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

Office Use Only
Application Number:

Application for change or cancellation of resource consent condition (S.127)

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?
○ **Yes** ✔ **No**

If yes, who have you spoken with? _____

2. Type of Consent being applied for

◉ **Change of conditions (s.127)**

3. Consultation:

Have you consulted with Iwi/Hapū? ○ **Yes** ◉ **No**

If yes, which groups have you consulted with?

Who else have you consulted with?

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

4. Applicant Details:

Name/s: Regeneration Holdings Limited

Email:

Phone number:

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

Office Use Only
Application Number:

5. Address for Correspondence

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

Name/s: Reyburn & Bryant

Email:

Phone number:

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

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

6. 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: Regeneration Holdings Limited

Property Address/ Location:
P.O Box 4419
Kamo
Postcode

7. Application Site Details

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

Name/s: Regeneration Holdings Limited

Site Address/ Location:
Ota Point Road
Whangaroa
Postcode

Legal Description: Part Lot 1 DP 25198 **Val Number:**

Certificate of title: DP 251998

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**

7. Application Site Details (continued)

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.

8. Detailed description of the proposal:

This application relates to the following resource consent: 2220579 - RMACOM

Specific conditions to which this application relates:

To amend the conditions of 2220579-RMACOMto section 127

Describe the proposed changes:

Shift the boundaries of Lot 6 - 8, create a right of way ('I and 'J') for Lots 6 - 8, shift the indicative building platforms for Lots 6-9, amend the location of the drainage easements, change Lot 15 from a road to vest to a common access lot, and various other changes listed in the main report.

9. Would you like to request Public Notification?

◯ **Yes** ✔ **No**

10. 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

11. 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 (including consultation from iwi/hapū).

Your AEE is attached to this application ✔ **Yes**

12. 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**

13. 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) Regeneration Holdings Ltd

Email:

Phone number:

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

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

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) Deborah Smith

Signature: (signature of bill payer)

Date 3/02/2026

MANDATORY

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

PrivacyInformation:
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.

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

Name: (please write in full) David Johnson

Signature: Date 3/02/2026

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

Checklist (please tick if information is provided)

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

Please refer to chapter 4 (Standard Provisions) of the Operative District Plan for details of the information that must be provided with an application. This contains more helpful hints as to what information needs to be shown on plans.

03 February 2026

Far North District Council

Memorial Avenue

Private Bag 752

Kaikohe 0440

ref.17346.drj

To whom it may concern,

RE: APPLICATION PURSUANT TO SECTION 127 OF THE RESOURCE MANAGEMENT ACT (1991) FOR REGENERATION HOLDINGS LIMITED – 2220579-RMACOM – OTA POINT ROAD, WHANGAROA

Summary

1. This is an application to vary the conditions of 2220579-RMACOM pursuant to Section 127 of the Resource Management Act 1991 (RMA).

The existing consent

2. In October 2022, the Far North District Council (FNDC) granted resource consent to subdivide Pt Lot 1 DP 25198 (NA51D/408) at Ota Point Road, Whangaroa, into fourteen lots and a road to vest.

3. Copies of the existing resource consent, the approved scheme plan prepared by Von Sturmers, and NA51D/408 are **enclosed**.

The proposal

4. It is proposed to vary the conditions associated with 2220579-RMACOM. The variations sought are to:

   a. Shift the boundaries of Lots 6 – 8.

   b. Create a right of way ('I' and 'J') for Lots 6 – 8.

   c. Shift the indicative building platforms for Lots 6 – 9. The new building platforms for Lots 6 – 8 will be 3m from the internal boundaries,[1] requiring consent as a restricted discretionary activity under Rule

[1] The Lot 6 building platform with the Lot 7 boundary, the Lot 7 building platform with the Lots 6 and 8 boundaries, and the Lot 8 building platform with the Lot 7 boundary.

10.7.5.3.6 of the Operative Far North District Plan (OFNDP) and as discretionary activity under Rule 13.9(a) of the OFNDP.[2]

d. Amend the location of the drainage easements so that they follow the actual overland flow path ('H') and align with the full width of the right of way ('A', 'B', and 'C').

e. Change Lot 15 from a road to vest to a common access lot held in eleven undivided one-eleventh shares by the owners of Lots 1 – 5 and 9 – 14 through an amalgamation pursuant to s220(1)(b)(iv) of the RMA.

f. Require the preparation of a single set of engineering plans showing all the new and upgraded accesses as a condition of obtaining approval of the survey plan pursuant to Section 223 of the RMA. A separate condition confirming that the work has been completed prior to the issuing of a certificate pursuant to Section 224(c) of the RMA is also proposed.

g. Limit the work at the intersection of Ota Point Road and Wainui Road to the installation of a PW68 sign.

h. Allow a suitability qualified professional rather than just a Chartered Professional Engineer (CPEng) to certify the completion of the new and upgraded accesses. A CPEng will still need to certify the earthworks, stormwater management, and construction monitoring.

i. Split the condition requiring an earthworks completion and a construction/earthworks management plan into two separate conditions

j. Delete the building line restriction for Lot 8 as recommendations pertaining to each building site will be made in the earthworks completion report

k. Amend the wording and references of various conditions

5. Reyburn and Bryant has prepared an amended scheme plan (S17346, Revision B). A copy of it is **enclosed**.

6. A copy of the proposed conditions is **enclosed** with this application (deletions are shown as ~~strikethrough~~, while additions are shown as **bold** and <u>underlined</u>). It includes comments explaining the changes.

Legislative context

7. Section 127(3) of the RMA states that:

(3) Sections 88 to 121 apply, with all necessary modifications, as if—

a) the application were an application for a resource consent for a discretionary activity; and

[2] The original decision included consent as a non-complying activity under Rule 13.11 as Lot 7 will have an area of less than 5,000m^2.

b) the references to a resource consent and to the activity were references only to the change or cancellation of a condition and the effects of the change or cancellation respectively.

Effects on the environment

8. Section 127 of the RMA requires consideration of the environmental effects of the proposed changes. This assessment is confined to the relative difference in the effects between the consent and the amended proposal.

9. The shifted boundaries of Lots 6 – 8 facilitate new indicative building platforms. These are either in approximately the same location as the building platforms shown on the approved scheme plan (Lots 6 and 8) or will be further away from adjacent properties and encompassed by other indicative building platforms (Lot 5). The amended lot sizes[3] remain in general accordance with the approved scheme plan as they differ by less than 10% from what was approved.[4]

10. The indicative building platforms for Lots 6–8 will be located 3 m from their internal boundaries at the closest point. These reduced setbacks occur solely within the subdivision. They will not affect surrounding properties.

    With respect to effects within the subdivision, the OFNDP anticipates a 3m setback on lots smaller than 5,000m^2, demonstrating that reduced setbacks can avoid adverse amenity, privacy, and dominance effects on a constrained site. Lots 6 and 8 exceed 5,000m^2 and therefore provide greater openness, potential for separation, and greater design flexibility for future residential units. The increased lot size does not give rise to any additional adverse effects that justify a greater setback

11. The indicative building platform of Lot 9 has been shifted to accommodate the overland flow path located at the end of right of way C. The lot size has also been reduced. The new indicative building platform is in a more appropriate location where the extent of earthworks can be minimised. It is also further away from the Coastal Marine Area (CMA) immediately east of the site. The lot size is appropriate as it is larger than 5,000m^2, the minimum lot size for a discretionary activity subdivision in the Coastal Living Zone.

12. Minor changes have been made to the boundaries and sizes of the other lots. Regardless, the lots are generally in the same location as the approved scheme plan, and the sizes remain in general accordance with what was originally approved.

13. The new right of way to Lots 6 – 8 ('I' and 'J') will be formed with a 3m wide concrete formation. This is sufficient for the number of users proposed.

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[3] 5,255m^2 for Lot 6, 3,860m^2 for Lot 7, 7,265m^2 (net) for Lot 8.

[4] 5,650m^2 for Lot 6, 3,980m^2 for Lot 7, 7,175m^2 for Lot 8.

14. The changes to the drainage easements are more appropriate as they either reflect the location of the existing overland flow path ('H') or allow for stormwater the drain off the southern right of way ('A', 'B', and 'C').

15. It is proposed to change Lot 15 from a road to vest to a common access lot to reduce the formation standard and reduce the extent of earthworks required. Nonetheless, the new formation will still be appropriate for the eleven users.

16. With respect to the upgrades at the intersection of Ota Point Road and Wainui Road, the FNDC was previously provided with engineering plans prepared by Geologix. A copy of these plans is **enclosed**. Those plans included survey information which showed that the existing seal extent complies with the requirements for a Rural Type B crossing. Consequently, the only upgrade that is required is the installation of a PW68 sign. No other upgrades are warranted.

17. The deletion of the building line restriction for Lot 8 allows site specific recommendations to be made as part of the earthworks completion report. It is unnecessary to require a specific building line restriction when that may not reflect the recommendations of the earthworks completion report.

18. The other changes to the conditions have been made to make them more effective and easier to follow. They will not facilitate any actual changes from what has been approved previously.

19. Having considered the above, any adverse effects associated with the changes sought as part of this application will be less than minor.

Consistency with the relevant objectives and policies of the Operative Far North District Plan and the Proposed Far North District Plan (PFNDP)

20. The proposal is associated with shifting the boundaries of Lots 6 – 8 and the indicative building platforms of Lots 6 – 9, reducing the setbacks of the indicative building platforms on Lots 6 – 8 to 3m, creating a right of way for Lots 6 – 8, amending the location of the drainage easements, changing Lot 15 from a road to vest to a common access lot, limiting the work at the intersection of Ota Point Road and Wainui Road, and a number of other minor changes. None of these changes will affect the alignment of the subdivision with the intentions of the OFNDP or the PFNDP. Accordingly, the proposed subdivision will remain consistent with the relevant OFNDP and PFNDP provisions, and the conclusions reached in the decision for 22205790-RMACOM with regards to the objectives and policies remain relevant.

Notification

21. Section 127(4) of the RMA states that:

(4) For the purposes of determining who is adversely affected by the change or cancellation, the consent authority must consider, in particular, every person who—

a) made a submission on the original application; and

b) may be affected by the change or cancellation

22. With regards to s127(4)(a) and (b), the original application proceeded on a non-notified basis. No parties provided written approval to the proposal. Furthermore, it was confirmed previously that any adverse effects associated with the proposed changes will be less than minor. Consequently, there are no adversely affected parties, and the application can proceed on a **non-notified** basis

Summary and conclusion

23. This application seeks to amend the conditions of 22205790-RMACOM to:

    a. Shift the boundaries of Lots 6 – 8.

    b. Create a right of way ('I' and 'J') for Lots 6 – 8.

    c. Shift the indicative building platforms for Lots 6 – 9. The new building platforms for Lots 6 – 8 will be 3m from the internal boundaries.[5]

    d. Amend the location of the drainage easements so that they follow the actual overland flow path ('H') and align with the full width of the right of way ('A', 'B', and 'C')

    e. Change Lot 15 from a road to vest to a common access lot held in eleven undivided one-eleventh shares by the owners of Lots 1 – 5 and 9 – 14 through an amalgamation pursuant to s220(1)(b)(iv) of the RMA.

    f. Require the preparation of a single set of engineering plans showing all the new and upgraded accesses as a condition of obtaining approval of the survey plan pursuant to Section 223 of the RMA. A separate condition confirming that the work has been completed prior to the issuing of a certificate pursuant to Section 224(c) of the RMA is also proposed.

    g. Limit the work at the intersection of Ota Point Road and Wainui Road to the installation of a PW68 sign.

    h. Allow a suitability qualified professional rather than just a Chartered Professional Engineer (CPEng) to certify the completion of the new and upgraded accesses. A CPEng will still need to certify the earthworks, stormwater management, and construction monitoring.

    i. Split the condition requiring an earthworks completion and a construction/earthworks management plan into two separate conditions

    j. Delete the building line restriction for Lot 8 as recommendations pertaining to each building site will be made in the earthworks completion report

    k. Amend the wording and references of various conditions

[5] The Lot 6 building platform with the Lot 7 boundary, the Lot 7 building platform with the Lots 6 and 8 boundaries, and the Lot 8 building platform with the Lot 7 boundary.

24. Relative to the status quo provided by the existing consent, any actual or potential adverse environmental effects associated with the proposed changes will be less than minor, while the subdivision remains consistent with the relevant objectives and policies of the OFNDP and the PFNDP.

25. There are no adversely affected parties and hence the proposal can proceed on a non-notified basis.

26. Having regard to the relevant matters in s127, s104(1) and s104B of the RMA, it is appropriate for this consent to be granted.

If you have any queries regarding this application, please do not hesitate to contact the undersigned.

Yours faithfully

David Johnson

Planner

Encl. 2220579-RMACOM decision

Approved scheme plan prepared by Von Sturmers (14950, 15/12/2021)

NA51D/408

Proposed scheme plan prepared by Reyburn and Bryant (S17346, Revision B)

Proposed conditions

Geologix engineering report (C0456-S-01, Rev 1)

FAR NORTH DISTRICT COUNCIL

FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (COMBINED)

Resource Consent Number: 2220579-RMACOM

Pursuant to sections 104B and 104D of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Regeneration Holdings Limited

The activities to which this decision relates are listed below:
Activity A – Subdivision:

Proposed subdivision into 14 lots in the coastal living zone as a non-complying activity

Activity B – Landuse:

Land use as a discretionary activity. The following rules are breached.

- 10.7.5.1.6 Stormwater Management
- 12.3.6.1.2 Excavation and Filling in the Coastal Living Zone
- 15.1.6C.1.7 General Access Standards

Subject Site Details

Address:	Pt Lot 1, Ota Point Road, Whangaroa 0478
Legal Description:	PT LOT 1 DP 25198 BLK VII WHANGAROA SD
Record of Title reference:	NA-51D/408

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

Decision A – Subdivision:

1 The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Von Sturmers, referenced Lots 1-15 Being a Proposed Subdivision of Pt Lot 1 DP 25198, dated 15/12/2021, and attached to this consent with the Council's "Approved Stamp" affixed to it.

2. The survey plan, submitted for approval pursuant to Section 223 of the Act shall show:

(a) All easements to be duly granted or reserved.

(b) Areas shown as I, X, Y & Z, are to be subject to land covenants for bush and wetland protection (See condition 4 (ix) (x)))

(c) A drainage easement in gross 0.5m wide along Easements A, B, C, H and I pursuant to Section 220(1)(f) of the Resource Management Act 1991, shall be endorsed on the survey plan under a Schedule of Memorandum of Easements and shall be duly granted or reserved.

(d) A building restriction line on Lot 8.

3. Prior to the approval of the survey plan pursuant to Section 223 of the Act, the consent holder shall:

(a) Submit plans and details of the works below for the approval of Far North District Council. It is to be noted that certain works must be carried out or certified by a Suitably Qualified Person (IQP) or Chartered Professional Engineer (CPEng) working within the bounds to their assessed competencies.

Plans are to include but are not limited to:

i. Widening of the intersection Ota Point Road and Wainui Road consistent with Rural Type B for a distance of 20m to comply with the Far North District Council Engineering Standards and NZS4404:2044.

ii. Erosion and sediment control measures which are to be in place for the duration of the works in accordance with Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05). The Erosion and sediment control plans will require design/certification by Council approved IQP/CPEng and as such will require completion of a design producer statement (PS1).

(b) Provide evidence that a preferred road name and two alternatives for the road to vest have been supplied to the Community Board for approval. The applicant is advised that in accordance with Community Board policy, road names should reflect the history of the Area.

(c) Submit to the Resource Consents Manager or other duly delegated officer, a riparian management plan, prepared by a person with approved expertise. This plan shall address the existing state of the wetland(s) and its, riparian edges; identify areas where environmental enhancement may be achieved and propose management means and methods to accomplish such enhancement. The plan shall be prepared by a suitably qualified and experienced person; addressing the matters set out in The Ecological Assessment provided in support of 2220579 prepared by Northland Ecology dated July 2021 and submitted with the application.

(d) Submit to the Resource Consents Manager or other duly delegated officer, a weed eradication programme detailing the methodology for weed eradication. The plan shall be prepared by a suitably qualified and experienced person; addressing the matters set out in The Ecological Assessment provided in support of 2220579 prepared by Northland Ecology dated July 2021 and submitted with the application.

4. Prior to the issuing of a certificate pursuant to Section 224(c) of the Act, the consent holder shall:

(a) Implement the mitigation planting shown on Figure 2b contained in the SCLA landscape assessment provided with RC2220579.

(b) Provide evidence to the satisfaction of Council's duly delegated officer proof of implementation of the Pest and Weed eradication plan.

(c) Provide evidence to the satisfaction of Council's duly delegated officer proof of implementation of the riparian management plan.

(d) Provide evidence that the cost of purchasing and installing a road name sign for the road to vest has been paid to Council contractors:

Northern Area – Fulton Hogan (09) 408 6440 or Southern Area – Ventia (09) 407 7851;

(e) Reinstate the edge of the carriageway seal and metal shoulders on Ota Point Road at its intersection with Wainui Road for a length of 20 metres, and install a PW68 sign.

(f) Provide to the satisfaction of Councils Resource Consents Engineer an Earthworks Completion Report containing as-built compaction and contour plans; from a suitably qualified and experienced engineer. In accordance with GD05 and Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application and that, prior to commencing any physical site works, a construction/earthworks management plan shall be submitted to and approved by the Council. The plan shall contain information on, and site management procedures, for the following:

i. The timing of construction and earthworks, including hours of work, key project and site management personnel.

ii. The transportation of construction/earthworks material from and to the site and associated controls on vehicles through sign-posted site entrance/exits and the loading and unloading of materials.

iii. Excavation and earthworks, including retaining structures and any necessary dewatering facilities, prepared by a suitably qualified geotechnical engineer.

iv. Control of dust and noise on-site and any necessary avoidance or remedial measures.

v. Prevention of earth and other material being deposited on surrounding roads from vehicles and remedial actions should it occur.

vi. Publicity measures and safety measures, including signage, to inform adjacent landowners and occupiers, pedestrians and other users or Road if required.

vii. Erosion and sediment control measures to be in place for the duration of the works.

viii. All construction/earthworks on the site are to be undertaken in accordance with the approved construction/earthworks management plan.

(g) Provide a formed double width entrance to lots 6 & 8 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.

(h) Provide a formed single-width entrance to **Lots 1-5, 9-13** which complies with the Councils Engineering Standard FNDC/S/2, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.

(i) Provide a single width entrance to Lots 7 & 14 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.

(j) Provide formed and concreted or sealed access on ROW easement A,,B,C to 3.5m finished carriageway width with passing bays provided to comply with Rule 15.1.6.1.2 of the Far North District Plan. The formation shall include kerbing or a concreted dish channel to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.

(k) Provide a formed double-width entrance to ROW A which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing edge.

(l) Provide grassed swale drains constructed within easement H. Where the swale drains slopes at 5 % or greater, in accordance with Auckland Council GD01 the grassed swale drains shall be installed with specifically sized check dams to reduce flows and improve stormwater output quality.

(m) All road infrastructure to be vested in Council shall be accompanied by a Producer Statement PS1, PS3 and PS4.

(n) A Chartered Professional Engineer certifying the PS1 and/or PS4 on design and/or constructions works shall ensure that the design and construction work are in accordance with FNDC Engineering Standards.

(o) A Chartered Professional Engineer shall determine the level of construction monitoring (CM1-CM5) required to certify a PS4.

(p) Contractor providing the (PS3) certificate of completion of the work shall ensure the construction works are in accordance with FNDC Engineering Standards.

(q) Detailed engineering designs (including structural designs), plans and drawings of all new road infrastructure in accordance with the requirements of the FNDC Engineering Standards 2004-Revised 2009 are to be submitted for Council approval prior to works commencing. The designs shall reference the recommendations of the TPC Transport Assessment dated 2 February 2022 and Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application

i. The proposed road to vest shall be surfaced with a two coat chipseal layer in accordance with the FNDC Engineering Standards
ii. The cul-de-sac turning head shall be surfaced with a 50mm thick Mix 14 asphaltic concrete layer or other similar material with a thickness achieving a similar or enhanced outcome.
iii. The intersection between the new road to vest and Ota Point Rd is to be designed to full intersection standards including signage and marking in accordance with NZTA MOTSAM requirements

(r) Evidence shall be provided that a maintenance contract for a period of 12 months has been entered into between the consent holder and a suitably qualified contractor upon issuing of the s224C certificate. The road shall be vested to Council once the road has been inspected and accepted by the NTA.

(s) As-built information, RAMM data and test results in accordance with the requirements of the FNDC Engineering Standards and Guidelines 2004-Revised 2009 and NZS 4404:2004 are to be submitted to Council on completion of the works

(t) Provide to Council written confirmation from a Licenced Cadastral Surveyor that the access ROW carriageway is fully contained within the easements provided for access.

(u) Provide underground services for electric power and telecommunications, and provide documentation that the service providers of electric power and telecommunications to the sites are satisfied with the arrangements made for the provision of these services to the boundary of all new allotments.

(v) Secure the conditions below by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of the affected allotment. The costs of preparing, checking and executing the Notice shall be met by the Applicant.

(i) The subject site is identified as being within a kiwi present zone. Any cats and/or dogs kept onsite must be kept inside and/or tied up at night to reduce the risk of predation of North Island brown kiwi by domestic cats and dogs. **All Lots**

(ii) All buildings will require foundations specifically designed by a Chartered Professional Engineer in accordance with design parameters specified by a suitably qualified Geotechnical engineer. The foundation design details shall be submitted in conjunction with the Building Consent application. **All Lots**

(iii) In conjunction with the construction of a future dwelling on proposed Lots 1-14, the Lot owner shall obtain a Building Consent and install a wastewater treatment and effluent disposal system on the Lot. The system shall be designed by a Chartered Professional Engineer or registered drainlayer in accordance with ARC TP 58 requirements and shall reference the recommendations of the Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application. **All Lots**

(iv) In conjunction with any future development on proposed Lots 1-14, the Lot owner shall submit a stormwater management report that is prepared by a Chartered Professional Engineer or suitably qualified person in accordance with the FNDC Engineering Standards for Council approval. Stormwater runoff from new buildings and impermeable surface areas on proposed Lots 1-14 shall be restricted to that of pre-development levels for a 10% AEP storm event plus an allowance for climate change. Low impact stormwater design principles are to be incorporated within the stormwater management system for each Lot. Overland/secondary flowpaths that can accommodate the 1% AEP storm event shall also be provided on the proposed Lots and are to be unobstructed by new buildings, other structures or landscaping. **All Lots**

(v) In conjunction with the construction of any dwelling, and in addition to a potable water supply, a water collection system with sufficient supply for firefighting purposes is to be provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509 or where this is not achieved, a letter shall be provided from Fire and Emergency NZ confirming that they are satisfied with the arrangements made. **All Lots**

(vi) The mitigation planting installed at time of subdivision and shown on Figure 2b of the SCLA landscape assessment provided with RC2220597 shall be maintained in perpetuity. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible **All Lots**

(vii) Any vegetation waste, prunings and the like must not be disposed of within the covenanted areas, or on the coastal margin. **All Lots**

(viii) The pest and weed eradication management plan and riparian plan provided with RMACOM 2220579 shall be observed and continued by the landowners and the plan shall not cease or be amended without the express permission of Council. **All Lots**

(ix) No building/structural development, indigenous vegetation removal or earthworks shall occur within areas X, Y & Z as shown on the survey plan. **Lots 9 -10**

(x) The owner shall preserve the indigenous trees and bush area I, X, Y & Z as indicated on the survey plan and shall not without the prior written consent of the Council and then only in strict compliance with any conditions imposed by the Council, cut down, damage or destroy any of such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or

default by or on behalf of the owner or for which the owner is responsible. **Lot 9-10**

Design conditions

(xi) The maximum height of all buildings and structures (not including chimneys) shall be 4.5 meters above existing ground level (measured using the rolling ground method). **Lots 6 and 10**

(xii) The maximum height of all buildings and structures (not including chimneys) shall be 5.5 meters above existing ground level (measured using the rolling ground method). **Lots 1, 2, 3, 4, 5, 7, and 8**

(xiii) The maximum height of all buildings and structures (not including chimneys) shall be 7.0m meters above existing ground level (measured using the rolling ground method) **Lots 9, 11, 12, 13, and 14**

(xiv) The colour selection for all buildings and structures must be made from the following indicators.

Walls / facades and joinery

Refer to BS5252 – Hue (Colour) All the colours from 00 – 24 are acceptable, conditional on the limitations below. Reflectance Value (RV) and Greyness Groups. The predominant wall colours, shall have a RV rating of no more than 30% for greyness groups A, B and C. Colours within greyness groups D and E are not permitted. If a product such as colorsteel is utilised the hue (colour) shall have a (Light Reflectance Value) LRV of no more than 30%.

Roof

If painted, the roof hue (colour) shall have an RV rating of no more than 25% and be within greyness groups A, B and C of BS5252. Colours within greyness groups D and E are not permitted.

If a product such as colorsteel is utilised the hue (colour) shall have a (Light Reflectance Value) LRV of no more than 30%. **All Lots**

(xv) Mirrored glazing is not permitted. **All Lots**

(xvi) All vehicle driveways and manoeuvring areas shall be formed with recessive materials, e.g. blue metal, concrete with the aggregate exposed or concrete with a black oxide additive. **All Lots**

(xvii) Cut and fill batters shall be shaped to feather naturally into the natural angle of slope. All cut and fill batters shall be grassed or otherwise vegetated to ensure complete coverage of exposed soils. Retaining structures, if higher than 1,200mm shall be stepped, and the steps planted to screen the faces. All retaining structures that exceed 2.0m in height and are visible from any location beyond the boundaries of the lot on which it is situated, shall be constructed from, painted / stained with a dark, recessive and natural colour. **All Lots**

(xviii) All services and utilities (Reticulated power and telecommunications) are to be either located below ground or screened. **All Lots**

(xix) External service areas should be integrated within the building area so that rubbish, storage and similar items are not visible from outside the house site. **All Lots**

(xx) Materials used for fencing may be post and wire or timber railing and it shall be either left unpainted or stained a recessive colour. There shall be no solid timber **or panel** fences or walls other than within five metres of the dwelling. **All Lots**

(xxi) No pole lights or floodlights are permitted. Exterior light sources on buildings shall be fitted with directional screens to reduce glare beyond the building curtilage and no tennis court lighting is permitted. **All Lots**

(xxii) Water tanks placed on site shall either be:

- Buried; or
- If above ground screened with plants / vegetation and coloured a dark, natural and recessive colour. Screening with vegetation is not required for above ground tanks where the tanks are buried to at least a minimum of half their total height. **All Lots**

Decision B – Landuse:

(a) The works shall be carried out in accordance with the approved drawings and documentation provided with the application, specifically, Scheme Plan titled Lots 1-15 Proposed Subdivision of Pt Lot 1 DP 25198 by Von Strumers, referenced 14950, dated 15/12/2021 attached to this permit/consent with the Council's Approved Stamp affixed to them. In particular the volume of earthworks shall not exceed 5000m³.

(b) In the event any fill will be removed from the site, the consent holder shall prior to any excavation commencing provide evidence that all consents (earthworks permits and / or resource consent) for the disposal of fill have been obtained for the receiving site.

(c) In addition to the standard Heritage NZ Pouhere Taonga Accidental Discovery Protocol procedures as agreed with the following Te Runanga O Whaingaroa shall be undertaken:

- At least 5 working days prior to any earthworks being undertaken the consent holder shall advise Te Runanga o Whaingaroa and invite them to have a representative on site while the earthworks are being undertaken.
- Should any archaeological evidence be exposed during any future works on the site, work must be stopped, and Te Runanga O Whaingaroa should be advised.
- Should any koiwi (human remains) be exposed during any future works, work must be stopped immediately, and the area secured from any further disturbance and the advice of a kaumatua (Senior Elder) nominated by Te Runanga O Whaingaroa followed in respect of further actions. Kaumatua to be given the opportunity to undertake such ceremonies and activities at the site as may be considered appropriate in accordance with Te Rarawatanga (Tikanga Māori).

General Access Standards

(d) Prior to undertaking earthworks the consent holder shall provide for the approval of Councils Infrastructure management team a road condition assessment of haul routes on public roads in the vicinity of the site is to be undertaken,

(e) No parking of construction vehicles on Council roads shall be permitted

(f) Any dirt or debris tracked on to public roads shall be cleaned up within stipulated timeframes in the CTMP to the satisfaction of Council

(g) Repairs to any damage to road carriageways, berms, footpath and kerb and channel caused during earthworks or construction activities shall be the responsibility of the consent holder

(h) An approved TMP/CAR application are to be submitted prior to any works commencing within the public road corridor

(i) All buried services within the road boundary shall be located, marked and adequately protected prior to trenching works commencing

Advice Notes

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site

2. The NES Freshwater currently defines wetlands within the coastal marine area as a wetland within the regulation. Moreover, the ecological report provided as part of this subdivision indicated that the removal of pines on site would transform a wet area mapped on the scheme plan into a wetland as defined by this application on the subject site. As a result, some allotments within this development will be impacted by this regulation and may require consent from the regional council to develop. The consent holder has indicated that regional consent will be sought for works associated with giving effect to this subdivision and some future development of the sites. Future owners of the allotments are advised that they should review this regional consent to ensure no further applications are required from the regional council prior to development.

Reasons for the Decision

1. The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed activity are no more than minor and that there are no affected persons or affected customary rights group or customary marine title group.

2. District Plan Rules Affected:

Rule # & Name	**Non Compliance Aspect**
Part A – Subdivision	
13.7.2.1 - Minimum Lot Sizes	The sites in the subdivision range from approx. 3900m2 – 1.5ha. As Lot 7 is less than 5000m2 in area the application is unable to meet the Discretionary activity criteria. All other allotments are able to comply with the Restricted Discretionary and Discretionary minimum allotment size criteria.
Part B - Landuse	
10.7.5.1.6 - Stormwater Management	Lots 9 and 11 will own the ROWs. It has been calculated that the ROW will cover 400m2 of Lot 9 equating to 4% and 550m2 of coverage will be introduced to Lot 11 equating to 7% coverage. Consent is not triggered for this activity. No other impermeable surfaces will be introduced to any other allotments

	as part of this subdivision activity with the exception of the road to vest (Lot 15). More than 600m2 and more than 10% of Lot 15 will be covered in impermeable surfaces as such consent is triggered.
12.3.6.1.2 - Excavation And Filling In The Coastal Living Zones.	Works are required to form the new road to vest, and ROW. The works exceed 300m3 of cut and fill and as such land use consent is sought. The works also exceed 2,000m3 being estimated at around 2403m3 of cut and 96m3 of fill and as such the Restricted Discretionary activity criteria cannot be satisfied. A cut face of 3.29m is required at the turning circle to form this infrastructure and the swale drain. Consent is also sought on this basis.
15.1.6c.1.7 - General Access Standards	The new ROW has not been specially designed to accommodate a heavy rigid vehicle, as such consent is triggered for this matter.

An assessment of the proposal against the rules with immediate legal effect has been undertaken. The following reasons for consent under the Proposed District Plan are now relevant to the proposal.

Rule # & Name	**Non Compliance Aspect**
EW-R13 EROSION AND SEDIMENT CONTROL	The proposed activity has a breach for Earthworks under the Operative District Plan and there is no proof of compliance with EW-S5.

Adverse effects will be minor:

It is considered the relevant and potential effects have been addressed within the assessment of effects above, and it has been concluded that the adverse effects will be less than minor.

Positive effects of the proposal:

Under s104(1)(a) the positive and potential effects of the proposal are:

a) Ongoing pest and weed management on all lots.
b) Formal protection of area I, X, Y & Z on all Lots.
c) Protection of existing vegetation within areas I, X, Y & Z.

Objectives and policies of the District Plan:

The following objectives and policies of the District Plan have been considered:

a) Chapter 10 – Coastal Environment
b) Chapter 10, Section 7 - Coastal Living Zone
c) Chapter 13 – Subdivision
d) Chapter 12 – Natural and Physical Resources
e) Chapter 15 – Transportation

Chapter 10, and Chapter 13

The subdivision will be consistent with the purpose of the Coastal Living zone which is to *provide an area of transition between residential settlement on the coast and the General Coastal Zone.*. They also focus on the natural character of the coastal environment and the protection of inappropriate use and development of it. This subdivision will create 14 rural lifestyle allotments of varying sizes which provide that transition between residential properties located at Ota Point and the farming and lifestyle sites located further out. A mixture of some Discretionary site sizes and a single Non-Complying site was chosen to

create a better subdivision layout, taking into account greater setbacks from the wetland area, larger fringe allotments, and smaller allotments near the residential area.

Conditions have been imposed to protect the natural character and visual value of the coastal environment. The proposed sites will be visible from Ota Point Road, while this is the case, given the mixed-use development in the area, and the development activity as a transitional zone between the Coastal Residential and the Rural Production zones the additional housing will not be out of character. Future dwellings will be subject to the recommendations in the Landscape Assessment – Simon Cocker Landscape. Due to the existing vegetation being protected, any anticipated development within the proposed building platform will be partially screened from the road frontage and be designed to integrate into the existing environment.

Chapter 15

Consent is only triggered on the basis that a heavy rigid truck could not easily turn around on the ROW. As such, the adverse effects of this proposal are considered no more than minor as turning will likely be available on the subsequent sites. The proposal is compliant with all other traffic, parking and access components.

Chapter 12

The earthworks being undertaken on site are minor and do not trigger regional consent. The life supporting capacity of soils will change from growing pine to lifestyle allotments with gardens and fruit trees. Silt and sediment control In accordance with GD05 is offered as a condition of this consent. No mineral extraction is sought.

Soil erosion will be addressed via silt and sediment control. The site is not located within a productive zone, while this is the case the sites will be of a size that each allotment will have space for gardens and fruit trees such that the life supporting capacity of soils will not be lost. No soil or mineral extraction is sought. Erosion and sediment control infrastructure will be utilised. Soil conservation will not be impacted. There will be no mine tailings. A development plan is not required. The site is not within the National Grid yard. The works do not fall under the definition or normal rural practices.

3. **Section 104D Assessment**

Pursuant to section 104D of the Resource Management Act 1991 if a proposal is Non-Complying then it must satisfy one or both of the subsections of 104D(1) before a decision can be granted under section 104B of this Act. If the application does not pass either test of the section 104D(1) then the application must be declined.

It is considered that the proposal is not contrary to the Objectives and Policies of the District Plan; and it has been concluded that the adverse effects will be less than minor, as demonstrated above.

4. In accordance with an assessment under s104(1)(b) of the RMA the proposal is consistent with the relevant statutory documents.

a) The Northland Regional Policy Statement 2018
b) Northland Regional Plan 2019
c) New Zealand Coastal Policy Statement 2010
d) National Environmental Standards (Air/ NESCS/ Forestry etc)

The application site is not identified as containing any areas of high or outstanding natural character. The site has recently been cleared of pines, the applicant has offered to replant natives on the site. The planting up of the site will assist in restoration efforts in terms of visual amenity but also for biodiversity and local ecosystems with the enhancement of the wetland area. The wetland area on site is degraded by past use such that it cannot meet the standards for wetlands within the NES Freshwater. This feature will be enhanced by this development through adjacent native planting and encouraging native species to establish by

themselves within the wetland area. Ongoing weed and pest management. The applicant has also offered design restrictions in terms of colour scheme building height, the inclusions of underground infrastructure ensure that future development will have less than minor impact on the coastal environment.

The District Plan and the Proposed Regional Plan have not identified the development site as containing any sites of significance to Maori or Tangata Whenua. While this is the case the site is located beneath Ohakiri Maunga (St Pauls Rock) which is an important geographical feature to local iwi and hapu in the area and the Coastal Marine Area is a Statutory Acknowledgement Area to Ngati Kahu ki Whangaroa. Members from Te Ukaipo, the Iwi Environmental Management Unit from Te Runanga O Whaingaroa held a meeting with kaumatua and neighbours to learn more about the history of the site and the area and their key concerns. Various kaumatua, locals and Te Ukaipo have reinforced that the mitigation measures offered by the applicant as part of the development are necessary to ensure the local maunga is respected and that there be no
adverse impact on the coastal waters

Future housing development and infrastructure is not located within a mapped coastal flood hazard area and future development is not likely to be impacted by coastal waters such that managed retreat is considered necessary. The site is elevated and setback sufficiently that no natural defences to coastal hazards are considered necessary.

5. In accordance with an assessment under s104(1)(c) of the RMA. No other non – statutory documents were considered relevant in making this decision.

6. Other matters considered in relevant in making this decision:

   Precedent
   Case Law has established that the precedent of granting resource consent is a relevant factor for a consent authority in considering whether to grant Non-Complying resource consent. A precedent effect is likely to arise in situation where consent is granted to a Non-Complying activity that lacks the evident unique, unusual or distinguished qualities that serve to take the application out the of the generality of cases or similar sites in the vicinity. In other words, if an activity is sufficiently unusual and sufficiently outside the run of foreseeable other proposals it avoids any precedent effect can be approved.

   The development while creating one smaller non-complying site will achieve superior outcomes in comparison to a development with the same number of houses produced as a Restricted Discretionary activity or a less intensive development. The development could be provided for as a Restricted Discretionary activity, however, the design as presented achieves a better outcome by providing for larger allotments near sensitive features, smaller allotments near existing intensive development and a larger road to vest to account for any future transport infrastructure needs.

7. Part 2 Matters
   The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

8. In summary it is considered that the activity is consistent with the sustainable management purpose of the RMA.

Approval
This resource consent has been prepared by Whitney Peat – Senior Resource Planner and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:

Pat Killalea, Principal Planner

Date: 13th October 2022

Right of Objection
If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing of Consent
Pursuant to section 125 of the Resource Management Act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

The consent is given effect to; or

An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.

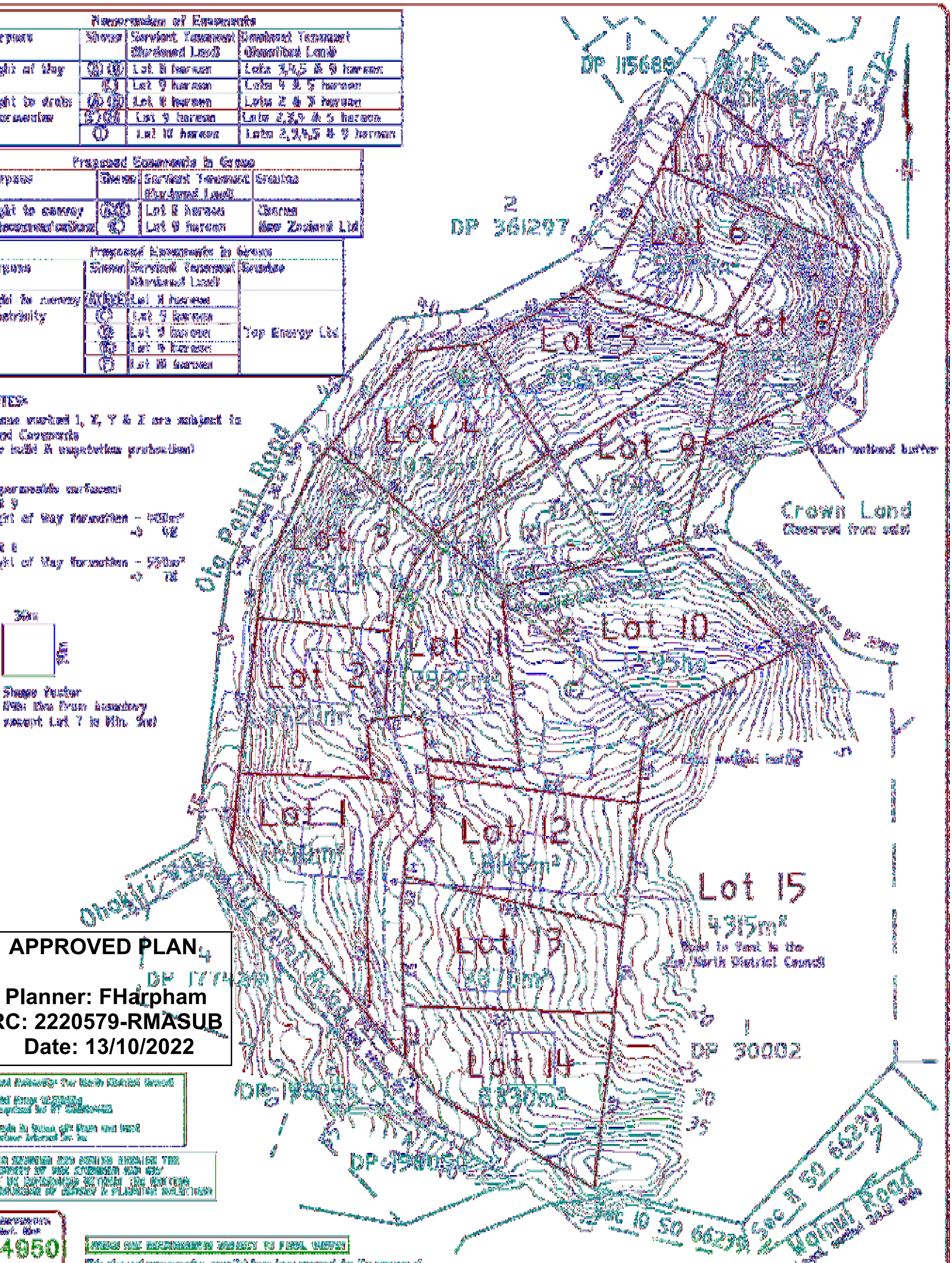
Memorandum of Easements			
Purpose	Shown	Servient Tenement (Burdened Land)	Dominant Tenement (Benefited Land)
Right of Way	(A) (B)	Lot 8 hereon	Lots 3,4,5 & 9 hereon
	(C)	Lot 9 hereon	Lots 4 & 5 hereon
Right to drain Stormwater	(A) (B)	Lot 8 hereon	Lots 2 & 3 hereon
	(C) (D)	Lot 9 hereon	Lots 2,3,4 & 5 hereon
	(I)	Lot 10 hereon	Lots 2,3,4,5 & 9 hereon

Proposed Easements in Gross			
Purpose	Shown	Servient Tenement (Burdened Land)	Grantee
Right to convey Telecommunications	(A)(B) (C)	Lot 8 hereon Lot 9 hereon	Chorus New Zealand Ltd

Proposed Easements in Gross			
Purpose	Shown	Servient Tenement (Burdened Land)	Grantee
Right to convey Electricity	(A)(B)(E)	Lot 8 hereon	Top Energy Ltd
	(C)	Lot 5 hereon	
	(D)	Lot 9 hereon	
	(G)	Lot 9 hereon	
	(F)	Lot 10 hereon	

NOTES:
Areas marked 1, X, Y & Z are subject to Land Covenants (for build & vegetation protection)

Impermeable surfaces:
Lot 9
Right of Way formation - 420m² -> [illegible]
Lot 8
Right of Way formation - 570m² -> [illegible]



Shape Factor

APPROVED PLAN
Planner: FHarpham
RC: 2220579-RMASUB
Date: 13/10/2022

Local Authority: Far North District Council

AREAS AND MEASUREMENTS SUBJECT TO FINAL SURVEY

Surveyor's Ref. No
14950

VON STURMERS
Registered Land Surveyors, Planners & Land Development Consultants

Lots 1-15 Being a Proposed Subdivision of Pt Lot 1 DP 25198

SCALE 1:2000 A3

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA51D/408**
Land Registration District	**North Auckland**
Date Issued	29 April 1982

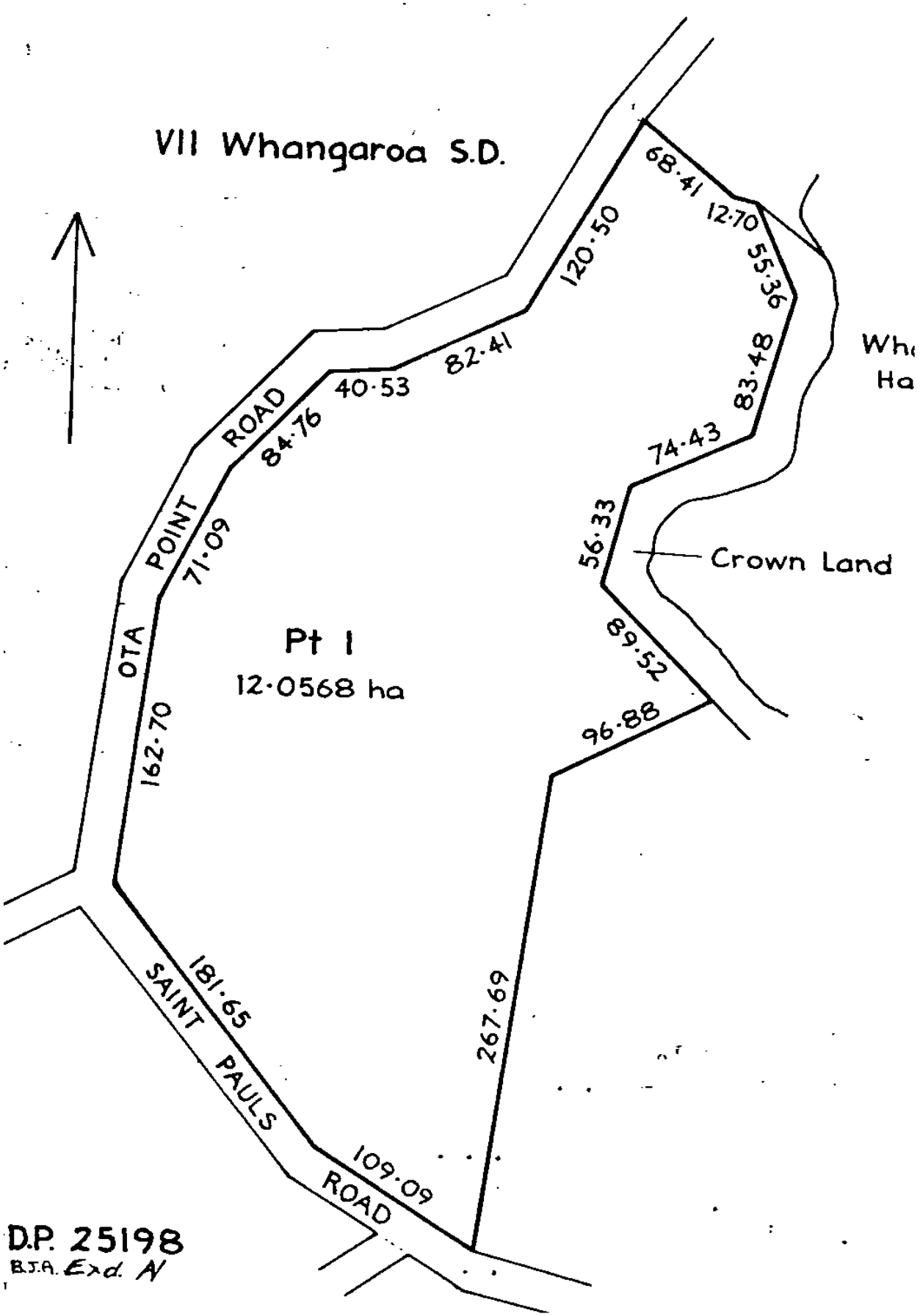
Prior References
NA1960/3

Estate	Fee Simple
Area	12.0568 hectares more or less
Legal Description	Part Lot 1 Deposited Plan 25198
Registered Owners	

Regeneration Holdings Limited

Interests

9126244.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - - 18.7.2012 at 12:40 pm


VII Whangaroa S.D.
68·41
12·70
55·36
83·48
74·43
56·33
89·52
96·88
267·69
109·09
181·65
162·70
71·09
84·76
40·53
82·41
120·50
ROAD
POINT
OTA
SAINT PAULS
ROAD
Crown Land
Pt 1
12·0568 ha
D.P. 25198
B.J.A. Exd. N

CAUTION:

1. THIS DRAWING SHOULD NOT BE AMENDED MANUALLY.
2. AREAS & DIMENSIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO FINAL SURVEY.
3. THE VENDOR & PURCHASER MUST CONTACT THE SURVEYOR IF SALE & PURCHASE AGREEMENTS ARE ENTERED INTO USING THIS PLAN.
4. SERVICES MUST NOT BE POSITIONED USING THIS PLAN.
5. DO NOT SCALE OFF DRAWINGS.
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8. 03m 2023-2024 RURAL AERIAL SOURCED FROM AERIAL SURVEYS LTD INFORMATION AVAILABLE ON LINZ DATA SERVICE.
9. CONTOURS ARE SOURCED FROM GEOLOGIX LIDAR SURVEY.
10. BOUNDARIES SOURCED FROM GRIP. COORDINATES IN TERMS OF MOUNT EDEN 2000.

PROPOSED AMALGAMATION CONDITION

PURSUANT TO SECTION 220 (1)(b)(iv) OF THE RMA 1991 THAT LOT 15 HEREON (LEGAL ACCESS) BE HELD AS TO ELEVEN UNDIVIDED ONE-ELEVENTH SHARES BY THE OWNERS OF LOTS 1 - 5 HEREON AND LOTS 9 - 14 HEREON (ONE SHARE EACH) AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL RECORDS OF TITLE BE ISSUED IN ACCORDANCE THEREWITH

SEE SHEET 04 OF 04
FOR CONTOURS

$30m^2$ x $30m^2$ SHAPE FACTOR BUILDING ENVELOPE

(MIN SETBACK 10m FROM BOUNDARY UNLESS OTHERWISE SHOWN)

TOTAL TITLE AREA: 11.5225Ha
LINZ CALC'D AREA: 12.0568Ha
COMPRISED IN: RT NA51D/408 (all)

LINZ CALCULATED AREA DIFFERS FROM TITLE AREA BY >4.4%. FINAL SURVEYED AREAS WILL DIFFER FROM THOSE SHOWN ON THIS PLAN.

THIS SITE IS ZONED ' COASTAL LIVING ' AND THE BUILDING SETBACKS ARE THUS: 10m FROM ALL BOUNDARIES, EXCEPT AN AREA OF LESS THAN $5000m^2$ THEY ARE 3m FROM ALL BOUNDARIES.

REV	DATE	DESCRIPTION
B	28.01.26	AMENDMENTS - DJ/KM
A	22.12.25	FIRST ISSUE - RS/AA

REF. DATA:

reyburn & bryant
Ph: 09 438 3563
PO Box 191, Whangarei 0140
7 Selwyn Ave, Whangarei
www.reyburnandbryant.co.nz

CLIENT

REGENERATION HOLDINGS LTD
OTA POINT ROAD, WHANGAROA

TITLE

PROPOSED SUBDIVISION OF Pt LOT 1 DP 25198

DATE	SCALE	DRAWING REF.	SHEET	REV
JANUARY 2026	1:2500 @A3	S17346	01 OF 04	B

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL

TOTAL TITLE AREA: 11.5225Ha
LINZ CALC'D AREA: 12.0568Ha
COMPRISED IN: RT NA51D/408 (all)

LINZ CALCULATED AREA DIFFERS FROM TITLE AREA BY >4.4%. FINAL SURVEYED AREAS WILL DIFFER FROM THOSE SHOWN ON THIS PLAN.

THIS SITE IS ZONED ' COASTAL LIVING ' AND THE BUILDING SETBACKS ARE THUS: 10m FROM ALL BOUNDARIES, EXCEPT AN AREA OF LESS THAN 5000m² THEY ARE 3m FROM ALL BOUNDARIES.

PROPOSED LAND COVENANTS
NO BUILD & VEGETATION PROTECTION

SHOWN	UNDERLYING PARCEL	AREA
X	LOT 9 HEREON	330m²
Y		65m²
Z	LOT 10 HEREON	295m²

N

25 0 25
METRES - 1:1250

OTA POINT ROAD
SEALED, 20.12m WIDE

LOT 16 DP 58772
LOT 15 DP 58772
LOT 6 5255m²
LOT 7 3860m²
LOT 8 (8090m²) 7265m²
LOT 5 7585m²
LOT 4 8095m²
LOT 3 6980m²
LOT 9 (9100m²) 8125m²
LOT 11 (7270m²) 6070m²
LOT 10 1.5895Ha

CROWN LAND

10m WETLAND BUFFER

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8. 03m 2023-2024 RURAL AERIAL SOURCED FROM AERIAL SURVEYS LTD INFORMATION AVAILABLE ON LINZ DATA SERVICE.
9. CONTOURS ARE SOURCED FROM GEOLOGIX LIDAR SURVEY.
10. BOUNDARIES SOURCED FROM GRIP. COORDINATES IN TERMS OF MOUNT EDEN 2000.

PROPOSED EASEMENTS IN GROSS

PURPOSE	SHOWN	BURDENED	GRANTEE
RIGHT TO CONVEY ELECTRICITY	A, B & E	LOT 11 HEREON	TOP ENERGY Ltd
	C	LOT 9 HEREON	
	D	LOT 3 HEREON	
	G	LOT 4 HEREON	
	F	LOT 10 HEREON	
	K	LOT 15 HEREON	

PROPOSED EASEMENT SCHEDULE

PURPOSE	SHOWN	BURDENED	BENEFITED
RIGHT OF WAY	A & B	LOT 11 HEREON	LOTS 2 - 5 & 9 HEREON
	C	LOT 9 HEREON	LOTS 4 & 5 HEREON
	I	LOT 8 HEREON	LOTS 6 & 7 HEREON
	J		LOT 7 HEREON
RIGHT TO DRAIN STORMWATER	A & B	LOT 11 HEREON	LOTS 2 & 3 HEREON
	C & H	LOT 9 HEREON	LOTS 2 - 5 HEREON

PROPOSED BUILDING PLATFORM

REV	DATE	DESCRIPTION
B	28.01.26	AMENDMENTS - DJ/KM
A	22.12.25	FIRST ISSUE - RS/AA

REF. DATA:

reyburn & bryant
Ph: 09 438 3563
7 Selwyn Ave, Whangarei
PO Box 191, Whangarei 0140
www.reyburnandbryant.co.nz

CLIENT

REGENERATION HOLDINGS LTD
OTA POINT ROAD, WHANGAROA

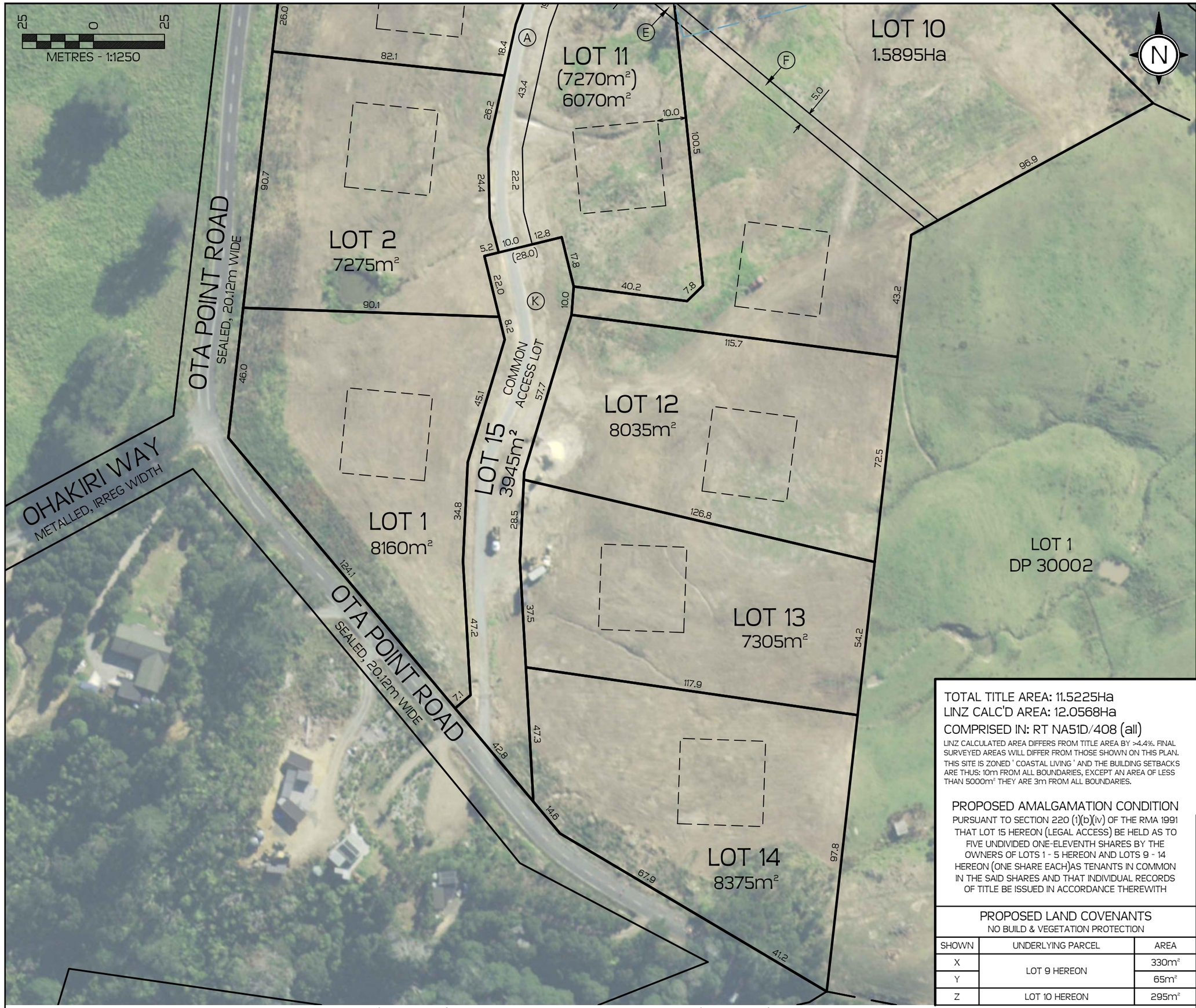
TITLE

PROPOSED SUBDIVISION OF Pt LOT 1 DP 25198

DATE JANUARY 2026 | SCALE 1:1250 @A3

DRAWING REF.	SHEET	REV
S17346	02 OF 04	B

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL



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PURPOSE	SHOWN	BURDENED	GRANTEE
RIGHT TO CONVEY ELECTRICITY	A, B & E	LOT 11 HEREON	TOP ENERGY Ltd
	C	LOT 9 HEREON	
	D	LOT 3 HEREON	
	G	LOT 4 HEREON	
	F	LOT 10 HEREON	
	K	LOT 15 HEREON	

PROPOSED EASEMENT SCHEDULE

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RIGHT OF WAY	A & B	LOT 11 HEREON	LOTS 2 - 5 & 9 HEREON
	C	LOT 9 HEREON	LOTS 4 & 5 HEREON
	I	LOT 8 HEREON	LOT 6 & 7 HEREON
RIGHT TO DRAIN STORMWATER	A & B	LOT 11 HEREON	LOTS 2 & 3 HEREON
	C & H	LOT 9 HEREON	LOTS 2 - 5 HEREON

PROPOSED BUILDING PLATFORM

TOTAL TITLE AREA: 11.5225Ha
LINZ CALC'D AREA: 12.0568Ha
COMPRISED IN: RT NA51D/408 (all)

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PROPOSED LAND COVENANTS

NO BUILD & VEGETATION PROTECTION

SHOWN	UNDERLYING PARCEL	AREA
X	LOT 9 HEREON	330m²
Y		65m²
Z	LOT 10 HEREON	295m²

REV	DATE	DESCRIPTION
B	28.01.26	AMENDMENTS - DJ/KM
A	22.12.25	FIRST ISSUE - RS/AA

REF. DATA:

reyburn & bryant
Ph: 09 438 3563
PO Box 191, Whangarei 0140
7 Selwyn Ave, Whangarei
www.reyburnandbryant.co.nz

CLIENT

REGENERATION HOLDINGS LTD
OTA POINT ROAD, WHANGAROA

TITLE

PROPOSED SUBDIVISION OF Pt LOT 1 DP 25198

DATE	SCALE
JANUARY 2026	1:1250 @A3

DRAWING REF.	SHEET	REV
S17346	03 OF 04	B

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MAJOR CONTOUR INTERVAL AT 5.0m
MINOR CONTOUR INTERVAL AT 1.0m

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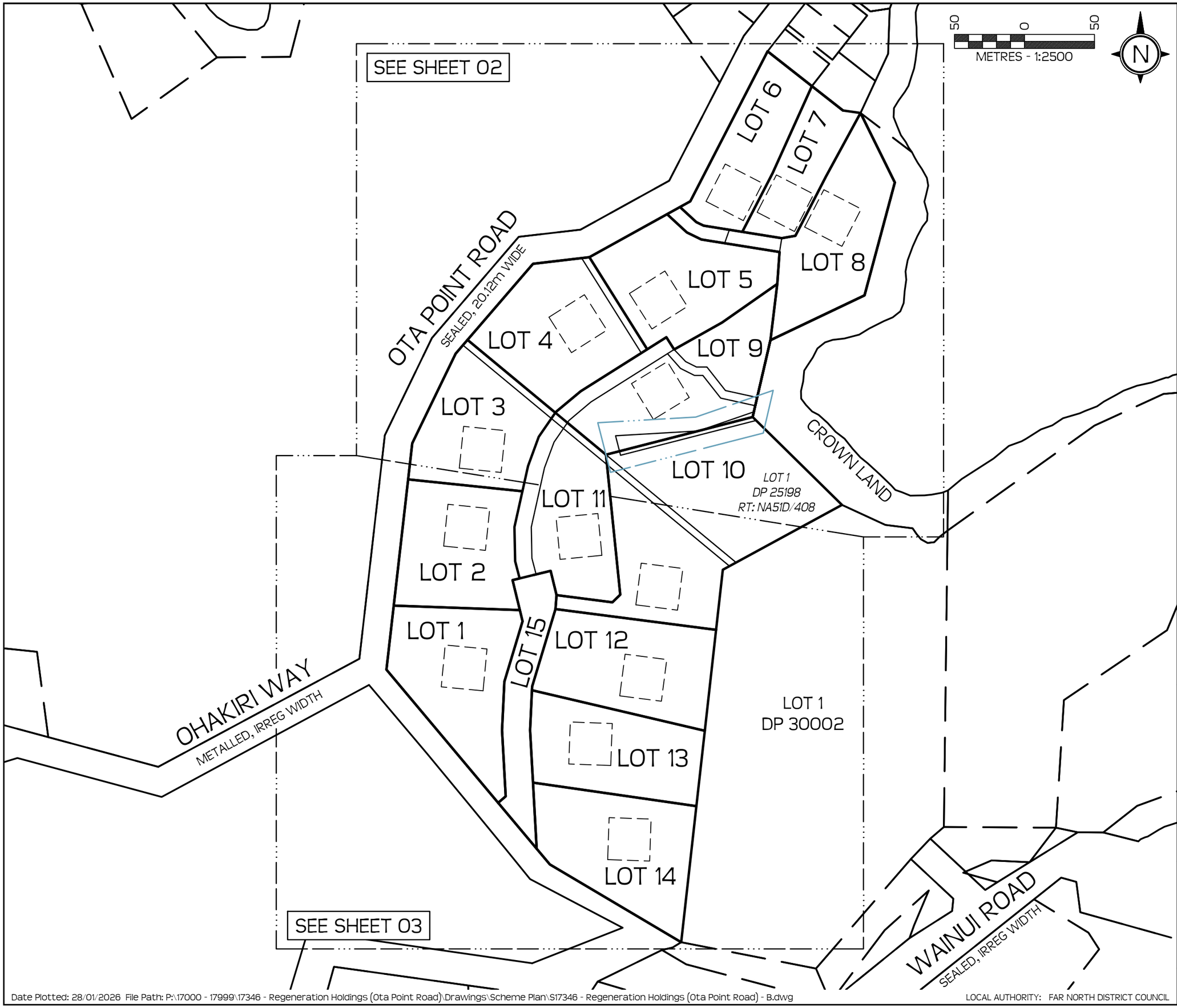

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SEE SHEET 04 OF 04
FOR CONTOURS

$30m^2$ x $30m^2$ SHAPE FACTOR BUILDING ENVELOPE

(MIN SETBACK 10m FROM BOUNDARY UNLESS OTHERWISE SHOWN)

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DATE	SCALE	DRAWING REF.	SHEET	REV
JANUARY 2026	1:2500 @A3	S17346	01 OF 04	B

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PROPOSED LAND COVENANTS
NO BUILD & VEGETATION PROTECTION

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X	LOT 9 HEREON	330m²
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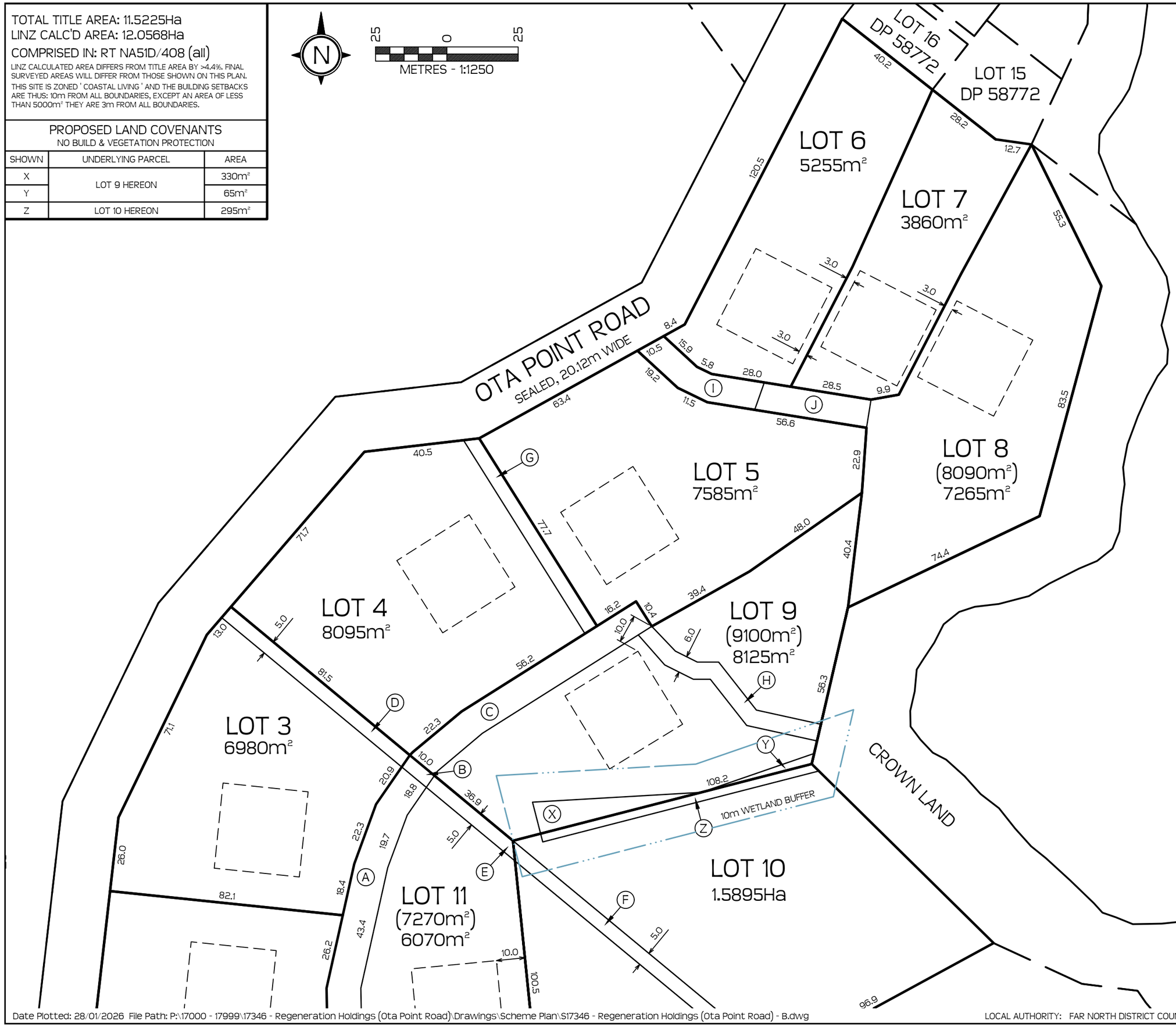
Z	LOT 10 HEREON	295m²

N

25 0 25
METRES - 1:1250



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DATE JANUARY 2026 | SCALE 1:1250 @A3

DRAWING REF.	SHEET	REV
S17346	02 OF 04	B

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL

25 0 25
METRES - 1:1250

OTA POINT ROAD
SEALED, 20.12m WIDE

OHAKIRI WAY
METALLED, IRREG WIDTH

OTA POINT ROAD
SEALED, 20.12m WIDE

LOT 2
7275m²

LOT 11
(7270m²)
6070m²

LOT 10
1.5895Ha

LOT 1
8160m²

LOT 15
3945m²
COMMON ACCESS LOT

LOT 12
8035m²

LOT 13
7305m²

LOT 14
8375m²

LOT 1
DP 30002

82.1 26.0 18.4 43.4 26.2 22.2 24.4 90.7 90.1 46.0 124.1 47.2 7.1 42.8 14.6 67.9 41.2 34.8 28.5 37.5 47.3 97.8 54.2 117.9 126.8 72.5 115.7 43.2 96.9 100.5 10.0 5.0 40.2 7.8 17.8 10.0 12.8 5.2 (28.0) 22.0 8.2 10.0 45.1 57.7

A E F K

N

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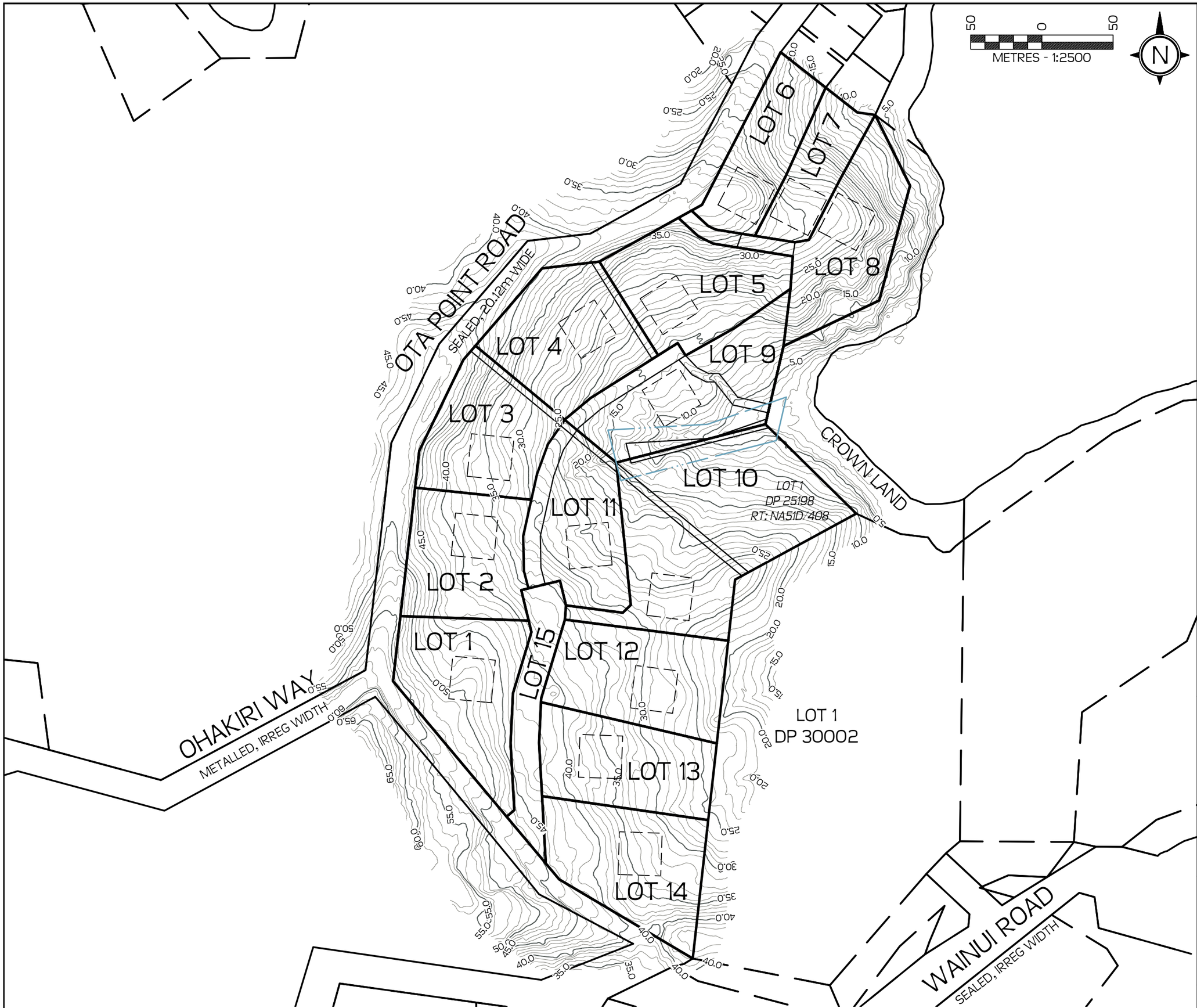
PROPOSED SUBDIVISION OF Pt LOT 1 DP 25198

DATE JANUARY 2026 | SCALE 1:1250 @A3

DRAWING REF.	SHEET	REV
S17346	03 OF 04	B

Date Plotted: 28/01/2026 File Path: P:\17000 - 17999\17346 - Regeneration Holdings (Ota Point Road)\Drawings\Scheme Plan\S17346 - Regeneration Holdings (Ota Point Road) - B.dwg



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S17346	04 OF 04	B

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

Decision A – Subdivision:

1. The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by ~~VonSturmers, referenced Lots 1-15 Being a Proposed Subdivision of Pt Lot 1 DP 25198, dated 15/12/2021,~~ **Reyburn and Bryant, referenced S17346 Sheets 1 – 4, Rev B, dated 28/01/2026,** and attached to this consent with the Council's "Approved Stamp" affixed to it.

2. The survey plan, submitted for approval pursuant to Section 223 of the Act shall show:

   (a) All easements to be duly granted or reserved.

   (b) Areas shown as ~~I,~~ X, Y & Z, are to be subject to land covenants for bush and wetland protection (See condition 4**(p)** (ix) (x)))

   (c) A drainage easement in gross ~~0.5m wide~~ along Easements A, B, C, and H pursuant to Section 220(1)(f) of the Resource Management Act 1991, shall be endorsed on the survey plan under a Schedule of Memorandum of Easements and shall be duly granted or reserved.

   (d) ~~A building restriction line on Lot 8.~~

3. Prior to the approval of the survey plan pursuant to Section 223 of the Act, the consent holder shall:

   (a) ~~Submit plans and details of the works below for the approval of Far North District Council. It is to be noted that certain works must be carried out or certified by a Suitably Qualified Person (IQP) or Chartered Professional Engineer (CPEng) working within the bounds to their assessed competencies.~~

   Submit plans and details of proposed construction works in accordance with the FNDC Engineering Standards 2004 – Revised 2009,the recommendations of the TPC Transport Assessment dated 2 February 2022 (as relevant), the Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and the details shown on the approved Reyburn and Bryant scheme plan for the approval of Far North District Council.

   It is to be noted that certain works must be carried out or certified by a Suitably Qualified Person (IQP) or Chartered Professional Engineer (CPEng) working within the bounds to their assessed competencies.

   Plans are to include but are not limited to:

   i. ~~Widening of the intersection Ota Point Road and Wainui Road consistent with Rural Type B for a distance of 20m to comply with the Far North District Council Engineering Standards and NZS4404:2044.~~ **Details for the installation of a PW68 sign at the existing intersection of Ota Point Road and Wainui Road.**

   ii. Erosion and sediment control measures which are to be in place for the duration of the works in accordance with Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05). The Erosion and sediment control plans will require design/certification by Council approved IQP/CPEng and as such will require completion of a design producer statement (PS1).

   iii. A formed single-width sealed or concrete surfaced entrance to Lot 15 (Private Access) in general accordance with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Design is to include signage and road marking in accordance with MOTSAM requirements and to the satisfaction of the FNDC.

Commented [DJ1]: Updated to refer to the Reyburn and Bryant scheme plan.

Commented [DJ2]: Area I is only a right of way. It is not subject to a land covenant.

Commented [DJ3]: Updated to refer to the consent notice condition.

Commented [DJ4]: The width has been deleted as it will be over the full right of way width.

Commented [DJ5]: Not required as recommendations around all building sites will be provided in the earthworks completion report required under condition 4m.

Commented [DJ6]: For simplicity it makes sense to include all aspects of required design under this condition rather than separate over a number of different 223 and 224c conditions. Suggested design conditions are listed below, noting that it is no longer proposed to have a road to vest as Lot 15 will remain private.

Commented [DJ7]: This condition is no longer relevant as the Geologix Plans previously provided and attached to this application have confirmed that the existing seal extent complies with the requirements of a Rural Type B crossing. The upgrade works required at this existing intersection are therefore limited to the installation of a PW68 sign only.

iv. **A formed single-width sealed or concrete surfaced entrance to ROW A in general accordance with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004.**

v. **A formed single-width sealed or concrete surfaced entrance to ROW I in general accordance with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004.**

vi. **A formed and concreted or sealed access on Lot 15 (Private Access) to 5.5m finished carriageway and a cul-de-sac turning head. The formation shall include kerbing, a concreted dish channel or water-table to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.**

vii. **A formed and concreted or sealed access on ROW easement A,,B,C to 3.5m finished carriageway width with passing bays provided to comply with Rule 15.1.6.1.2 of the Far North District Plan. The formation shall include kerbing, a concreted dish channel or water-table to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.**

viii. **A formed and concreted or sealed access on ROW easement I & J to 3.0m finished carriageway width. The formation shall include suitable provision to manage the discharge of stormwater runoff.**

ix. **Appropriately stabilised stormwater discharge channels from the outlets of all proposed culverts to reduce flows and stormwater output quality.**

(b) Provide evidence that a preferred road name and two alternatives for ~~the road to vest~~ **Lot 15 (Private Access Lot)** have been supplied to the Community Board for approval. The applicant is advised that in accordance with Community Board policy, road names should reflect the history of the Area.

Commented [DJ8]: Reworded from "*the road to vest*" to "*Lot 15 (Private Access Lot*) as Lot 15 will no longer be vested.

(c) Submit to the Resource Consents Manager or other duly delegated officer, a riparian management plan, prepared by a person with approved expertise. This plan shall address the existing state of the wetland(s) and its, riparian edges; identify areas where environmental enhancement may be achieved and propose management means and methods to accomplish such enhancement. The plan shall be prepared by a suitably qualified and experienced person; addressing the matters set out in The Ecological Assessment provided in support of 2220579 prepared by Northland Ecology dated July 2021 and submitted with the application.

(d) Submit to the Resource Consents Manager or other duly delegated officer, a weed eradication programme detailing the methodology for weed eradication. The plan shall be prepared by a suitably qualified and experienced person; addressing the matters set out in The Ecological Assessment provided in support of 2220579 prepared by Northland Ecology dated July 2021 and submitted with the application.

4. Prior to the issuing of a certificate pursuant to Section 224(c) of the Act, the consent holder shall:

(a) Implement the mitigation planting shown on Figure 2b contained in the SCLA landscape assessment provided with RC2220579.

(b) Provide evidence to the satisfaction of Council's duly delegated officer proof of implementation of the Pest and Weed eradication plan.

(c) Provide evidence to the satisfaction of Council's duly delegated officer proof of implementation of the riparian management plan.

(d) Provide evidence that the cost of purchasing and installing a road name sign for Lot 15 (Private Access Lot) has been paid to Council contractors:

Northern Area – Fulton Hogan (09) 408 6440 or Southern Area – Ventia (09) 407 7851;

(e) ~~Reinstate the edge of the carriageway seal and metal shoulders on Ota Point Road at its intersection with Wainui Road for a length of 20 metres, and install a PW68 sign.~~

~~(f)~~ **(e)** ~~Provide to the satisfaction of Councils Resource Consents Engineer an Earthworks Completion Report containing as-built compaction and contour plans; from a suitably qualified and experienced engineer. In accordance with GD05 and Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application and that, prior~~ **Prior** to commencing any physical site works, a construction/earthworks management plan shall be submitted to and approved by the Council. The plan shall contain information on, and site management procedures, for the following:

i. The timing of construction and earthworks, including hours of work, key project and site management personnel.

ii. The transportation of construction/earthworks material from and to the site and associated controls on vehicles through sign-posted site entrance/exits and the loading and unloading of materials.

iii. Excavation and earthworks, including retaining structures and any necessary dewatering facilities, prepared by a suitably qualified geotechnical engineer.

iv. Control of dust and noise on-site and any necessary avoidance or remedial measures.

v. Prevention of earth and other material being deposited on surrounding roads from vehicles and remedial actions should it occur.

vi. Publicity measures and safety measures, including signage, to inform adjacent landowners and occupiers, pedestrians and other users or Road if required.

vii. Erosion and sediment control measures to be in place for the duration of the works.

viii. ~~All construction/earthworks on the site are to be undertaken in accordance with the approved construction/earthworks management plan~~

(f) ~~Provide a formed double width entrance to lots 6 & 8 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.~~

(g) ~~Provide a formed single-width entrance to **Lots 1-5, 9-13** which complies with the Councils Engineering Standard FNDC/S/2, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.~~

(h) ~~Provide a single width entrance to Lots 7 & 14 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.~~

Commented [DJ9]: This condition has been deleted as this work will be certified under a new condition 4f below.

Commented [DJ10]: This has been reworded to solely relate to the approval of the construction/earthworks management plan. The certification of the earthworks completion report will instead be required in a new condition, Condition 4m

Commented [DJ11]: A separate condition is proposed requiring confirmation that all work undertaken on site has been done in accordance with the construction/earthworks management plan. See Condition 4f below.

(i) ~~Provide formed and concreted or sealed access on ROW easement A,,B,C to 3.5m finished carriageway width with passing bays provided to comply with Rule 15.1.6.1.2 of the Far North District Plan. The formation shall include kerbing or a concreted dish channel to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.~~

(j) ~~Provide a formed double-width entrance to ROW A which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing edge.~~

(k) ~~Provide grassed swale drains constructed within easement H. Where the swale drains slopes at 5 % or greater, in accordance with Auckland Council GD01 the grassed swale drains shall be installed with specifically sized check dams to reduce flows and improve stormwater output quality~~

(l) ~~All road infrastructure to be vested in Council shall be accompanied by a Producer Statement PS1, PS3 and PS4.~~

(f) All construction/earthworks on the site are to be undertaken in accordance with the approved construction/earthworks management plan.

(g) Complete all construction works detailed on the approved engineering plans under condition 3(a) to the satisfaction of the FNDC.

~~(n)~~ **(h)** A Chartered Professional Engineer certifying the PS1 and/or PS4 on earthworks and stormwater management design and/or constructions works shall ensure that the design and construction work are in accordance with FNDC Engineering Standards.

~~(o)~~ **(i)** A Chartered Professional Engineer shall determine the level of construction monitoring (CM1-CM5) required to certify a PS4.

(j) A suitably qualified professional IQP or CPEng) certifying the PS1 and/or PS4 on the access design and/or constructions works shall ensure that the design and construction work are in accordance with FNDC Engineering Standards.

~~(p)~~ **(k)** Contractor providing the (PS3) certificate of completion of the work shall ensure the construction works are in accordance with FNDC Engineering Standards.

~~(q) Detailed engineering designs (including structural designs), plans and drawings of all new road infrastructure in accordance with the requirements of the FNDC Engineering Standards 2004-Revised 2009 are to be submitted for Council approval prior to works commencing. The designs shall reference the recommendations of the TPC Transport Assessment dated 2 February 2022 and Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application~~

i. ~~The proposed road to vest shall be surfaced with a two coat chipseal layer in accordance with the FNDC Engineering Standards~~

ii. ~~The cul-de-sac turning head shall be surfaced with a 50mm thick Mix 14 asphaltic concrete layer or other similar material with a thickness achieving a similar or enhanced outcome.~~

iii. ~~The intersection between the new road to vest and Ota Point Rd is to be designed to full intersection standards including signage and marking in accordance with NZTA MOTSAM requirements~~

Commented [DJ12]: These conditions have been deleted as the information will be required as part of the engineering plans prepared under Condition 3a.

Commented [DJ13]: This is the confirmation that the work required on the construction/earthworks management plan has been completed.

Commented [DJ14]: This condition confirms that the physical works have been completed.

Commented [DJ15]: This condition allows a suitability qualified professional to sign off the access, not just a CPEng.

~~(r) Evidence shall be provided that a maintenance contract for a period of 12 months has been entered into between the consent holder and a suitably qualified contractor upon issuing of the s224C certificate. The road shall be vested to Council once the road has been inspected and accepted by the NTA.~~

Commented [DJ16]: This information is no longer required as Lot 15 will not be vested as road.

~~(s)~~ **(l)** As-built information, RAMM data and test results in accordance with the requirements of the FNDC Engineering Standards and Guidelines 2004-Revised 2009 and NZS 4404:2004 are to be submitted to Council on completion of the works

(m) Provide to the satisfaction of Councils Resource Consents Engineer an Earthworks Completion Report containing as-built, compaction results and contour plans; from a suitably qualified and experienced engineer. In accordance with Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application.

Commented [DJ17]: This is the standalone condition for the earthworks completion report.

~~(t)~~ **(n)** Provide to Council written confirmation from a Licenced Cadastral Surveyor that the access ROW carriageway is fully contained within the easements provided for access.

~~(u)~~ **(o)** Provide underground services for electric power and telecommunications, and provide documentation that the service providers of electric power and telecommunications to the sites are satisfied with the arrangements made for the provision of these services to the boundary of all new allotments.

~~(v)~~ **(p)** Secure the conditions below by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of the affected allotment. The costs of preparing, checking and executing the Notice shall be met by the Applicant.

(i) The subject site is identified as being within a kiwi present zone. Any cats and/or dogs kept onsite must be kept inside and/or tied up at night to reduce the risk of predation of North Island brown kiwi by domestic cats and dogs. **All Lots**

(ii) All buildings will require foundations specifically designed by a Chartered Professional Engineer in accordance with design parameters specified by a suitably qualified Geotechnical engineer. The foundation design details shall be submitted in conjunction with the Building Consent application. **All Lots**

(iii) In conjunction with the construction of a future dwelling on proposed Lots 1-14, the Lot owner shall obtain a Building Consent and install a wastewater treatment and effluent disposal system on the Lot. The system shall be designed by a Chartered Professional Engineer or registered drainlayer in accordance with ARC TP 58 requirements and shall reference the recommendations of the Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application. **All Lots**

(iv) In conjunction with any future development on proposed Lots 1-14, the Lot owner shall submit a stormwater management report that is prepared by a Chartered Professional Engineer or suitably qualified person in accordance with the FNDC Engineering Standards for Council approval. Stormwater runoff from new buildings and impermeable surface areas on proposed Lots 1-14 shall be restricted to that of pre-development levels for a 10% AEP storm event plus an allowance for climate change. Low impact stormwater design principles are to be incorporated within the stormwater management system for each Lot. Overland/secondary flowpaths that can accommodate the 1% AEP storm event shall also be provided on the proposed Lots and are to be unobstructed by new buildings, other structures or landscaping. **All Lots**

(v) In conjunction with the construction of any dwelling, and in addition to a potable water supply, a water collection system with sufficient supply for firefighting purposes is to be

provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509 or where this is not achieved, a letter shall be provided from Fire and Emergency NZ confirming that they are satisfied with the arrangements made. **All Lots**

(vi) The mitigation planting installed at time of subdivision and shown on Figure 2b of the SCLA landscape assessment provided with RC2220597 shall be maintained in perpetuity. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible **All Lots**

(vii) Any vegetation waste, prunings and the like must not be disposed of within the covenanted areas, or on the coastal margin. **All Lots**

(viii) The pest and weed eradication management plan and riparian plan provided with RMACOM 2220579 shall be observed and continued by the landowners and the plan shall not cease or be amended without the express permission of Council. **All Lots**

(ix) No building/structural development, indigenous vegetation removal or earthworks shall occur within areas X, Y & Z as shown on the survey plan. **Lots 9 -10**

(x) The owner shall preserve the indigenous trees and bush area ~~I,~~ X, Y & Z as indicated on the survey plan and shall not without the prior written consent of the Council and then only in strict compliance with any conditions imposed by the Council, cut down, damage or destroy any of such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible. **Lot 9-10**

Commented [DJ18]: Area I is only a right of way. It is not subject to a land covenant.

Design conditions

(xi) The maximum height of all buildings and structures (not including chimneys) shall be 4.5 meters above existing ground level (measured using the rolling ground method). **Lots 6 and 10**

(xii) The maximum height of all buildings and structures (not including chimneys) shall be 5.5 meters above existing ground level (measured using the rolling ground method). **Lots 1, 2, 3, 4, 5, 7, and 8**

(xiii) The maximum height of all buildings and structures (not including chimneys) shall be 7.0m meters above existing ground level (measured using the rolling ground method) **Lots 9, 11, 12, 13, and 14**

(xiv) The colour selection for all buildings and structures must be made from the following indicators.

Walls / facades and joinery

Refer to BS5252 – Hue (Colour) All the colours from 00 – 24 are acceptable, conditional on the limitations below. Reflectance Value (RV) and Greyness Groups. The predominant wall colours, shall have a RV rating of no more than 30% for greyness groups A, B and C. Colours within greyness groups D and E are not permitted. If a product such as colorsteel is utilised the hue (colour) shall have a (Light Reflectance Value) LRV of no more than 30%.

Roof

If painted, the roof hue (colour) shall have an RV rating of no more than 25% and be within greyness groups A, B and C of BS5252. Colours within greyness groups D and E are not permitted.

If a product such as colorsteel is utilised the hue (colour) shall have a (Light Reflectance Value) LRV of no more than 30%. **All Lots**

(xv) Mirrored glazing is not permitted. **All Lots**

(xvi) All vehicle driveways and manoeuvring areas shall be formed with recessive materials, e.g. blue metal, concrete with the aggregate exposed or concrete with a black oxide additive. **All Lots**

(xvii) Cut and fill batters shall be shaped to feather naturally into the natural angle of slope. All cut and fill batters shall be grassed or otherwise vegetated to ensure complete coverage of exposed soils. Retaining structures, if higher than 1,200mm shall be stepped, and the steps planted to screen the faces. All retaining structures that exceed 2.0m in height and are visible from any location beyond the boundaries of the lot on which it is situated, shall be constructed from, painted / stained with a dark, recessive and natural colour. **All Lots**

(xviii) All services and utilities (Reticulated power and telecommunications) are to be either located below ground or screened. **All Lots**

(xix) External service areas should be integrated within the building area so that rubbish, storage and similar items are not visible from outside the house site. **All Lots**

(xx) Materials used for fencing may be post and wire or timber railing and it shall be either left unpainted or stained a recessive colour. There shall be no solid timber **or panel** fences or walls other than within five metres of the dwelling. **All Lots**

(xxi) No pole lights or floodlights are permitted. Exterior light sources on buildings shall be fitted with directional screens to reduce glare beyond the building curtilage and no tennis court lighting is permitted. **All Lots** (xxii) Water tanks placed on site shall either be:

- Buried; or
- If above ground screened with plants / vegetation and coloured a dark, natural and recessive colour. Screening with vegetation is not required for above ground tanks where the tanks are buried to at least a minimum of half their total height. **All Lots**

Decision B – Landuse:

(a) The works shall be carried out in accordance with the approved drawings and documentation provided with the application, specifically **the scheme plan prepared by**~~, Scheme Plan titled Lots 1-15 Proposed Subdivision of Pt Lot 1 DP 25198 by Von Strumers, referenced 14950, dated 15/12/2021~~ **Reyburn and Bryant, referenced S17346 Sheets 1 – 4, Rev B, dated 28/01/2026,** attached to this permit/consent with the Council's Approved Stamp affixed to them. In particular the volume of earthworks shall not exceed 5000m³.

Commented [DJ19]: The wording of this condition has been updated to refer to the latest scheme plan.

(b) In the event any fill will be removed from the site, the consent holder shall prior to any excavation commencing provide evidence that all consents (earthworks permits and / or resource consent) for the disposal of fill have been obtained for the receiving site.

(c) In addition to the standard Heritage NZ Pouhere Taonga Accidental Discovery Protocol procedures as agreed with the following Te Runanga O Whaingaroa shall be undertaken:

- At least 5 working days prior to any earthworks being undertaken the consent holder shall advise Te Runanga o Whaingaroa and invite them to have a representative on site while the earthworks are being undertaken.
- Should any archaeological evidence be exposed during any future works on the site, work must be stopped, and Te Runanga O Whaingaroa should be advised.
- Should any koiwi (human remains) be exposed during any future works, work must be stopped immediately, and the area secured from any further disturbance and the advice of a kaumatua (Senior Elder) nominated by Te Runanga O Whaingaroa followed in respect of further actions. Kaumatua to be given the opportunity to undertake such ceremonies and activities at the site as may be considered appropriate in accordance with Te Rarawatanga (Tikanga Māori).

General Access Standards

(d) Prior to undertaking earthworks the consent holder shall provide for the approval of Councils Infrastructure management team a road condition assessment of haul routes on public roads in the vicinity of the site is to be undertaken,

(e) No parking of construction vehicles on Council roads shall be permitted

(f) Any dirt or debris tracked on to public roads shall be cleaned up within stipulated timeframes in the CTMP to the satisfaction of Council

(g) Repairs to any damage to road carriageways, berms, footpath and kerb and channel caused during earthworks or construction activities shall be the responsibility of the consent holder

(h) An approved TMP/CAR application are to be submitted prior to any works commencing within the public road corridor

(i) All buried services within the road boundary shall be located, marked and adequately protected prior to trenching works commencing

Advice Notes:

1. Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site

2. The NES Freshwater currently defines wetlands within the coastal marine area as a wetland within the regulation. Moreover, the ecological report provided as part of this subdivision indicated that the removal of pines on site would transform a wet area mapped on the scheme plan into a wetland as defined by this application on the subject site. As a result, some allotments within this development will be impacted by this regulation and may require consent from the regional council to develop. The consent holder has indicated that regional consent will be sought for works associated with giving effect to this subdivision and some future development of the sites. Future owners of the allotments are advised that they should review

this regional consent to ensure no further applications are required from the regional council prior to development.

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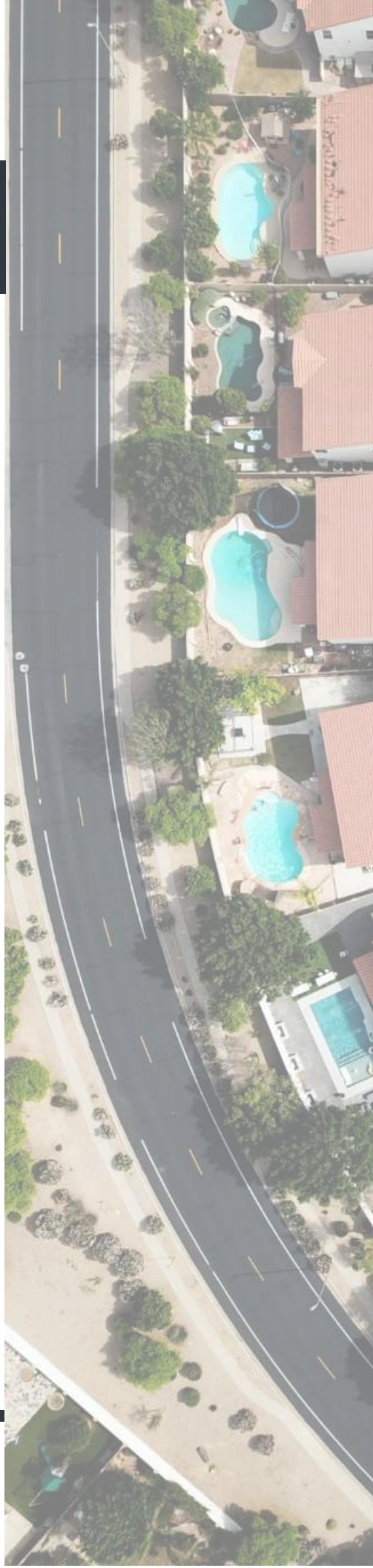
ENGINEERING REPORT FOR ENGINEERING DESIGN APPROVAL (EDA)

LAND OFF OTA POINT ROAD, WHANGAROA

REGENERATION HOLDINGS LTD



C0456-S-01
NOVEMBER 2024
REVISION 1

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DOCUMENT MANAGEMENT

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Site Reference	Land Off Ota Point Road, Whangaroa
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Geologix Reference	C0456-S-01
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Prepared by	Sebastian Hicks Principal Civil Engineer, BSc Eng (Hons), CPEng Reg. 1168062, IntPE(NZ) /APEC Engineer, CMEngNZ
Approved by	Edward Collings Managing Director, CEnvP Reg. 0861, CPEng Reg. 1033153, CMEngNZ
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REVISION HISTORY

Date	Issue	Prepared	Approved
November 2024	First Issue	SH	EC

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1 INTRODUCTION

This Engineering Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for Regeneration Holdings Ltd as our Client in accordance with our standard short form agreement and general terms and conditions of engagement.

The scope of works has been undertaken to prepare an Engineering Design Approval (EDA) application in relation to the proposed subdivision of a rural property (Pt Lot 1 DP 25198) off Ota Point Road, Whangaroa, the 'site'.

1.1 Resource Consent and Supporting Information

The proposed subdivision has been granted Resource Consent by FNDC. The FNDC Resource Consent reference is 2220579-RMACOM. The consent references the following supporting information, which is included in the appendices or is referenced within this report where indicated:

- Scheme Plan, Ref. No 14950, Lots 1 – 15 Being a Proposed Subdivision of Pt Lot 1 DP 25198, Dated April 2023, by Von Sturmers, stamped "Approved Plan" by FNDC 13/10/2022 – Refer Appendix A
- Subdivision Site Suitability Engineering Report, C0035-S-01, Revision 01, Dated November 2021, by Geologix Consulting Engineers Ltd
- Proposed Residential Development – Transport Assessment Ota Point Road – Pt Lot 1 DP25198, Whangaroa, dated 02 February 2022, by TPC Traffic Planning Consultants Ltd

1.2 Scope for Detailed Design

The detailed design presented with this EDA application intends to only advance the necessary elements of the preliminary design to satisfy the related conditions of consent.

The specific conditions of the resource consent named above, are included within the applicable chapters of this report for clear reference and responded to accordingly.

This report serves to provide clarity to the proposed detailed design drawings and calculations included in Appendix B.

The focus of the detailed design is the internal roading and stormwater drainage to facilitate the subdivision to the satisfaction of the related conditions of consent. All other on-lot infrastructure (such as wastewater and water supply) is to be applied for under the individual on-lot development consents in accordance with the conditions of the above-referenced resource consent.

It is also noted that the vehicle crossings to each lot are proposed to be finalised and formed at subdivision formation.

2 SITE DESCRIPTION

The site is a 12Ha property previously comprising a commercial pine plantation. It is set on an eastern facing slope directly overlooking the coastal marine area of Waitapu Bay. Ota Point Road provides access to the site and runs along a natural ridgeline that forms the site's western and northern boundary.

Figure 1: Looking east over Ota Point Road with existing site access to be upgraded in foreground. Coastal Marine Area (CMA) of Waitapu Bay in background.

Topographically the central portion of the site is moderately sloped with localised steep terrain, forming a bowl that drains to the coastal marine area (CMA). At the north-east and south-east extremities of the site, localised ridges or hills are formed that drain away from the central bowl.

In April, Geologix undertook a LiDAR drone survey which has been used to create a 3d model of the site.

The general site area is currently bare earth or with light grass cover and some loose wood or mulch remaining over much of the site, having been harvested and cleared at the time of the original investigations by Geologix in February 2022. There is a wide strip of light brush vegetation at the top of the site alongside Ota Point Road.

There is a naturally vegetated and wooded area in the lower lying areas of the site, which includes a "wet area" mapped on the scheme plan (with reference to the Ecologist

Assessment[1]) that has been demarcated as a future wetland area, that drains the central "bowl" of the site. Refer Section 2.1 for more detail on this wet area.

Figure 2: Looking west from within Proposed Lot 5, showing site's topography and vegetation. The wooded "wet area" is visible to the left of existing track.

2.1 Access, Roading and Drainage

There is an existing metalled road running through the middle of the site, accessed from Ota Point Road at the south-west end of the site. This road slopes gently downward from the access to the north-west end of the site. It is well formed with a blue metal surface that is approximately 3m wide, with an open channel or swale drain along the upslope side of the road. There are several existing PE pipe culverts that convey water from the channel, under the road, discharging into overland flow paths that drain toward the CMA - Refer Figure 4.

It is noted that the existing channels and overland flow paths are generally well set within the Northland Allochthon Soil Mantle and Transition Zone, described within the Site Suitability Report's geological assessment. Despite the concentrated flows from existing culverts and the steep gradients (5 – 20%), only minor scour was observed this soil strata and the channels are well defined.

[1] *The Ecological Assessment provided in support of 2220579 prepared by Northland Ecology dated July 2021 and submitted with the RC application.*

Figure 3: Looking north along existing metal track. Proposed Lots 3 & 4 on the slope left of track. Existing road-side swale on left side of road.

Figure 4: Looking north along existing metalled track, showing existing 300Ø PE culvert inlet on left side, draining swale to OLFP on right side, toward CMA.

Figure 5: Example of existing formed vee channel for overland flow, from existing culvert near CH140 Road to Vest, displaying less than minor erosion despite lack of vegetation or velocity mitigation.

2.2 Sensitive Receptors

The supporting information to the resource consent presents a demarcated "wet area" within the site boundary at the base of bowl catchment. This is anticipated to be transformed into a wetland. The extents of the wet area /wetland and a 10m buffer zone are clearly demarcated on the Scheme Plan and the engineering plans included in Appendix A.

The following Advice Note is included within the Resource Consent Decision Notice, related to this wetland:

Advice Note 2: *The NES Freshwater currently defines wetlands within the coastal marine area as a wetland within the regulation. Moreover, the ecological report provided as part of this subdivision indicated that the removal of pines on site would transform a wet area mapped on the scheme plan into a wetland as defined by this application on the subject site. As a result, some allotments within this development will be impacted by this regulation and may require consent from the regional council to develop. The consent holder has indicated that regional consent will be sought for works associated with giving effect to this subdivision and some future development of the sites. Future owners of the allotments are advised that they*

should review this regional consent to ensure no further applications are required from the regional council prior to development.

The detailed design has considered this wet area and its anticipated transformation into a wetland as a result of the subdivision development. The design proposal is to cause less than minor effects to the anticipated wetland where it is demarcated within the Scheme Plan. The mitigation measures to achieve this are presented within Section 4 - Stormwater.

3 PROPOSED DEVELOPMENT

The approved scheme plan was presented to Geologix at the time of writing, prepared by Von Sturmers and represented for reference within Appendix A.

The subdivision entails the creation of fourteen new residential lots with a short Road to Vest and private accessway (RoW) to facilitate access.

The drainage of the site will remain similar to the existing condition. The new internal roads will continue to collect runoff from the higher slopes, similarly to the existing plantation track with its road-side swale. The detailed design ensures that post-development runoff is assessed and appropriately conveyed off site.

4 STORMWATER

The proposal for stormwater management provided within the detailed design seeks to meet the outcomes set within relevant conditions of the Resource Consent decision and reflect the recommendations of the Geologix Site Suitability Report submitted with the RC application.

4.1 Specific Resource Consent Conditions

The specific conditions related to stormwater design are listed below:

> ***Condition 4.(q):*** *Detailed engineering designs (including structural designs), plans and drawings of all new road infrastructure in accordance with the requirements of the FNDC Engineering Standards 2004-Revised 2009 are to be submitted for Council approval prior to works commencing.*

The proposed stormwater drainage infrastructure within the road is compliant with the above. This pertains to road-side swales/channels/water tables, catchpits, pipe culverts and energy dissipation structures. Where FNDC Engineering Standards 2009 are not prescriptive, other standards have been relied upon for guidance, such as proposed FNDC Engineering Standards 2023, and Auckland Council GD01 and TP10.

> ***Condition 4.(l):*** *Provide grassed swale drains constructed within easement H. Where the swale drains slopes at 5 % or greater, in accordance with Auckland Council GD01 the grassed swale drains shall be installed with specifically sized check dams to reduce flows and improve stormwater output quality.*

The above condition has been applied to all swale drains that are not part of the road formation. Some of these are contained within specific right-to-drain easements where appropriate.

> ***4.(v). (iv) (Consent Notice):*** *In conjunction with any future development on proposed Lots 1-14, the Lot owner shall submit a stormwater management report that is prepared by a Chartered Professional Engineer or suitably qualified person in accordance with the FNDC Engineering Standards for Council approval. Stormwater runoff from new buildings and impermeable surface areas on proposed Lots 1-14 shall be restricted to that of pre-development levels for a 10% AEP storm event plus an allowance for climate change. Low impact stormwater design principles are to be incorporated within the stormwater management system for each Lot. Overland/secondary flowpaths that can accommodate the 1% AEP storm event shall also be provided on the proposed Lots and are to be unobstructed by new buildings, other structures or landscaping.* ***All Lots***

Although this condition relates specifically to the future On-Lot developments only, it does inform the requirements of the subdivision drainage design, as the swale drainage (road-side drains and downstream) must be sized to manage the anticipated post-development

discharge from upstream lots. This has therefore been considered in the subdivision drainage design within this submission.

This concludes the specific conditions related to the stormwater drainage design.

4.2 Existing (Pre-development) Considerations

The site's existing pervious area comprises the harvested pine plantation which covers the majority of the site.

The existing impervious areas are the existing metalled track through the middle of the site, running approximately south-north. Portions of Ota Point Road's chip-sealed surface are also considered as contributing catchment areas that drain across the site.

The above existing conditions are considered within the delineated post-development catchments A – G, presented within Sheet 400, which discharge to the proposed subdivision drainage infrastructure. The catchment analyses are presented in Appendix C.

4.3 Subdivision (Post-Development) Stormwater Management

4.3.1 Concept Design Recommendations

The following key outcomes for the stormwater management are proposed, in keeping with the recommendations of the Geologix Site Suitability Report (Concept Design):

- Post-development discharge from the internal roading i.e. road to vest and private accessway (ROW), will be discharged direct to the CMA, and therefore have no effect on downstream property.
- There is no requirement for attenuation of stormwater at the subdivision formation.

4.3.2 Demarcated Wetland Considerations

The detailed design proposal has considered the demarcated wetland area as described in Section 2.1. This consideration goes beyond the recommendations of the Site Suitability Report as the low lying "wet area" and its demarcation as a future wetland was not yet identified or addressed at that time.

In this regard, the proposal is to discharge runoff to the demarcated wetland area through pipe culverts under the private accessway (ROW), however the discharge will be choked to the pre-development 10% AEP storm peak flow. The relevant culverts are Culvert 2, 3 & 4, indicated within Sheet 400 of the appended Drawing Set.

The wetland area will therefore be charged with runoff from the upstream catchments in similar manner to the pre-development scenario. However, it will also be protected from the peak flows of larger, infrequent storm events (>10% AEP). From a hydrology perspective this is considered to be best practicable option for the subdivision development's control of post-development runoff to the wet area / future wetland.

4.3.3 *Post-Development Catchments*

The internal roads (road to vest and ROW) and their drainage components provide the primary and secondary flow measures that control the subdivision's predominant runoff.

The catchments of the system are named A to G and presented in Sheet 400. These catchments comprise upslope areas (Lots 1 to 5), the portions of Ota Point Road that drain into Lots 1-5, and the internal road areas themselves. The catchment analyses are presented in Appendix C.

Catchments downslope of the internal roads will drain as per the existing condition i.e. via overland flow paths, or sheet flow. Some of the existing overland flow paths within these catchments will be relieved of upstream flows where existing culverts have been removed (and replaced elsewhere). Such existing culverts to be removed are indicated in Sheet 400.

Similarly, the catchments of northern lots 6, 7 & 8 will drain as per existing condition.

4.3.4 *Proposed Infrastructure*

The subdivision drainage infrastructure has all been designed in accordance with FNDC Engineering Standards 2009, or 2023. The components include:

- Road-side swale drains 1 – 4
- Catchpits (scruffy dome inlets)
- Pipe culverts 1 – 6, with headwall inlets and outlets and rip rap apron energy dissipation outlets where deemed required, as indicated in the drawings.

  Culvert outlets will discharge into either existing overland flow paths, or proposed Channels 1 – 4 which are proposed for purposes of suitable diversion and conveyance performance.
- Channels 1 – 4, formalise overland flow paths (OLFP)

The above components are all indicated in Sheet 400, and in more detail in Sheets 302 – 312.

The sizing analyses of the above are included in Appendix C.

4.3.5 *Road-side Swale Drains*

- All road-side swale drains are lined with rip-rap, due to the swale gradients generally being > 4% (which would otherwise causes velocities over grass lined channels > 1.5 m/s and risk of scour).
- Check dams will be introduced where gradients exceed 5% as per FNDC Engineering Standards 2023.

- Check dams are proposed to be spaced at 5m consistently. This has been analysed and is considered a practical measure to implement check dams on a consistent basis that is reasonably effective for all gradients > 5%.
- Swales between check dams will be rip-rap lined. This considers the limitations of the 5m spacing along steeper sections of swale (> 10%) in terms of mitigating scour where the swale is not benefitted by the check dam's effective water depth (350mm).
- Refer Appendix C for detailed calculations.

4.3.6 Channels (Overland flow paths)

- Channels 1 – 4 are either proposed as diversions or upgrades to existing overland flow paths, to suit the subdivision formation.
- All channels will have check dams introduced at 5m intervals to control velocity and mitigate risk of scour.
- Channels 2 and 3 will be topsoiled and grass-lined. Coconut matting will be used to stabilise the top soil and support vegetation growth.
- Channels 1 and 4 are proposed to be lined with rip-rap. This is deemed necessary due to the steep grade and high velocity (particularly of channel 4) and significant flows to be conveyed (by Channel 1).
- It is considered that generally the existing overland flow paths cope well with the concentrated flows they convey, and this justifies that generally formal lining of the channels is not necessary. However, the proposed lining of the channels considers aesthetic qualities and further mitigation of risk. Existing overland flow paths downstream of the channels will remain as-is in their well-established condition.

5 ROADING

The roading provided within the detailed design seeks to meet the outcomes set within relevant conditions of the Resource Consent decision and reflect the recommendations of the Geologix Site Suitability Report and the submitted with the RC application.

5.1 Specific Resource Consent Conditions

The specific conditions related to roading design are listed below:

5.1.1 Ota Point Road / Wainui Road Intersection:

Condition 3.(a): *Submit plans and details of the works below for the approval of Far North District Council. It is to be noted that certain works must be carried out or certified by a Suitably Qualified Person (IQP) or Chartered Professional Engineer (CPEng) working within the bounds to their assessed competencies.*

Plans are to include but are not limited to:

i. *Widening of the intersection Ota Point Road and Wainui Road consistent with Rural Type B for a distance of 20m to comply with the Far North District Council Engineering Standards and NZS4404:2044.*

The intersection of Ota Point Road and Wainui Road have been assessed with a site visit and with drone LiDAR survey for detailed level data and aerial imagery.

It was observed that the sealed carriageway width and formation width of Ota Point Road is in keeping with the FNDC standards for Rural Road Type B. i.e. the road comprises a 6.5m carriageway and 8.5m formation width as per the standard. There is no additional width required to be constructed.

Condition 4 (e): *Reinstate the edge of the carriageway seal and metal shoulders on Ota Point Road at its intersection with Wainui Road for a length of 20 metres, and install a PW68 sign.*

A 4.8m long PW68 sign has been indicated in the drawings for installation at the specified position in accordance with MOTSAM Part I: Section 06 Permanent Warning Signs.

We observed the feathered edges of the seal and scoured metal formation along the first 20m extent of Ota Point Road, as suggested in this condition. We would propose that the re-instatement of edge of carriageway seal and scoured metal shoulders takes place after the subdivision construction is completed but prior to 224c application. This should include re-painting of the road markings.

Figure 6: Looking south from Ota Point Road, at its intersection with Wainui Road. Observed weathered edge of seal and road markings.

5.1.2 *Internal Roading - Road to Vest and Private Access*

Condition 4 (various items as noted)

The following conditions are presented in the Decision Notice as being required prior to the issuing of certificate pursuant to Section 224 (c), however they have been considered in this detailed design submission for approval prior to works commencing.

> ***(g)*** *Provide a formed double width entrance to lots 6 & 8 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.*

Implemented within this submission. Refer drawing Sheet 313.

> ***(h)*** *Provide a formed single-width entrance to Lots 1-5, 9-13 which complies with the Councils Engineering Standard FNDC/S/2, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.*

Implemented within this submission. Refer drawing Sheet 302-312.

(i) *Provide a single width entrance to Lots 7 & 14 which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing seal edge.*

We note that with this detailed design submission, Lot 14's vehicle access has rather been proposed off the Road to Vest at Ch 30m. This is more than 10m away from the intersection, as recommended by the TPC Traffic Assessment. Sight visibility and access gradients have been considered and are satisfactory. We consider no reason to have this crossing be off Ota Point Road, in fact this would be a more hazardous option in terms of sight distances and proximity of crossings along the main road. Refer drawing Sheet 302.

Lot 7 vehicle crossing is implemented within this submission as per the condition. Refer drawing Sheet 313.

(j) *Provide formed and concreted or sealed access on ROW easement A,,B,C to 3.5m finished carriageway width with passing bays provided to comply with Rule 15.1.6.1.2 of the Far North District Plan. The formation shall include kerbing or a concreted dish channel to contain stormwater runoff as well as catch pits and culverts as required to control and direct the discharge of stormwater runoff.*

Sealed carriageway of 3.5m is provided over full length of the private accessway (ROW), with a passing bay at CH 100m..

The road formation includes a swale drain on the upslope side of the road, as opposed to a "kerbing or concrete dish channel". The swale drain proposal is considered more suitable for this site. It offers a low impact design alternative, as opposed to a kerb and channel approach which has far less capacity and therefore requires considerable pipe conveyance. It is also far more expensive to construct and maintain, and offers no treatment like a swale drain does. Additionally, it is suited better to this coastal living subdivision which doesn't require an urban type kerb and channel approach with associated pipe network for conveyance.

(k) *Provide a formed double-width entrance to ROW A which complies with the Councils Engineering Standard FNDC/S/6, 6B, and section 3.3.7.1 of the Engineering standards and NZS4404:2004. Seal the entrance plus splays for a minimum distance of 5m from the existing edge.*

Implemented within this submission, ties seamlessly into the road to vest cul-de-sac. Refer drawing Sheet 310.

(n) *A Chartered Professional Engineer certifying the PS1 and/or PS4 on design and/or constructions works shall ensure that the design and construction work are in accordance with FNDC Engineering Standards.*

Provided, enclosed with the application.

(o) *A Chartered Professional Engineer shall determine the level of construction monitoring (CM1-CM5) required to certify a PS4.*

Geologix recommends that CM3 is adopted, particularly with respect to the road to vest component of scope. Otherwise, CM2 will be sufficient for the private accessway and vehicle crossings.

(q): *Detailed engineering designs (including structural designs), plans and drawings of all new road infrastructure in accordance with the requirements of the FNDC Engineering Standards 2004-Revised 2009 are to be submitted for Council approval prior to works commencing. The designs shall reference the recommendations of the TPC Transport Assessment dated 2 February 2022 and Geologix Consulting Engineers Subdivision Site Suitability Engineering Report (Revision 01) dated February 2022 and submitted with the application*

Implemented within this submission. Specific detailing of the road to vest and private accessway (ROW) roading adopts the Revised 2009 FNDC standards.

i. *The proposed road to vest shall be surfaced with a two coat chipseal layer in accordance with the FNDC Engineering Standards*

Implemented. Grade 3/5 chip seal proposed. Refer Drawing Sheet 390.

ii. *The cul-de-sac turning head shall be surfaced with a 50mm thick Mix 14 asphaltic concrete layer or other similar material with a thickness achieving a similar or enhanced outcome.*

Implemented. Refer Drawing Sheet 390.

iii. *The intersection between the new road to vest and Ota Point Rd is to be designed to full intersection standards including signage and marking in accordance with NZTA MOTSAM requirements.*

Implemented. Refer Drawing Sheet 302.

6 EARTHWORKS

Earthworks are required to form the following:

- Proposed internal roading include the road-side swale on upslope side and cut/fill batters;
- trenching for pipe culverts 1-6 and preparation for dissipation outlets,
- swale channels 1-3 downstream of road, and;
- All lots' vehicle crossings.

The proposed earthworks activities have been modelled with 3d design by Geologix. Proposed earthworks are summarised below within Table 2.

Table 2: Summary of Proposed Earthworks

Activity	Proposed Volume	Net Volume	Total Area	Max. Depth
Vehicle Crossings				
Cut	145m³		160m²	1.4m
Fill	380m³	235m³	400m²	1.7m
Culvert trenching:				
Cut	90m³	90m³	110m²	1.3m
Fill	0m³		0m²	0m
Roading Subgrade including swale and batters:				
Cut	1,267 m³	882 m³		1.7 m
Fill	385 m³			1.1 m
Total	**2,267 m³**	**737m³ cut (surplus)**	**6,220 m²**	

6.1 Cut/Fill Batters

In general, cut batters are proposed to be 1V:2H slope, or flatter. Fill batters are proposed to be 1V:3H steep, or flatter. However, where space and natural slopes are permitting, the proposed fill batters are set to 1V:5H to promote ease of maintenance.

All batters are proposed to be grass lined to stabilise the surface (covered in top soil). Certain batters may be lined with coconut husk / jute matting or similar geotextile to mitigate scouring while vegetation is being established. This will be instructed at the discretion of the monitoring Engineer.

Where any batters are intercepting concentrated flow within overland flow paths, suitable diversion of the OLFP has been proposed.

6.2 Erosion and Sediment Control

The specific conditions related to erosion and sediment control are listed below:

> ***Condition 3.(a):*** *Submit plans and details of the works below for the approval of Far North District Council. It is to be noted that certain works must be carried out or certified by a Suitably Qualified Person (IQP) or Chartered Professional Engineer (CPEng) working within the bounds to their assessed competencies.*
>
> *Plans are to include but are not limited to:*
>
> *iv. Erosion and sediment control measures which are to be in place for the duration of the works in accordance with Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05). The Erosion and sediment control plans will require design/certification by Council approved IQP/CPEng and as such will require completion of a design producer statement (PS1).*

To satisfy the above condition, erosion and sediment control measures are proposed to control sediment runoff from areas of proposed earthworks. These include:

- Stabilised entrances formed at the proposed road to vest and RoW intersections with Ota Point Road.
- Regular silt fences installed along the downslope face of the road to vest and RoW alignments.
- Clean water diversion bunds above earthwork area to divert the upslope catchment around the staged roading earthworks areas. Generally these are conveyed across the road via existing (or proposed) culverts depending on stage of construction.
- Check dams, formed with rip rap or sandbags, to reduce flow velocity through temporary or newly formed channels <10% gradient. Sized and positioned in accordance with Auckland Council GD05.
- Decanting earth bunds, formed at specific locations as per the drawings, to manage sediment retention from concentrated discharge points along the internal road construction area. Form DEB as per details included in the drawing set (and in accordance with GD05)
- Sand bag “check dams” to protect and isolate culvert inlets, where culverts are reserved for clean water diversion from upstream to downstream ends of the road, as indicated in Drawing Sheet 800.
- Designated temporary stockpile area

These measures are presented in the Drawing Sheets 800, 850, 851 in the appended Drawing Set.

7 LIMITATIONS

This report has been prepared for Regeneration Holdings Ltd as our Client. It may be relied upon by our Client and their appointed Consultants, Contractors and for the purpose of Consent as outlined by the specific objectives in this report. This report and associated recommendations, conclusions or intellectual property is not to be relied upon by any other party for any purpose unless agreed in writing by Geologix Consulting Engineers Ltd and our Client. In any case the reliance by any other party for any other purpose shall be at such parties' sole risk and no reliability is provided by Geologix Consulting Engineers Ltd.

The opinions and recommendations of this report are based on plans, specifications and reports provided to us at the time of writing, as referenced. Any changes, additions or amendments to the project scope and referenced documents may require an amendment to this report and Geologix Consulting Engineers should be consulted. Geologix Consulting Engineers Ltd reserve the right to review this report and accompanying plans.

The recommendations and opinions in this report are based on arisings extracted from exploratory boreholes at discrete locations and any available existing borehole records. The nature and continuity of subsurface conditions, interpretation of ground condition and models away from these specific ground investigation locations are inferred. It must be appreciated that the actual conditions may vary from the assumed ground model. Differences from the encountered ground conditions during subdivision construction may require an amendment to the recommendations of this report.

APPENDIX A

Scheme Plan

Memorandum of Easements			
Purpose	Shown	Servient Tenement (Burdened Land)	Dominant Tenement (Benefited Land)
Right of Way	(A) (B)	Lot 8 hereon	Lots 3,4,5 & 9 hereon
	(C)	Lot 9 hereon	Lots 4 & 5 hereon
Right to drain Stormwater	(A) (B)	Lot 8 hereon	Lots 2 & 3 hereon
	(C) (D)	Lot 9 hereon	Lots 2,3,4 & 5 hereon
	(E)	Lot 10 hereon	Lots 2,3,4,5 & 9 hereon

Proposed Easements in Gross			
Purpose	Shown	Servient Tenement (Burdened Land)	Grantee
Right to convey Telecommunications	(A)(B)	Lot 8 hereon	Chorus
	(C)	Lot 9 hereon	New Zealand Ltd

Proposed Easements in Gross			
Purpose	Shown	Servient Tenement (Burdened Land)	Grantee
Right to convey Electricity	(A)(B)(E)	Lot 8 hereon	Top Energy Ltd
	(C)	Lot 9 hereon	
	(D)	Lot 9 hereon	
	(G)	Lot 9 hereon	
	(F)	Lot 10 hereon	

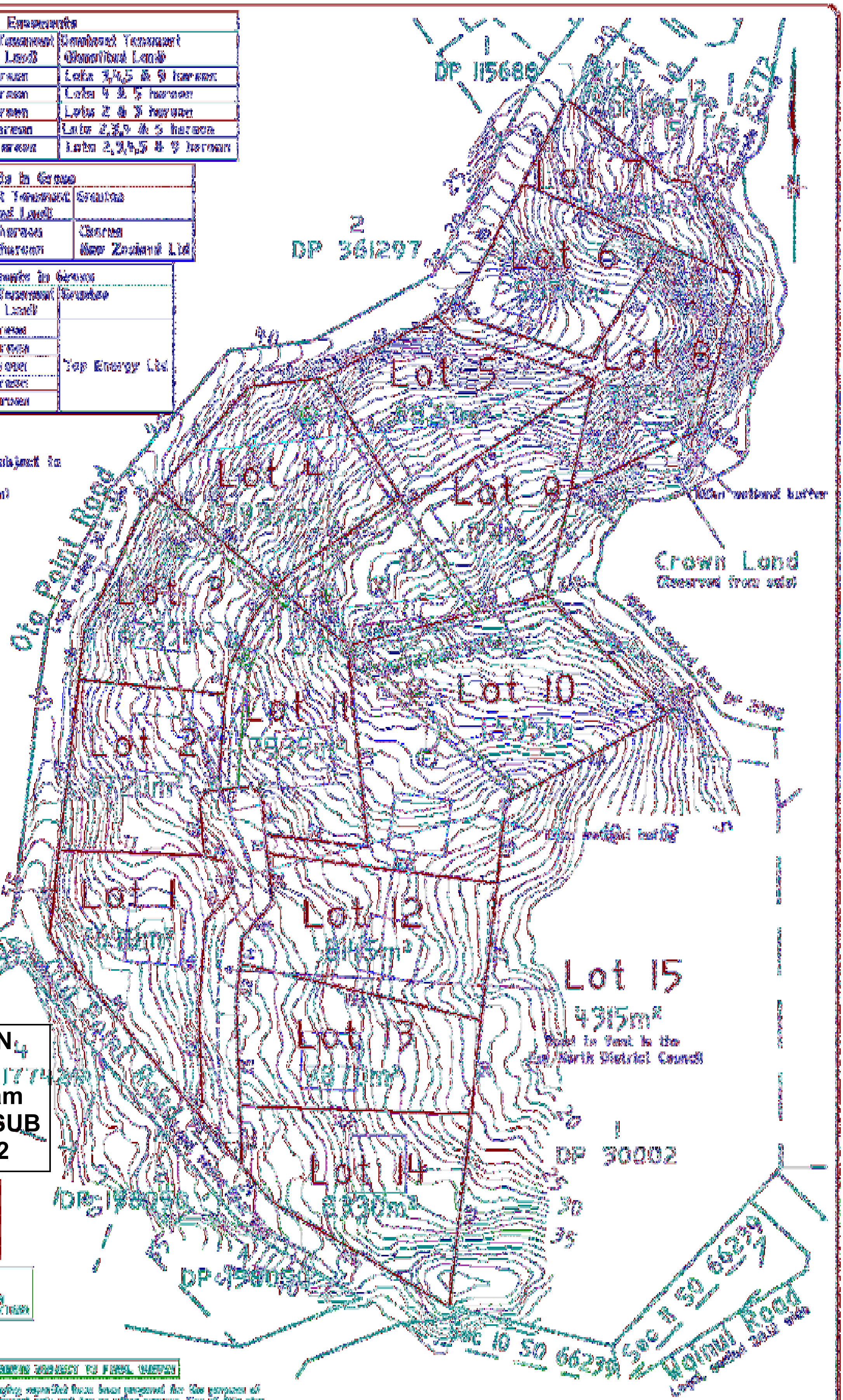
NOTES:
Areas marked 1, X, Y & Z are subject to Land Covenants (for bush & vegetation protection)

Impermeable surfaces:
Lot 9
Right of Way formation - [illegible]m²
=> [illegible]

Lot 8
Right of Way formation - [illegible]m²
=> [illegible]

30m

Shape factor
([illegible] from boundary except Lot 7 is Min. [illegible])



APPROVED PLAN

Planner: FHarpham
RC: 2220579-RMASUB
Date: 13/10/2022

Local Authority: Far North District Council

Total Area: [illegible]
Comprised in: [illegible]

AREAS AND DIMENSIONS SUBJECT TO FINAL SURVEY

14950

VON STURMER

Registered Land Surveyors, Planners & Land Development Consultants

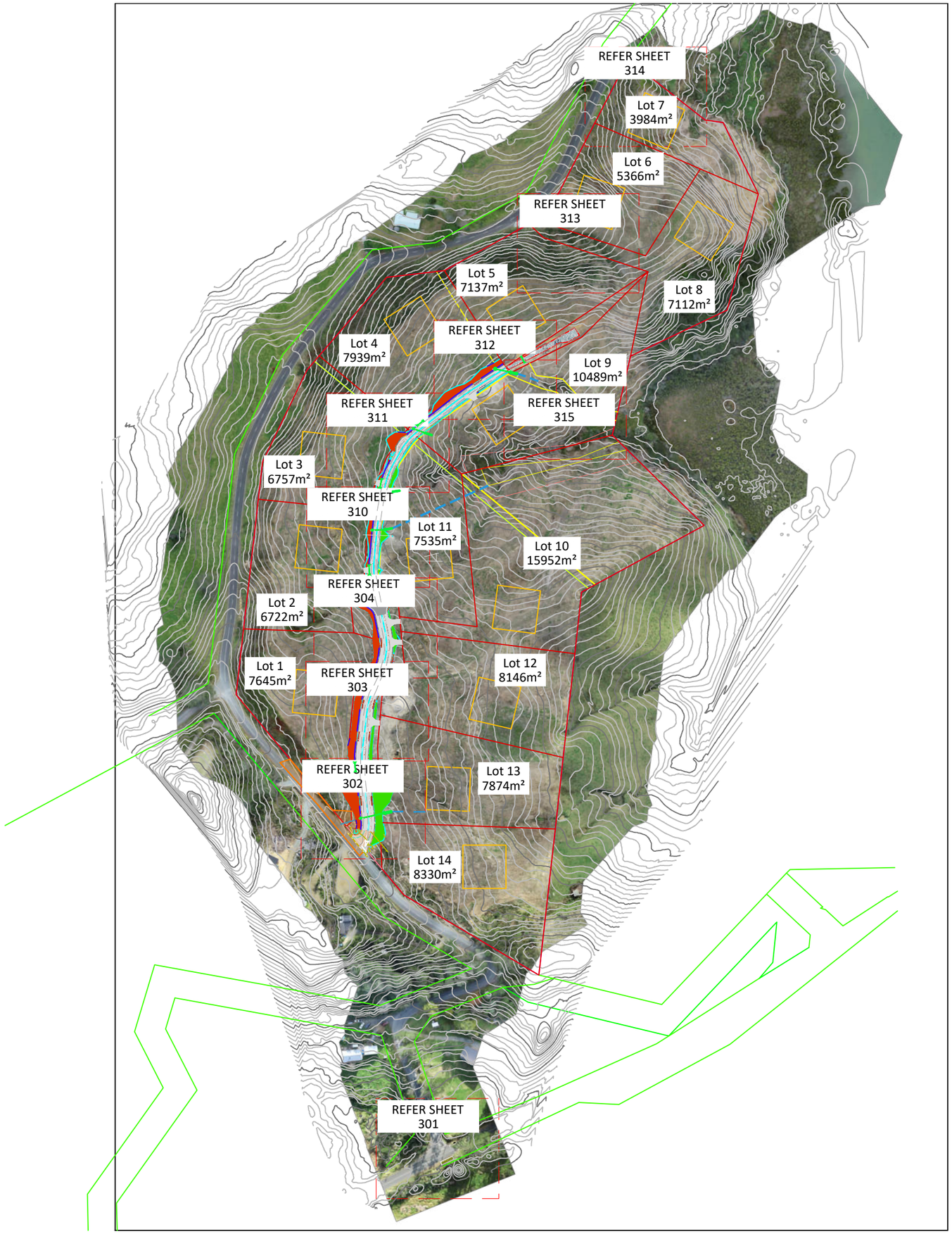
Lots 1-15 Being a Proposed Subdivision of Pt Lot 1 DP 25198

SCALE 1:2000 A3

geologix
consulting engineers

APPENDIX B

Engineering Drawings



GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
5. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.

SITE BOUNDARY
LOT BOUNDARY
EASEMENT
PROPOSED BUILDING
PROPOSED ROADING EXTEND
CUT
FILL

Meters
40 0 40 80
1:3000

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
OVERALL ROADING LAYOUT

Sheet
300

FILE PATH: Z:\Projects\C0400-C0499\C0456 Ota Point, Whangararoa (Lot 1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 20/04/2022

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY AND AERIAL IMAGERY PROVIDED BY GEOLOGIX DRONE SURVEY (APRIL 2024).
4. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
5. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.

BOUNDARY

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
INTERSECTION - OTA POINT & WAINUI ROAD

Sheet
301

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PLOTTED: 03/12/2024

VEHICLE CROSSING AS PER FNDC RURAL STANDARDS TYPE 1A

Lot 1
7645m²

EXISTING EDGE OF SEAL

LOT BOUNDARY

CHANNEL 4:

UPGRADE EXISTING SCOURED OLFP TO FORM CHANNEL 4, AS PER DETAILS ON SHEET 470
LINE WITH RIP RAP AS GRADIENT EXCEEDS 5%
CHANNEL 4 DISCHARGES TO PROPOSED SCRUFFY DOME

OTA POINT ROAD

EXISTING OLFP TO REMAIN AS IS

CULVERT 1

REPLACE EXISTING CULVERT WITH NEW SCRUFFY DOME INLET Ø1050 AND CULVERT WITH Ø300mm EUROFLOW PIPE at 2% , WITH HEADWALL AND RIP RAP OUTLET TO FEED CHANNEL 3
IL U/S 44.130
IL D/S 43.890

ENERGY DISSIPIATION DEVICE SPECIFICATION

INLET PIPE Ø300
RIP RAP Ø150
APRON WIDTH 1.0m
APRON LENGTH 3.86m
APRON DEPTH 300mm

CHANNEL 3:

NEW CHANNEL TO TIE INTO THE EXISTING OLFP DOWNSTREAM.
CHANNEL SPECIFICATIONS AS PER THE CROSS SECTION DETAILS IN SHEET 470

VEHICLE CROSSING DESIGNED AS PER FNDC S/6B STANDARDS SINGLE WIDTH

VEHICLE CROSSING DETAILS AS PER FNDC S/6B DOUBLE WIDTH STANDARDS REFER SHEET 393

Lot 14
8330m²

R5.0
3.0
5.0
R6.0
R6.0
5.0
1.00
1.5
3.00
-1:2.0
-1:4.8
43.5
44.0
44.5
45.0
45.5
46.0
46.5
47.0
47.5
42.5
40.0
50.0
70
60
50
40
30
20
10

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- EXISTING METAL TRACK
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
ROAD TO VEST CH 0.0 - 60.0

Sheet
302

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PLOTTED: 03/04/2025

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- EXISTING METAL TRACK
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

Revision	Issue	Date
A	CONSENT	19/11/2024

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Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
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Sheet Title
ROAD TO VEST CH 60.0 - 120.0

Sheet
303

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PLOTTED: 03/04/2025

DIVERT THE EXISTING OLFP
TO NEW PROPOSED CHANNEL WITH
SIZING OF CHANNEL 4
REFER SHEET 473

VEHICLE CROSSING
AS PER FNDC
RURAL STANDARDS
TYPE 1A
WITH ADJUSTED
RADIUS OF 3m

CUL DE SAC, WITH 50mm THICK MIX 14
ASPHALT SURFACE, AS PER
TYPICAL CROSS SECTION - SHEET 391

VEHICLE CROSSING
AS PER FNDC
RURAL STANDARDS
TYPE 1A

VEHICLE CROSSING
AS PER FNDC
RURAL STANDARDS
TYPE 1A

REMOVE THE
EXISTING CULVERT

Lot 10
15952m²

Lot 12
8146m²

R6.0
R3.0
R9.5
R8.0
R5.0
R5.0
34.0
34.5
35.0
35.5
36.0
36.5
37.0
37.5
38.0
38.5
39.0
39.5
40.0
40.5
30.0
35.0
40.0
45.0
200
190
180
170
160
150
140
7.00
5.0
3.0
-1:2.0
-1:3.0

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- EXISTING METAL TRACK
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
ROAD TO VEST CH 120.0 - 183.0

Sheet
304

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PLOTTED: 03/04/2025

ENERGY DISSIPIATION DEVICE SPECIFICATION

INLET PIPE Ø300
RIP RAP Ø150
APRON WIDTH 1.0m
APRON LENGTH 3.09m
APRON DEPTH 300mm

CULVERT 2:

NEW PROPOSED SCRUFFY DOME INLET Ø1050 ANDCULVERT WITH Ø300mm EUROFLOW PIPE at 1% , WITH HEADWALL AND RIP RAP OUTLET TO FEED CHANNEL 2
IL U/S 29.557
IL D/S 29.480

FLOW TO DISPERSE INTO NATURAL VEGETATION (WET AREA)

ENERGY DISSIPIATION DEVICE SPECIFICATION

INLET PIPE Ø225
RIP RAP Ø150
APRON WIDTH 1.0m
APRON LENGTH 2.73m
APRON DEPTH 300mm

CULVERT 3:

NEW PROPOSED SCRUFFY DOME INLET Ø1050 AND CULVERT WITH Ø225mm EUROFLOW PIPE at 1.8%, WITH HEADWALL AND RIP RAP OUTLET TO FEED EX. OLFP
IL U/S 27.756
IL D/S 27.597

CHANNEL 2:

FORMALISE THE OLFP TO CATER FOR COLLECTIVE FLOWS TO WETLAND, PROVIDE CHECK DAMS AND LINE WITH GRASS

EXISTING OLFP IS REDUNDANT AND TO REMAIN AS IS

FUTURE LOT DEVELOPMENT IS ANTICIPATED TO FILL IN THIS OLFP WHERE NECESSARY

VEHICLE CROSSING AS PER FNDC RURAL STANDARDS TYPE 1A

REMOVE THE EXISTING CULVERT

VEHICLE CROSSING AS PER FNDC S/6B

VEHICLE CROSSING AS PER FNDC RURAL STANDARDS TYPE 1A WITH ADJUSTED RADIUS OF 3m

Lot 2
6722m²

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- EXISTING METAL TRACK
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

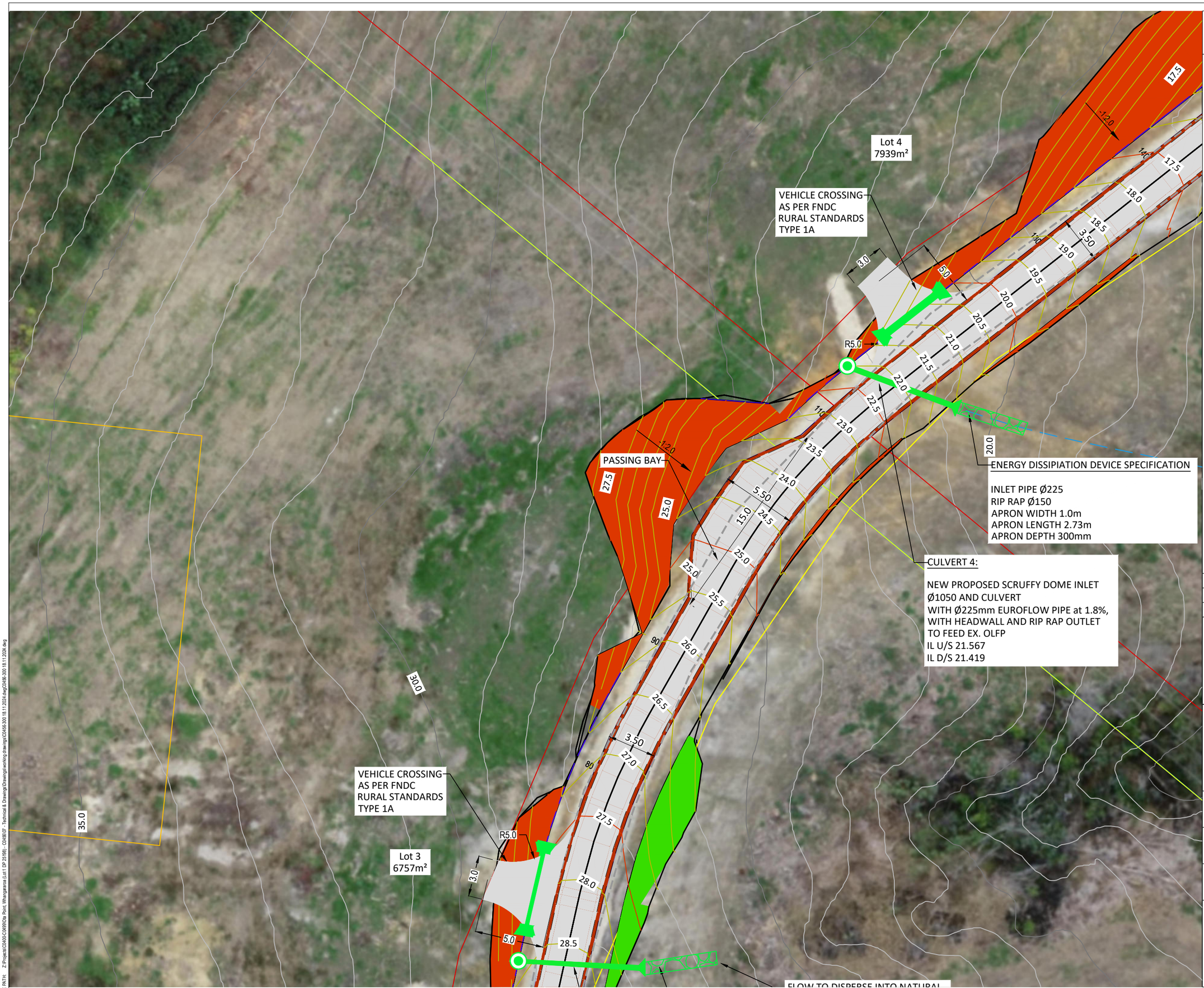
Client
REGENERATION HOLDINGS LTD

Sheet Title
ROW CH 0.0 - 60.0

Sheet
310

FILE PATH: Z:\Projects\C0400-C0499\C0456\Ota Point, Whangaroa (Lot1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 03/12/2022



GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- EXISTING METAL TRACK
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
ROW CH 60.0 - 140.0

Sheet
311

FILE PATH: Z:\Projects\C0400-C0499\Ota Point Whangaroa (Lot1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 03/04/2025

Lot 5
7137m²

EXISTING CONCRETE ROAD

CULVERT 6:

EXISTING CULVERT
DISCHARGE INTO CHANNEL 1

ENERGY DISSIPIATION DEVICE SPECIFICATION

INLET PIPE Ø525
RIP RAP Ø250
APRON WIDTH 1.58m
APRON LENGTH 6.35m
APRON DEPTH 500mm

CULVERT 5:

NEW PROPOSED SCRUFFY DOME INLET Ø1200 WITH Ø525mm EUROFLOW PIPE at 1.35% , WITH HEADWALL AND RIP RAP OUTLET TO FEED CHANNEL 1
IL U/S 14.000
IL D/S 13.868

CHANNEL 1:

NEW CHANNEL TO TIE INTO THE EXISTING OLFP AS INDICATED. CHANNEL SPECIFICATIONS AS PER THE CROSS SECTION DETAILS IN SHEET 470

REMOVE THE EXISTING CULVERT

VEHICLE CROSSING AS PER FNDC RURAL STANDARDS TYPE 1A

Lot 9
10489m²

EXISTING OLFP IS REDUNDANT AND TO REMAIN AS IS

FUTURE LOT DEVELOPMENT IS ANTICIPATED TO FILL IN THIS OLFP WHERE NECESSARY

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. CUT BATTERS LIMITED TO 1V:2H, OR AS INDICATED.
5. FILL BATTERS LIMITED TO 1V:3H, OR AS INDICATED
6. VEHICLE CROSSINGS - TO BE CONSTRUCTED AT SUBDIVISION FORMATION TO EXTENT INDICATED. LOCALISED EARTHWORKS TO FORM THE CROSSINGS MAY VARY FROM THAT SHOWN.

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
ROW CH 140.0 - 190.0

Sheet
312

FILE PATH: Z:\Projects\C0400-C0499\Ota Point, Whangaroa (Lot 1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg
PLOTTED: 02/12/2024

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
ROW TO LOT 6 & 8

Sheet
313

FILE PATH: Z:\Projects\C0400-C0499\C0456\Ota Point, Whangararoa (Lot 1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 03/04/2025

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
VEHICLE CROSSING TO LOT 7

Sheet
314

CHANNEL 1:

NEW CHANNEL TO TIE INTO THE EXISTING OLFP AS INDICATED. CHANNEL SPECIFICATIONS AS PER THE CROSS SECTION DETAILS IN SHEET 470

WETLAND OFFSET 10m

WETLAND

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
5. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED PAVED ROADING EXTEND
- PROPOSED UNPAVED SHOULDER
- CUT
- FILL
- PROPOSED SWALE
- OVERLAND FLOWPATH
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER MANHOLE

Meters
4 0 4 8
1:250

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

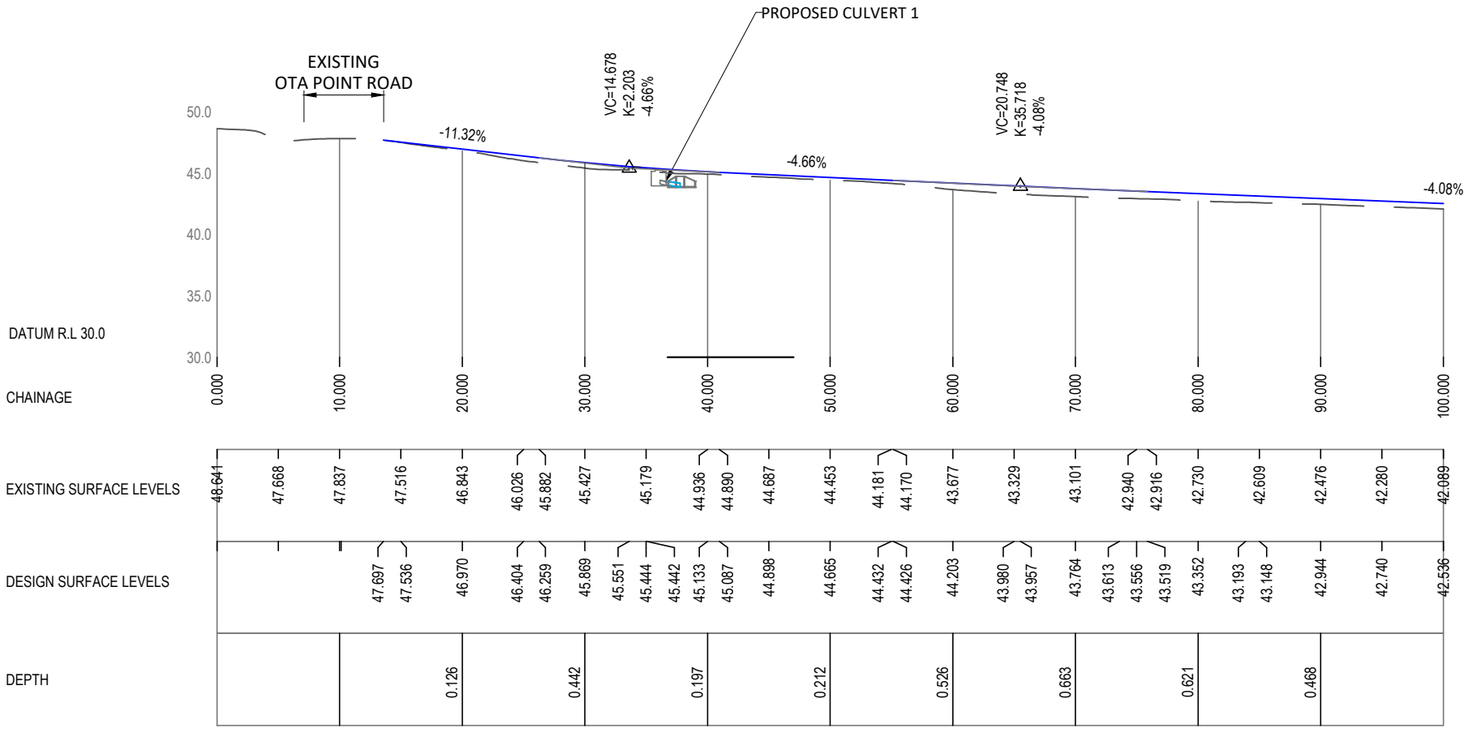
Client
REGENERATION HOLDINGS LTD

Sheet Title
CHANNEL 1 - LAYOUT

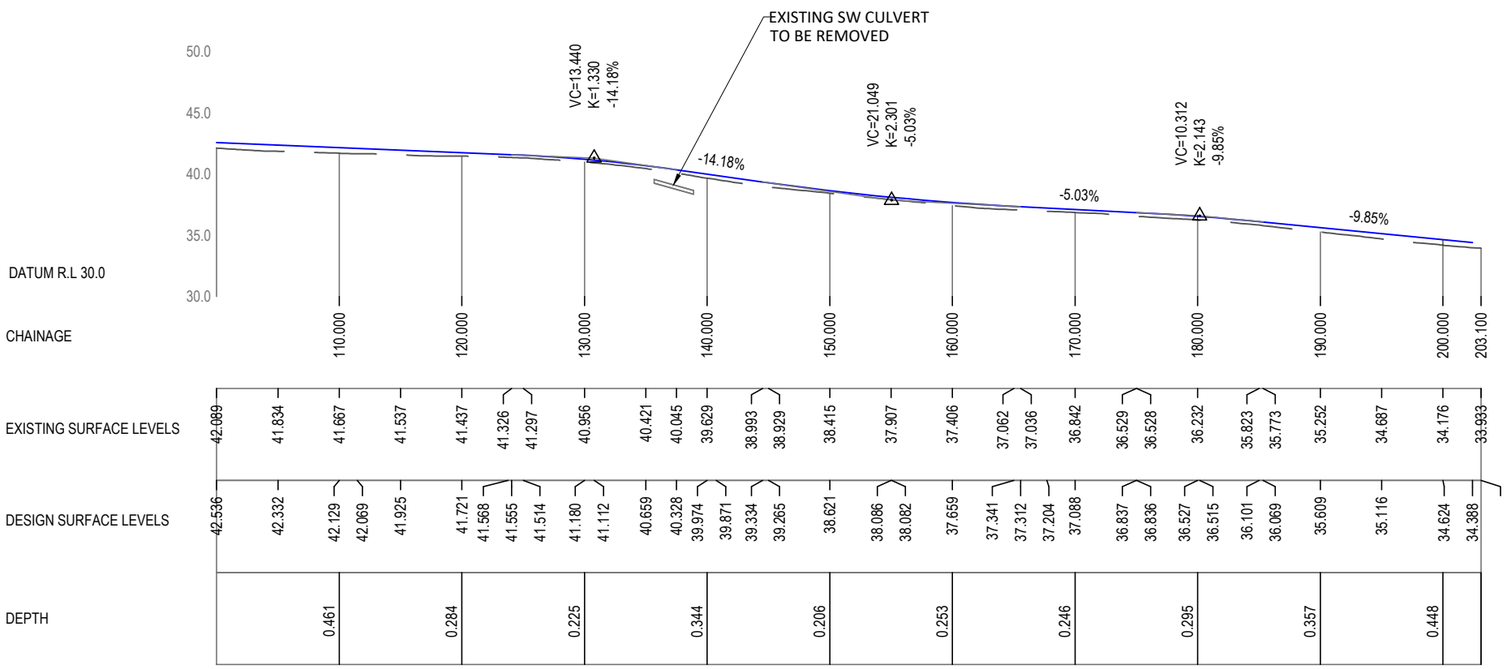
Sheet
315

FILE PATH: Z:\Projects\C0400-C0499\Ota Point, Whangaroa (Lot 1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 03/04/2025



LONGITUDINAL SECTION - ROAD TO VEST
SCALE - HORIZ 1:500.0, VERT. 1:500.0



LONGITUDINAL SECTION - ROAD TO VEST
SCALE - HORIZ 1:500.0, VERT. 1:500.0

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
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— — EXISTING SURFACE
PROPOSED SURFACE

Meters
8 0 8 16
1:500

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

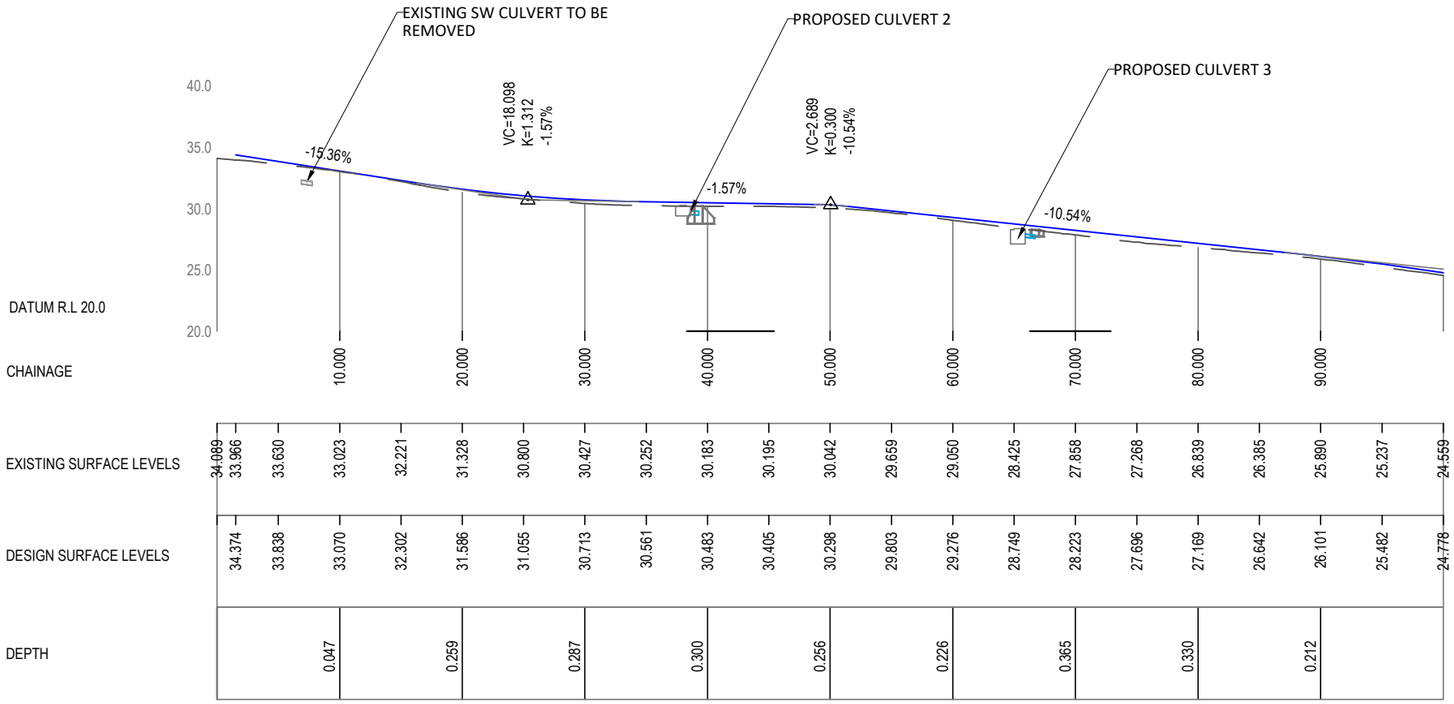
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
LONGSECTION ROAD TO VEST

Sheet
350



LONGITUDINAL SECTION - ROW
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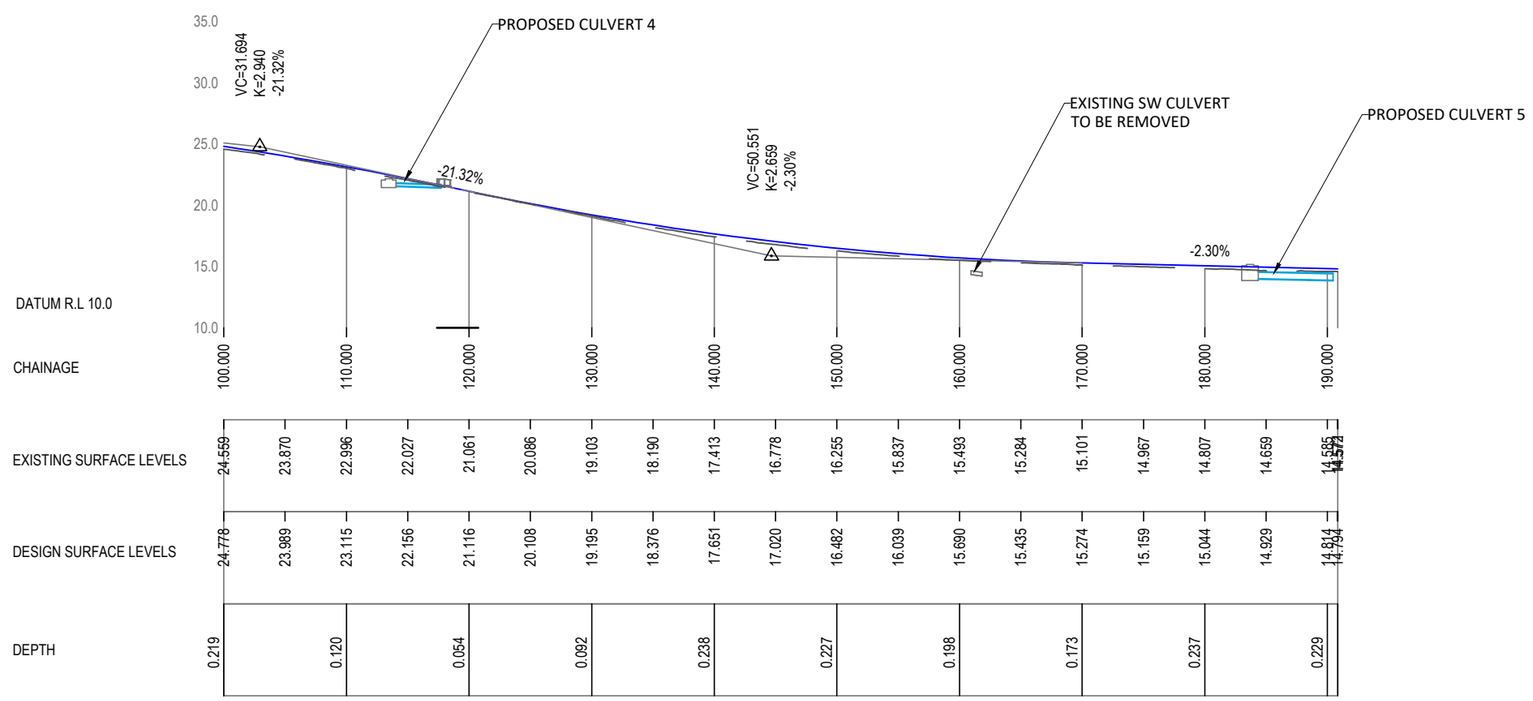


LONGITUDINAL SECTION - ROW
SCALE - HORIZ 1:500.0, VERT. 1:500.0

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
2. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
3. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
4. DO NOT SCALE FROM THIS DRAWING.

— — EXISTING SURFACE
PROPOSED SURFACE

Meters
8 0 8 16
1:500

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

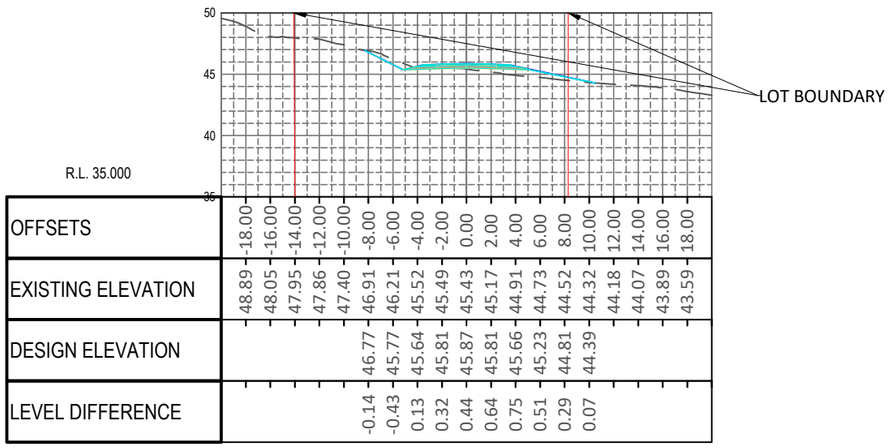
Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
LONGSECTION ROW

Sheet
351

FILE PATH: Z:\Projects\C0400-C0499\C0456\Ota Point, Whangaroa (Lot 1 DP 25198) - C0456.07 - Technical\6 Drawings\Working drawings\C0456-300 18.11.2024.dwg
PLOTTED: 03/04/2025



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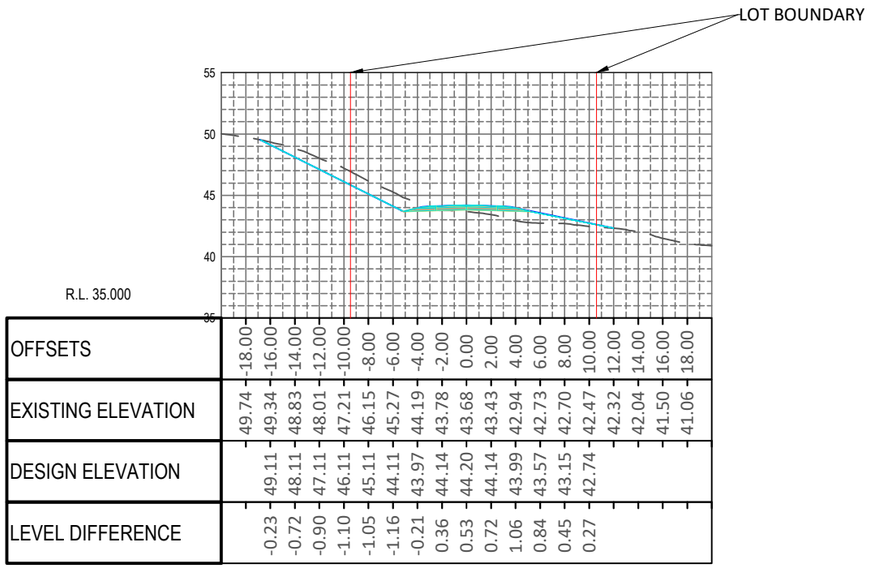
EXISTING ELEVATION	48.89	48.05	47.95	47.86	47.40	46.91	46.21	45.52	45.49	45.43	45.17	44.91	44.73	44.52	44.32	44.18	44.07	43.89	43.59
DESIGN ELEVATION						46.77	45.77	45.64	45.81	45.87	45.81	45.66	45.23	44.81	44.39				
LEVEL DIFFERENCE						-0.14	-0.43	0.13	0.32	0.44	0.64	0.75	0.51	0.29	0.07				

CH: ROAD TO VEST - SL 30.000



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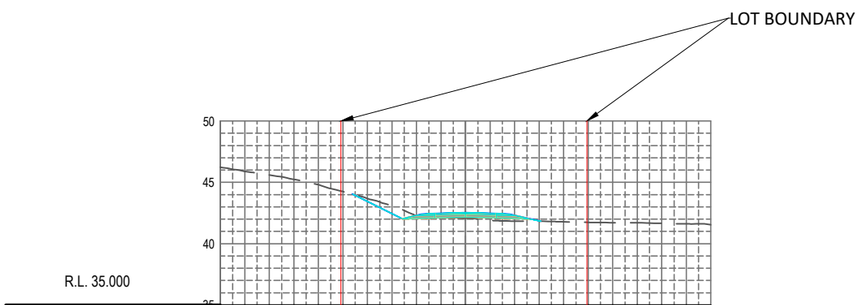
EXISTING ELEVATION	49.74	49.34	48.83	48.01	47.21	46.15	45.27	44.19	43.78	43.68	43.43	42.94	42.73	42.70	42.47	42.32	42.04	41.50	41.06
DESIGN ELEVATION		49.11	48.11	47.11	46.11	45.11	44.11	43.97	44.14	44.20	44.14	43.99	43.57	43.15	42.74				
LEVEL DIFFERENCE		-0.23	-0.72	-0.90	-1.10	-1.05	-1.16	-0.21	0.36	0.53	0.72	1.06	0.84	0.45	0.27				

CH: ROAD TO VEST - SL 60.000



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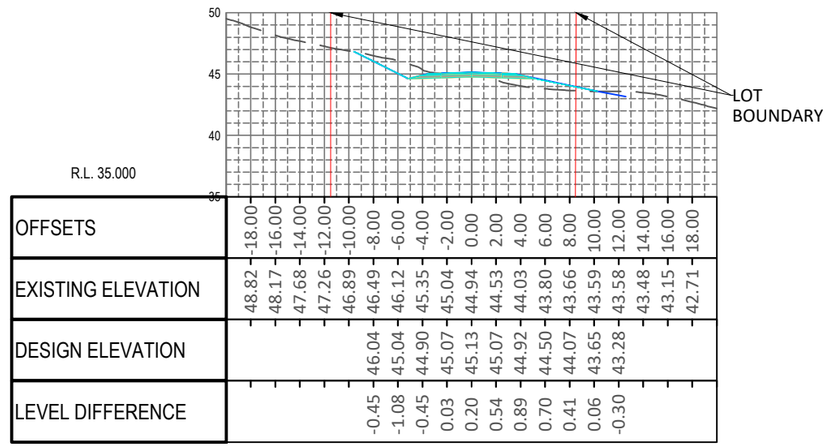
EXISTING ELEVATION	45.89	45.60	45.25	44.80	44.25	43.69	43.08	42.24	42.10	42.09	41.90	41.83	41.82	41.78	41.74	41.71	41.70	41.65	41.61
DESIGN ELEVATION						43.44	42.44	42.31	42.48	42.54	42.48	42.32	41.86						
LEVEL DIFFERENCE						-0.24	-0.64	0.06	0.38	0.45	0.57	0.49	0.03						

CH: ROAD TO VEST - SL 100.000



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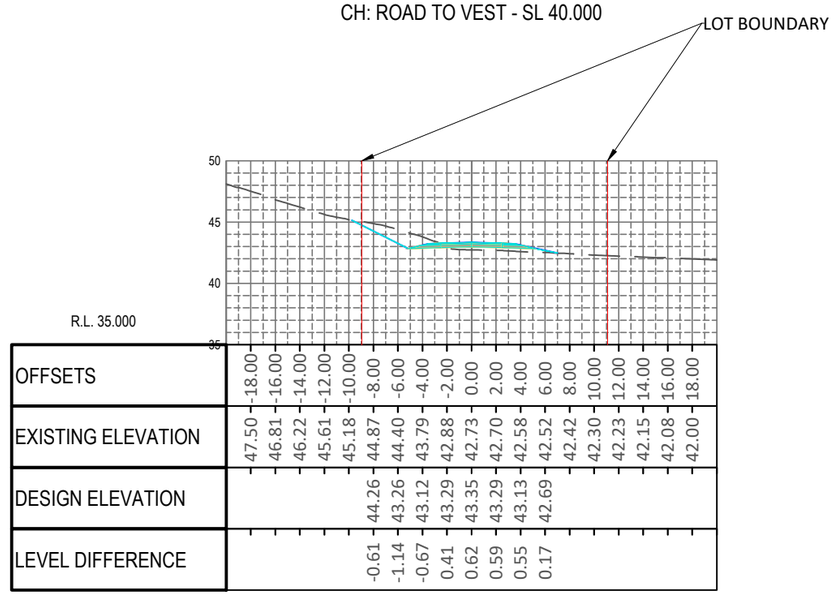
EXISTING ELEVATION	48.82	48.17	47.68	47.26	46.89	46.49	46.12	45.35	45.04	44.94	44.53	44.03	43.80	43.66	43.59	43.58	43.48	43.15	42.71
DESIGN ELEVATION						46.04	45.04	44.90	45.07	45.13	45.07	44.92	44.50	44.07	43.65	43.28			
LEVEL DIFFERENCE						-0.45	-1.08	-0.45	0.03	0.20	0.54	0.89	0.70	0.41	0.06	-0.30			

CH: ROAD TO VEST - SL 40.000



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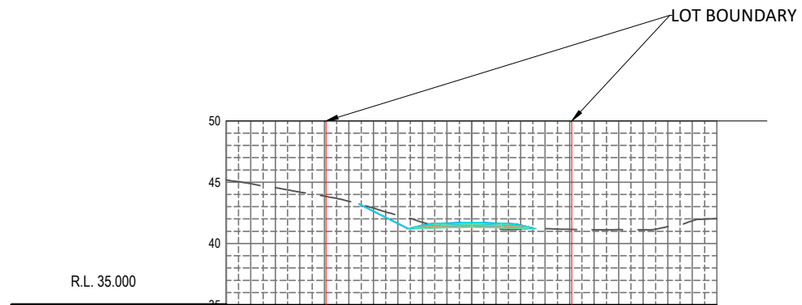
EXISTING ELEVATION	47.50	46.81	46.22	45.61	45.18	44.87	44.40	43.79	42.88	42.73	42.70	42.58	42.52	42.42	42.30	42.23	42.15	42.08	42.00
DESIGN ELEVATION						44.26	43.26	43.12	43.29	43.35	43.29	43.13	42.69						
LEVEL DIFFERENCE						-0.61	-1.14	-0.67	0.41	0.62	0.59	0.55	0.17						

CH: ROAD TO VEST - SL 80.000



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EXISTING ELEVATION	44.87	44.54	44.20	43.86	43.44	42.89	42.28	41.73	41.34	41.44	41.22	41.19	41.21	41.15	41.12	41.13	41.12	41.39	41.85
DESIGN ELEVATION						42.63	41.63	41.49	41.66	41.72	41.66	41.50							
LEVEL DIFFERENCE						-0.26	-0.66	-0.24	0.32	0.28	0.44	0.31							

CH: ROAD TO VEST - SL 120.000

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
2. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
3. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
4. DO NOT SCALE FROM THIS DRAWING.

— — EXISTING SURFACE

DESIGN SURFACE

Meters
8 0 8 16
1:500

A	CONSENT	12/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

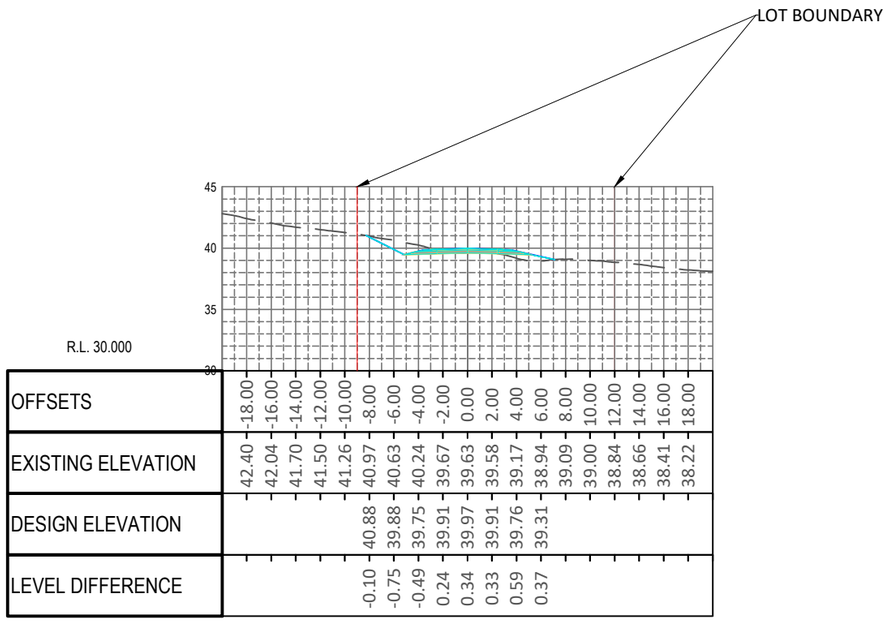
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
CROSS SECTION ROAD TO VEST

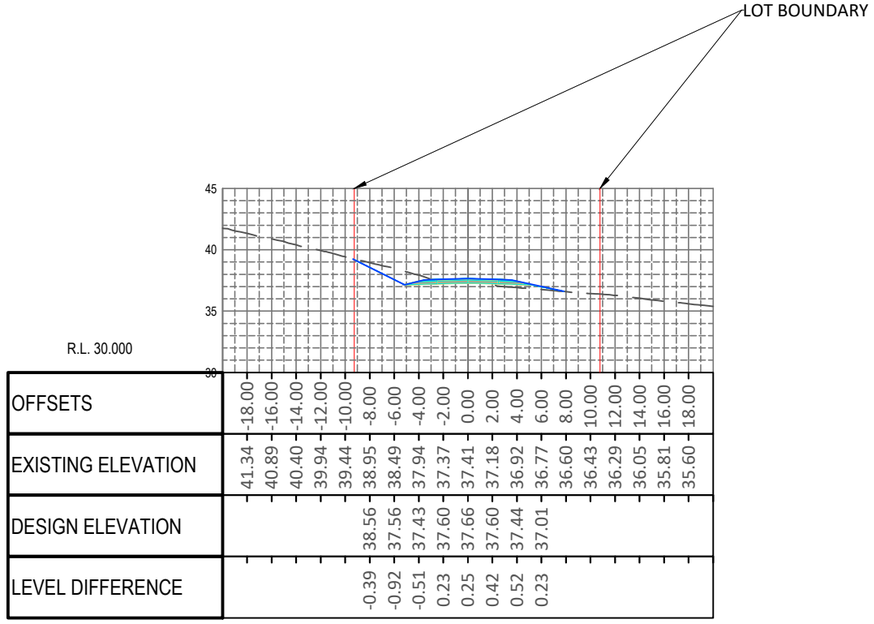
Sheet
360



R.L. 30.000

OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	42.40	42.04	41.70	41.50	41.26	40.97	40.63	40.24	39.67	39.63	39.58	39.17	38.94	39.09	39.00	38.84	38.66	38.41	38.22
DESIGN ELEVATION						40.88	39.88	39.75	39.91	39.97	39.91	39.76	39.31						
LEVEL DIFFERENCE						-0.10	-0.75	-0.49	0.24	0.34	0.33	0.59	0.37						

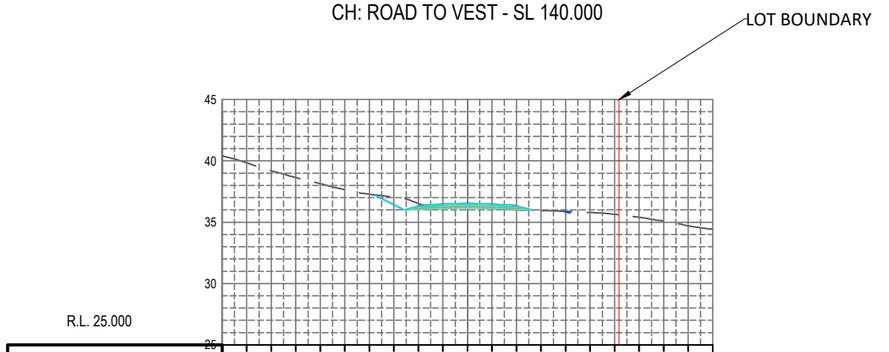
CH: ROAD TO VEST - SL 140.000



R.L. 30.000

OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	41.34	40.89	40.40	39.94	39.44	38.95	38.49	37.94	37.37	37.41	37.18	36.92	36.77	36.60	36.43	36.29	36.05	35.81	35.60
DESIGN ELEVATION						38.56	37.56	37.43	37.60	37.66	37.60	37.44	37.01						
LEVEL DIFFERENCE						-0.39	-0.92	-0.51	0.23	0.25	0.42	0.52	0.23						

CH: ROAD TO VEST - SL 160.000



R.L. 25.000

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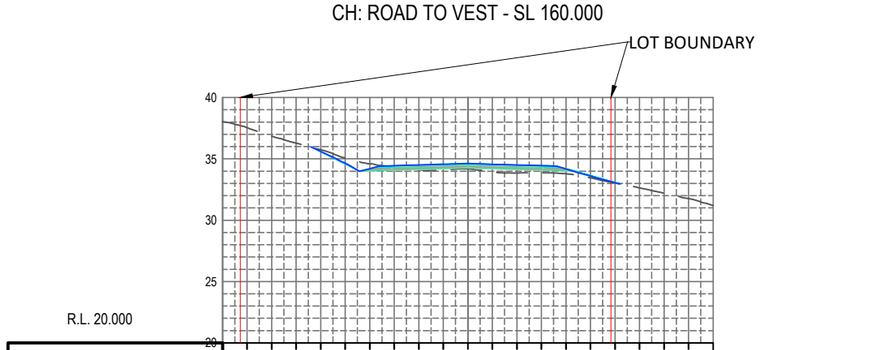
EXISTING ELEVATION	39.84	39.19	38.64	38.14	37.64	37.28	37.05	36.53	36.19	36.23	36.07	36.01	35.94	35.89	35.79	35.64	35.41	35.09	34.71
DESIGN ELEVATION							36.43	36.30	36.47	36.53	36.47	36.30		35.82					
LEVEL DIFFERENCE							-0.61	-0.23	0.27	0.29	0.39	0.29		-0.07					

CH: ROAD TO VEST - SL 180.000



R.L. 20.000

OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	37.54	36.86	36.27	35.73	35.06	34.60	34.35	34.11	34.10	34.18	33.92	33.85	33.87	33.78	33.46	33.04	32.64	32.20	31.76
DESIGN ELEVATION				35.60	34.64	34.19	34.44	34.50	34.56	34.62	34.56	34.50	34.44	34.17	33.61	33.06			
LEVEL DIFFERENCE				-0.13	-0.42	-0.41	0.09	0.39	0.46	0.45	0.64	0.65	0.57	0.39	0.15	0.03			

CH: ROAD TO VEST - SL 200.000

GENERAL NOTES

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2. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
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4. DO NOT SCALE FROM THIS DRAWING.

— — EXISTING SURFACE

——— DESIGN SURFACE

A	CONSENT	12/11/2024
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client

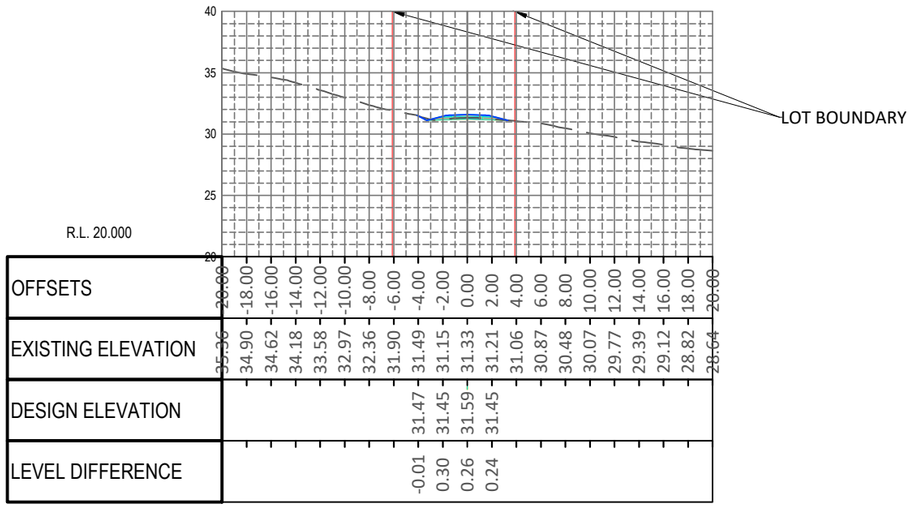
REGENERATION HOLDINGS LTD

Sheet Title

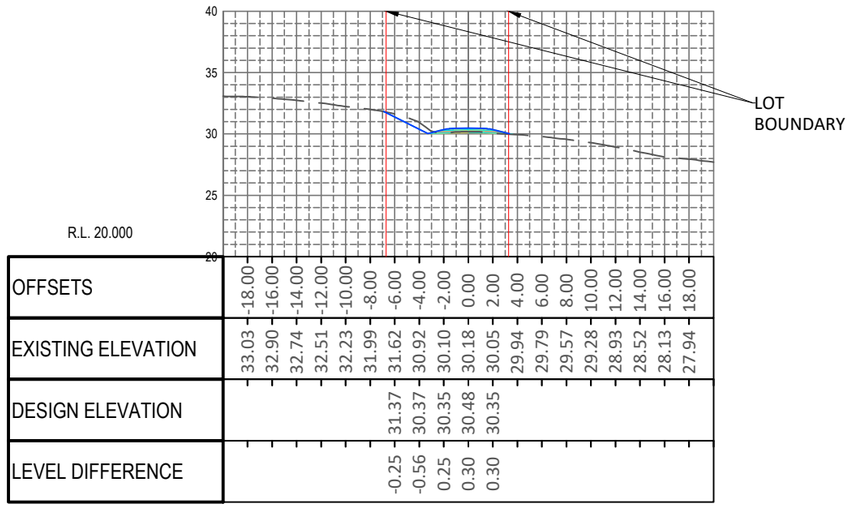
CROSS SECTION ROAD TO VEST

Sheet

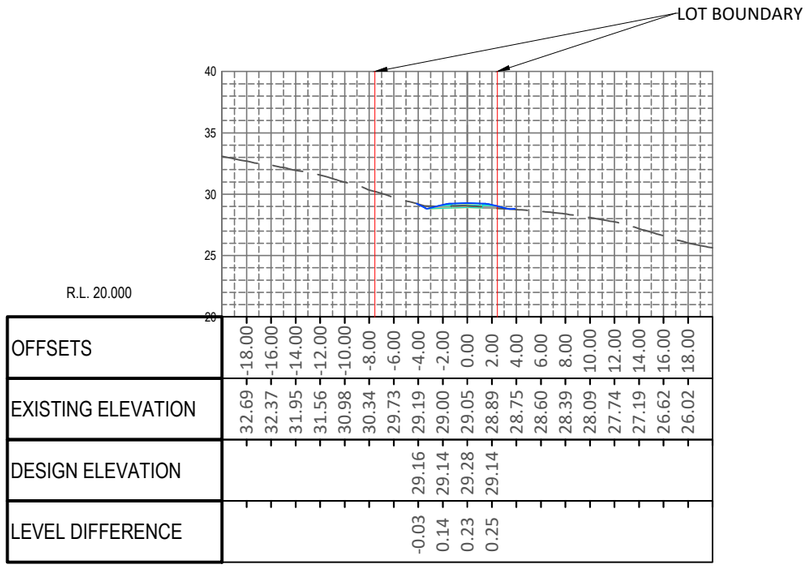
361



CH: ROW - SL 20.000



CH: ROW - SL 40.000



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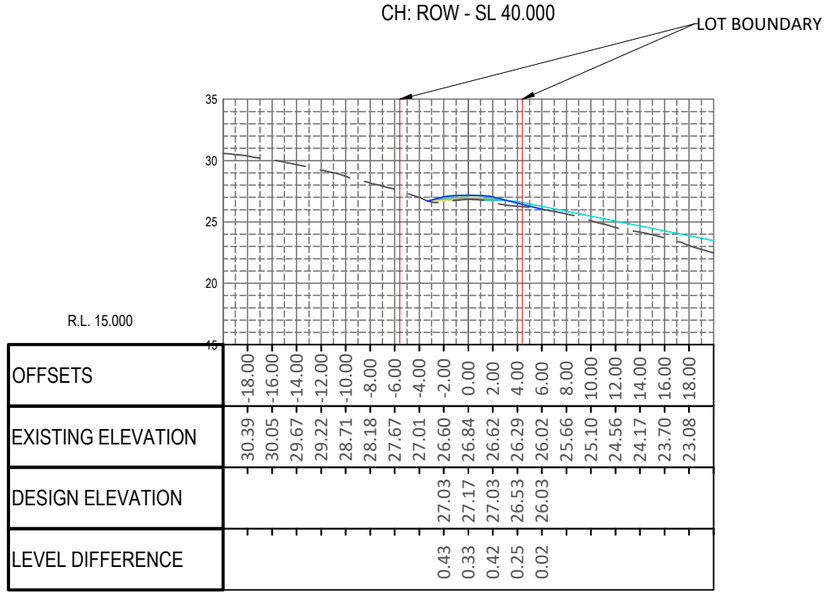
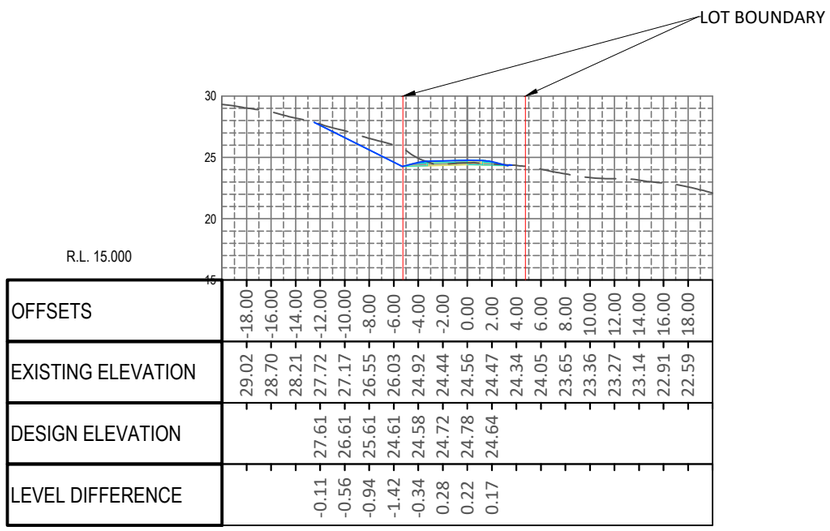
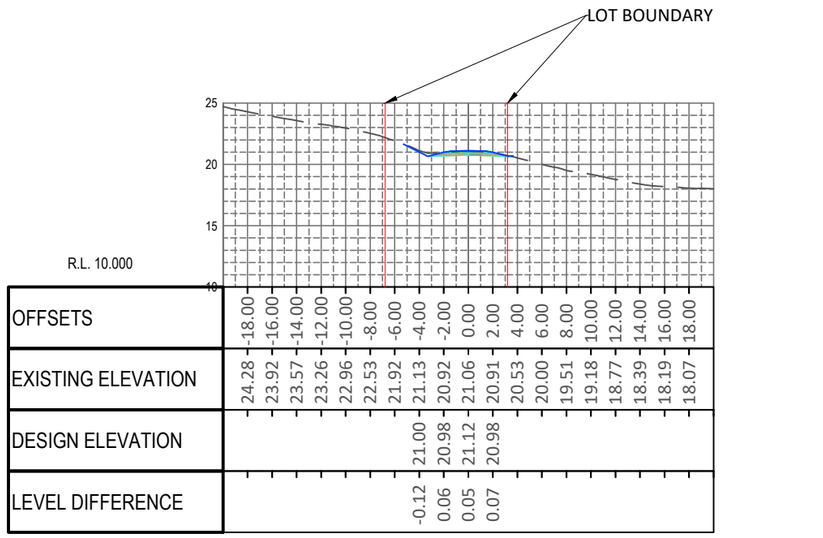


CH: ROW - SL 80.000



CH: ROW - SL 100.000



CH: ROW - SL 120.000

GENERAL NOTES

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4. DO NOT SCALE FROM THIS DRAWING.

— — EXISTING SURFACE

——— DESIGN SURFACE

Meters
8 0 8 16
1:500

A	CONSENT	12/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

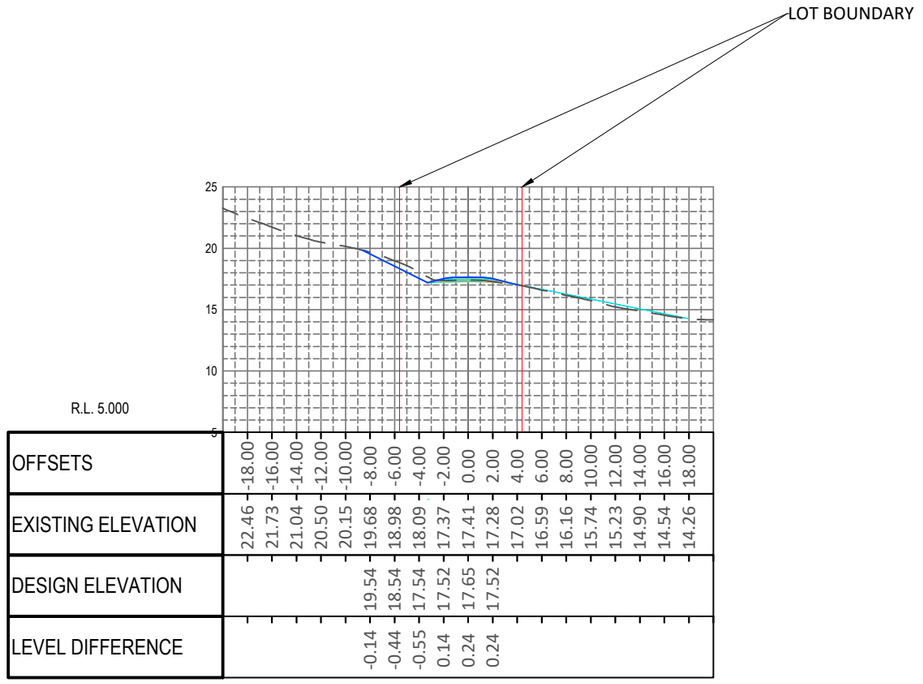
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

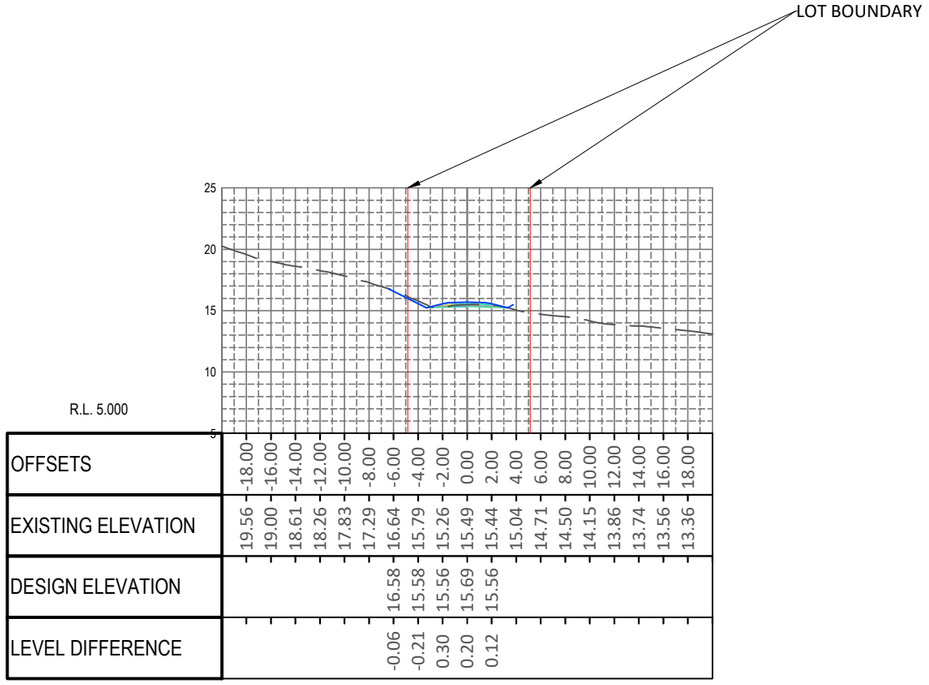
Sheet Title
CROSS SECTION ROW

Sheet
362



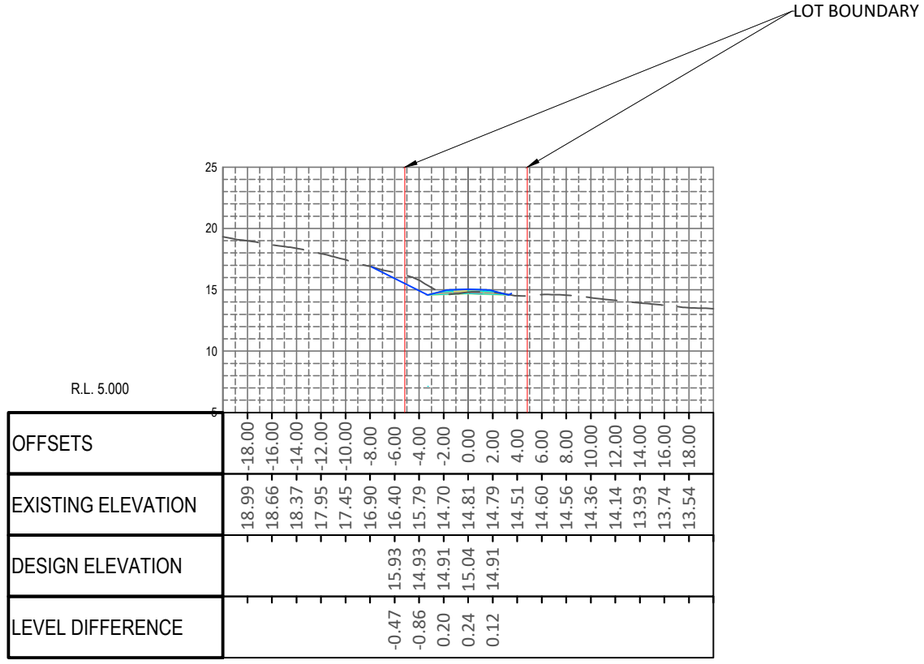
OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	22.46	21.73	21.04	20.50	20.15	19.68	18.98	18.09	17.37	17.41	17.28	17.02	16.59	16.16	15.74	15.23	14.90	14.54	14.26
DESIGN ELEVATION						19.54	18.54	17.54	17.52	17.65	17.52								
LEVEL DIFFERENCE						-0.14	-0.44	-0.55	0.14	0.24	0.24								

CH: ROW - SL 140.000



OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	19.56	19.00	18.61	18.26	17.83	17.29	16.64	15.79	15.26	15.49	15.44	15.04	14.71	14.50	14.15	13.86	13.74	13.56	13.36
DESIGN ELEVATION							16.58	15.58	15.56	15.69	15.56								
LEVEL DIFFERENCE							-0.06	-0.21	0.30	0.20	0.12								

CH: ROW - SL 160.000



OFFSETS	-18.00	-16.00	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00
EXISTING ELEVATION	18.99	18.66	18.37	17.95	17.45	16.90	16.40	15.79	14.70	14.81	14.79	14.51	14.60	14.56	14.36	14.14	13.93	13.74	13.54
DESIGN ELEVATION							15.93	14.93	14.91	15.04	14.91								
LEVEL DIFFERENCE							-0.47	-0.86	0.20	0.24	0.12								

CH: ROW - SL 180.000

GENERAL NOTES

1. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
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4. DO NOT SCALE FROM THIS DRAWING.

— — EXISTING SURFACE

DESIGN SURFACE

Meters
8 0 8 16
1:500

A	CONSENT	12/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

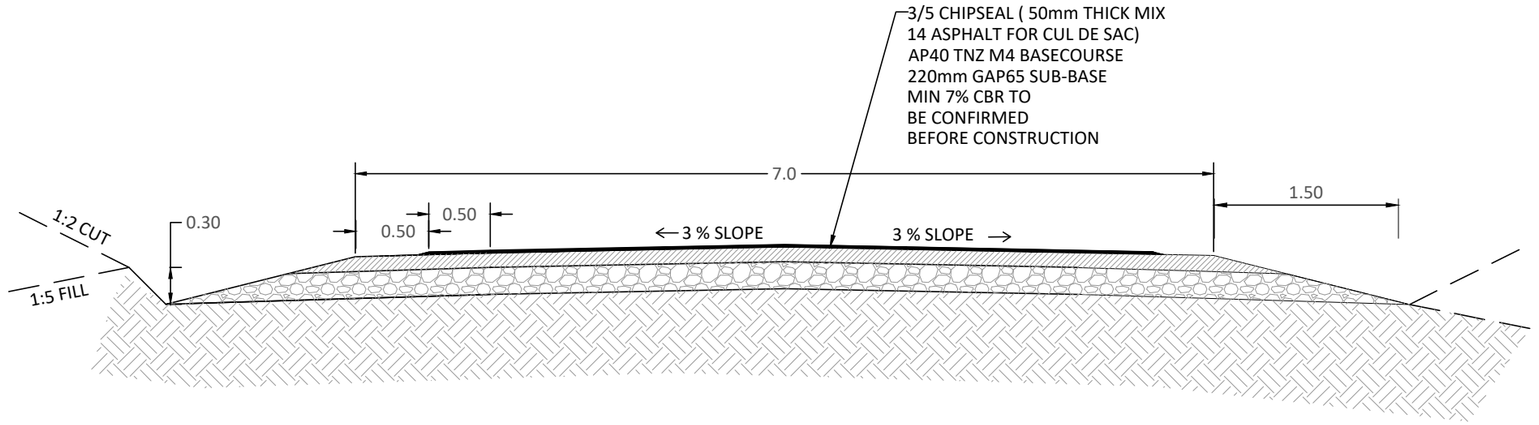
Client
REGENERATION HOLDINGS LTD

Sheet Title
CROSS SECTION ROW

Sheet
363

FILE PATH: Z:\Projects\C0400-C0499\C0456\Ota Point, Whangararoa (Lot 1 DP 25198) - C0456.07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

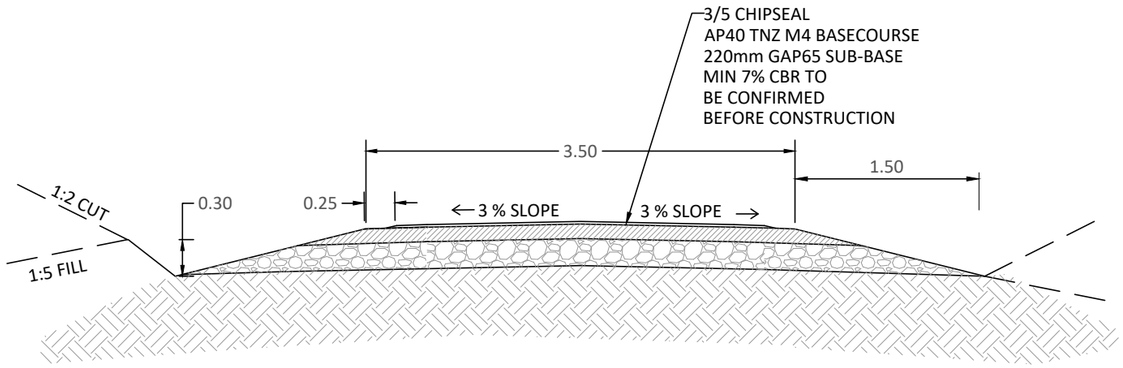
PLOTTED: 03/04/2025



TYPICAL CROSS SECTION:

ROAD TO VEST - PROPOSED SEALED ROAD

ACCORDING TO FAR NORTH ENGINEERING STANDARDS
1:50 @ A3



TYPICAL CROSS SECTION:

ROW - PROPOSED SEALED ROAD

ACCORDING TO FAR NORTH ENGINEERING STANDARDS
1:50 @ A3

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
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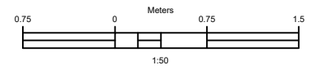


A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

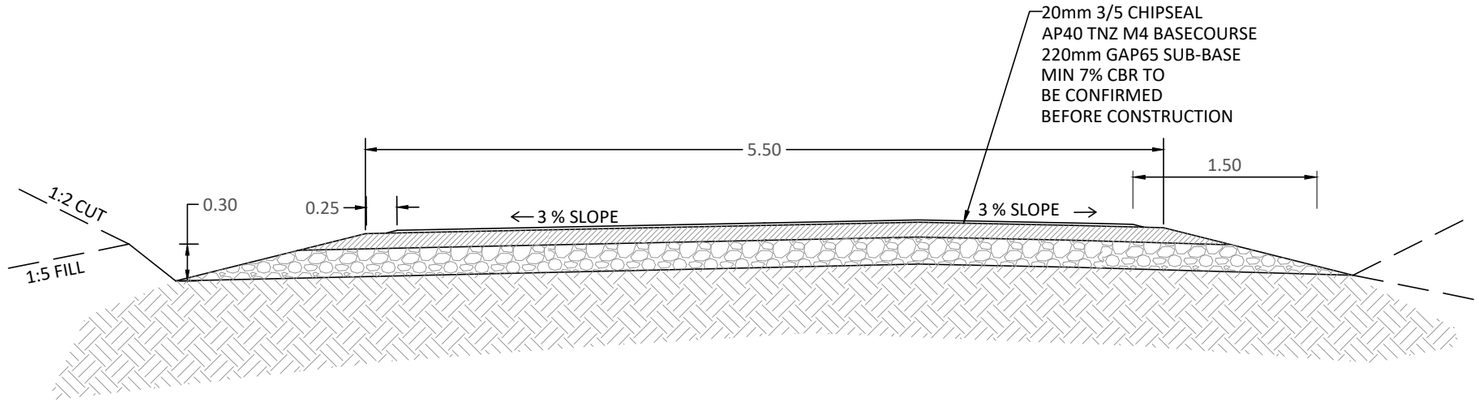
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
TYPICAL ROADING DETAILS

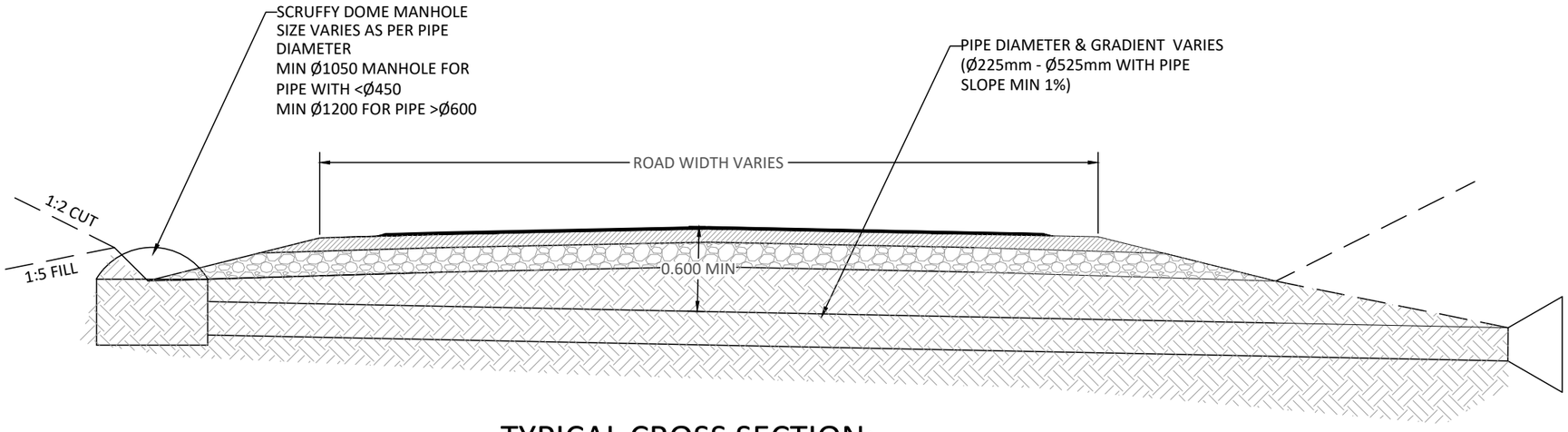
Sheet
391



TYPICAL CROSS SECTION:

ROW WITH PASSING BAY - PROPOSED SEALED ROAD

ACCORDING TO FAR NORTH ENGINEERING STANDARDS
1:50 @ A3



TYPICAL CROSS SECTION:

ROAD TO VEST/ROW - WITH SCRUFFY DOME AND PIPE CULVERT

ACCORDING TO FAR NORTH ENGINEERING STANDARDS
1:50 @ A3

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
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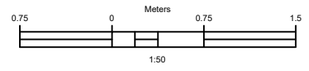
3. DO NOT SCALE FROM THIS DRAWING.



Revision	Issue	Date
A	CONSENT	19/11/2024

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AUCKLAND | NORTHLAND

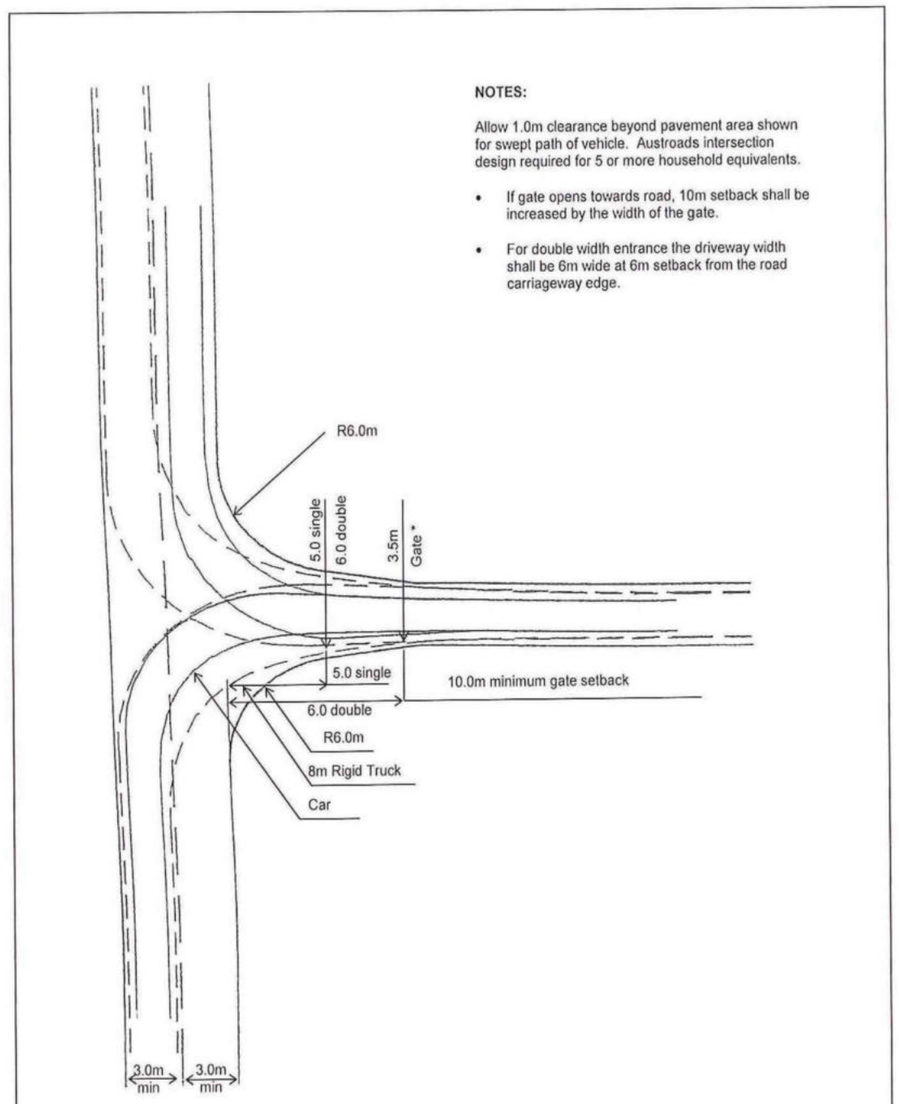
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
TYPICAL ROADING DETAILS

Sheet
392



FAR NORTH DISTRICT COUNCIL ENGINEERING STANDARDS

No.	AMENDMENTS	DATE	DOMESTIC CROSSING LAYOUT (RURAL OR UNKERBED ROAD)	DATE JULY 2007
				FNDC / S / 6B

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
3. ADAPTED FROM FNDC ENGINEERING STANDARDS 2009
4. DO NOT SCALE FROM THIS DRAWING.

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

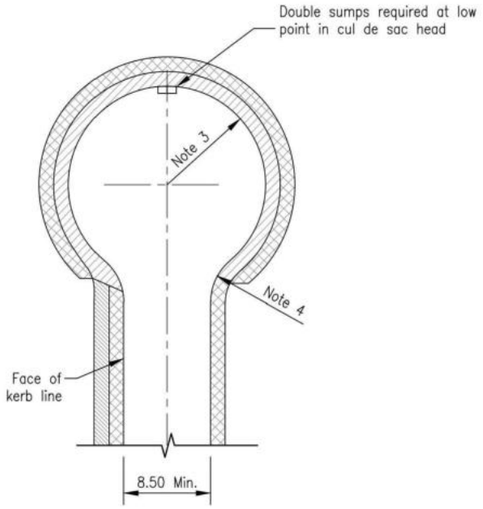
Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
FNDC - VEHICLE CROSSING

Sheet
393

Sheet 11 Cul De Sac Details

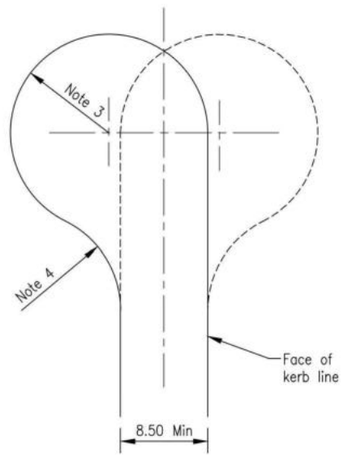


Berm

Reinforced Footpath to Commercial Crossing Standard – See Notes.

Ordinary Footpath

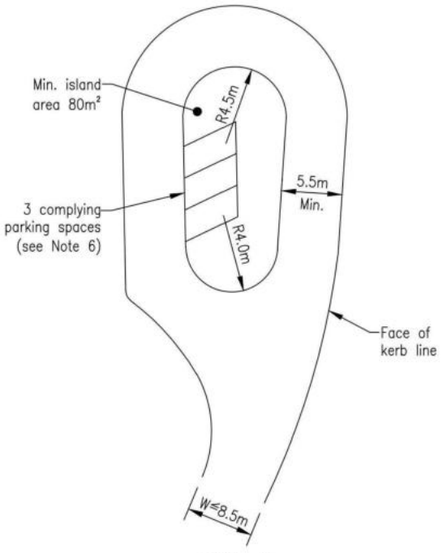
TYPE A



TYPE B

NOTES:

1. Types A and B for all Environments.
2. Type C for Living 1 and Living 2 Environments only.
3. Minimum turning radius 9.5 metres for all Living and Countryside Environments, 15.0 metres for Business Environments.
4. Shoulder radius 8.0 metres for non–offset heads, 9.5 metres for offset heads.
5. Reinforced footpath to be 150mm thick concrete with 665 mesh. Concrete strength to be 30 MPa at 28 days.
6. A central area may be provided for parking or planting (Type C). Where this is proposed, the layout shall be checked for access by a 11.5m medium rigid truck – widening may be required.
7. The minimum kerb gradient shall be 0.5%.
8. Hammerhead or "T" cul–de–sacs may be considered where a standard circular head is unsuitable. The layout is subject to specific design and approval. Compliance with Figure 3.4 in NZS 4404:2010 is an acceptable solution in residential areas.



TYPE C

CUL DE SAC DETAILS

FAR NORTH DISTRICT COUNCIL
ENGINEERING STANDARDS

Date:	JAN 2021
Revision:	0.1
Scale:	NTS
SHEET No.	11

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
3. ADAPTED FROM FNDC ENGINEERING STANDARDS 2023
4. DO NOT SCALE FROM THIS DRAWING.

Revision	Issue	Date
A	CONSENT	19/11/2024

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AUCKLAND | NORTHLAND

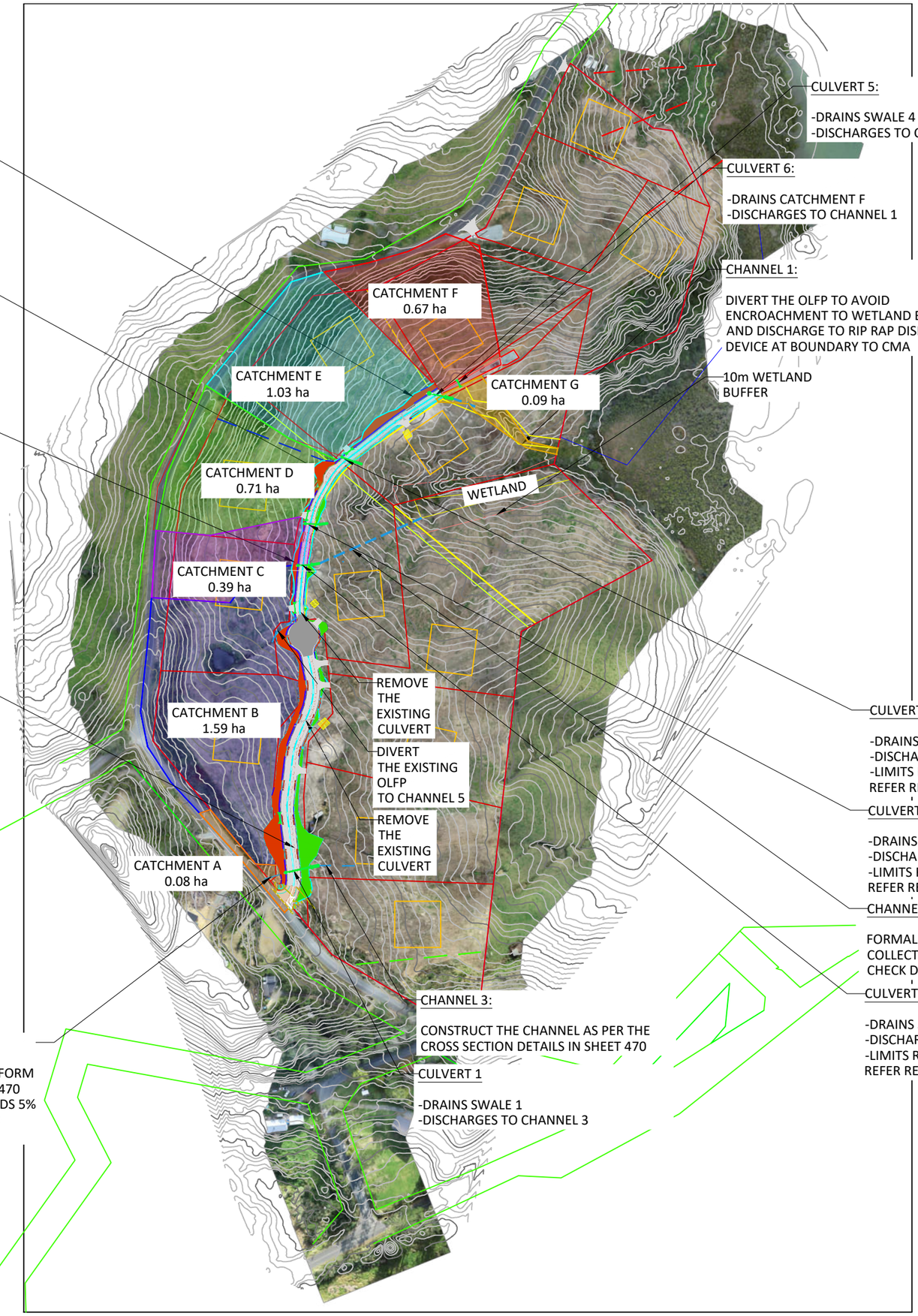
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
CUL DE SAC DETAILS

Sheet
394



SWALE 4:

DRAINS CATCHMENT B, C, D & E
PROVIDE CHECK DAMS TO ROW
CH 110.0 - 160.0 AT 5m INTERVALS

REFER SHEET 471

SWALE 3:

DRAINS CATCHMENT B, C & D
PROVIDE CHECK DAMS TO ROW
CH 65.0 - 110.0 AT 5m INTERVALS

REFER SHEET 471

SWALE 2:

DRAINS CATCHMENT B & C
PROVIDE CHECK DAMS TO ROW
CH 35.0 - 65.0 AT 5m INTERVALS

REFER SHEET 471

SWALE 1:

DRAINS CATCHMENT B

PROVIDE CHECK DAMS AS FOLLOWS:

ROAD TO VEST:
CH 15.0 - 35.0 AT 6m INTERVALS
CH 125.0 - 160.0 AT 5m INTERVALS
CH 180.0 - 203.0 AT 5m INTERVALS

ROW:
CH 0.0 - 35.0 AT 5m INTERVALS

REFER SHEET 471

CHANNEL 4:

UPGRADE EXISTING SCOURED OLFP TO FORM CHANNEL 4, AS PER DETAILS ON SHEET 470
LINE WITH RIP RAP AS GRADIENT EXCEEDS 5%
CHANNEL 4 DISCHARGES TO PROPOSED SCRUFFY DOME

CULVERT 5:

-DRAINS SWALE 4
-DISCHARGES TO CHANNEL 1

CULVERT 6:

-DRAINS CATCHMENT F
-DISCHARGES TO CHANNEL 1

CHANNEL 1:

DIVERT THE OLFP TO AVOID ENCROACHMENT TO WETLAND BUFFER AND DISCHARGE TO RIP RAP DISPERSION DEVICE AT BOUNDARY TO CMA

10m WETLAND BUFFER

CULVERT 4:

-DRAINS SWALE 3
-DISCHARGES TO EX. OLFP
-LIMITS RUNOFF TO WETLAND
REFER REPORT

CULVERT 3:

-DRAINS SWALE 2
-DISCHARGES TO EX. OLFP
-LIMITS RUNOFF TO WETLAND
REFER REPORT

CHANNEL 2:

FORMALISE THE OLFP TO CATER FOR COLLECTIVE FLOWS TO WETLAND, PROVIDE CHECK DAMS AND LINE WITH GRASS

CULVERT 2:

-DRAINS SWALE 2
-DISCHARGES TO CHANNEL 2
-LIMITS RUNOFF TO WETLAND
REFER REPORT

CHANNEL 3:

CONSTRUCT THE CHANNEL AS PER THE CROSS SECTION DETAILS IN SHEET 470

CULVERT 1

-DRAINS SWALE 1
-DISCHARGES TO CHANNEL 3

GENERAL NOTES

1. CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.

SITE BOUNDARY
LOT BOUNDARY
EASEMENT
PROPOSED BUILDING
CATCHMENT A
CATCHMENT B
CATCHMENT C
CATCHMENT D
CATCHMENT E
CATCHMENT F
CATCHMENT G

Meters
40 0 40 80
1:3000

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

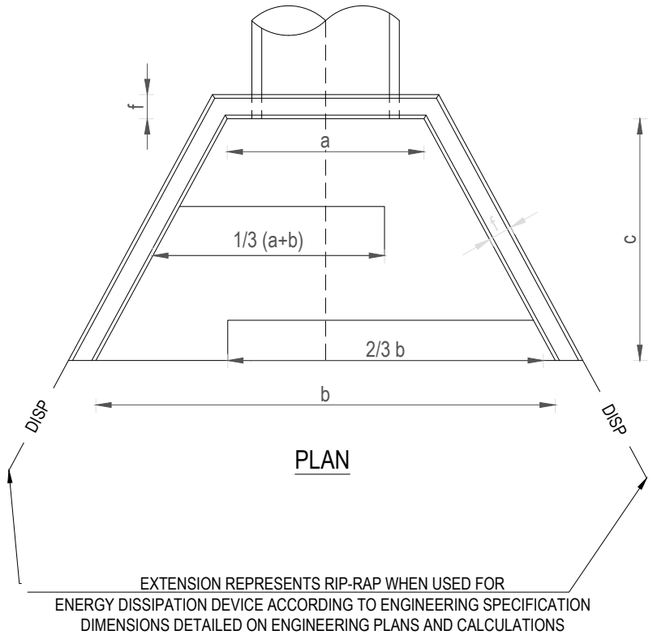
Sheet Title
OVERALL CATCHMENT LAYOUT

Sheet
400

TYPICAL INLET/ OUTLET STRUCTURES.

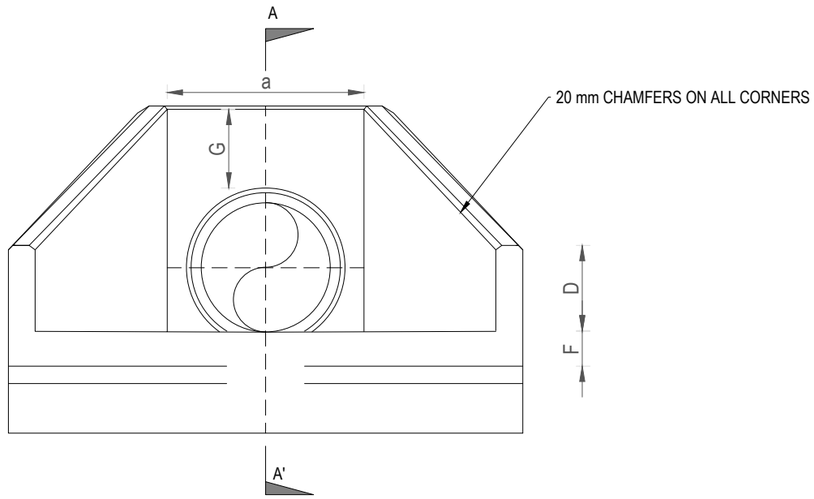
CAN BE USED FOR CULVERT WING-WALLS AND ENERGY DISPERSION DEVICES

NTS

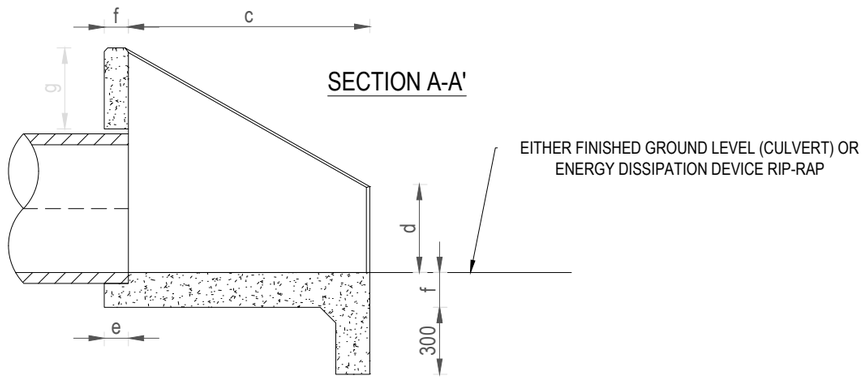


PLAN

EXTENSION REPRESENTS RIP-RAP WHEN USED FOR
ENERGY DISSIPATION DEVICE ACCORDING TO ENGINEERING SPECIFICATION
DIMENSIONS DETAILED ON ENGINEERING PLANS AND CALCULATIONS



FRONT ELEVATION



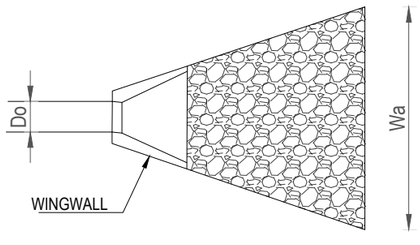
SECTION A-A'

EITHER FINISHED GROUND LEVEL (CULVERT) OR
ENERGY DISSIPATION DEVICE RIP-RAP

PRINCIPAL DIMENSIONS (mm)							
DIA OF PIPE	a	b	c C	d D	e E	f F	g G
150	300	450	600	200	325	100	150
230	380	600	700	250	425	100	150
300	450	750	750	300	525	100	150
375	550	900	850	350	625	100	150
450	630	1100	900	400	725	150	230
525	700	1200	1000	450	825	150	230
600	800	1400	1100	550	900	150	230
750	1000	1700	1200	600	1050	150	300
900	1170	2000	1450	650	1225	150	300
1050	1380	2300	1700	750	1375	150	300
1200	1520	2600	2100	750	1550	150	450
1350	1680	2600	2400	750	1725	150	450

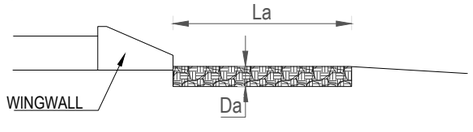
ENERGY DISSIPATION DEVICE

PLAN VIEW



ENERGY DISSIPATION DEVICE

SIDE VIEW



ENERGY DISSIPATION DEVICE SPECIFICATION					
DEVICE	INLET PIPE DIA	D50 DIA. OF RIP RAP (mm)	Apron Width, Wa (m)	Apron Length, La (m)	Apron Depth, Da (mm)
CULVERT 1 OUTFALL	300	150	1.0	3.86	300
CULVERT 2 OUTFALL	300	150	1.0	3.09	300
CULVERT 3 & 4 OUTFALL	225	150	1.0	2.73	300
CULVERT 5 OUTFALL	525	250	1.58	6.35	500

GENERAL NOTES

ADDITIONAL NOTES:

1. ALL WORK TO COMPLY WITH FNDC ENGINEERING STANDARDS 2023.
2. OUTLET STRUCTURE INSTALLATION IS TO COMPLY WITH FNDC ENGINEERING STANDARDS 2023, SHEET 35.
3. ALL WORK TO COMPLY WITH CONTRACTORS APPROVED HEALTH AND SAFETY PLAN. AND CURRENT LEGISLATION.
4. ALL WORK TO COMPLY WITH NZS4404:2010 AND TO BE CONSTRUCTED TO THE SATISFACTION OF FNDC AND THE ENGINEER.
5. CONTRACTOR IS RESPONSIBLE FOR ANY CORRIDOR ACCESS REQUESTS.
6. CONTRACTOR IS TO ENSURE ALL INSPECTIONS ARE COMPLETED IN ACCORDANCE WITH CONSENT CONDITIONS AND ENGINEERING DESIGN WITH MINIMUM 48 HOURS NOTICE.
7. CONTRACTOR TO REINSTATE AND/ OR REPAIR DAMAGE TO ANY EXISTING INFRASTRUCTURE, ROADING AND/ OR VEGETATION.
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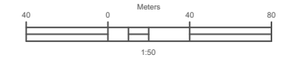
9. CONTRACTOR MUST BE SUITABLY QUALIFIED AND EXPERIENCED.
10. ALL MANHOLES SHOWN ARE 1,050 mm DIA. UNLESS OTHERWISE STATED.
11. ALL BACKFILL TO BE COMPACTED IN ACCORDANCE WITH NZS4431 AND SITE SPECIFIC ENGINEERING SPECIFICATION..



A	CONSENT	19/11/2024
Revision	Issue	Date

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AUCKLAND | NORTHLAND

Project Name and Address

OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client

REGENERATION HOLDINGS LTD

Sheet Title

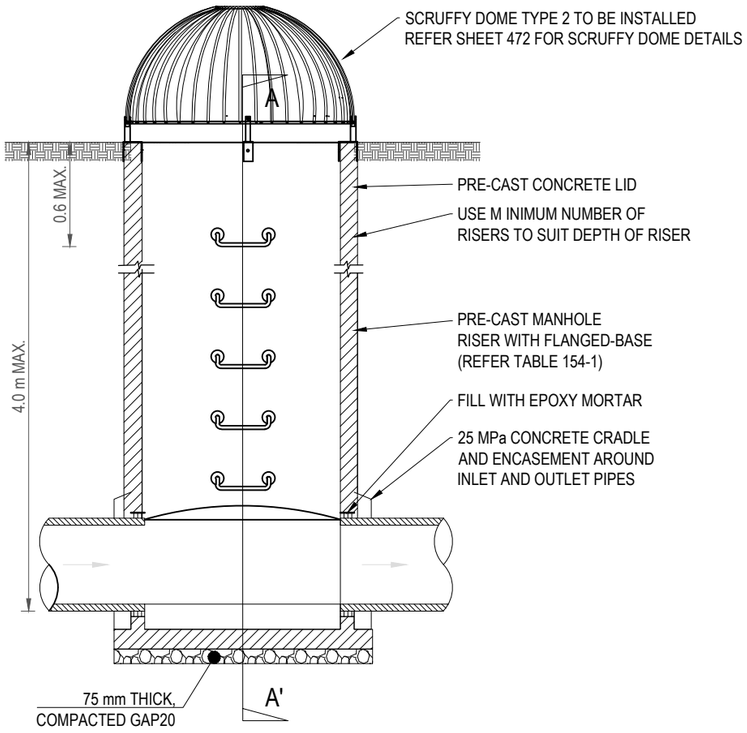
TYPICAL OUTLET STRUCTURES DETAILS

Sheet

470

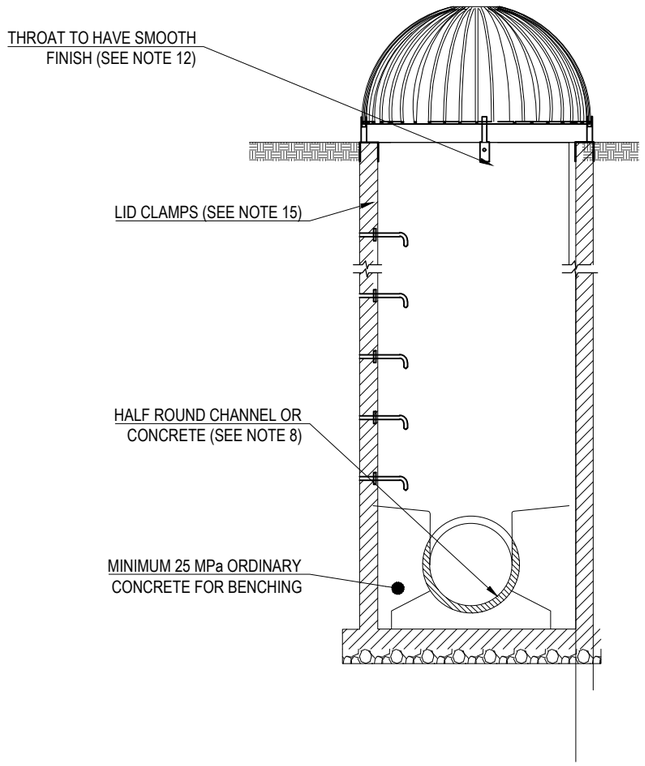
STANDARD MANHOLE (WITH SCRUFFY DOME) UP TO 4.0 m DEPTH TO INVERT - ELEVATION DRAWING

1:50, A3



SECTION A-A'

1:50, A3



GENERAL NOTES

ADDITIONAL NOTES:

1. ALL WORK TO COMPLY WITH FNDC ENGINEERING STANDARDS 2023.
2. MANHOLE CHAMBER INSTALLATION IS TO COMPLY WITH FNDC ENGINEERING STANDARDS 2023.
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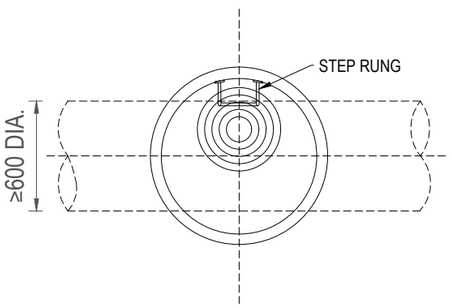
11. ALL BACKFILL TO BE COMPACTED IN ACCORDANCE WITH NZS4431 AND SITE SPECIFIC ENGINEERING SPECIFICATION..

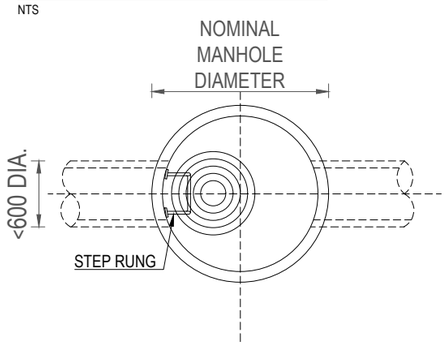
MANHOLE COVER & RUNG ORIENTATION OUTGOING PIPE ≥600 mm DIA.

NTS



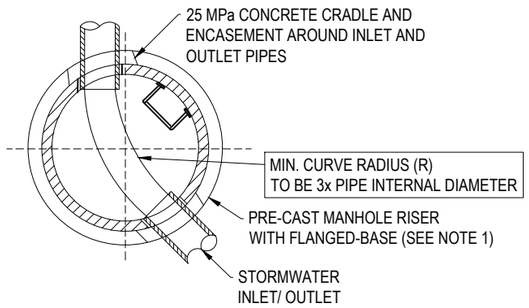
MANHOLE COVER & RUNG ORIENTATION OUTGOING PIPE <600 mm DIA.

NTS



MANHOLE BASE & BENCHING DETAIL

NTS



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Revision	Issue	Date

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Project Name and Address

OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

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Sheet Title

TYPICAL SW MANHOLE DETAILS

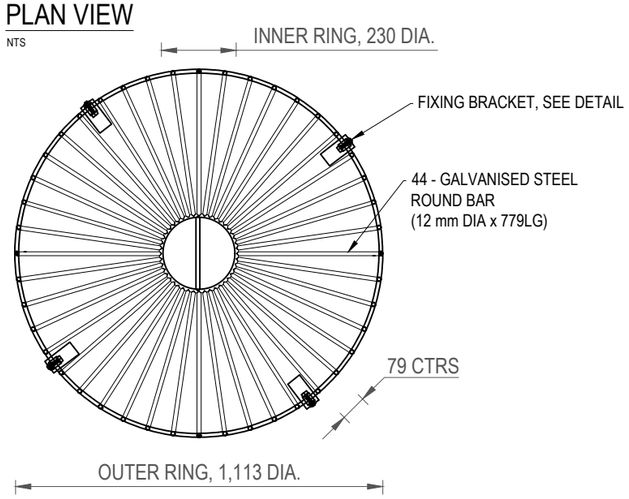
Sheet

471

PLAN VIEW

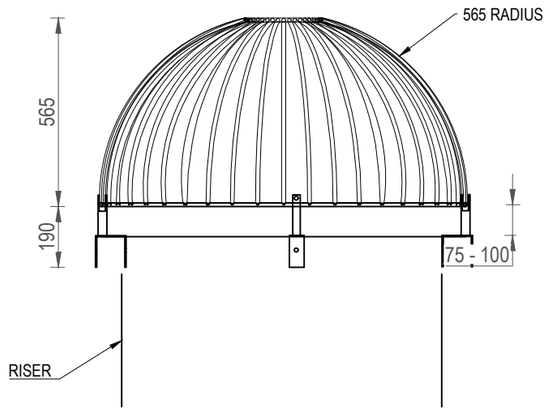
NTS

TYPE 1



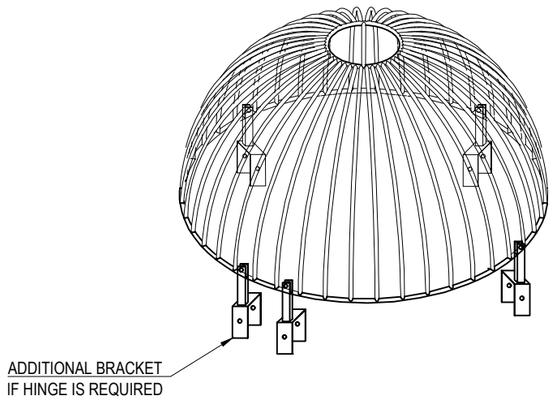
ELEVATION VIEW

NTS



ISOMETRIC VIEW

NTS



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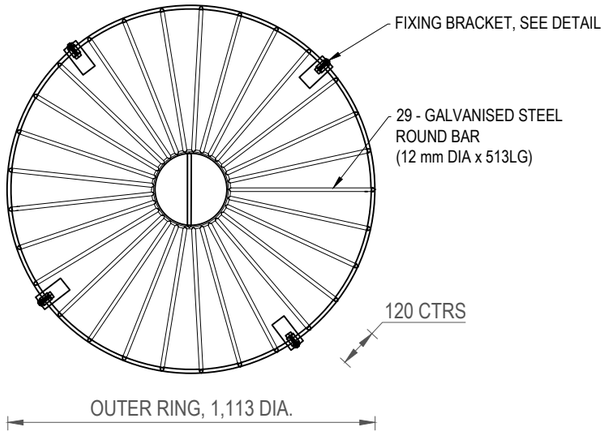

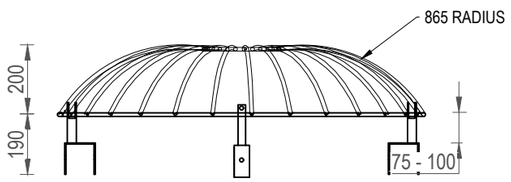

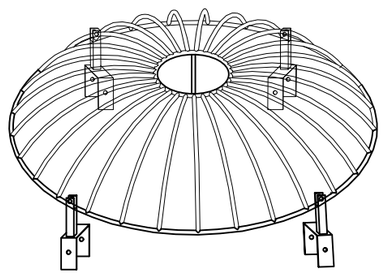

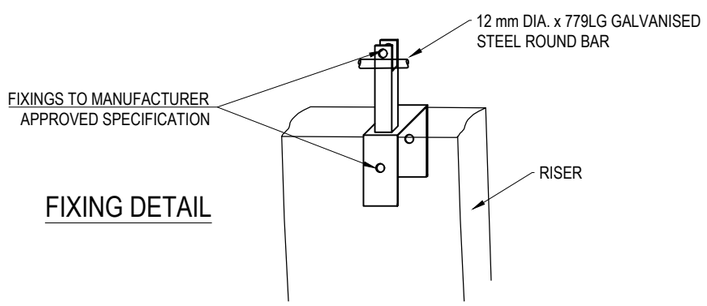

FIXING DETAIL

GENERAL NOTES

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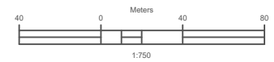

A	CONSENT	19/11/2024
Revision	Issue	Date

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Project Name and Address

OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client

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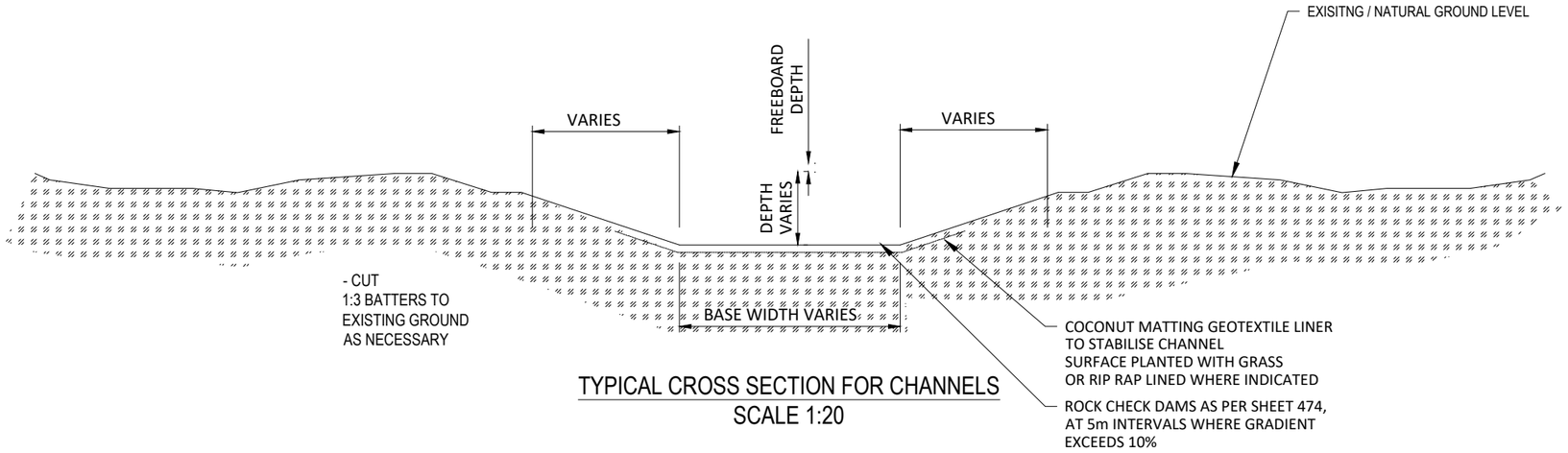
Sheet Title

TYPICAL SCRUFFYDOME DETAILS

Sheet

472

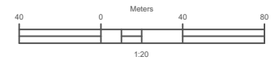


TYPICAL CROSS SECTION FOR CHANNELS
SCALE 1:20

CHANNEL NO.	SURFACE	BASE WIDTH (m)	DEPTH (m)	FREEBOARD DEPTH (m)
CHANNEL 1 - TRAPEZOIDAL CHANNEL	RIP RAP	0.5	0.3	0.2
CHANNEL 2 - TRIANGULAR CHANNEL	TOP SOIL & GRASS	0.0	0.2	0.1
CHANNEL 3 - TRIANGULAR CHANNEL	TOP SOIL & GRASS	0.0	0.2	0.1
CHANNEL 4 - TRIANGULAR CHANNEL	RIP RAP	0.0	0.2	0.1

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.



Revision	Issue	Date
A	CONSENT	19/11/2024

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OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

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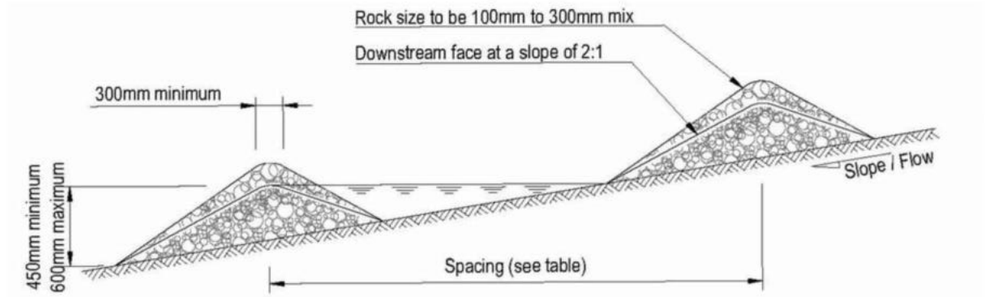
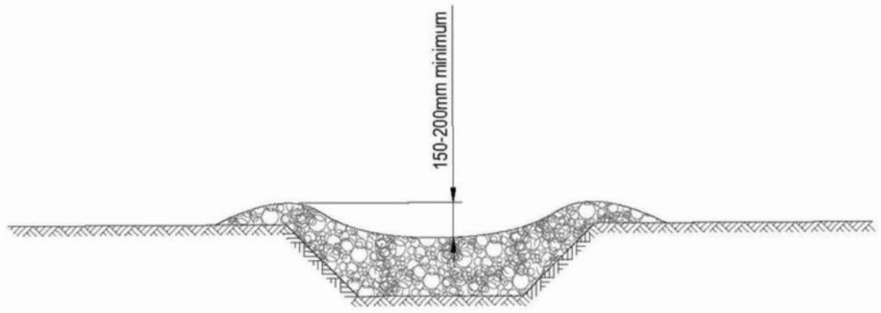
Sheet Title
TYPICAL DETAILS FOR CHANNELS

Sheet
473



Elevation



Cross-section

Figure 28: Rock check dam

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. ADAPTED FROM AUCKLAND COUNCIL GD05: EROSION AND SEDIMENT CONTROL GUIDELINES

A	CONSENT	19/11/2024
Revision	Issue	Date

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AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
STANDARD DETAILS FOR CHECK DAMS

Sheet
474

Line Number	Lenght
1	6.51
2	6.51
3	6.55
4	9.4

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DRAWN	SIGNED VB	DATE 21/08/2024	REV.	DATE	REVISION DETAILS	BY	APP.	CLIENT: Regenerations Holdings Ltd	PROJECT: Ota Point Road, Ota Point, Whangaroa, Far North.
VERIFIED	SIGNED	DATE							
APPROVED	SIGNED	DATE							

DRAWING TITLE: Map Showing Road Width Within 20m From The Entrance of Ota Point Road

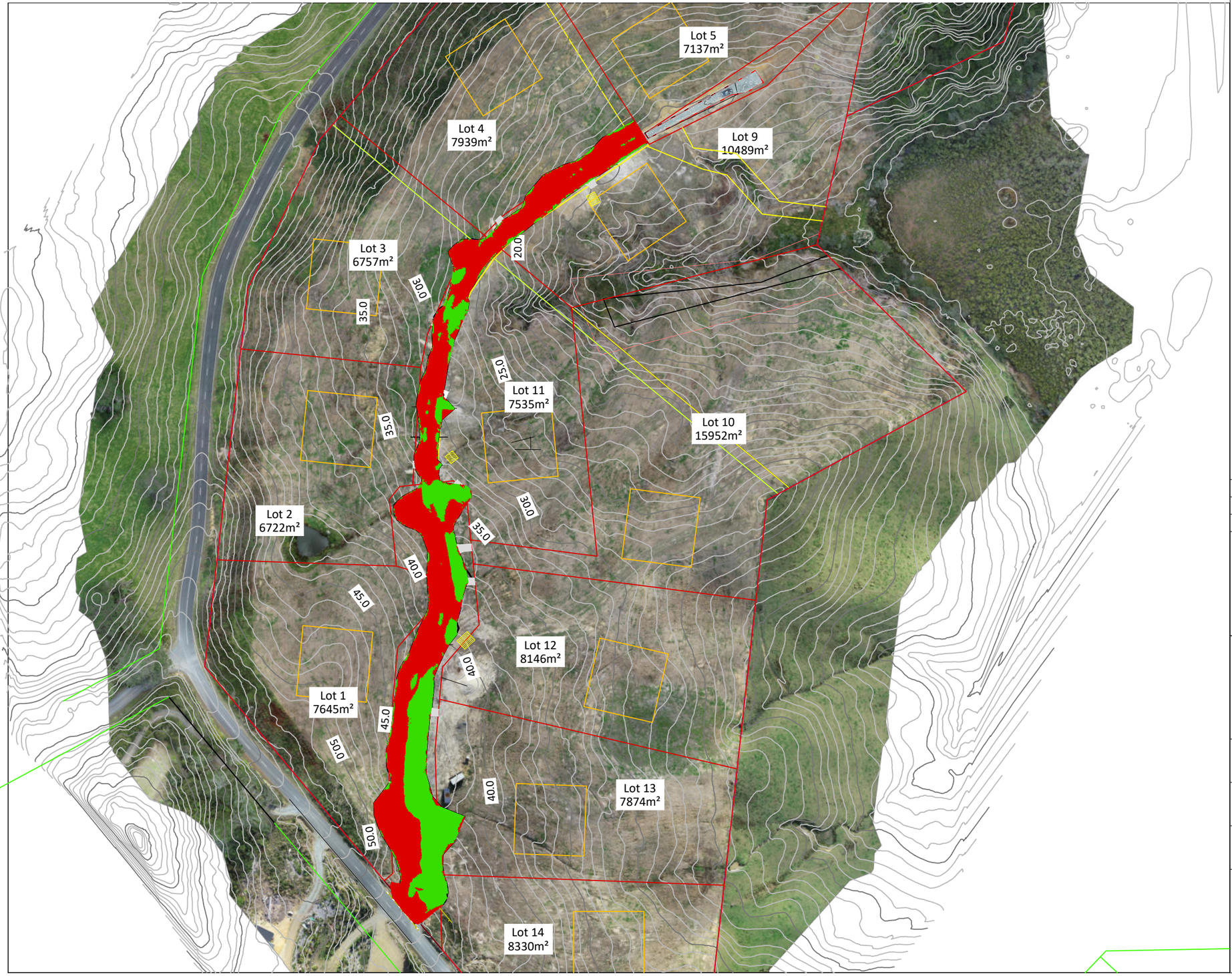
STATUS: Draft

SCALE: 1:100 | SHEET SIZE: A3

PROJECT NO.: C0456 | TYPE: | CLASS: | SHEET NO.: 500 | REV.:

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Earthworks Subbase levels vs EGL	1.000	1.000	5549.91sq.m	1267.41 Cu. M.	385.12 Cu. M.	882.29 Cu. M.<Cut>
Totals			5549.91sq.m	1267.41 Cu. M.	385.12 Cu. M.	882.29 Cu. M.<Cut>



GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
4. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
5. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.

- SITE BOUNDARY
- LOT BOUNDARY
- EASEMENT
- PROPOSED BUILDING
- PROPOSED ROADING EXTEND
- CUT
- FILL

Meters
20 0 20 40
1:1750

A	CONSENT	19/11/2024
Revision	Issue	Date

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Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
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Sheet Title
EARTHWORKS - SUBBASE LEVEL

Sheet
600

FILE PATH: Z:\Projects\C0400-C0499\C0456\Ota Point, Whangaroa (Lot1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 03/12/2022

INSTALL SANDBAGS IMMEDIATELY DOWNSTREAM OF CULVERT INLETS, IN SWALE, TO DIRECT SEDIMENT LADEN RUNOFF THROUGH THE EXISTING CULVERT TOWARD DEBs

INSTALL DEB (20m³) DOWNSTREAM OF EXISTING CULVERT OUTLET, FOR CONCENTRATED DISCHARGE FROM UPSTREAM CATCHMENT OF ROAD (1000m²)

INSTALL DEB (16m³) FOR CONCENTRATED DISCHARGE FROM UPPER STAGE CATCHMENT OF ROAD (800m²)

INSTALL DEB (30m³) DOWNSTREAM OF EXISTING CULVERT OUTLET, FOR CONCENTRATED DISCHARGE FROM UPSTREAM CATCHMENT OF ROAD (1500m²)

PROPOSED STOCK PILE AREA

EXISTING CULVERT OR NEW CULVERT IF CONSTRUCTED TO BE USED FOR CLEAR WATER DIVERSION

NOTE:EXISTING ACCESS IS SUFFICIENTLY STABILISED AND MUST BE MAINTAINED DURING CONSTRUCTION WORKS

GENERAL NOTES

1. EXISTING CONTOURS AT 5.0m MAJOR AND 1.0m MINOR INTERVALS.
2. PROPOSED CONTOURS AT 2.5m MAJOR AND 0.5m MINOR INTERVALS.
3. TOPOGRAPHIC SURVEY DATA PROVIDED BY GEOLOGIX DRONE SURVEY.
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SITE BOUNDARY
LOT BOUNDARY
EASEMENT
PROPOSED BUILDING
PROPOSED DEB
SILT FENCE
CW CLEAN WATER - DIVERSION
DW DIRTY WATER - DIVERSION

Meters
40 0 40 80
1:1500

A	CONSENT	19/11/2024
Revision	Issue	Date

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Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

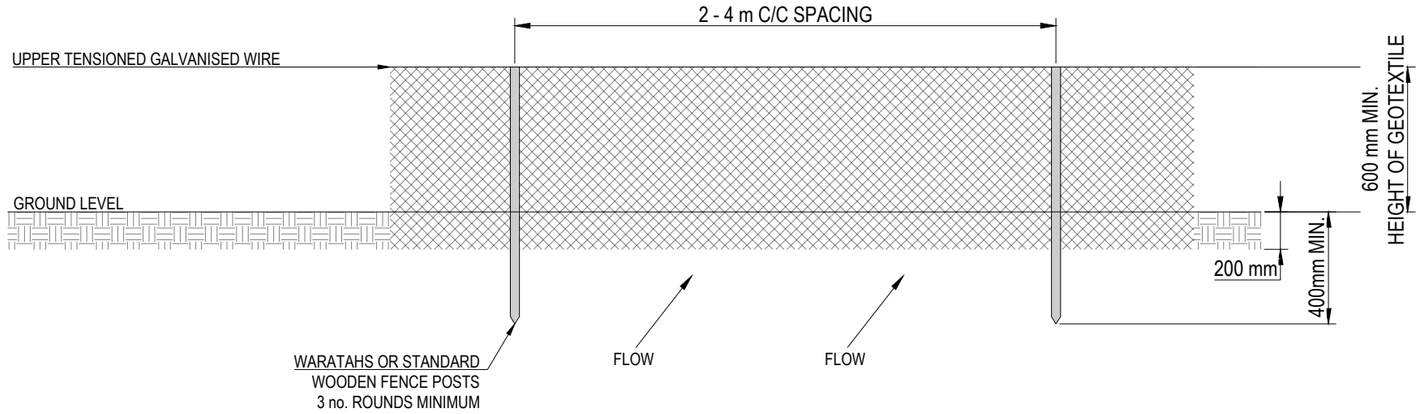
Sheet Title
EROSION AND SEDIMENT CONTROL LAYOUT

Sheet
800

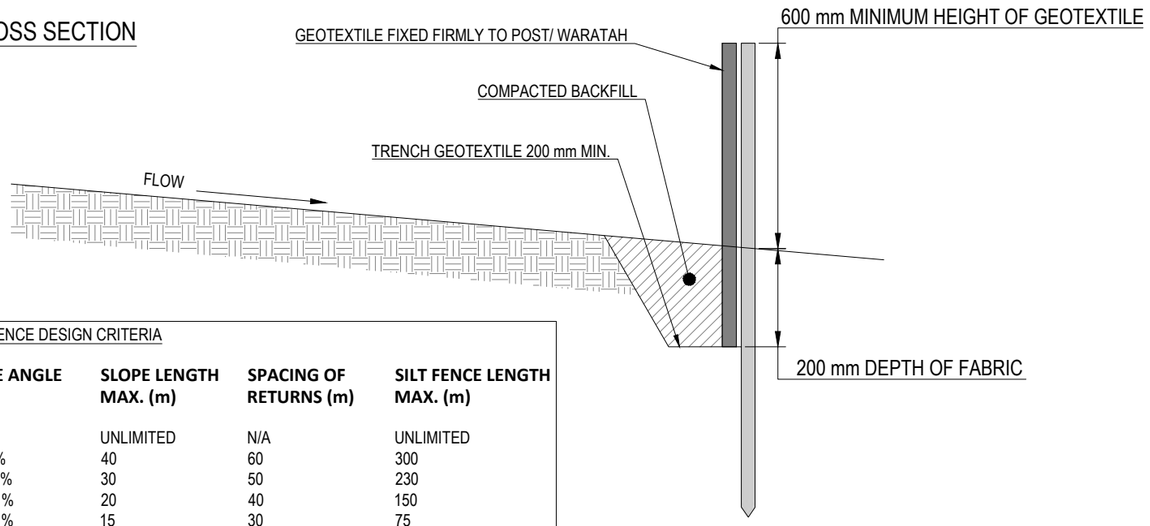
FILE PATH: Z:\Projects\C0400-C0499\C0456 Ota Point, Whangararoa (Lot 1 DP 25198) - C0456\07 - Technical & Drawings\Drawings\working drawings\C0456-300 18.11.2024.dwg\C0456-300 18.11.2024.dwg

PLOTTED: 20/04/2022

ELEVATION VIEW
NTS



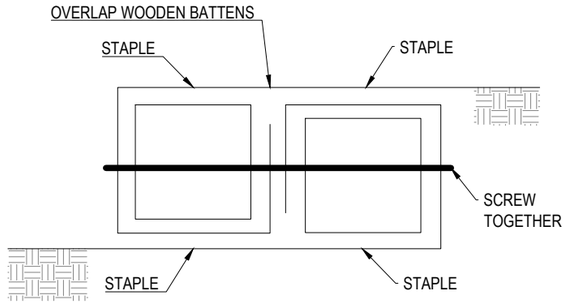
CROSS SECTION
NTS



SILT FENCE DESIGN CRITERIA

SLOPE ANGLE	SLOPE LENGTH MAX. (m)	SPACING OF RETURNS (m)	SILT FENCE LENGTH MAX. (m)
<2 %	UNLIMITED	N/A	UNLIMITED
2 - 10 %	40	60	300
10 - 20 %	30	50	230
20 - 33 %	20	40	150
33 - 50 %	15	30	75
>50 %	6	20	40

STANDARD FABRIC JOINT
NTS

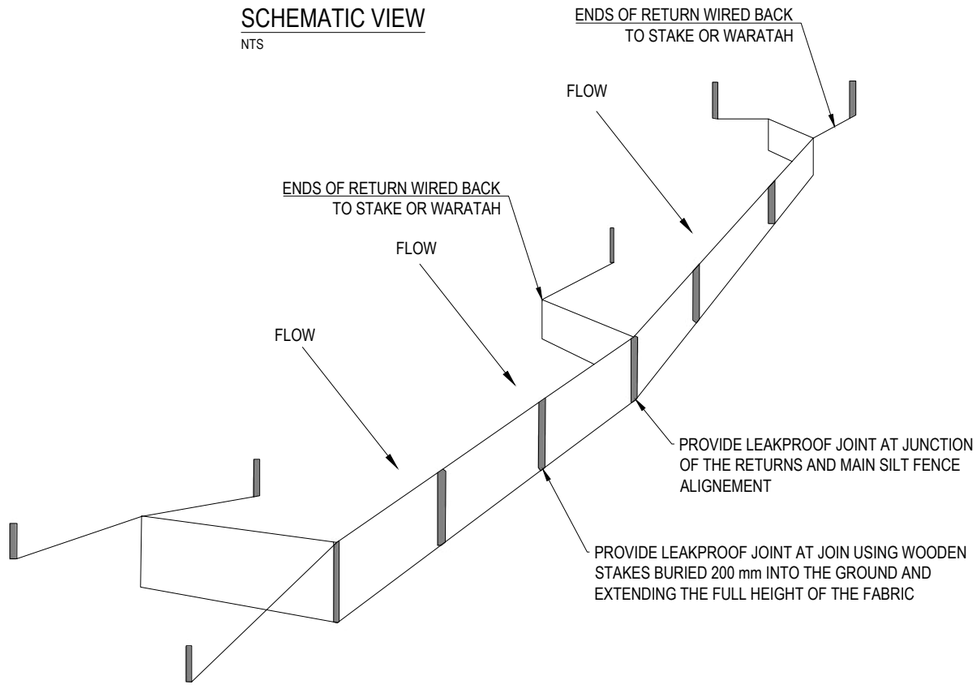


SPECIFICATION OF SILT FENCES

SILT FENCES HAVE BEEN PROVISIONED WHERE THERE IS A NEED TO CONTROL SEDIMENT RUNOFF BY INTERCEPTING FLOW. THEY ARE APPROPRIATE TO THE SITE DUE TO THE LOW-GRADIENT AND SMALL CONTRIBUTING CATCHMENT.

1. AVOID TRENCH EXCAVATIONS WITHIN THE ROOT ZONES OF PROTECTED TREES AND TREES TO BE RETAINED.
2. WHERE THERE IS A CHANGE IN SLOPE, NO SECTION OF THE FENCE SHOULD EXCEED A GRADE OF 5 % FOR A DISTANCE OF MORE THAN 15 m.
3. ENSURE SILT FENCE HEIGHT IS 600 mm ABOVE GROUND LEVEL AND 200 mm BELOW GROUND LEVEL.
4. MAXIMUM SLOPE LENGTHS, SPACING OF RETURNS AND ANGLES FOR SILT FENCES ARE DETAILED ABOVE.
5. LOCATE SUPPORTING POSTS/ WARATAHS FOR SILT FENCES 2-4 m APART WITH SUPPORT PROVIDED BY TENSIONED WIRE (2.5 mm HT) ALONG THE TOP OF THE SILT FENCE.
6. WHERE A STRONG WOVEN FABRIC IS USED IN CONJUNCTION WITH A WIRE SUPPORT, THE DISTANCE BETWEEN POSTS CAN BE UP TO 4 m.
7. DOUBLE THE SILT FENCE FABRIC OVER AND FASTEN TO THE WIRE WITH SILT FENCE CLIPS AT 500 mm C/C SPACINGS.
8. ENSURE SUPPORTING POSTS/ WARATAHS ARE EMBEDDED A MINIMUM OF 400 mm INTO THE GROUND.
9. EXISTING SERVICES TO BE ACCURATELY DELINEATED PRIOR TO INSERTING POSTS.
10. CONTRACTOR IS RESPONSIBLE FOR SERVICE DELINEATION AND SILT FENCE INSTALLATION.
11. INSTALL SILT FENCES ALONG THE CONTOUR. WHERE NOT POSSIBLE, INSTALL SHORT SILT FENCE RETURNS PROJECTING UP-SLOPE TO MINIMISE CONCENTRATED FLOWS.
12. SILT FENCE RETURNS SHOULD BE A MINIMUM 2 m IN LENGTH AND CAN INCORPORATE TIE-BACK.
13. JOIN LENGTHS F SILT FENCE BY DOUBLING FABRIC ENDS AROUND A WARATAH OR BY STABLING THE FABRIC ENDS TO A BATTEN AND BUTTING THE TWO BATTENS TOGETHER.
14. INSTALL SILT FENCE RETURNS AT EITHER END OF THE SILT FENCE, PROJECTING UP SLOPE TO A SUFFICIENT HEIGHT TO PREVENT OUTFLANKING.
15. IF WATER PONDS BEHIND SILT FENCE, PROVIDE EXTRA SUPPORT WITH TIE-BACKS FROM THE SILT FENCE TO A CENTRAL STABLE POINT ON THE UPWARD SIDE. EXTRA SUPPORT MAY ALSO BE PROVIDED BY STRINGING WIRE BETWEEN SUPPORT STAKES AND CONNECTING THE FILTER FABRIC TO THIS WIRE.
16. MINIMUM SILT FENCE CLOTH MUST MEET THE FOLLOWING GEOTEXTILE FABRIC CRITERIA:
    - 16.1. WIRE WIDTH TENSILE STRENGTH ≥14 kN/m MIN. (AS, ASTM OR ISO TEST METHODS ALLOWED)
    - 16.2. RETAINED STRENGTH AT 500h = 70 % MIN. (AS, ASTM OR ISO TEST METHODS ALLOWED)
    - 16.3. OPENING SIZE (EOS) = 0.2 - 0.4 um (AS, ASTM OR ISO TEST METHODS ALLOWED)

SCHEMATIC VIEW
NTS



GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. ADAPTED FROM AUCKLAND COUNCIL GD05: EROSION AND SEDIMENT CONTROL GUIDELINES

Meters 40 0 40 80
1:25

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

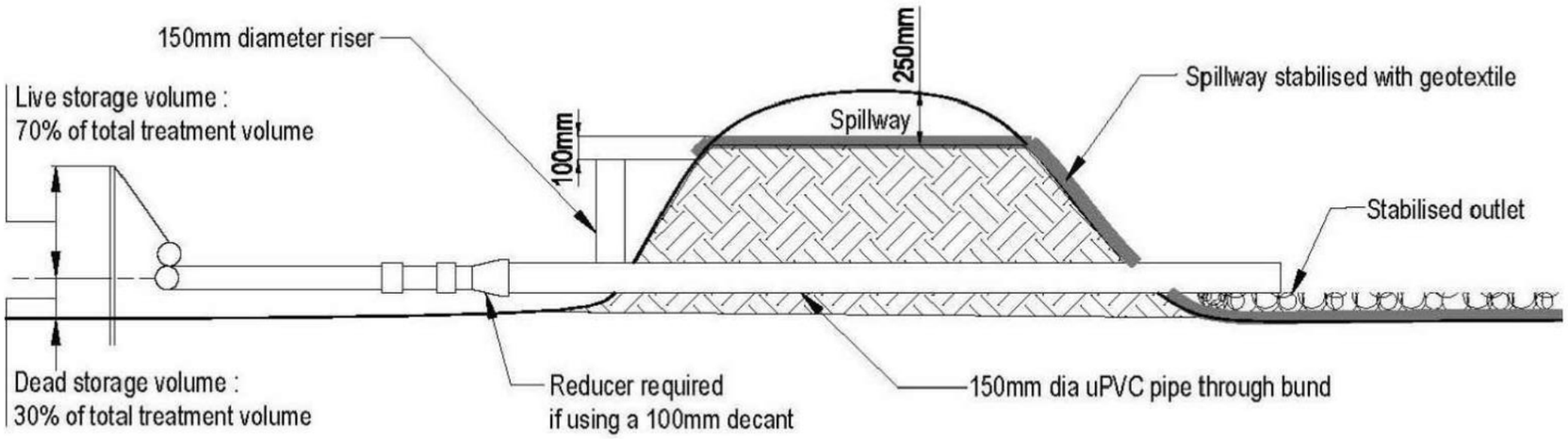
Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project: C0456
Drawn By: TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
SILT FENCE DETAILS

Sheet
850



Cross - section

GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. ADAPTED FROM AUCKLAND COUNCIL GD05: EROSION AND SEDIMENT CONTROL GUIDELINES

Meters
40 0 40 80
1:1.5

A	CONSENT	19/11/2024
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

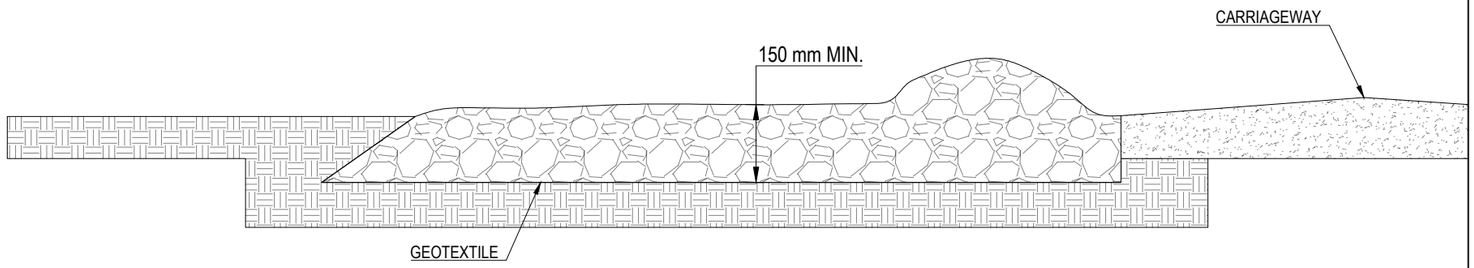
Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
TYPICAL DEB DETAILS

Sheet
851

SIDE ELEVATION
NTS



STABILISED ENTRANCE SPECIFICATIONS

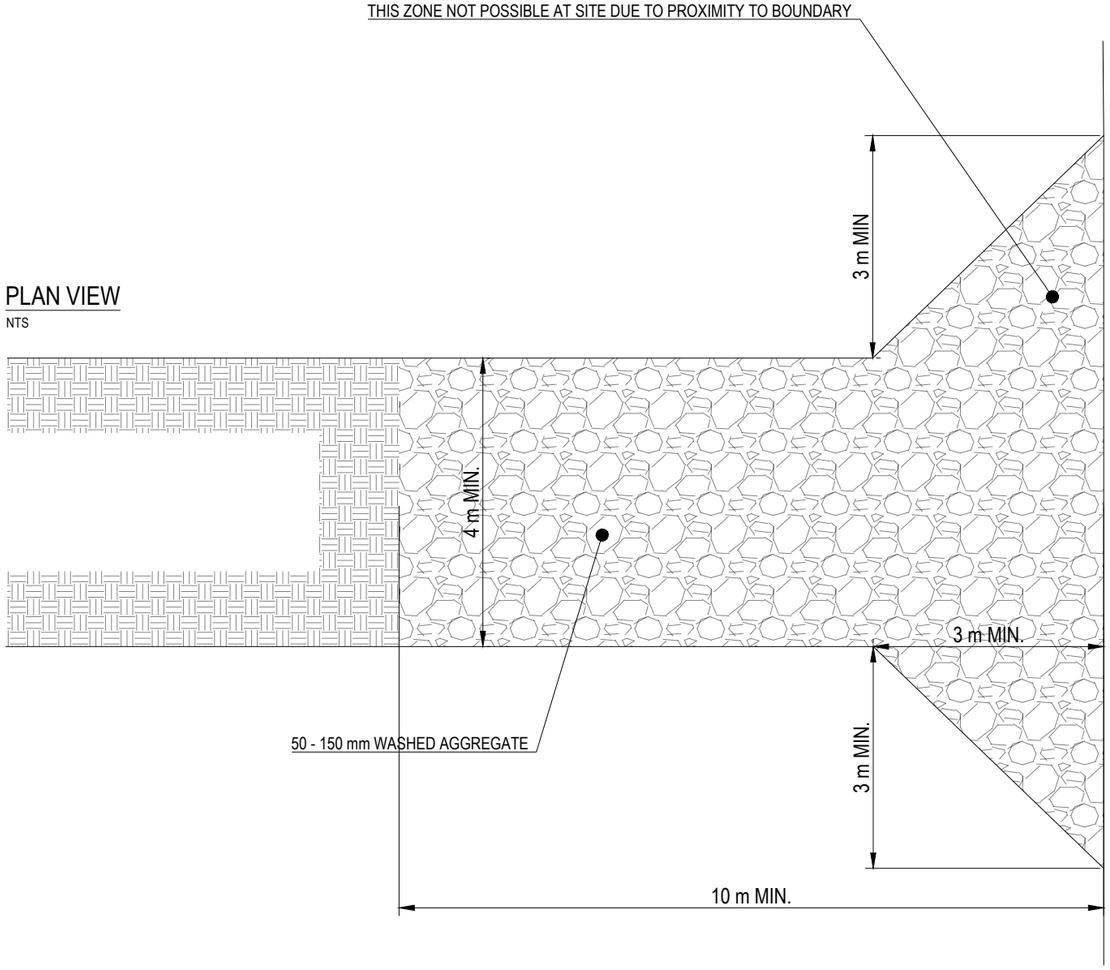
DESIGN PARAMETER	SPECIFICATION
AGGREGATE SIZE	50 - 150 mm WASHED AGGREGATE
MINIMUM THICKNESS	150 mm
MINIMUM LENGTH	10 m
MINIMUM WIDTH	4 m

NOTES FOR STABILISED ENTRANCE

STABILISED ENTRANCES WILL REDUCE SEDIMENT MOVEMENT BUT WILL NOT REMOVE SEDIMENT FROM A VEHICLE. CARE NEEDS TO BE TAKEN TO IMPLEMENT OTHER TECHNIQUES, SUCH AS WHEEL WASH OR STABILISISED PARKING AND TURNAROUND AREAS TO MAINTAIN SITE TRAFFIC IN A 'CLEAN' STATE.

1. STABILISED ENTRANCES TO BE LOCATED AT A SINGLE ACCESS POINT FOR EARTHWORK (TRUCK) MOVEMENTS.
2. SITE FENCING TO BE ESTABLISHED SO VEHICLES CANNOT BYPASS THE DEVICE. PERIMETER SILT FENCES OR BUNDS MAY SUFFICE FOR THIS.
3. ONLY A SINGLE ACCESS/ EGRESS POINT TO BE USED FOR EARTHWORK MOVEMENTS AS OUTLINED ON DRAWING NO. 200.
4. ENSURE STABILISED ENTRANCE DRAINS BACK INTO SITE BY UTILISING A SPEED BUMP, SEE DETAIL DRAWING.
5. STABILISED ENTRANCE TO BE REVIEWED ON SITE BY ENGINEER PRIOR TO WORKS.

PLAN VIEW
NTS



GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. ADAPTED FROM AUCKLAND COUNCIL GD05: EROSION AND SEDIMENT CONTROL GUIDELINES

Meters
40 0 40 80
1:25

Revision	Issue	Date
A	CONSENT	19/11/2024

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
OTA POINT
WHANGARAROA
PART 1 LOT DP 25198

Project	Drawn By
C0456	TI

Client
REGENERATION HOLDINGS LTD

Sheet Title
STABILIZED ENTRANCE

Sheet
852

PLOTTED: 03/04/2025

geologix
consulting engineers

APPENDIX C

Calculations

Project Ref:	C0456		**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision			
Prepared By:	TI		**CATCHMENT A - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024	REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONALE METHOD. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	427	0.67	PASTURE/ GRASS	PR PERVIOUS	406	0.67	PASTURE/GRASS
EX IMPERVIOUS	168	0.83	UNSEALED ROW	PR IMPERVIOUS	189	0.96	PROPOSED SEALED ROAD
EX IMPERVIOUS	300	0.96	SEALED OTA POINT RD	PR IMPERVIOUS	300	0.96	SEALED OTA POINT RD
TOTAL	**895**	TYPE D	EX = EXISTING	**TOTAL**	**895**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN (WITH CC)	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	11.77	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	15.37	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	3.60	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	17.88	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	23.69	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	5.81	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	26.96	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	36.01	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	9.05	l/s	

Project Ref:	C0456		**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision			
Prepared By:	TI		**CATCHMENT B - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024	REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONALE METHOD. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	15150	0.67	PASTURE/ GRASS	PR PERVIOUS	14130	0.67	PASTURE/GRASS
EX IMPERVIOUS	376	0.83	UNSEALED ROW	PR IMPERVIOUS	1396	0.96	PR SEALED ROAD
EX IMPERVIOUS	471	0.96	SEALED OTA PT RD	PR IMPERVIOUS	471	0.96	SEALED OTA PT RD
TOTAL	**15997**	TYPE D	EX = EXISTING	**TOTAL**	**15997**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	180.09	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	233.38	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	53.28	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	273.47	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	359.72	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	86.24	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	412.33	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	546.84	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	134.50	l/s	

Project Ref:	C0456		**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision			
Prepared By:	TI		**CATCHMENT C - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024	REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONALE METHOD. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	3665	0.67	PASTURE/ GRASS	PR PERVIOUS	3644	0.67	PASTURE/GRASS
EX IMPERVIOUS	130	0.83	UNSEALED ROW	PR IMPERVIOUS	263	0.96	PR SEALED ROAD (inc. Ota Pt Rd)
EX IMPERVIOUS	112	0.96	SEALED OTA PT RD				
TOTAL	**3907**	TYPE D	EX = EXISTING	**TOTAL**	**3907**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	44.07	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	55.84	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	11.77	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	66.92	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	86.07	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	19.14	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	100.90	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	130.84	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	29.93	l/s	

ESTIMATION OF FLOW VELOCITIES

Project Ref:	C0456		**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision			
Prepared By:	TI		**CATCHMENT D - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024	REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONALE METHOD. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	6616	0.67	PASTURE/ GRASS	PR PERVIOUS	6587	0.67	PASTURE/GRASS
EX IMPERVIOUS	166	0.83	UNSEALED ROW	PR IMPERVIOUS	525	0.96	PROPOSED SEALED ROAD + OTA PT RD
EX IMPERVIOUS	330	0.96	SEALED OTA PT RD				
TOTAL	**7112**	TYPE D	EX = EXISTING	**TOTAL**	**7112**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	80.64	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	101.92	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	21.28	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	122.45	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	157.10	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	34.65	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	184.63	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	238.82	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	54.19	l/s	

Project Ref:	C0456	**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision		
Prepared By:	TI	**CATCHMENT E - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024 REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONALE METHOD. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	9660	0.67	PASTURE/ GRASS	PR PERVIOUS	9660	0.67	PASTURE/GRASS
EX IMPERVIOUS	260	0.83	UNSEALED ROW	PR IMPERVIOUS	649	0.96	PR SEALED ROAD
EX IMPERVIOUS	389	0.96	SEALED OTA PT RD	PR IMPERVIOUS			
				PR IMPERVIOUS			
TOTAL	**10309**	TYPE D	EX = EXISTING	**TOTAL**	**10309**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	116.51	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	147.07	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	30.55	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	176.93	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	226.68	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	49.75	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	266.77	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	344.60	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	77.83	l/s	

Project Ref:	C0456		**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision			
Prepared By:	TI		**CATCHMENT F - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024	REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONAL METHOD FROM NZBC E1/VM1. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	6262	0.67	PASTURE/ GRASS	PR PERVIOUS	6262	0.67	PASTURE/GRASS
EX IMPERVIOUS	170	0.83	UNSEALED ROW	PR IMPERVIOUS	441	0.96	PR SEALED ROAD + OTA PT RD
EX IMPERVIOUS	271	0.96	SEALED OTA PT RD	PR IMPERVIOUS			
				PR IMPERVIOUS			
TOTAL	**6703**	TYPE D	EX = EXISTING	**TOTAL**	**6703**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	75.85	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	95.74	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	19.89	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	115.18	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	147.57	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	32.39	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	173.66	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	224.33	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	50.67	l/s	

Project Ref:	C0456	**PEAK RUNOFF ASSESSMENT**	geologix consulting engineers
Project Address:	Ota Point Subdivision		
Prepared By:	TI	**CATCHMENT G - PRE AND POST-DEV PEAK FLOW**	
Date:	31 October 2024 REV 1		

ESTIMATION OF RUNOFF FROM CATCHMENT ADOPTING RATIONAL METHOD FROM NZBC E1/VM1. RUNOFF COEFFICIENTS, C, CALCULATED FROM NZBC E1 AS FOLLOWS. C = CN/(200-CN)

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
EX PERVIOUS	908	0.67	PASTURE/ GRASS	PR PERVIOUS	908	0.67	PASTURE/GRASS
EX IMPERVIOUS	0	0.83	UNSEALED ROW	PR IMPERVIOUS	0	0.96	PR SEALED ROAD + OTA PT RD
TOTAL	**908**	TYPE D	EX = EXISTING	**TOTAL**	**908**	TYPE D	PR = PROPOSED

PRE TO POST DEVELOPMENT RUNOFF - 50 % AEP			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	74.6	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	10.04	l/s	
50 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	12.61	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	2.57	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 10 % AEP			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	115.0	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	15.24	l/s	
10 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	19.44	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	4.19	l/s	

PRE TO POST DEVELOPMENT RUNOFF - 1 % AEP			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	136.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.8	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW (NO CC)	22.98	l/s	
1 % AEP POST DEVELOPMENT PEAK FLOW (WITH CC)	29.55	l/s	
PRE TO POST DEVELOPMENT DIFFERENCE	6.56	l/s	

STORMWATER CALCULATIONS

Land off Ota Point Road, Whangaroa
For Engineeering Design Approval

Reference	C0456
Originator	SH
Checker	EC
Date	13/11/2024

Pipe ID	Culvert 1 Outfall		
Upstream IL		mRL	
Downstream IL		mRL	
Pipe Length		m	
Pipe Dia. (Do):	0.3	m	
Slope:	2.000%	m/m	
DEPTH RATIO	0.8		0.8 = for Max Velocity
PARTIAL AREA	0.061	m^2	
PARTIAL WETTED PERIMETER	0.664	m	
PARTIAL DEPTH	0.240	m	
ROUGHNESS	0.01		
Velocity (V):	2.867	m/s	
Flow(Q)	0.174	m^3/s	
Downstream channel material:	Channel 3 (Grass lined)		
Max velocitiy for erosion control (Vmax):	1.1		(as per Table 1 TR2013/018)

TP10, 2003

Froude number (Fo)= $V/(gx\ dp)^{0.5}$	1.93		
Riprap Diameter (ds)= 0.25 x Do x Fo	0.14	m	150mm mean dia. (TR2013/018
Thickness of Riprap (DA)= 2 xds	0.29	m	300mm min. (TR2013/018)
Length of Riprap (La)= Do x (8 + 17 x LogFo	3.86	m	
Width of Riprap (W_A)= 3 x Do	0.90	m	Adopt 1m
Height of Riprap (H)= crown of pipe +300m	0.60	m	

STORMWATER CALCULATIONS

Land off Ota Point Road, Whangaroa
For Engineeering Design Approval

Reference	C0456
Originator	SH
Checker	EC
Date	13/11/2024

Pipe ID	Culvert 2 Outfall		
Upstream IL		mRL	
Downstream IL		mRL	
Pipe Length		m	
Pipe Dia. (Do):	0.3	m	
Slope:	1.000%	m/m	
DEPTH RATIO	0.8		0.8 = for Max Velocity
PARTIAL AREA	0.061	m^2	
PARTIAL WETTED PERIMETER	0.664	m	
PARTIAL DEPTH	0.240	m	
ROUGHNESS	0.01		
Velocity (V):	2.027	m/s	
Flow(Q)	0.123	m^3/s	
Downstream channel material:	Channel 2 (Grass lined)		
Max velocitiy for erosion control (Vmax):	1.5		(as per Table 1 TR2013/018)

TP10, 2003

Froude number (Fo)= $V/(gx\ dp)^{0.5}$	1.37		
Riprap Diameter (ds)= 0.25 x Do x Fo	0.10	m	150mm mean dia. (TR2013/018
Thickness of Riprap (DA)= 2 xds	0.20	m	300mm min. (TR2013/018)
Length of Riprap (La)= Do x (8 + 17 x LogFo	3.09	m	
Width of Riprap (W_A)= 3 x Do	0.90	m	Adopt 1m
Height of Riprap (H)= crown of pipe +300m	0.60	m	

STORMWATER CALCULATIONS

Land off Ota Point Road, Whangaroa
For Engineeering Design Approval

Reference	C0456
Originator	SH
Checker	EC
Date	13/11/2024

Pipe ID	Culvert 3 & 4 Outfalls		
Upstream IL	14	mRL	
Downstream IL		mRL	
Pipe Length		m	
Pipe Dia. (Do):	0.225	m	
Slope:	1.800%	m/m	
DEPTH RATIO	0.8		0.8 = for Max Velocity
PARTIAL AREA	0.034	m^2	
PARTIAL WETTED PERIMETER	0.498	m	
PARTIAL DEPTH	0.180	m	
ROUGHNESS	0.01		
Velocity (V):	2.245	m/s	
Flow(Q)	0.077	m^3/s	
Downstream channel material:	Natural grass, vegetation		
Max velocitiy for erosion control (Vmax):	1.1		(as per Table 1 TR2013/018)

TP10, 2003

Froude number (Fo)= $V/(gx\ dp)^{0.5}$	1.75		
Riprap Diameter (ds)= 0.25 x Do x Fo	0.10	m	150mm mean dia. (TR2013/018
Thickness of Riprap (DA)= 2 xds	0.20	m	300mm min. (TR2013/018)
Length of Riprap (La)= Do x (8 + 17 x LogFo	2.73	m	Adopt 3m
Width of Riprap (W_A)= 3 x Do	0.68	m	Adopt 1m
Height of Riprap (H)= crown of pipe +300m	0.53	m	

STORMWATER CALCULATIONS

Land off Ota Point Road, Whangaroa
For Engineeering Design Approval
in accordance with TR2013/018)

Reference	C0456
Originator	SH
Checker	EC
Date	13/11/2024

Pipe ID	Culvert 5 Outfall		
Upstream IL	14	mRL	
Downstream IL		mRL	
Pipe Length		m	
Pipe Dia. (Do):	0.525	m	
Slope:	1.350%	m/m	
DEPTH RATIO	0.8		0.8 = for Max Velocity
PARTIAL AREA	0.186	m^2	
PARTIAL WETTED PERIMETER	1.163	m	
PARTIAL DEPTH	0.420	m	
ROUGHNESS	0.01		
Velocity (V):	3.420	m/s	
Flow(Q)	0.635	m^3/s	
Downstream channel material:	Channel 1 (Rip Rap)		
Max velocity for erosion control (Vmax):	1.5		(as per Table 1 TR2013/018)

TP10, 2003

Froude number (Fo)= $V/(gx\ dp)^{0.5}$	1.74		
Riprap Diameter (ds)= 0.25 x Do x Fo	0.23	m	Adopt 250mm
Thickness of Riprap (DA)= 2 xds	0.50	m	300mm min. (TR2013/018)
Length of Riprap (La)= Do x (8 + 17 x LogFo	6.35	m	
Width of Riprap (W_A)= 3 x Do	1.58	m	
Height of Riprap (H)= crown of pipe +300m	0.83	m	

Project Ref:	C0456		**CAPACITY ANALYSIS**
Project Address:	Ota Point Subdivision		
Prepared By:	TI		**CHANNELS 1 - 4 SIZING / CAPACITY ANALYSIS**
Date:	31 October 2024	REV 1	

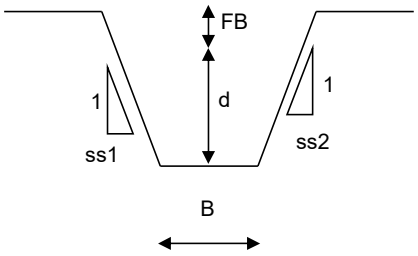
geologix consulting engineers

CHANNEL SIZING, BASED ON MANNINGS FORMULA

ID	INFLOW	SELECTED DESIGN FLOW (l/s)
CHANNEL 1	CULVERT 5	754
CHANNEL 2	CULVERT 2	148.7
CHANNEL 3	CULVERT 1	146
CHANNEL 4	375 PIPE(OTA PT RD) / Catchment A	290

CHANNEL 1 - SIZING / CAPACITY ANALYSIS

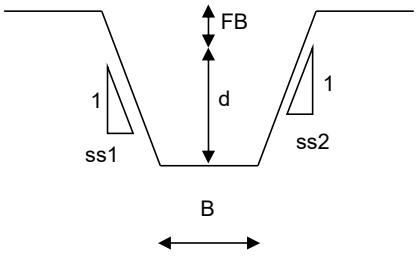
PARAMETERS: 14% Grade, 300mm DEPTH, 200mm FB, CHECK DAMS @ 5m interval			
MANNINGS ROUGHNESS COEFFICIENT		0.035	RIP RAP
BASE WIDTH, B		0.5	m
WATER DEPTH, d		0.3	m
SIDE SLOPE, SS1		3	1V:Zh
SIDE SLOPE, SS2		3	1V:Zh
CROSS SECTIONAL AREA, Across		0.42	m2
WETTED PERIMETER, P		2.397	m
HYDRAULIC RADIUS, Rhy		0.175	m
LONGITUDINAL SLOPE		0.14	m/m
FLOW VELOCITY IN CHANNEL, V		3.30	m/s
CHANNEL FLOW, Q		1387	l/s



CHECK AGAINST SELECTED FLOW RATE OK, FOS -> 1.84

CHANNEL 2 - SIZING / CAPACITY ANALYSIS

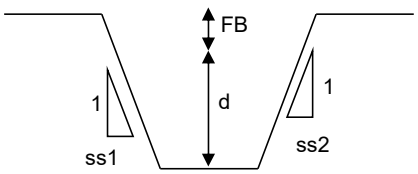
PARAMETERS: 20% Grade, 200mm DEPTH, 100mm FB, CHECK DAMS @ 5m interval			
MANNINGS ROUGHNESS COEFFICIENT		0.03	GRASS
BASE WIDTH, B		0	m
WATER DEPTH, d		0.2	m
SIDE SLOPE, SS1		3	1V:Zh
SIDE SLOPE, SS2		3	1V:Zh
CROSS SECTIONAL AREA, Across		0.12	m2
WETTED PERIMETER, P		1.265	m
HYDRAULIC RADIUS, Rhy		0.095	m
LONGITUDINAL SLOPE		0.2	m/m
FLOW VELOCITY IN CHANNEL, V		3.10	m/s
CHANNEL FLOW, Q		372	l/s



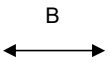
CHECK AGAINST SELECTED FLOW RATE OK, FOS -> 2.50

CHANNEL 3 - SIZING / CAPACITY ANALYSIS

PARAMETERS: 17% Grade, 200mm DEPTH, 100mm FB, CHECK DAMS @ 5m interval			
MANNINGS ROUGHNESS COEFFICIENT		0.03	GRASS
BASE WIDTH, B		0	m
WATER DEPTH, d		0.2	m
SIDE SLOPE, SS1		3	1V:Zh
SIDE SLOPE, SS2		3	1V:Zh
CROSS SECTIONAL AREA, Across		0.12	m2



WETTED PERIMETER, P		1.265	m
HYDRAULIC RADIUS, Rhy		0.095	m
LONGITUDINAL SLOPE		0.17	m/m
FLOW VELOCITY IN CHANNEL, V		2.83	m/s
CHANNEL FLOW, Q		340	l/s

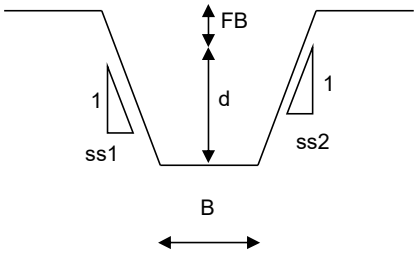


CHECK AGAINST SELECTED FLOW RATE OK, FOS -> 2.33

CHANNEL 4 - SIZING / CAPACITY ANALYSIS

PARAMETERS: 25% Grade, 200mm DEPTH, 100mm FB, CHECK DAMS @ 5m interval

MANNINGS ROUGHNESS COEFFICIENT		0.035	RIP RAP SWALE
BASE WIDTH, B		0	m
WATER DEPTH, d		0.2	m
SIDE SLOPE, SS1		3	1V:Zh
SIDE SLOPE, SS2		3	1V:Zh
CROSS SECTIONAL AREA, Across		0.12	m2
WETTED PERIMETER, P		1.265	m
HYDRAULIC RADIUS, Rhy		0.095	m
LONGITUDINAL SLOPE		0.25	m/m
FLOW VELOCITY IN CHANNEL, V		2.97	m/s
CHANNEL FLOW, Q		357	l/s



CHECK AGAINST SELECTED FLOW RATE OK, FOS -> 1.23

Project Ref:	C0456	**CAPACITY ANALYSIS**	geologix consulting engineers
Project Address:	Ota Point Subdivision		
Prepared By:	TI	**SWALE 1 - 4 - SIZING/ CAPACITY ANALYSIS**	
Date:	31 October 2024 REV 1		

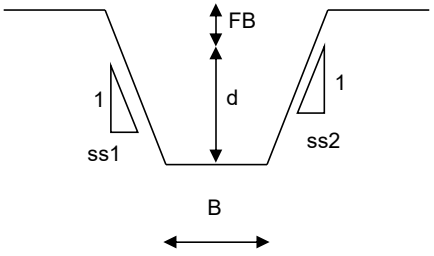
SWALE CHANNEL SIZING, BASED ON MANNINGS FORMULA

ID	catchments	flow (10% AEP)	flow (1% AEP)	Draining culverts	flow (max. capacity)	NET PEAK FLOW (10% AEP)	NET PEAK FLOW (1% AEP)
SWALE 1	B	359.72	546.84	-	0.00	359.72	546.84
SWALE 2	B + C	445.79	677.68	Culverts 2	157.80	287.99	519.88
SWALE 3	B + C + D	602.89	916.49	Culverts 2 & 3	259.10	343.79	657.39
SWALE 4	B + C + D + E	829.57	1261.09	Culverts 2 & 3 & 4	360.40	469.17	900.69

ESTIMATION OF FLOW VELOCITIES

SWALE 1, 2, 3, 4 - 10% AEP, 4% Grade, 350mm DEPTH

MANNINGS ROUGHNESS COEFFICIENT	0.035	RIP RAP
BASE WIDTH, B	0	m
WATER DEPTH, d	0.35	m
SIDE SLOPE, SS1	1	1V:Zh
SIDE SLOPE, SS2	4	1V:Zh
CROSS SECTIONAL AREA, Across	0.30625	m2
WETTED PERIMETER, P	1.938	m
HYDRAULIC RADIUS, Rhy	0.158	m
LONGITUDINAL SLOPE	0.04	m/m
FLOW VELOCITY IN CHANNEL, V	1.67	m/s
CHANNEL FLOW, Q	511	l/s

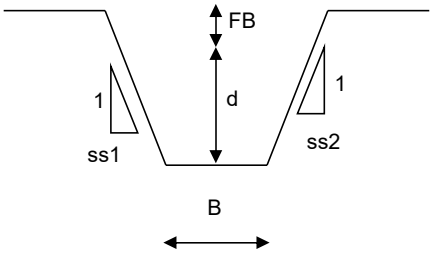


CHECK MAX 10 % AEP FLOW RATE OK, FOS -> 1.09

ESTIMATION OF FLOW VELOCITIES

SWALE 1, 2, 3, 4 - 1% AEP, 4% Grade, 450mm DEPTH

MANNINGS ROUGHNESS COEFFICIENT	0.035	RIP RAP
BASE WIDTH, B	0	m
WATER DEPTH, d	0.45	m
SIDE SLOPE, SS1	1	1V:Zh
SIDE SLOPE, SS2	4	1V:Zh
CROSS SECTIONAL AREA, Across	0.50625	m2
WETTED PERIMETER, P	2.492	m
HYDRAULIC RADIUS, Rhy	0.203	m
LONGITUDINAL SLOPE	0.04	m/m
FLOW VELOCITY IN CHANNEL, V	1.97	m/s
CHANNEL FLOW, Q	1000	l/s



CHECK MAX 1 % AEP FLOW RATE OK, FOS -> 1.11

Colebrook-White Calculation

Registered User: Single User License

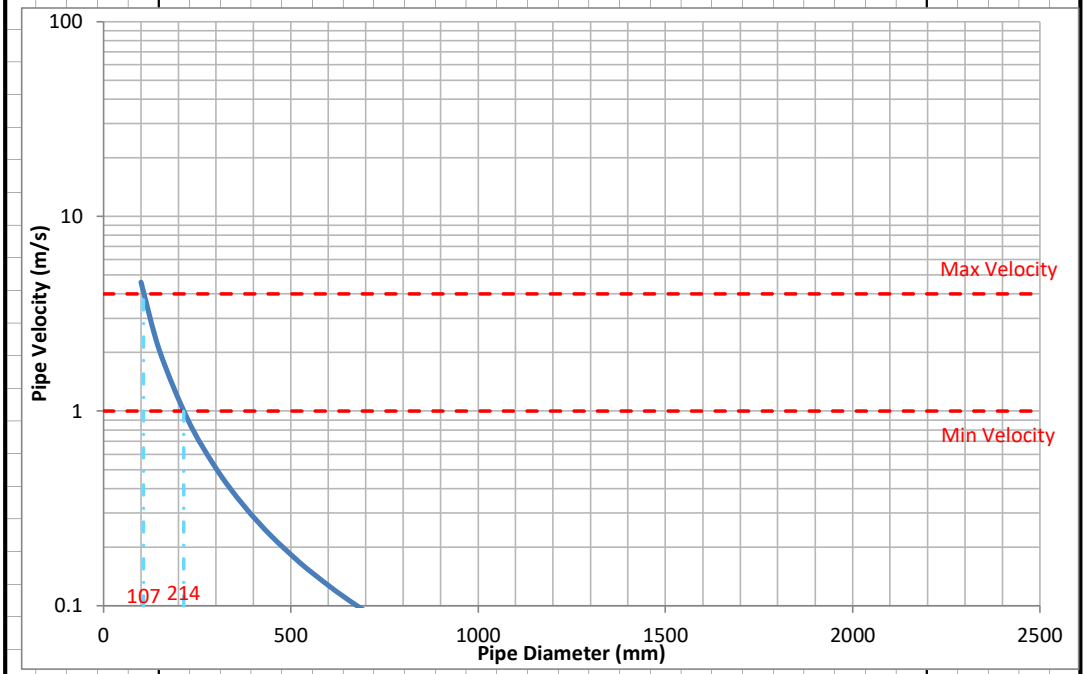
Project:	Ota Point - Subdivision		**By:**
Calculation:	Culvert 1 - Sizing for pre-dev 10% AEP		TI
	Colebrook-White Pipe Design		**Approved:**
Sheet Number:	1	**Date:** 31-Oct	SH

General Info		
Kinematic Viscosity (ν)	1.139	mm^2/s
Gravity (g)	9.80665	m/s^2

Pipe Info		
Roughness Coefficient (k_s)	0.6	mm

Required Flow	36	l/s
Min Velocity	1	m/s
Max Velocity	4	m/s

= 0.04 m^3/s



Suggested Pipe Sizes and Gradients

	Pipe Diameter	Full Flow Velocity (m/s)	Required Gradient (%)	Required Gradient (1 in X)
1	150	2.04	4.09	24.46
2				
3				
4				
5				
6				
7				
8				
9				
10				

Colebrook-White Calculation

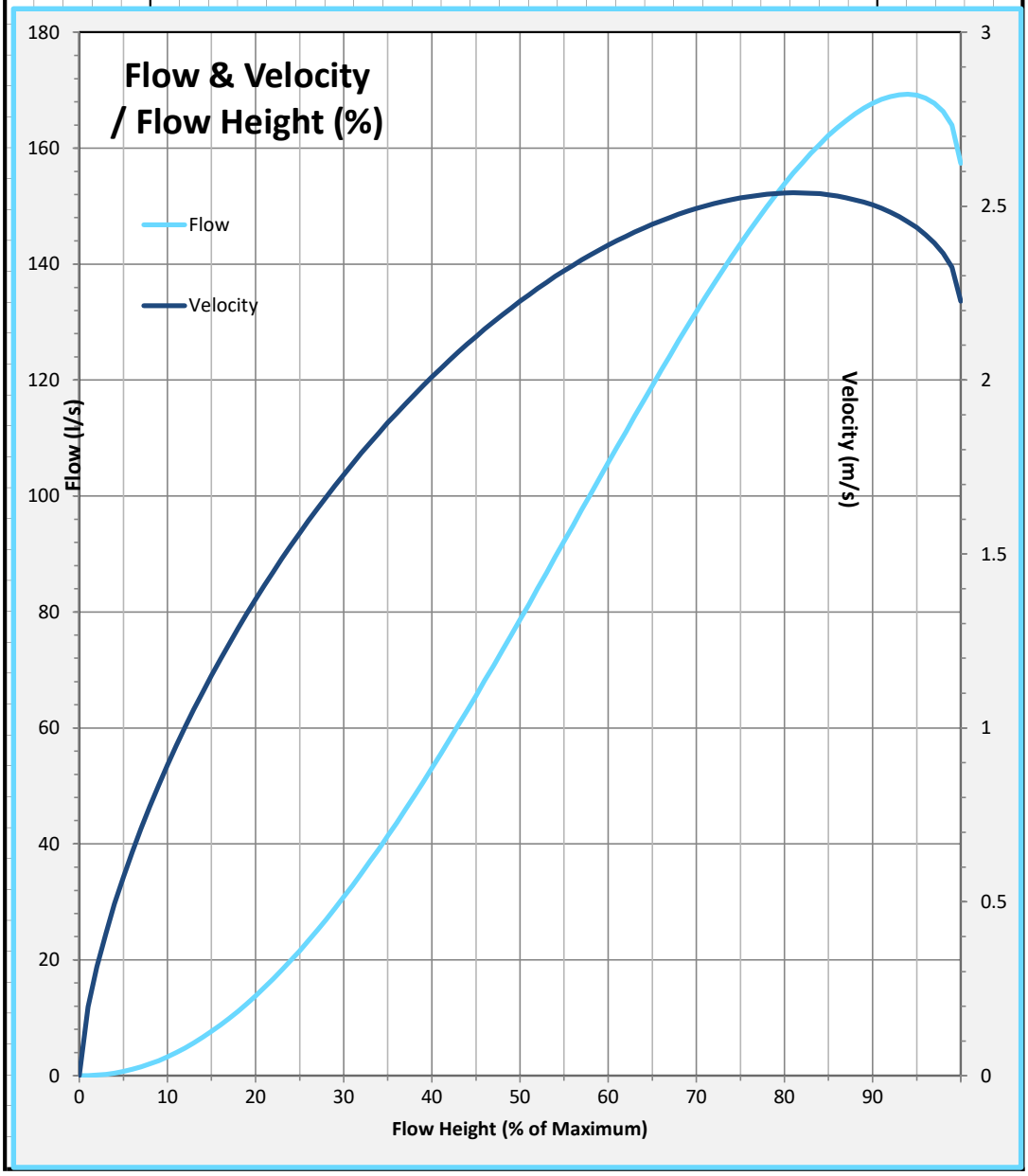
Project:	Ota Point - Subdivision		**By:**
Calculation:	Culvert 1 - Sizing for pre-dev 10% AEP		TI
			Approved:
Sheet Number:	2	**Date:**	31-Oct SH

ALTHOUGH, THE PIPE CAPACITY FAR EXCEEDS THE ANTICIPATED CATCHMENT PEAK FLOW, WE ARE AWARE OF AN EXISTING 375mm PIPE UNDER OTA POINT ROAD THAT DISCHARGES TOWARD THIS CULVERT (AND SCRUFFY DOME) AND HENCE HAVE OFFERED ADDITIONAL CAPACITY TO ALLOW FOR LARGER FLOW THAT MAY OCCUR.

Chosen Pipe Analysis

Pipe Diameter	300	mm
Pipe Gradient	2	%

				= 0.02 m/m
				or 1 in 50
Max Pipe Capacity at Full Flow:	157.4	l/s	Acceptable	= 0.16 m³/s
Max Flow at 93.8% Height:	169.3	l/s	Acceptable	= 0.17 m³/s
Velocity at Full Flow:	2.23	m/s	Acceptable	
Actual Velocity at 36 l/s:	1.79	m/s	Acceptable	
Max Velocity at 81.4% Height	2.54	m/s	Acceptable	



Colebrook-White Calculation

Registered User: Single User License

Project:	Ota Point - Subdivision		**By:**
Calculation:	Culvert 2 - Sizing for pre-dev 10% AEP		TI
	Colebrook-White Pipe Design		**Approved:**
Sheet Number:	1	**Date:** 31-Oct	SH

General Info		
Kinematic Viscosity (ν)	1.139	mm²/s
Gravity (g)	9.80665	m/s²

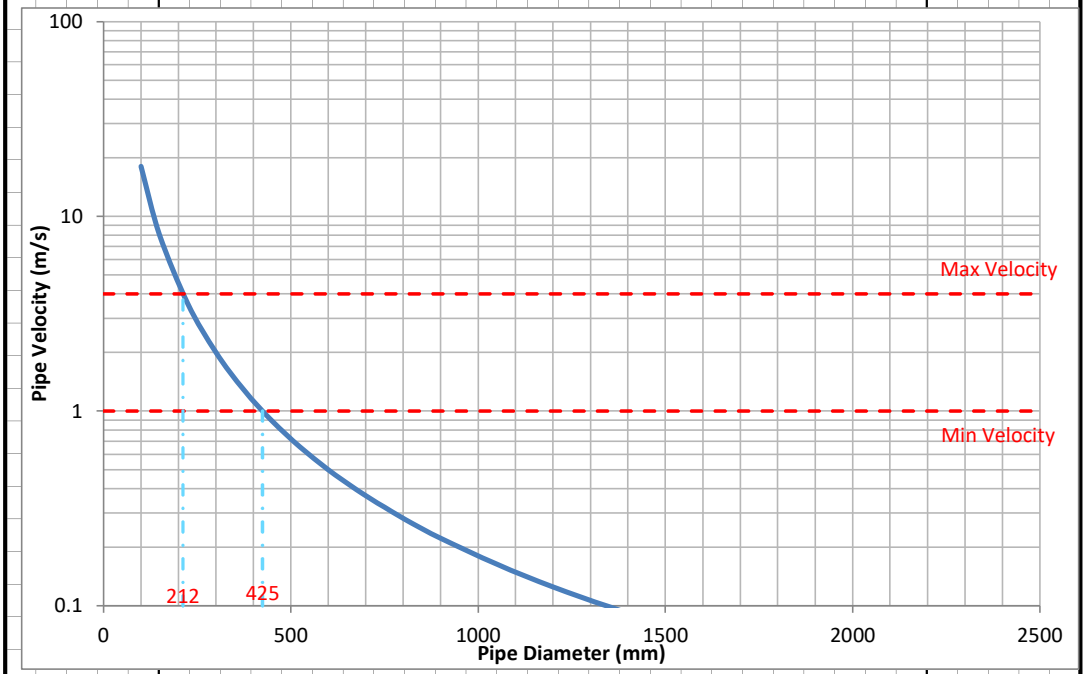
Pipe Info		
Roughness Coefficient (k_s)	0.06	mm

Required Flow	141.55	l/s
Min Velocity	1	m/s
Max Velocity	4	m/s

= 0.14 m³/s

THIS PIPE DRAIN IS SIZED TO ONLY CONVEY PRE-DEV FLOW FROM A PORTION OF CATCHMENT B THAT WOULD HAVE DRAINED TO THIS OLFP (AND THE WETLAND) IN THE PRE-DEVELOPMENT SITUATION.

THIS MEETS THE OBJECTIVE DESCRIBED IN SECTION 4.3.2 OF THE REPORT.



Suggested Pipe Sizes and Gradients

	Pipe Diameter	Full Flow Velocity (m/s)	Required Gradient (%)	Required Gradient (1 in X)
1	225	3.56	4.53	22.09
2	300	2.00	1.05	94.85
3	375	1.28	0.34	290.58
4				
5				
6				
7				
8				
9				
10				

Colebrook-White Calculation

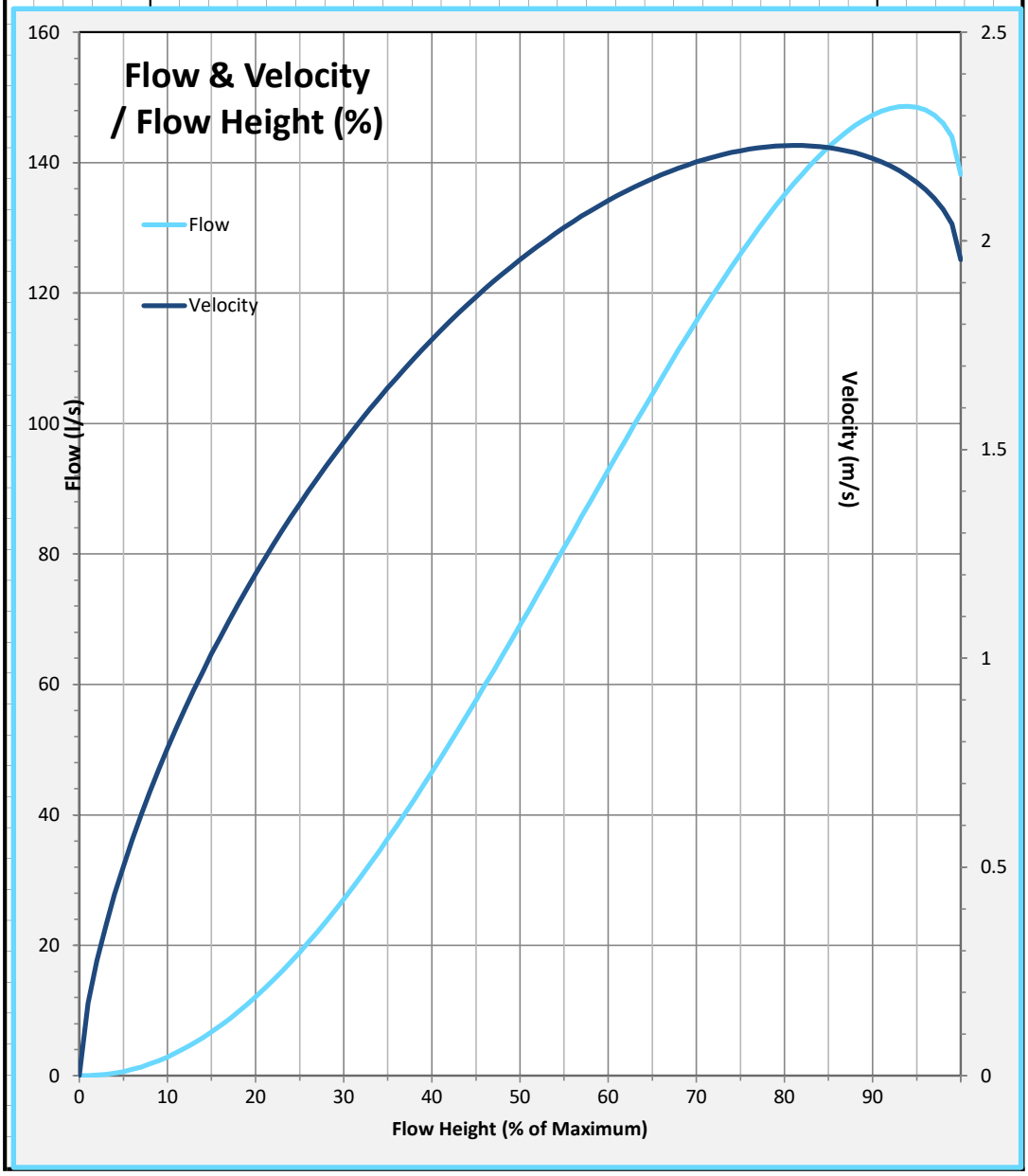
Project:	Ota Point - Subdivision				**By:**
Calculation:	Culvert 2 - Sizing for pre-dev 10% AEP				TI
					Approved:
Sheet Number:	2	**Date:**		31-Oct	SH

Chosen Pipe Analysis

Pipe Diameter	300	mm
Pipe Gradient	1	%

= 0.01 m/m
or 1 in 100

Max Pipe Capacity at Full Flow:	138.2	l/s	Too Small	= 0.14 m³/s
Max Flow at 93.8% Height:	148.7	l/s	Acceptable	= 0.15 m³/s
Velocity at Full Flow:	1.96	m/s	Acceptable	
Actual Velocity at 141.55 l/s:	2.23	m/s	Acceptable	
Max Velocity at 81.4% Height	2.23	m/s	Acceptable	



Colebrook-White Calculation

Registered User: Single User License

Project:	Ota Point Subdivision		**By:**
Calculation:	Culvert 3 - Sizing for pre-dev 10% AEP		TI
	Colebrook-White Pipe Design		**Approved:**
Sheet Number:	1	**Date:** 31-Oct	SH

General Info		
Kinematic Viscosity (ν)	1.139	mm²/s
Gravity (g)	9.80665	m/s²

Pipe Info		
Roughness Coefficient (k_s)	0.06	mm

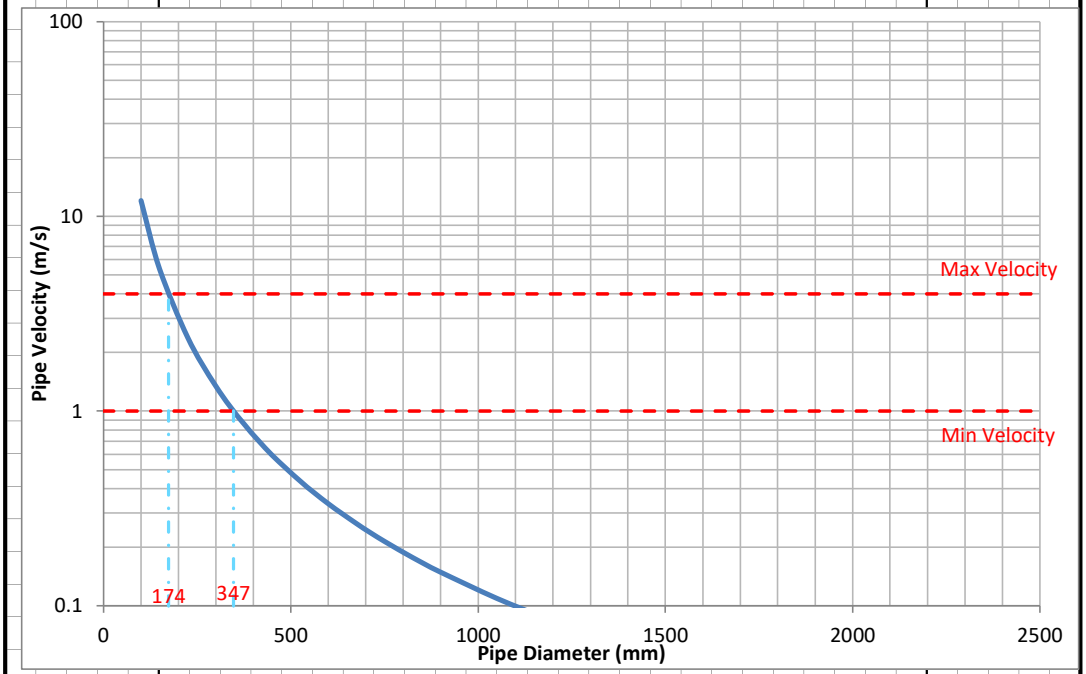
Required Flow	94.685	l/s
Min Velocity	1	m/s
Max Velocity	4	m/s

= 0.09 m³/s

THIS PIPE DRAIN IS SIZED TO ONLY CONVEY PRE-DEV FLOW FROM THAT WOULD HAVE DRAINED TO THIS OLFP (AND THE WETLAND) IN THE PRE-DEVELOPMENT SITUATION.

THE CATCHMENT C & D PRE-DEV PEAK FLOW IS SPLIT EQUALLY BETWEEN CULVERTS 3 & 4 TO DISPERSE THE FLOWS TOWARD THE WETLAND, SIMILAR TO THE PRE-DEVELOPMENT CONDITION.

THIS MEETS THE OBJECTIVE DESCRIBED IN SECTION 4.3.2 OF THE REPORT.



Suggested Pipe Sizes and Gradients

	Pipe Diameter	Full Flow Velocity (m/s)	Required Gradient (%)	Required Gradient (1 in X)
1	225	2.38	2.08	48.03
2	300	1.34	0.49	204.21
3				
4				
5				
6				
7				
8				
9				
10				

Colebrook-White Calculation

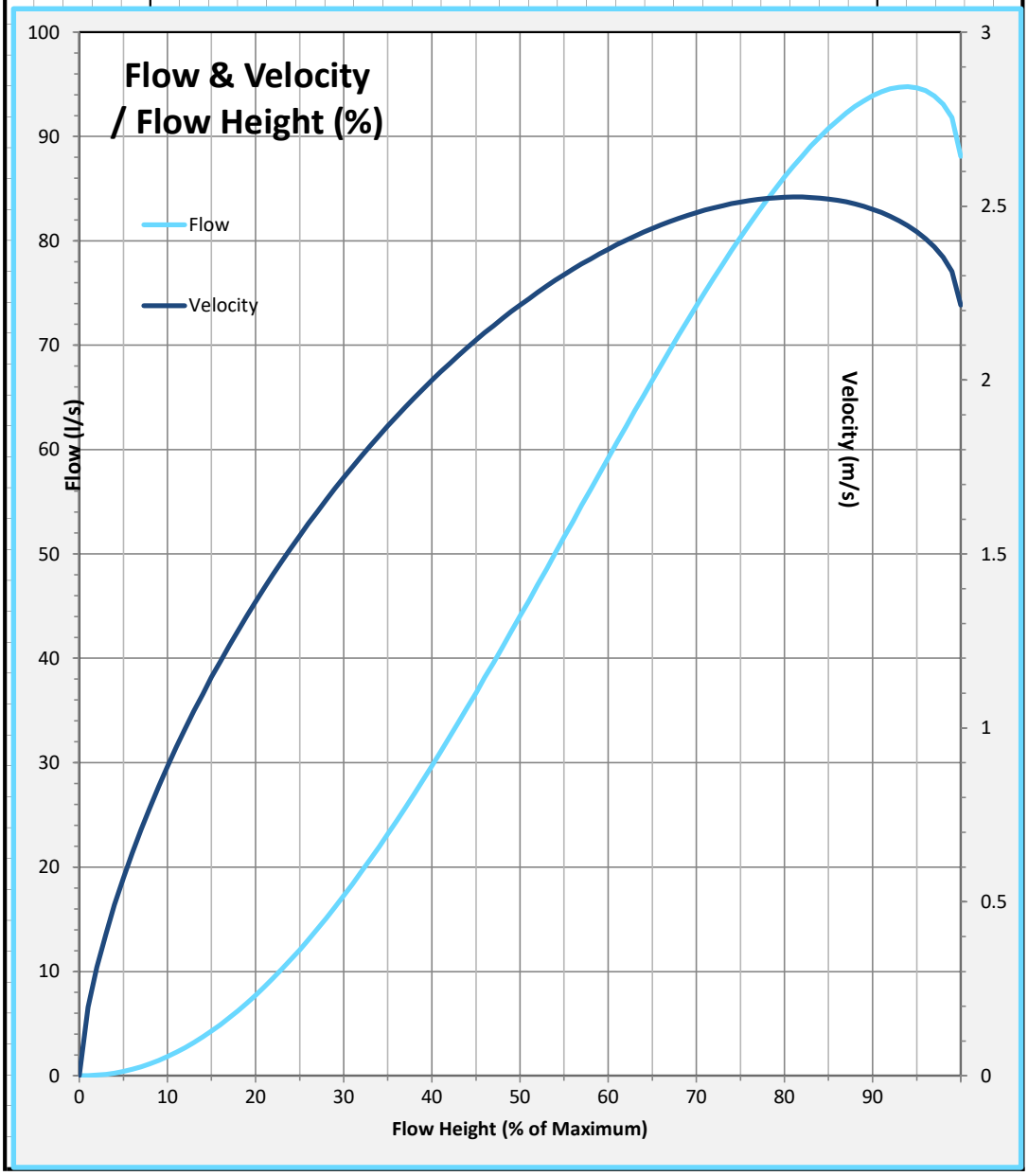
Project:	Ota Point Subdivision			**By:**
Calculation:	Culvert 3 - Sizing for pre-dev 10% AEP			TI
				Approved:
Sheet Number:	2	**Date:**	31-Oct	SH

Chosen Pipe Analysis

Pipe Diameter	225	mm
Pipe Gradient	1.8	%

= 0.02 m/m
or 1 in 55.6

Max Pipe Capacity at Full Flow:	88.1	l/s	Too Small	= 0.09 m³/s
Max Flow at 93.8% Height:	94.8	l/s	Acceptable	= 0.09 m³/s
Velocity at Full Flow:	2.22	m/s	Acceptable	
Actual Velocity at 94.685 l/s:	2.47	m/s	Acceptable	
Max Velocity at 81.4% Height	2.53	m/s	Acceptable	



Colebrook-White Calculation

Registered User: Single User License

Project:	Ota Point Subdivision		**By:**
Calculation:	Culvert 4 - Sizing for pre-dev 10% AEP		TI
	Colebrook-White Pipe Design		**Approved:**
Sheet Number:	1	**Date:** 31-Oct	SH

General Info		
Kinematic Viscosity (ν)	1.139	mm²/s
Gravity (g)	9.80665	m/s²

Pipe Info		
Roughness Coefficient (k_s)	0.06	mm

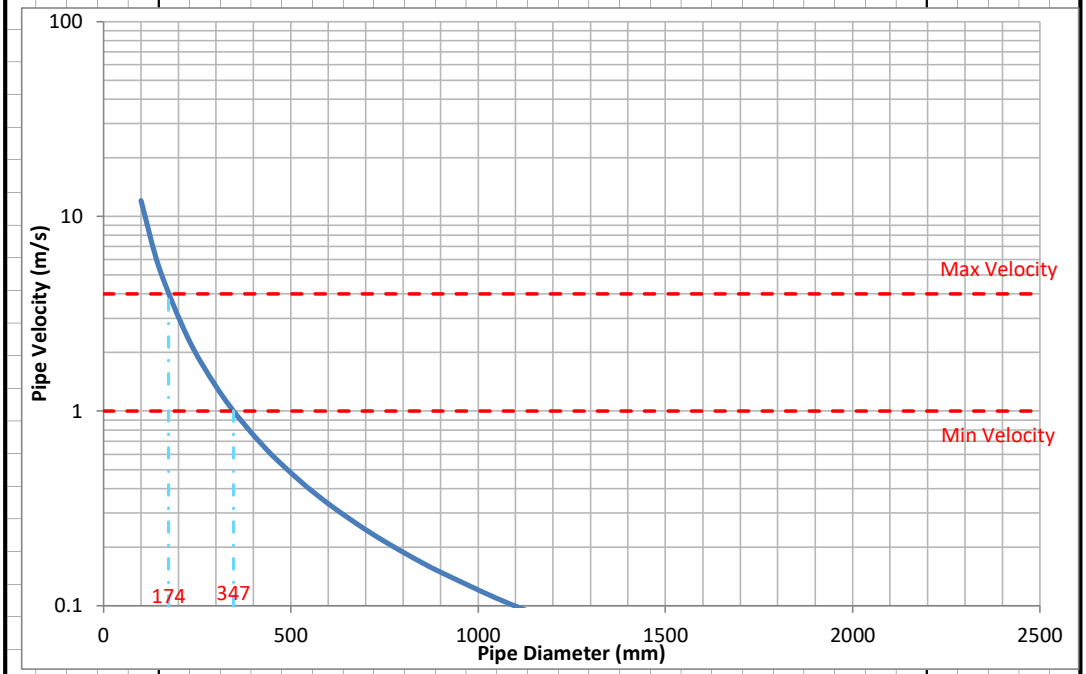
Required Flow	94.685	l/s
Min Velocity	1	m/s
Max Velocity	4	m/s

= 0.09 m³/s

THIS PIPE DRAIN IS SIZED TO ONLY CONVEY PRE-DEV FLOW FROM THAT WOULD HAVE DRAINED TO THIS OLFP (AND THE WETLAND) IN THE PRE-DEVELOPMENT SITUATION.

THE CATCHMENT C & D PRE-DEV PEAK FLOW IS SPLIT EQUALLY BETWEEN CULVERTS 3 & 4 TO DISPERSE THE FLOWS TOWARD THE WETLAND, SIMILAR TO THE PRE-DEVELOPMENT CONDITION.

THIS MEETS THE OBJECTIVE DESCRIBED IN SECTION 4.3.2 OF THE REPORT.



Suggested Pipe Sizes and Gradients

	Pipe Diameter	Full Flow Velocity (m/s)	Required Gradient (%)	Required Gradient (1 in X)
1	225	2.38	2.08	48.03
2	300	1.34	0.49	204.21
3				
4				
5				
6				
7				
8				
9				
10				

Colebrook-White Calculation

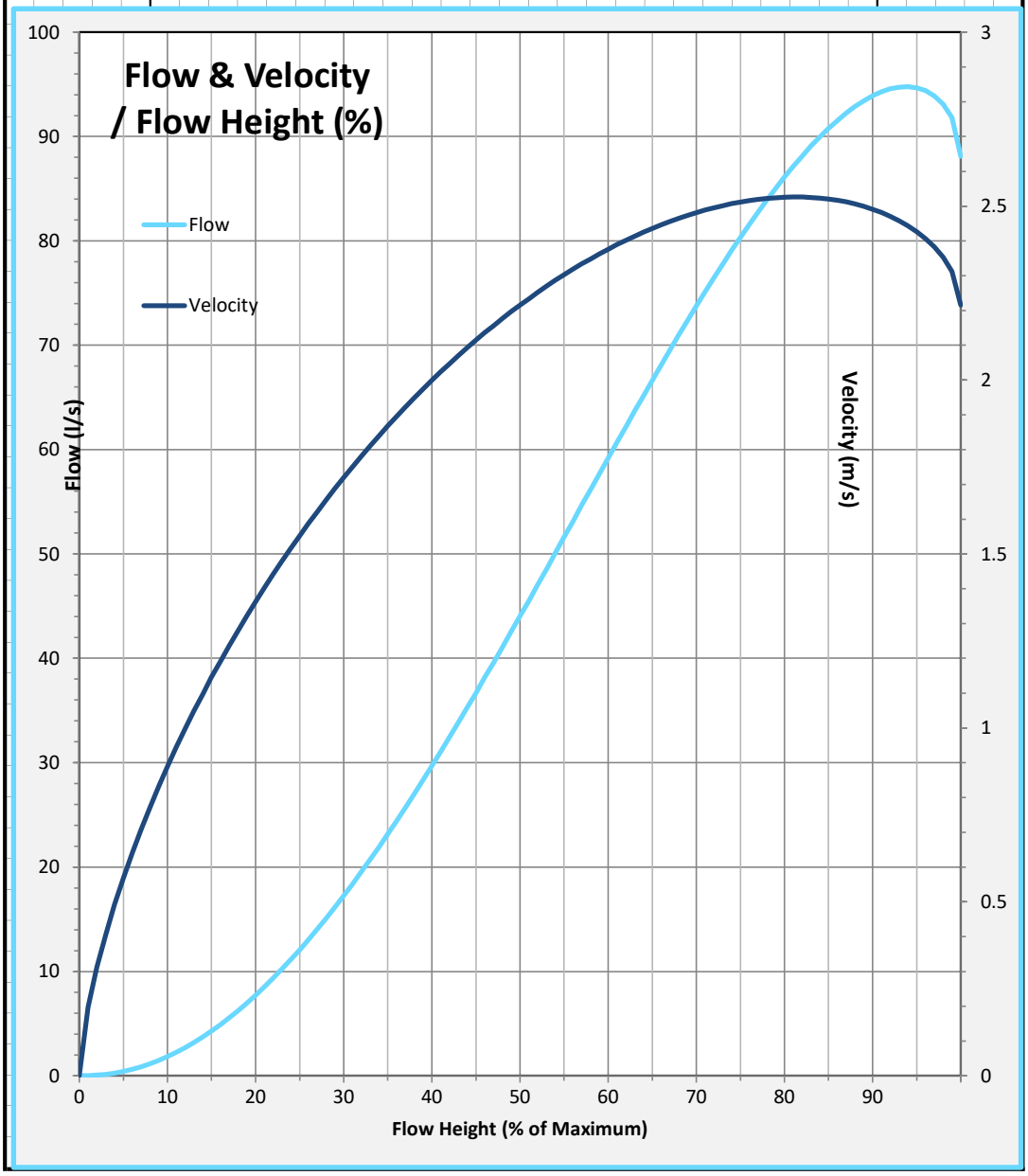
Project:	Ota Point Subdivision			**By:**
Calculation:	Culvert 4 - Sizing for pre-dev 10% AEP			TI
				Approved:
Sheet Number:	2	**Date:**	31-Oct	SH

Chosen Pipe Analysis

Pipe Diameter	225	mm
Pipe Gradient	1.8	%

= 0.02 m/m
or 1 in 55.6

Max Pipe Capacity at Full Flow:	88.1	l/s	Too Small	= 0.09 m³/s
Max Flow at 93.8% Height:	94.8	l/s	Acceptable	= 0.09 m³/s
Velocity at Full Flow:	2.22	m/s	Acceptable	
Actual Velocity at 94.685 l/s:	2.47	m/s	Acceptable	
Max Velocity at 81.4% Height	2.53	m/s	Acceptable	



Colebrook-White Calculation

Registered User: Single User License

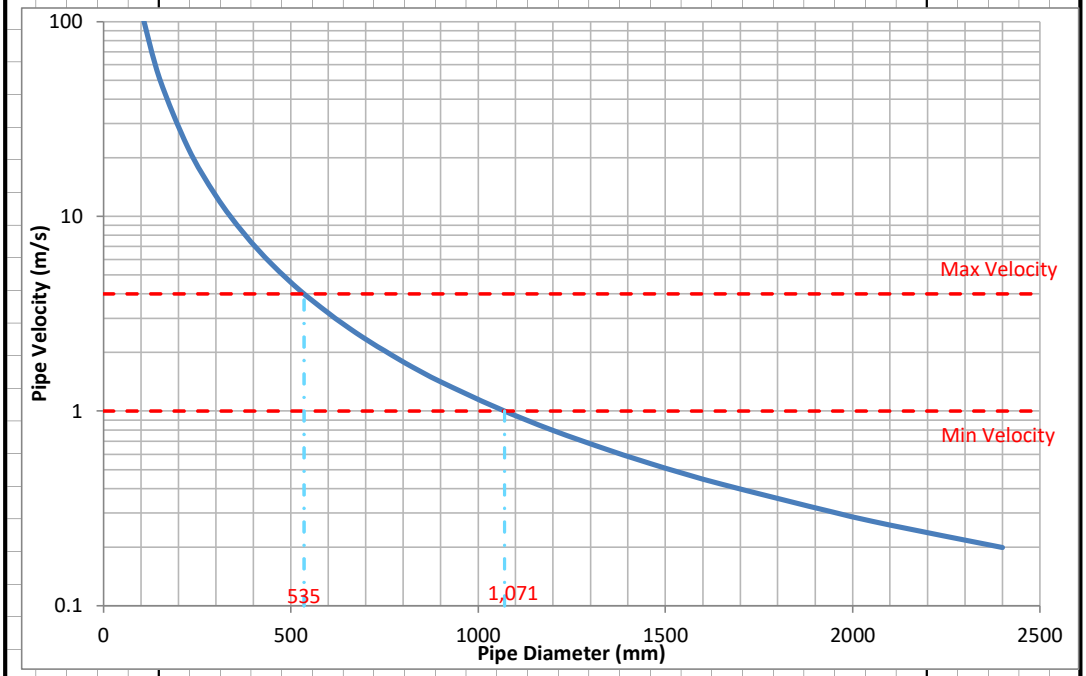
Project:	Ota Point Subdivision		**By:**
Calculation:	Culvert 5 - Sizing for post-dev 1% AEP		TI
	Colebrook-White Pipe Design		**Approved:**
Sheet Number:	1 **Date:**	31-Oct	SH

General Info		
Kinematic Viscosity (ν)	1.139	mm²/s
Gravity (g)	9.80665	m/s²

Pipe Info		
Roughness Coefficient (k_s)	0.06	mm

Required Flow	900.69	l/s
Min Velocity	1	m/s
Max Velocity	4	m/s

= 0.90 m³/s



Suggested Pipe Sizes and Gradients

	Pipe Diameter	Full Flow Velocity (m/s)	Required Gradient (%)	Required Gradient (1 in X)
1	600	3.19	1.12	88.93
2	675	2.52	0.62	161.32
3	750	2.04	0.36	274.26
4	825	1.68	0.23	442.51
5	900	1.42	0.15	683.90
6	1050	1.04	0.07	1474.14
7				
8				
9				
10				

Colebrook-White Calculation

Project:	Ota Point Subdivision		**By:**
Calculation:	Culvert 5 - Sizing for post-dev 1% AEP		TI
			Approved:
Sheet Number:	2	**Date:** 31-Oct	SH

SELECTED PIPE WILL DRAIN 10% AEP (PRIMARY SERVICE) AND MAJORITY OF THE 1% AEP, TO SUPPORT SECONDARY MITIGATION CONTROLS. A PORTION OF THE 1% AEP (150l/s) EXCEEDS THE PIPE CAPACITY AND WILL FLOW OVER THE ROAD TO THE RECEIVING ENVIRONMENT. THIS IS CONSIDERED A REAONSABLY SAFE AND MEETS THE FNDC STANDARDS FOR PRIMARY/SECONDARY FLOW CONTROLS

Chosen Pipe Analysis

Pipe Diameter	525	mm
Pipe Gradient	1.35	%

				or 1 in 74.1
Max Pipe Capacity at Full Flow:	700.9	l/s	Too Small	= 0.70 m³/s
Max Flow at 93.8% Height:	754.0	l/s	Too Small	= 0.75 m³/s
Velocity at Full Flow:	3.24	m/s	Acceptable	
Actual Velocity at 900.69 l/s:	3.24	m/s	Acceptable	
Max Velocity at 81.4% Height	3.69	m/s	Acceptable