
From: Andrew McPhee
Sent: Thursday, 12 June 2025 10:42 am

To: Lara McDonald
Subject: Two lot subdivision - 33 Mission Rd

Hi Lara

My client is proposing a two lot subdivision at 33 Mission Rd, Kerikeri. The proposed lots are greater than 2,000m2. The site is zoned Rural Living.

The site sits outside the heritage area (Kerikeri visual buffer) identified in the Operative District Plan, but is identified in the Proposed District Plan (PDP) Kerikeri Heritage Overlay: Part B. Heritage Area Overlays have immediate legal effect and relevant to this application is SUB-13 - Subdivision of a site within a heritage area overlay (Restricted Discretionary activity). Matters of discretion include any consultation with DoC.



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I look forward to hearing from you.

Kind regards

Andrew McPhee (BPlan Hons)

Director | Consultant Planner

Bay of Islands Planning (2022) Ltd

021784331

andrew@bayplan.co.nz

https://www.bayplan.co.nz

Kerikeri House, Suite 3 88 Kerikeri Road, Kerikeri, 0295

Chorus New Zealand Limited

11 June 2025

Chorus reference: 11262604

Attention: Andrew McPhee

Quote: New Property Development

2 connections at 33 Mission Road , Kerikeri, Far North District, 0230

Your project reference: 33 Mission Road - 2 lot subdivision

Thank you for your enquiry about having Chorus network provided for the above development.

Chorus is pleased to advise that, as at the date of this letter, we are able to provide reticulation for this property development based upon the information that has been provided:

Fibre network	$0.00

The total contribution we would require from you is **$0.00 (including GST)**. This fee is a contribution towards the overall cost that Chorus incurs to link your development to our network. This quote is valid for 90 days from 11 June 2025. This quote is conditional on you accepting a New Property Development Contract with us for the above development.

If you choose to have Chorus provide reticulation for your property development, please log back into your account and finalise your details. If there are any changes to the information you have supplied, please amend them online and a new quote will be generated. This quote is based on information given by you and any errors or omissions are your responsibility. We reserve the right to withdraw this quote and requote should we become aware of additional information that would impact the scope of this letter.

Once you would like to proceed with this quote and have confirmed all your details, we will provide you with the full New Property Development Contract, and upon confirmation you have accepted the terms and paid the required contribution, we will start on the design and then build.

For more information on what's involved in getting your development connected, visit our website www.chorus.co.nz/develop-with-chorus

Kind Regards

Chorus New Property Development Team

Top Energy Limited
Level 2, John Butler Centre
60 Kerikeri Road
P O Box 43
Kerikeri 0245
New Zealand
PH +64 (0)9 401 5440
FAX +64 (0)9 407 0611

12 June 2025

Andrew McPhee
Bay of Islands Planning (2022) Ltd

Email: andrew@bayplan.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
G & F Norman – 33 Mission Road, Kerikeri. Lot 2 DP 90338.

Thank you for your recent correspondence with attached proposed subdivision scheme plans.

Top Energy's requirement for this subdivision is that power be made available for the additional lot. Top Energy advises that there is an existing power supply at proposed lot 1. Design and costs to provide a power supply to lot 2 would be provided after application and an on-site survey have been completed.
Link to application: Top Energy | Top Energy

In order to get a letter from Top Energy upon completion of your subdivision, a copy of the resource consent decision must be provided.

Yours sincerely

Aaron Birt
Planning and Design
T: 09 407 0685
E: aaron.birt@topenergy.co.nz