Before the Hearings Panel
appointed by the Waimakariri District Council

under	the Resource Management Act 1991
in the matter of	Submissions and further submissions on the proposed Waimakariri District Plan Hearing Stream 12A: Commercial/Industrial, Oxford and surrounds, Pegasus Resort
and	Waghorn Builders Limited Submitter: 274.1

Evidence of Matt McLachlan
19 May 2024

EVIDENCE OF MATT MCLACHLAN REGARDING 131 MAIN STREET REZONING REQUEST

INTRODUCTION

1. My full name is Matthew Paul McLachlan. I am the General Manager – Land Development at Devcorp Limited, a privately owned company specialising in residential and commercial developments.

2. I hold the qualification of a Master's in Planning from Lincoln University. I have 24 years' professional experience within land development, including fourteen years of resource management and planning experience.

3. I have provided planning advice to Waghorn Builders for a number of years and am familiar with the site and surrounding environment.

4. I prepared the submission (274.1) on the proposed Waimakariri District Plan seeking that the zoning be amended from Large Lot Residential Zone to General Residential Zone. My evidence builds on this assessment.

CODE OF CONDUCT

5. While this is not a hearing before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

SCOPE OF EVIDENCE

6. This evidence supports the rezoning of 131 Main Street, Oxford (the Site) under the proposed Waimakariri District Plan from Large Lot Residential Zone (LLRZ) to General Residential Zone (GRZ).

7. My evidence is structured as follows:

    - Site description and submission.
    - Statutory Framework
    - Assessment of environmental effects of the proposed rezoning.
    - Part 2 of the RMA.

- Conclusion.

8. In preparing my evidence I have reviewed the following:

   - Council's s42A rezoning report (Oxford and Settlement Zone) and supporting documents.

SITE DESCRIPTION AND SUBMISSION

Site and Surrounding Environment

9. The site is legally described as Lot 1 DP 80871 being 0.2363 hectares in area and located on the southern side of Main Street at the western end of the Oxford township. The site is shown in Figure 1 below.

Figure 1: Location Diagram

10. The site is currently zoned Residential 2 and Residential 4A under the Operative District Plan. The Residential 2 zone occupies **most of the living environment in the district's towns. It is characterised by the single storey detached dwelling, surrounded by lawns and gardens. The streets are open and spacious and generally carry only local traffic**.

11. The Residential 4 zones are based on the former Rural-Residential Zone. The zones provide **a living environment within the rural area. The nature of these zones has increasingly taken on urban characteristics. People value them as very low-density residential sites in a rural setting. Increasingly it is expected that servicing standards will mirror**

urban rather than rural settings. The difference between the 4A Zone and 4B Zone relates to lot sizes.

12. The surrounding area is residential in nature, characterised by large single storey detached dwellings on medium to large sites with low site coverages.

13. Resource consent (RC225255 / RC225256) for a three-lot subdivision was granted in November 2023 **(ATTACHMENT 1)** and includes:

- One complying Residential 2 allotment (Lot 2).
- Two undersized residential allotments – one each in the Residential 2 Zone (Lot 1) and Residential 4A Zone (Lot 3).
- Corner rounding (Lot 5).
- Soil remediation on Lot 3.
- Construction of non-complying vehicle crossing (Lot 1).
- Relocate a dwelling on undersized residential allotments (Lot 1 and Lot 3).

Figure 2: RC225255

Submission

14. The submitter opposes the proposed LLRZ and seeks rezoning of the land to GRZ to reflect the recently granted resource consent. The submitters seek to

rezone the entirety of their property to GRZ, which will allow for one additional residential allotment as shown in Figure 3 below.

Figure 3: Possible future subdivision of Lot 3 RC225255

15. This split zoning is merely a continuation of the alignment of the adjoining property boundary and follows no physical feature on-site. There is no valid environmental, social, or economic reason for retaining this split zoning on the property, with the GRZ representing a more efficient and sustainable use of the land and retaining the urban form of the Oxford Township.

16. The rezoning would adopt, without amendment, the proposed Waimakariri District Plan provisions for the GRZ.

STATUTORY FRAMEWORK

Resource Management Act 1991

17. The Resource Management Act (RMA) provides the legislative framework that defines the requirements for submissions to District Plan reviews. As this proposal includes land for re-zoning it is appropriate to address these requirements as they relate to the subject site.

18. Schedule 1 of the RMA provides the circumstances and requirements of preparation, change, and review of policy statements and plans. Clause 22 of Schedule 1 provides the requirements for changes to the District Plan.

19. Section 74 and 75 set out the matters which must be considered when preparing a District Plan. I understand that the following matters must be considered:

- The functions of a territorial authority under section 31.
- The provisions of Part 2.
- An evaluation report prepared in accordance with section 32.
- Any national policy statement, a coastal policy statement and a national planning standard.
- Any regulations.

20. In addition, a territorial authority shall have regard to:

- Any proposed regional policy statement or regional plan.
- Any management plans and strategies prepared under other Acts.
- Any management plans and strategies including iwi management plans.

21. Section 31 of the RMA outlines the Council functions for giving effect to the Resource Management Act.

22. Section 32 establishes a procedure to evaluate the appropriateness of the proposed provisions, including objectives, policies, rules and other methods. Noting that the Council has provided its own s32 assessments, which do not propose re-zoning the site, a further evaluation under s32AA is attached as **ATTACHMENT 2.**

23. This request to re-zone the site from LLRZ to GRZ has been prepared in accordance with the relevant provisions of the RMA as described above, including:

- The purpose and reason for the request.
- The requirement to have regard to the Canterbury Regional Policy Statement.
- The requirement to take into account any relevant planning document recognised by Te Runanga o Ngāi Tahu lodged with the Council.
- Provisions of the proposed Waimakariri District Plan.
- Assessment of Environmental Effects (AEE).

National Policy Statements

24. National policy statements (NPSs) enable central government to prescribe objectives and policies for matters of national significance which are relevant to achieving the sustainable management purpose of the RMA. Matters of national significance may include matters outside of those listed section 6 of the RMA.

25. The NPS for Highly Productive Land, and Urban Development are relevant to the proposed rezoning request.

26. I do not intend to cover these in any detail within my evidence. Moreover, I confirm my general agreement with the assessment provided within the Council's s42A report.

National Environmental Standards

27. National environmental standards (NESs) are regulations which prescribe technical standards, methods or requirement for land use and subdivision. They can set a 'starting point', allowing councils to impose more lenient standards, or it may be absolute, so that local rules cannot be any more lenient or stricter than the standard (s43B of the RMA).

28. Although there are several NESs currently operative, the NES for Assessing and Managing Contaminants is considered relevant to this proposal.

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

29. The NES for Assessing and Managing Contaminants in Soil to Protect Human Health has been addressed through the Detailed Site Investigation (DSI) included in **ATTACHMENT 3.**

30. The DSI found the soils to pose a no more than minor risk to human and ecological receptors and it was unlikely that any HAIL activities have occurred on the site. Contaminated site soils will be remediated for the future safety and residential occupation of Lot 3 prior to the completion of the development. The Remedial Action Plan has been prepared and included as **ATTACHMENT 4.**

31. It is considered that no further investigation is required at the time of this re-zoning proposal.

Canterbury Regional Policy Statement

32. Under section 75(3)(c) of the RMA, district plans are required to give effect to regional policy statements.

33. The Canterbury Regional Policy Statement (CRPS) sets out objectives, policies and methods to resolve resource management issues in Canterbury. The relevant objectives and policies of the CRPS have been included as **ATTACHMENT 5.**

34. Overall, the proposed rezoning is consistent with the relevant objectives and policies in Chapter's 5 and 11 of the CRPS.

Proposed Waimakariri District Plan

35. The objectives and policies in the proposed District Plan are considered relevant and an assessment provided in **ATTACHMENT 6.**

36. Based on the assessment provided in **ATTACHMENT 6,** the proposal to rezone the site from LLRZ to GRZ is consistent with the relevant objectives and policies and achieves the policy direction of the proposed Waimakariri District Plan.

ASSESSMENT OF ENVIRONMENTAL EFFECTS OF THE PROPOSED REZONING

37. The Council's s42A report includes engineering and greenspace advice on the rezoning request, with the key findings summarised in the s42A report[1].

38. The submitter considers that the engineering and greenspace matters have already been addressed through the approval of RC225255 / RC225256 for the underlying subdivision. It is reiterated that the proposed rezoning will allow for one more residential allotment. The key matters are discussed below.

Transport

39. As part of the engineering approval for the underlying subdivision, the applicant is proposing to urbanise Cheapside Street to the south boundary of Lot 3. A copy of the engineering plan is included as **ATTACHMENT 7.**

40. I agree with Mr Binder's comments in that proposed rezoning will not create any major traffic effects.

[1] Council s42A Report, Para 126 to 138

Servicing

41. The provision of new infrastructure is a fundamental component of any urban development. No servicing constraints have been identified for the proposed rezoning.

42. The submitter is proposing no earthworks or filling other than what is required for the Cheapside Street upgrade and vehicle access to the new residential dwellings. The development and rezoning will continue to maintain any existing overland flow paths.

43. Therefore, any adverse effects are less than minor.

Geotechnical

44. Geotechnical testing was completed as part of RC225255 / RC225256 **(ATTACHMENT 8).** The report concluded that:

    … under Section 106 (1) of the RMA, that there are no reasons from a geotechnical perspective that the site is considered unsuitable for development, provided any development is undertaken with appropriate engineering design measures. This is especially relevant considering the site will be located within a Fault Awareness Area (FAA), and a risk-based approach to constructing residential developments within the Oxford township needs to be taken. Our Geotechnical Statement of Professional Opinion forms Appendix F.

45. The subdivision consent includes a specific condition relating to geotechnical requirements:

    The Consent Holder shall engage a suitably qualified Chartered Professional Engineer (CPEng) with experience in residential development to design specific foundations for any new dwelling. The report shall reference and consider the conclusions of the Geotechnical Consultants Report issued 18 April 2023, saved to TRIM 230615088259.

46. This condition is subject to a consent notice to be registered on the new Record of Title for Lots 1 to 3. If Lot 3 was further subdivided under the GRZ provisions, the consent notice will continue to apply.

47. Therefore, the geotechnical matters for the site have already been considered and agreed under RC225255 / RC225256. Any geotechnical effects have been mitigated with the imposition of a consent notice that requires specific foundation design for proposed housing on proposed new allotments.

Hazards

48. As per RC225255 / RC225256, the proposed dwellings on Lots 1 and 3 will have a minimum floor level set no lower than 500 mm above the modelled 1 in 200-year (0.5% AEP) flood depth at any point intersecting the building footprint.

49. The two dwellings each have an approved building consent (BC230748 and BC231254) and a set floor level. Both dwellings will be on a piled foundation to allow for stormwater to flow through the site in a storm event.

50. Potential flooding and drainage effects have been accounted for as a consent notice requiring minimum floor levels for proposed dwellings on the site in respect of Lots 1 and 3 has been included. This will be no different for an additional dwelling if Lot 3 is further developed.

51. Therefore, any adverse effects are no more than minor.

Greenspace

52. I agree with the Councils advice in that the rezoning submission raises no open space or community green space matters of relevance.

Conclusion

53. As stated above, the engineering and greenspace matters have already been addressed through the approval of RC225255 / RC225256 for the underlying subdivision.

PART 2 OF THE RMA

54. Section 74 of the act requires the rezoning request to be assessed under the provisions of Part 2 of the Act. Part 2 is the overarching purpose and principles of the Act.

55. Section 5 sets out the purpose of the RMA, that being to promote sustainable management of natural and physical resources.

56. As set out within the above assessment the proposal will provide for people and communities social, economic wellbeing by providing an efficient and consolidated development. The site is seen as a natural extension to the adjoining residential area on a site that is already ‘half’ located within the proposed GRZ. Any adverse effects can be avoided, remedied or mitigated.

57. Section 6 identifies matters of national importance to be recognised and provided for. It is considered that none of these matters are relevant to the proposed re-zoning.

58. Section 7 sets out the other matters which regard must be given towards. The proposal has considered these 'other matters' as set out within the above assessment of effects; this includes the fact that the proposal is an efficient use of the natural resource, will maintain and enhance amenity values and maintain the quality of the surrounding environment.

59. Section 8 requires persons to take into account the principles of the Treaty of Waitangi. It is considered that the proposed rezoning is consistent with the principles of the Treaty of Waitangi.

60. Overall, the proposal to re-zone the site from LLRZ to GRZ will achieve the principle and purpose of Part 2 of the RMA.

CONCLUSION

61. Waghorn Builders (274.1) is providing supporting information to their submission to the Waimakariri District Plan review to support the request to re-zone their site from LLRZ to GRZ. The proposed rezoning will provide one additional residential allotment.

62. No changes are proposed to the Objectives, Policies and Rules of the proposed Waimakariri District Plan.

63. I consider that the potential adverse effects of the requested rezoning of the land (to GRZ) can or will be avoided, remedied or mitigated to an acceptable standard.

64. In terms of section 32, the requested zoning of the land is the most appropriate method for achieving the objective of the proposal and the corresponding benefits will outweigh any potential costs.

65. In conclusion, the requested rezoning is an appropriate, efficient and effective means of achieving the purpose of the Resource Management Act.

Dated: 19 May 2024

_____

Matt McLachlan

ATTACHMENT 1 – RC APPROVAL PACKAGE RC225255 / RC225256

Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

Our Reference: RC225255/RC225256/231026170667
Valuation Reference: 2153228500

31 October 2023

Devcorp Ltd
17 Sir Gil Simpson Drive
CHRISTCHURCH

Attention: M McLachlan

Dear Matt

DECISION ON RESOURCE CONSENT APPLICATION
GLOVEHORN LIMITED - 131 MAIN STREET OXFORD

Please find enclosed a copy of the decision reached by the Officer under delegated authority from the Council on the above application.

We also enclose information relating to rights of appeal, lapsing of consent (where applicable), and other legal requirements.

Yours faithfully

Claire Mckeever
CONSULTANT PLANNER

Encl

Cc: jake@waghornbuilders.co.nz

WAIMAKARIRI DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application lodged by **Glovehorn Limited** for a resource consent under Section 88 of the aforementioned Act.

APPLICATION

The proposal at 131 Main Street, Oxford, as originally applied for on 8 August 2022 (TRIM 220810136813) by Dev Corp Limited on behalf of the Applicant, Glovehorn Limited, was for a four allotment subdivision with associated land use consent for the relocation of two houses onto two proposed new allotments in the Residential 4A Zone at the rear of the site. The proposal would create two allotments in the Residential 2 Zone, one vacant and one around the existing dwelling on the site. The application did not propose to comply with density requirements of either the Residential 2 or Residential 4A zones. The associated land use consent to relocate two dwellings to the proposed Residential 4A zone allotments would also therefore not comply with Residential 4A density expectations.

Following a comprehensive Request for Further Information and meeting with Council Senior Planning staff, the Applicant has now (May 2023) revised the application to propose a three allotment residential subdivision and land use which incorporates:

- the vesting of corner rounding (8m² of legal road) on the corner of Main Street and Cheapside Street in the north-western corner of the site (proposed Lot 5)
- one allotment in the Residential 4A zone with an area of 1152m² (proposed Lot 3)
- two allotments in the Residential 2 Zone with areas of 577m² and 625m² (proposed Lots 1 and 2 respectively)
- Proposed Lots 1 and 3 will not meet the minimum net areas for the Residential 2 (minimum 600m^2) or Residential 4A zones (minimum 2500m²).
- The two relocated dwellings are now proposed in the Residential 2 and Residential 4A Zones (on proposed Lots 1 & 3)
- Individual access is proposed to be provided to Lots 1 – 3 from Cheapside Street only and no Right of Ways (shared access) is proposed.
- Services to be provided to water and wastewater reticulation in Cheapside Street, with additional stormwater to be disposed to ground via soakpits.
- Easements in Gross in favour of Council are proposed along the eastern boundary of the site.
- The existing shed and garage on the site are proposed to be removed.

Diagram 1: Proposed Application Plan

EXISTING ENVIRONMENT/ BACKGROUND INFORMATION

Diagram 2: Site location (source WDC EPlan).

The site is located in Oxford at 131 Main Street (Lot 1 DP 80871; Record of Title CB46B/975), on the corner of Main Street (to the north) and Cheapside Street (to the west). The site is generally rectangular in shape, as shown in Diagram 2 above, with a total area of 2,362m². The front half of the site is Residential 2 zone, with the rear of the site zoned as Residential 4A zone, as shown below in Diagram 3.

Diagram 3: Operative District Plan zones (Source WDC EPlan)

Main Street is classified as a Strategic Road and Cheapside Street is classified as a Local Road. There is an existing dwelling in the centre of the site, with various outbuildings to the rear of the section. The southern part of the section is a grassed paddock. The primary vehicle access to the existing dwelling is from Cheapside Street, as shown in Diagrams 5 and 6 below.

Diagram 4: Google Street View: Main Street Oxford

Diagram 5: Google Street View: Cheapside Street and site to the left

Diagram 6: Cheapside Street existing vehicle entrance

Cheapside Street does not have kerb and channel, nor a formed vehicle entrance crossing to the site.
As can be seen from Google street view (Diagram 4 and 5 – dated June 2023), the site is fenced along the Main Street and Cheapside Street boundaries. Site photos were provided as Appendix 3 of the consent application, however these images are now out of date.
The site is serviced for reticulated water and wastewater services maintained and operated by Council from Cheapside Street. Stormwater is currently disposed to ground on the site.
The application identifies the site is located within the 1 in 200 year flood zone with a 500mm (0.5m) ponding depth on the site, as recorded in Council's GIS system.

DECISION

The Delegated Officer, on the 31st of October 2023, approved:

Subdivision – RC225255

THAT pursuant to Section 104D of the Resource Management Act 1991, consent be granted to undertake:

- A three lot subdivision involving one residential complying lot in the Residential 2 Zone (Lot 2) and two undersized residential allotments in the Residential 2 zone (Lot 1) and the Residential 4A zone (Lot 3), including the vesting of road for the purpose of corner rounding (Lot 5);
- Soil remediation on Lot 3 as part of the subdivision;
- The construction of a non-compliant vehicle crossing for Lot 1;

at 131 Main Road Oxford being a subdivision of Lot 1 DP 80871 as a **Non-Complying activity** subject to the following conditions which are imposed under Sections 108 and 220 of the Act:

1. Application Plan

1.1 The activity shall be carried out in accordance with the attached approved application plans stamped RC225255/RC225256.

2. Standards

2.1 All stages of design and construction shall be in accordance with the following standards (and their latest amendments) where applicable:

- Waimakariri District Council Engineering Code of Practice
- Waimakariri District Council Stormwater Drainage and Watercourse Protection Bylaw (2018)
- Erosion & Sediment Control Toolbox for Canterbury
- NZS 4404:2010 Land Development and Subdivision Infrastructure
- NZS 4431:2022 Engineered Fill Construction for Lightweight Structures
- NZTA Traffic Control Devices Manual
- New Zealand Transport Agency standards
- Relevant Austroads Guides & Standards
- NZS 6803:1999 Acoustics for Construction Noise
- GermanDIN4150 Standard, Part 3 (1999), Effects of Vibration on Structures
- New Zealand Drinking Water Standards 2005 (Revised 2018)
- AS/NZS 2845.1:2010 Water Supply: Backflow Prevention Devices: Materials, Design and Performance requirements
- New Zealand Industry Standard: Field Testing of backflow prevention devices and verification of air gaps
- New Zealand Pipe Inspections Manual (4th Edition)

3. Easements

3.1 All services, including open drains, water races and access ways, serving more than one lot or traversing lots other than those being served and not situated within a public road or proposed public road, shall be protected by easements. All such easements shall be granted and reserved.

3.2 The stormwater drain on the north and east side of the property shall be located and wholly contained within the easements created, and the pipe will be re-aligned as required at the consent holder's expense. The pipe size shall be confirmed before the re-alignment.

4. Supervision and Setting Out

4.1 The Consent Holder shall, prior to the commencement of any works, engage a Chartered Professional Engineer or Registered Professional Surveyor to manage the construction works, including ensuring a suitably qualified and experienced person oversees all engineering works and setting out. Lot numbers shall be clearly marked on site.

4.2 The Consent Holder shall ensure the supervising Engineer/Surveyor supplies to Council a construction review certificate signed by a Chartered Professional Engineer or Registered Professional Surveyor, stating that all works and services associated with the subdivision have been installed in accordance with the approved engineering plans and specifications. The "As Built" plans shall be stamped as a true and accurate record of all works and services as constructed. The construction review certificate

and stamped As Built plans shall be supplied to subdivapp@wmk.govt.nz prior to requesting the Section 224(c) Conditions Certificate.

5. Earthworks

5.1 Any areas of fill or earthworks shall be certified in accordance with NZS 4431.

5.2 The Consent Holder shall ensure earthworks involving reshaping or filling do not create ponding of stormwater on any adjacent land in separate ownership and that surface runoff is not altered, impeded or increased at the site boundary.

5.3 The earthworks shall not block, alter, or redirect existing or natural overland flow paths, and shall not block or redirect drains, unless approved by the WDC Development Manager.

5.4 The Consent Holder shall maintain a register of the source of all clean fill materials imported onto the site. The Consent Holder shall provide the register to Council at subdivapp@wmk.govt.nz, if requested.

5.5 The Consent Holder shall ensure stockpiles remaining for a period of time exceeding 2 months shall be no greater than 3 metres high, shaped and grassed suitable for mowing.

5.6 During all earthworks the Consent Holder shall employ dust containment measures, such as watering, to avoid off site nuisance effects created by dust.

5.7 All rubbish, organic or other unsuitable material shall be removed off site to an approved disposal facility where this material can be legally disposed.

6. Construction Hours and Noise

6.1 The Consent Holder shall ensure all construction operations shall be limited to 7 am to 6 pm Monday to Saturday. No construction work shall take place on Sundays or Public Holidays.

6.2 Construction noise shall not exceed the recommended limits specified in, and shall be measured and assessed in accordance with, the provisions of NZS: 6803: P1999 “Measurement and Assessment of Noise from Construction, Maintenance, and Demolition Work”. Adjustments and exemptions provided in clause 6 of NZS: 6803: P1999 shall apply.

7. Environmental Management

7.1 Prior to any works commencing on site the Consent Holder shall provide an Environmental Management Plan (EMP) to the Council at subdivapp@wmk.govt.nz for approval. The EMP shall detail:

a) the methodology of works and the environmental controls in place to limit effects from issues involving flooding, dust, noise and other pollutants;

b) an Erosion and Sediment Control Plan (ESCP) setting out the measures to be taken to control silt contaminated stormwater at all times during earthworks, accessways development and installation of services;

7.2 The Consent Holder shall comply with the EMP, including the ESCP, at all times.

7.3 The Consent Holder shall be responsible for installing and maintaining any sediment

control devices, protection of the existing land drainage and waterways and making regular inspections, repairs and changes to the proposed measures as required by the EMP.

7.4 Any required amendments to the EMP as a result of adverse site conditions shall be submitted in writing to Council at subdivapp@wmk.govt.nz.

8. Water Supply

8.1 The Consent Holder shall provide a reticulated domestic water supply to lot 1 and 3 from the Oxford urban water supply.

8.2 The Consent Holder shall apply to Council's Water Asset Manager for approval to connect to the Council's existing water reticulation. The approval shall be given before works commence on Council's reticulation.

8.3 The Consent Holder shall install the reticulation to meet the following minimum standards for Lot(s) 1 and 3:

a) Separate 15mm diameter laterals from the submain (in Main St for lot 1 and in Cheapside St for lot 3) to the toby box.

b) Toby boxes and valves installed at the road frontage.

c) Individual 15mm laterals from the toby box to a point a minimum of 1m within the lots.

8.4 As a network utility provider, the Council at the consent holder's expense shall carry out all connections to the existing public water supply.

9. Stormwater

9.1 The Consent Holder shall design and provide the primary stormwater management to accommodate a 10% A.E.P (1 in 10-year) storm derived from rainfall figures for the site location from NIWAs HIRDS Version 4 with RCP 8.5, 2081 - 2100 climate change scenario.

9.2 The stormwater runoff from the roofs of structures on Lots 1 and 3 shall discharge to an individual soak pit on each lot designed and constructed to infiltrate roof water generated by a 10 minute 10% AEP event with a Factor of Safety of 3 applied to the site soils infiltration rate. The Consent Holder shall demonstrate that a suitable design for individual soak pits is achievable along with confirmation of soakage rates at the time of Engineering Acceptance. If soakage is not feasible, then an alternative solution shall be provided for Engineering Acceptance.

9.3 The Consent Holder shall provide for secondary flow paths with a design capacity to accommodate flows from a 2% AEP event from the subdivision to the stormwater drain on the north and east side of the development. The design of the overall stormwater system shall include consideration of secondary flow paths for events greater than the 2% AEP event.

10. Wastewater

10.1 Consent Holder shall install a reticulated sewer system to service Lot 1 by connecting into the 200mm main in Main Street.

10.2 Consent Holder shall install a reticulated sewer system to service Lot 3 by connecting

into the 150mm main in Cheapside Street.

10.3 The reticulated sewer system design shall incorporate the following minimum requirements:

a) Domestic sewer laterals to a point a minimum of 1m inside the main body of all units.

10.4 The Consent Holder shall apply to Council's Wastewater Asset Manager for approval to connect to the Council's existing sewer reticulation. The approval shall be given before works commence on Council's reticulation.

10.5 Connections to the existing Council reticulation shall be carried out by a Council approved contractor at the expense of the Consent Holder following application to the Council.

11. Power and Telephone

11.1 The Consent Holder shall engage a utility network operator to provide underground electrical and telephone reticulation to the main body of proposed Units 1 and 3.

11.2 The Consent Holder shall provide to Council at subdivapp@wmk.govt.nz evidence in writing from a utility network operator that electrical and telephone reticulation has been installed to Units 1 and 3 and that all costs have been met.

12. Vehicle Crossing

12.1 The vehicle crossing to Lot 1 shall be located 18.5m from the intersection of Cheapside Street and High Street and shall be formed and sealed to accord with Waimakariri District Council Standard Drawing 600-211B (Issue A).

12.2 The Consent Holder shall upgrade and seal the access servicing Lot 2, to accord with the Waimakariri District Council Engineering Code of Practice Standard Drawing 600-211B (Issue A).

12.3 The Consent Holder shall Clegg Hammer test the access/all accesses prior to sealing. A measured Clegg Impact Value of at least 25 for footpaths and residential crossings shall be obtained to assure adequate compaction and pavement strength prior to sealing. Documentation shall be supplied to Council confirming the test results obtained.

12.4 The Consent Holder shall ensure on-site manoeuvering is available for Lot 1 - 3 to enable a vehicle to come out forwards from the accessway.

12.5 The Consent Holder shall remove the existing hedge on the property boundary along Cheapside St to comply with sight lines requirement as per Operative District Plan Rule 30.6.1.21.

12.6 The corner splay shall be rounded to a minimum 6m radius and Lot 5 shall be vested in the Waimakariri District Council.

13. Finished Floor Level

13.1 The Consent Holder shall ensure that the minimum floor level on any dwellinghouses erected on Lots 1 and 3 should be set no lower than 500 mm above the modelled 1 in 200-year (0.5% AEP) Flood Depth at any point intersecting the building footprint.

13.2 Condition 13.1 as applies to Lot 1 and 3 shall be subject to a consent notice, pursuant to section 221 of the Resource Management Act 1991 and shall register on the certificate of title for Lot 1 and 3.

13.3 The consent holder shall ensure piles foundation are used for the dwellings on Lot 1 and 3.

13.4 Condition 13.3 as applies to Lot 1 and 3 shall be subject to a consent notice, pursuant to section 221 of the Resource Management Act 1991 and shall register on the certificate of title for Lot 1 and 3.

14. Geotechnical

14.1 The Consent Holder shall engage a suitably qualified Chartered Professional Engineer (CPEng) with experience in residential development to design specific foundations for any new dwelling. The report shall reference and consider the conclusions of the Geotechnical Consultants Report issued 18 April 2023, saved to TRIM 230615088259.

14.2 Condition 14.1 shall be subject to a Consent Notice pursuant to Section 221 of the Resource Management Act 1991, to register on the Records of Title for Lots 1 to 3.

15. Urbanisation

15.1 The consent holder shall urbanise the Cheapside Street Road frontage of Lots 1 and 2 to include the following features:

a) Widening of the existing carriageway to 5.5m sealed width.

b) A 1.5m gritted footpath.

c) Add street trees.

The design shall be provided at the engineering acceptance stage.

16. As Built Records

16.1 'As Built' plans setting out in detail the location of all services shall be provided to the Council at subdivapp@wmk.govt.nz immediately following the completion of the works.

16.2 An electronic set of 'As Built' plans shall be provided to Council at subdivapp@wmk.govt.nzat a scale of 1:500 and 1:1000. In addition to the plans, a Chartered Professional Engineer, Registered Professional Surveyor (or Licensed Cadastral Surveyor) shall provide a separate certification statement stating that the 'As Built' plans are a true and accurate record of all services.

16.3 Where 'As Built' plans have been prepared using computer aided draughting techniques a copy of the file shall be made available to the Council in either of the following formats – Microstation (.DGN), Autocad (.DWG) or (.DXF).

16.4 The Consent Holder shall provide to Council at subdivapp@wmk.govt.nz an asset register for all assets to be vested in Council, including pipes, valves, fittings, manholes, structures and the like. The asset register shall include construction costs.

16.5 Copies of all test results, Producer Statements, certifications, inspections, Sharefile or USB of CCtVs shall be provided to the Council's satisfaction. Accurate 'As Built' plans

including long sections setting out in detail the location of all utilities and services shall be provided to the Council at subdivapp@wmk.govt.nz immediately following completion of the works and shall be available at the time of the 224(c) Condition Certificate inspection.

17. Conditions Auditing

17.1 The Council, on an actual cost basis, shall audit compliance with the conditions of consent by both site inspections and checking of associated documentation to ensure the work is completed in accordance with the approved plans and specifications and to the Council's standards. The Council will undertake inspections and checking.

17.2 For audit inspections required by the consent, the Consent Holder shall notify the Council Development Team at least 24 hours prior to commencing various stages of the works, preferably by email to subdivaudit@wmk.govt.nz including subdivision and contractor/agent contact details or by phone on 0800 965 468.

Earthworks

- On completion to final levels.

Vehicle Crossing

- Following shaping of roading and footpath sub-grade prior to placement of sub base material;
- Following metalling up, prior to pouring of kerb and any channel;
- Following compaction of base course prior to sealing. The carriageway shall be tested with a Benkelman Beam and the footpath with a Clegg Hammer. The results shall be submitted to Council for approval.

Sewer

- During installation;
- Testing of sewer mains and laterals.

Water

- During installation;
- Testing of submain and laterals;
- Sterilisation of water submain.

Stormwater

- During installation;
- On completion.

Whole works

- Prior to issue of a certificate under Section 224(c) of the Resource Management Act.

17.3 Compliance with the above conditions shall be verified by inspection by a Council Officer pursuant to section 35(2)(d) of the Resource Management Act 1991. For inspection/s conducted under the above condition, the Consent Holder shall pay to the Council charges pursuant to section 36(1)(c) of the Resource Management Act 1991 to enable the Council to recover its actual and reasonable costs in carrying out the inspections.

18. Works Condition

18.1 Conditions 1 to 17 of this consent will not be considered to have been complied with

until the Chartered Professional Engineer provides a "Certificate of Completion" to the satisfaction of the Waimakariri District Council.

19. Other

19.1 Any existing buildings or structures located over the new boundaries between Lots 2 and 3 and over the Lot 2 road boundary shall be removed prior to an application being made for s.224(c) certification.

20. Contaminated Materials

20.1 The areas of elevated lead in the burn pad/waste disposal area within Lot 3 shall be remediated to comply with the residential soil contaminant standards.

20.2 The Consent Holder shall prepare a Remedial Action Plan (RAP) for the site remediation of contaminated topsoil on Lot 3. The Remedial Action Plan shall be in accordance with the requirements of the NESCS and shall be prepared by a suitably qualified and experienced professional and submitted in writing to the Resource Consents Team Leader, for review and approval by Council, prior any work including remediation work starting on site.

20.3 The Remedial Action Plan shall include a site management plan that identifies the areas of soil contamination and the areas of operation to carry out the remedial earthworks, health and safety measures such as vehicle, plant and staff decontamination, proposed temporary stock piles, erosion and sediment control and dust control measures and any other measures to ensure the safety of the staff working on the site, the public and the environment.

20.4 The Consent Holder shall provide evidence to the Resource Consents Team Leader in the form of weight dockets confirming the volume of any contaminated fill taken off-site for disposal.

20.5 The Consent Holder shall prepare and submit to the Resource Consents Team Leader a post-earthworks report (a Site Validation Report) in accordance with the requirements of the NESCS to be prepared and approved by a suitably qualified and experience professional confirming that all earthworks in and around the contaminated material have been carried out in accordance with the RAP. This shall be supplied prior to, or with the application for a Section 224 Certificate to confirm works are complete.

21. Inspection

21.1 Compliance with the above condition may be verified by inspection by a Council Officer Pursuant to Section 35(2)(d) of the Resource Management Act 1991.

21.2 Should an inspection be necessary, the Consent Holder shall pay to the Council charges pursuant to Section(1)(c) of the Resource Management Act 1991 to enable the Council to recover its actual and reasonable costs in carrying out the inspections.

ADVICE NOTES

Consent under the Resource Management Act 1991

- This activity has been granted resource consent under the Resource Management Act 1991. It is not a consent under any other Act, Regulation or Bylaw. The activity must comply with all relevant council bylaws, the Building Act 2004 and any other relevant laws and regulations. If you require other approvals, such as a building consent or vehicle crossing permit, please visit Council's website for application

forms.

Traffic Management

- The Consent Holder is advised that Traffic Management Plan forms can be sourced from Council Service Centres or on-line at: https://www.waimakariri.govt.nz/home.
- No excavation shall commence within a public road reserve without the prior receipt and approval of a Corridor Access Request (CAR).

Environment Canterbury

- This activity may require resource consent from Environment Canterbury. Please ensure that consent is obtained from them prior to the commencement of the activity.
- The Erosion & Sediment control Toolbox for Canterbury can be found on the ECan website http://esccanterbury.co.nz/

Inspections for a subdivision consent

- For audit inspections required by the consent, the Consent Holder should notify the Council's Development Team at least 24 hours prior to commencing various stages of the works preferably by email to subdivaudit@wmk.govt.nz including subdivision and contractor/agent contact details or by phone on 0800 965 468.
- The Consent Holder is advised that requirements and conditions listed are a statement of the Council's minimum standards. Where the Consent Holder proposes higher standards or more acceptable alternatives these shall be submitted to the Council in writing for approval.

Development Contributions

- The Consent Holder is advised that development contributions apply to this subdivision and these will be levied in accordance with the Council's Development Contributions Policy. Development Contributions will be advised in a letter separate to the resource consent decision. Payment of development contributions is required prior to the completion of the 224(c) process, under section 208 of the Local Government Act 2002.

Lapse Period (Subdivision Consents)

Under Section 125 of the Resource Management Act 1991, this subdivision will lapse five years after the date it is granted unless:

i. A survey plan is submitted to Council for approval under section 223 of the Resource Management Act 1991, before the consent lapses, then that plan must be deposited within three years of the approval date in accordance with section 224 of the Resource Management Act; or

ii. An application under section 125 of the Resource Management Act 1991 is made to the Council before the consent lapses (five years) and approval for the time extension has been granted.

Other

- Please note that it is your contractor's responsibility to locate all underground services. No services are to be moved without the written permission of the service provider.
- When locating services from service plans, your contractor will need to dig for and confirm the exact location of the service. When excavating in the vicinity of any services, your contractor will be held responsible for any damage.
- A vehicle crossing constructed without Council inspections will be deemed as an illegal entrance.
- You are reminded that stamped concrete, coloured concrete, cobbles, and paving blocks are not permitted.

- The Consent Holder is advised that Producer Statement Design and Construction forms can be sourced from the 'Engineering Code of Practice Part 3 Quality Assurance', Council Service Centres, Section or on-line at: https://www.waimakariri.govt.nz/home.

Land Use – RC225256

THAT pursuant to Section 104D of the Resource Management Act 1991, land use consent be granted to:

- Relocate a dwelling on an undersized allotment in the Residential 2 zone (Proposed Lot 1) and on an undersized allotment in the Residential 4A zone (Proposed Lot 3);
- Remediate contaminated site soils under the NESCS and;
- Install a vehicle crossing to Lot 1 not meeting the separation requirement to an intersection at 131 Main Road Oxford;

On Lot 1 DP 80871 as a **Non-Complying Activity** subject to the following conditions which are imposed under Section 108 of the Act:

1. Application Plan

1.1 The activity shall be carried out in accordance with the attached approved application plans stamped RC225255/RC225256.

2. Contaminated Materials

2.1 The areas of elevated lead in the burn pad/waste disposal area within Lot 3 shall be remediated to comply with the residential soil contaminant standards prior to the occupation of any dwelling on site.

- 2.2 The Consent Holder shall prepare a Remedial Action Plan (RAP) for the site remediation of contaminated topsoil on Lot 3. The Remedial Action Plan shall be in accordance with the requirements of the NESCS and shall be prepared by a Suitably Qualified and Experienced Professional and submitted in writing to the Resource Consents Team Leader, for review and approval by Council, prior any work including remediation work starting on site.

2.3 The Remedial Action Plan shall include a site management plan that identifies the areas of soil contamination and the areas of operation to carry out the remedial earthworks, health and safety measures such as vehicle, plant and staff decontamination, proposed temporary stock piles, erosion and sediment control and dust control measures and any other measures to ensure the safety of the staff working on the site, the public and the environment.

2.4 The Consent Holder shall provide to the Resource Consents Team Leader evidence in the form of weight dockets confirming the volume of any contaminated fill taken off-site for disposal.

2.5 The Consent Holder shall prepare and submit to the Resource Consents Team Leader a post-earthworks report (a Site Validation Report) in accordance with the requirements of the NESCS to be prepared and approved by a Suitably Qualified and Experienced Professional confirming that all earthworks in and around the contaminated material have been carried out in accordance with the RAP. This shall be supplied prior to, or with, the application for a Section 224 Certificate or Building

consent, whichever occurs first in relation to Lot 3, to confirm that site validation works are complete.

3. Vehicle Crossing

3.1 The vehicle crossing to Lot 1 shall be located 18.5m from the intersection of Cheapside Street and High Street and shall be formed and sealed to accord with Waimakariri District Council Standard Drawing 600-211B (Issue A).

3.2 The Consent Holder shall Clegg Hammer test the access prior to sealing. A measured Clegg Impact Value of at least 25 for footpaths and residential crossings shall be obtained to assure adequate compaction and pavement strength prior to sealing. Documentation shall be supplied to Council confirming the test results obtained.

4. Construction Hours and Noise

4.1 The Consent Holder shall ensure all construction operations shall be limited to 7 am to 6 pm Monday to Saturday. No construction work shall take place on Sundays or Public Holidays.

4.2 Construction noise shall not exceed the recommended limits specified in, and shall be measured and assessed in accordance with, the provisions of NZS: 6803: P1999 "Measurement and Assessment of Noise from Construction, Maintenance, and Demolition Work". Adjustments and exemptions provided in clause 6 of NZS: 6803: P1999 shall apply.

5. Environmental Management

5.1 Prior to any remedial works commencing on site the Consent Holder shall provide an Environmental Management Plan (EMP) to the Council at subdivapp@wmk.govt.nz for approval. The EMP shall detail:

a) the methodology of works and the environmental controls in place to limit effects from issues involving flooding, dust, noise and other pollutants; and
b) an Erosion and Sediment Control Plan (ESCP) setting out the measures to be taken to control silt contaminated stormwater at all times during earthworks, accessways development and installation of services.

5.2 The Consent Holder shall comply with the EMP, including the ESCP, at all times.

5.3 The Consent Holder shall be responsible for installing and maintaining any sediment control devices, protection of the existing land drainage and waterways and making regular inspections, repairs and changes to the proposed measures as required by the EMP.

5.4 Any required amendments to the EMP as a result of adverse site conditions shall be submitted in writing to Council at subdivapp@wmk.govt.nz.

6. Conditions Auditing

6.1 The Council, on an actual cost basis, shall audit compliance with the conditions of consent by both site inspections and checking of associated documentation to ensure the work is completed in accordance with the approved plans and specifications and to the Council's standards. The Council will undertake inspections and checking.

6.2 For audit inspections required by the consent, the Consent Holder shall notify the

Council Development Team at least 24 hours prior to commencing various stages of the works, preferably by email to subdivaudit@wmk.govt.nz including subdivision and contractor/agent contact details or by phone on 0800 965 468.

Vehicle Crossing

- Following shaping of vehicle crossing prior to placement of subbase material;
- Following metalling up, prior to any pouring of kerb and any channel;
- Following compaction of base course prior to sealing. The carriageway shall be tested with a Benkelman Beam and the footpath with a Clegg Hammer. The results shall be submitted to Council for approval.

7. Inspection

7.1 Compliance with the above condition may be verified by inspection by a Council Officer Pursuant to Section 35(2)(d) of the Resource Management Act 1991.

7.2 Should an inspection be necessary, the Consent Holder shall pay to the Council charges pursuant to Section(1)(c) of the Resource Management Act 1991 to enable the Council to recover its actual and reasonable costs in carrying out the inspections.

ADVICE NOTES

Consent under the Resource Management Act 1991

- This activity has been granted resource consent under the Resource Management Act 1991. It is not a consent under any other Act, Regulation or Bylaw. The activity must comply with all relevant council bylaws, the Building Act 2004 and any other relevant laws and regulations. If you require other approvals, such as a building consent or vehicle crossing permit, please visit Council's website for application forms.

Traffic Management

- The Consent Holder is advised that Traffic Management Plan forms can be sourced from Council Service Centres or on-line at: https://www.waimakariri.govt.nz/home.
- No excavation shall commence within a public road reserve without the prior receipt and approval of a Corridor Access Request (CAR).

Engineering

- The Erosion & Sediment control Toolbox for Canterbury can be found on the ECan website link http://esccanterbury.co.nz/

Monitoring & Inspections for a land use consent

- Please contact the Council's Compliance and Monitoring Team at compliance@wmk.govt.nz to alert the Council when work or project is beginning. Monitoring may be undertaken to ensure the activity is complying with the information supplied in the application; and
- Additional monitoring fees may be charged on a time and cost basis if required. This includes any non-compliance with the condition/s of the resource consent and the Council need to re-visit the site.
- Where the conditions of this consent require any reports or information to be submitted to the Council, please forward these documents to the Council's Compliance and Monitoring Team at compliance@wmk.govt.nz

Lapse Period (Land Use Consents)

- Pursuant to Section 125 of the Resource Management Act 1991, if this resource consent is not given effect to within five years after the date of the decision for this consent, then this resource consent shall lapse unless a longer period has been approved by the Council under section 125 of the Act.

REASONS FOR DECISION

Pursuant to Section 113 of the RMA, the following factors were considered in determining the application:

- Draft conditions have been agreed with the applicant that will mitigate potential effects of the proposal.

- Overall, the environmental effects will be less than minor as follows:

- Geotechnical effects have been mitigated with the imposition of a consent notice that requires specific foundation design for proposed housing on proposed new allotments.

- Adverse traffic effects of the proposed access location for Lot 1 and it's dwelling have been mitigated by of conditions of both subdivision and land use that requires the access to be located as far from the intersection with Main Road as possible. In addition, roadside hedging in the site is to be removed prior to subdivision completion in conjunction with the vesting of Lot 5 (corner rounding), that will provide sight lines and safer vehicle egress at the Cheapside Street / Main Road intersection.

- Potential flooding effects are accounted for as a consent notice requiring minimum floor levels for proposed dwellings on the site in respect of Lots 1 and 3 has been included.

- Contaminated site soils will be remediated for the future safety and residential occupation of Lot 3 prior to the completion of the development.

- Rural Residential and Residential character and amenity associated with the dual zoning of the site is maintained as much as possible with the revision of the proposal for one allotment and dwelling in the 4A Zone (instead of two). The proposed dwelling on Lot 3 has been located in such a way to create usable open space at the front of the site, and to separate the proposed dwelling as far as possible from all adjoining houses. The proposal for Lot 3 avoids potentially adverse dominance effects on the street. The proposal to urbanise only the Lot 1 and 2 frontage also maintains the character and amenity in the context of the site setting for the wider area.

- The proposal is not able to be replicated by other sites in the area as its dual zoning (with a non-compliant balance area) is unique to this site only. It is considered the proposal will not lead to cumulative effects or the ability for other sites to replicate the proposal and detract from District Plan integrity.

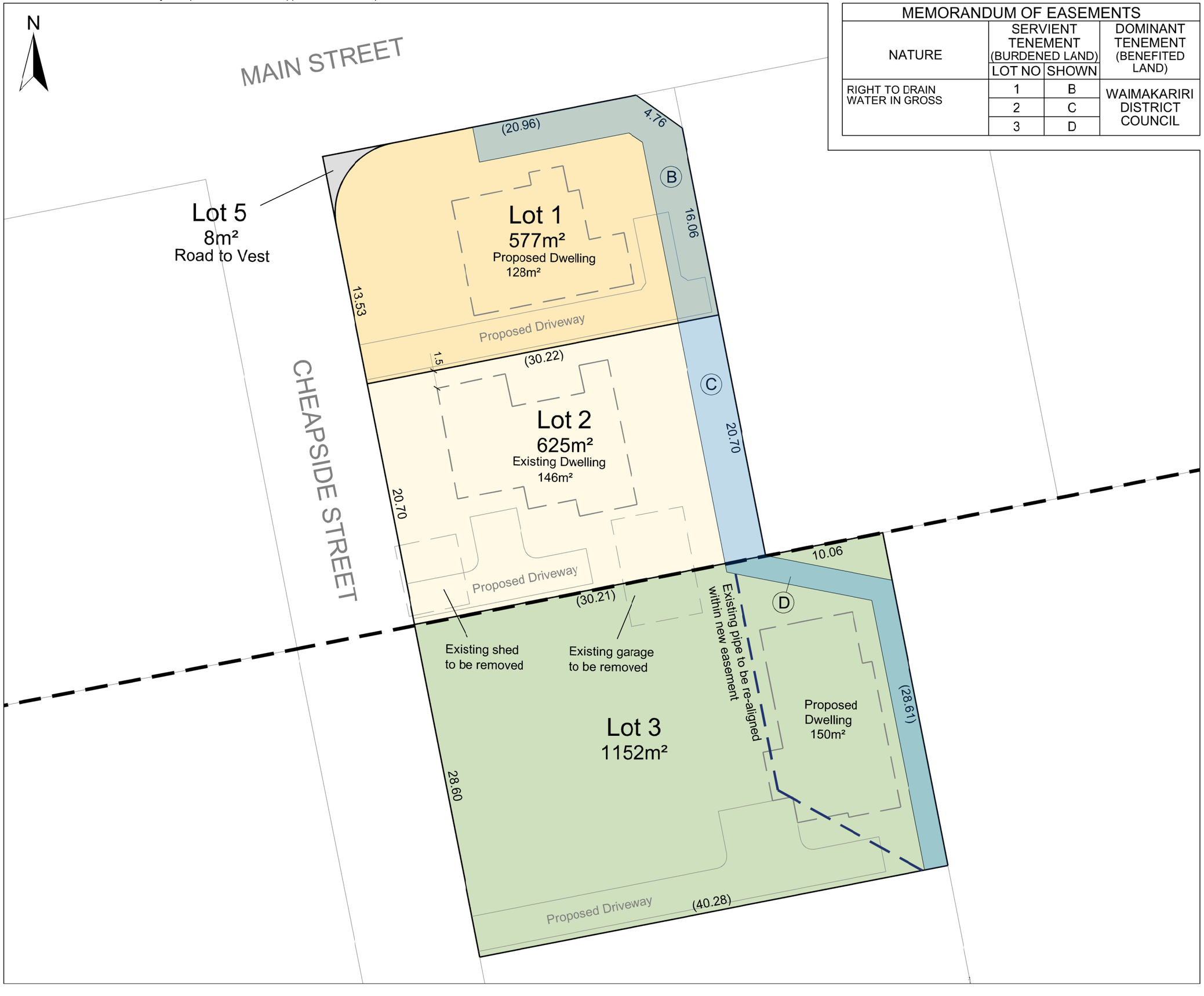
- Given the above assessment, no person is deemed to be adversely affected by the proposal provided that the recommended conditions of consent are adopted. The Applicant has agreed to the recommended conditions of consent.

- The application is generally consistent with, and not contrary to, the objectives and policies of the Operative District Plan and Proposed District Plan.

- The proposal is considered to consistent with Part 2 of the RMA, noting that positive effects have also been considered and provided for.

DATED at Rangiora this 31st Day of October 2023

SIGNED by Claire Mckeever
CONSULTANT PLANNER



MEMORANDUM OF EASEMENTS			
NATURE	SERVIENT TENEMENT (BURDENED LAND)		DOMINANT TENEMENT (BENEFITED LAND)
	LOT NO	SHOWN	
RIGHT TO DRAIN WATER IN GROSS	1	B	WAIMAKARIRI DISTRICT COUNCIL
	2	C	
	3	D	

DEVCORP

WAIMAKARIRI DISTRICT COUNCIL - APPROVED APPLICATION - RC225255&RC225256 APPROVED by Authorised Officer Ian Carstens 31/10/2023

NOTES:

Description - Lot 1 DP 80871
Record of Title - CB46B/975
Area - 2362m²
Owner - Glovehorn Limited

Areas and dimensions are subject to survey approval

A full assessment of easements will be undertaken after the engineering is complete. This may resul: in additional easements to those already shown

— — Zone Bdy

Easement Area

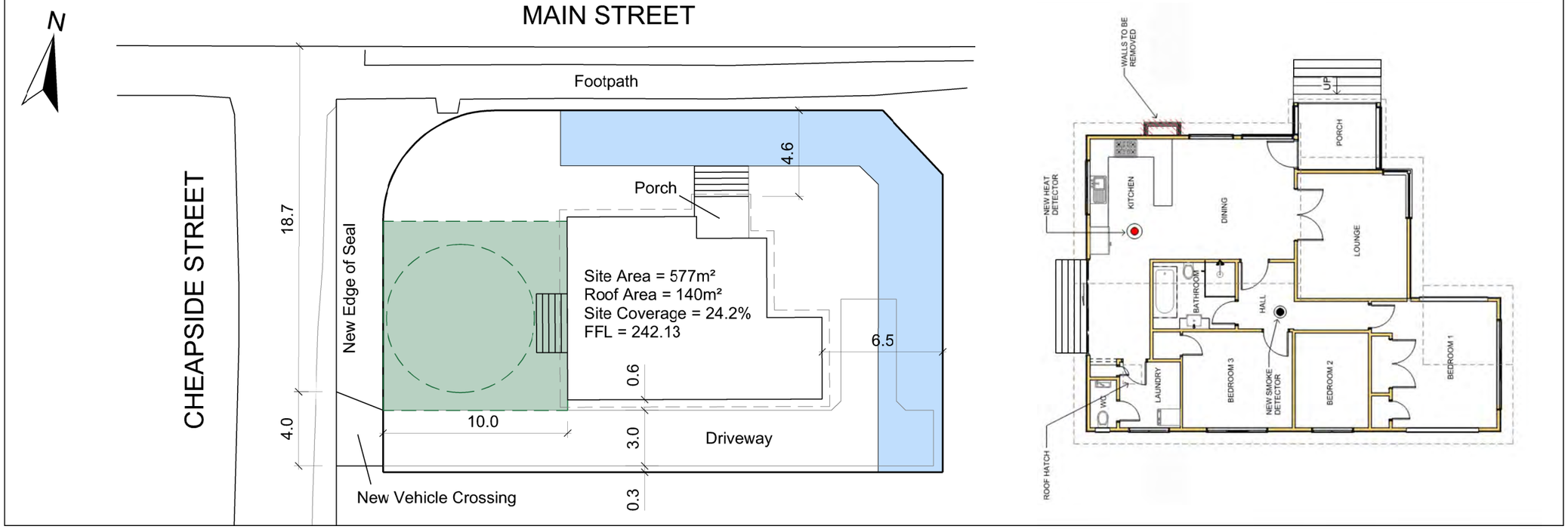
REVISION DETAILS		BY	DATE
A	Preliminary Issue	MM	07.22
B	Layout Changes	MM	04.23
C	Minor Easement Changes	MM	09.23

DESIGN	MM	131 MAIN STREET OXFORD
DRAWN	MM	
CHECKED	MM	
APPROVED	MM	

GLOVEHORN LIMITED

FEE SIMPLE SUBDIVISION SCHEME PLAN

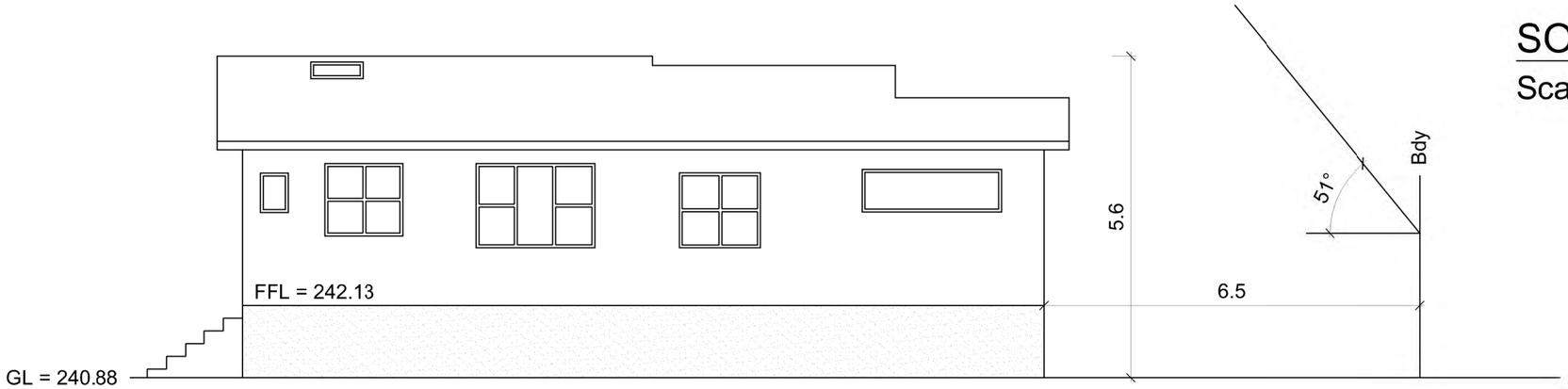
SCALE	1:300@A3	REV
COUNCIL	Waimakariri District Council	2C
DWG NO	1057.Main Street.Scheme Plan.dwg	



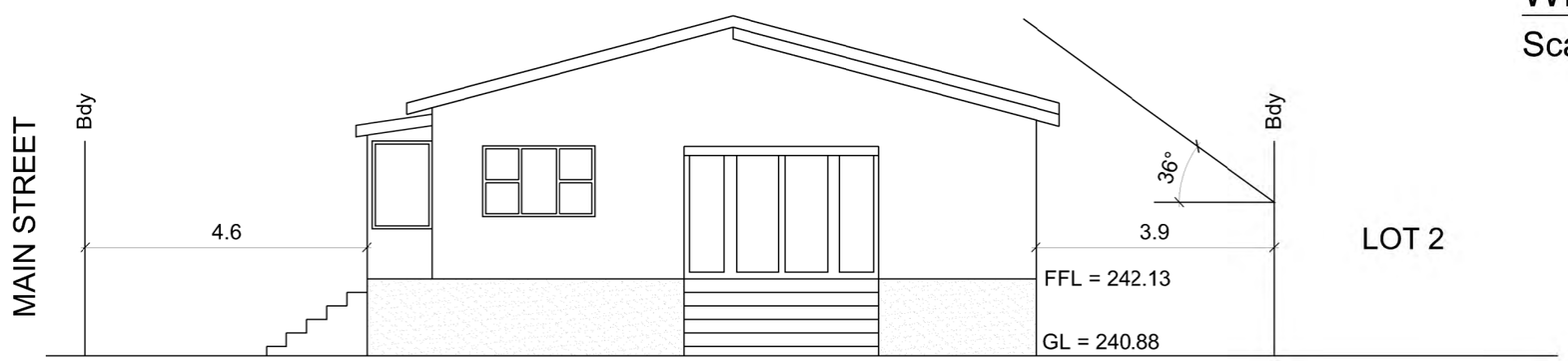
DEVCORP

WAIMAKARIRI DISTRICT COUNCIL
- APPROVED APPLICATION -
RC225255&RC225256
APPROVED by Authorised Officer
Ian Carstens 31/10/2023

SOUTH ELEVATION
Scale - 1-100



WEST ELEVATION
Scale - 1-100



Easement Area

ODLS = 100m² with 8m diameter circle (PDP - GRZ-BFS9)

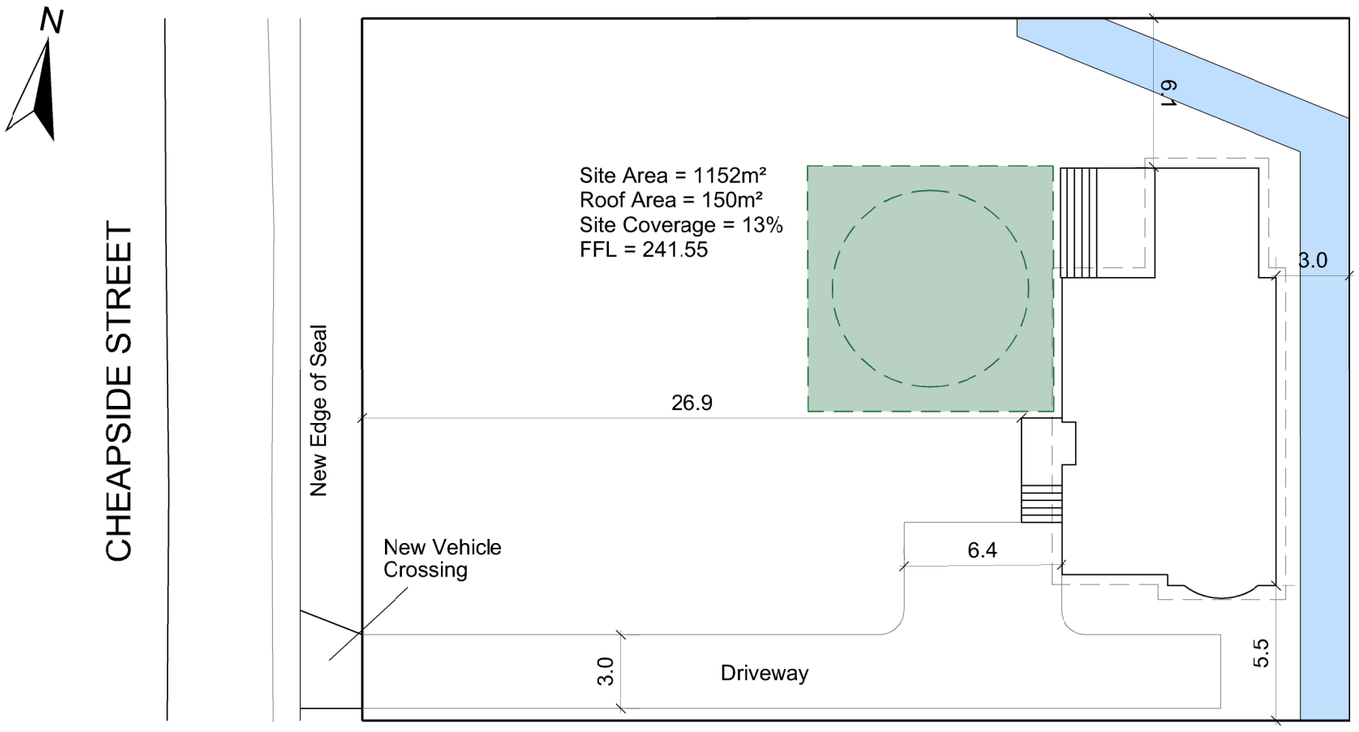
REVISION DETAILS		BY	DATE
A	Preliminary Issue	MM	06.23
B	Minor Updates	MM	06.23
C	General Updates	MM	09.23

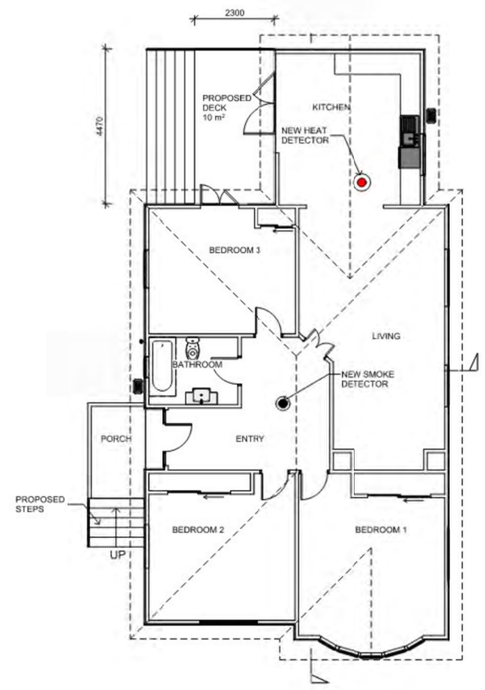
DESIGN	MM	131 MAIN STREET OXFORD
DRAWN	MM	
CHECKED	MM	
APPROVED	MM	

GLOVEHORN LIMITED

LOT 1 SITE PLAN + ELEVATIONS

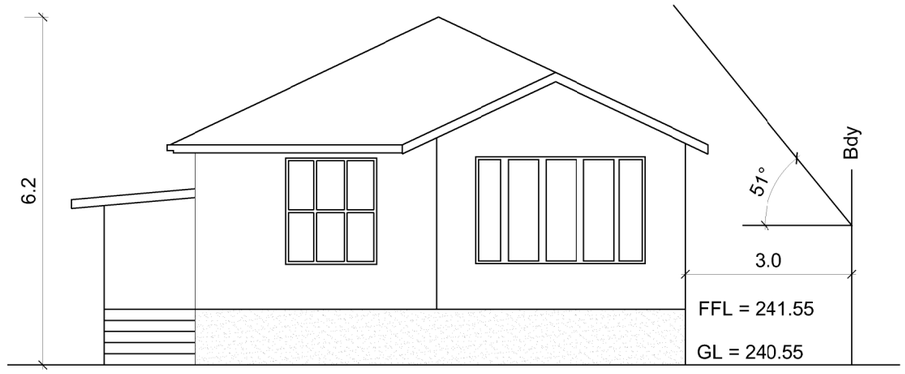
SCALE	1:250@A3	REV
COUNCIL	Waimakariri District Council	3C
DWG NO	1057.Main Street.Scheme Plan.dwg	



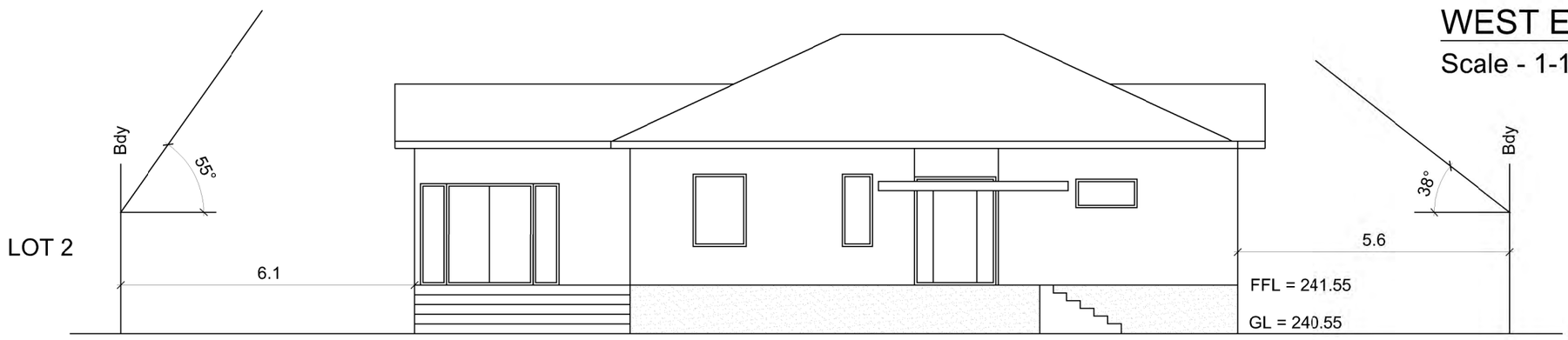


DEVCORP

WAIMAKARIRI DISTRICT COUNCIL
- APPROVED APPLICATION -
RC225255&RC225256
APPROVED by Authorised Officer
Ian Carstens 31/10/2023



SOUTH ELEVATION
Scale - 1-100



WEST ELEVATION
Scale - 1-100

Easement Area

ODLS = 100m² with 8m diameter circle (PDP - GRZ-BFS9)

REVISION DETAILS		BY	DATE
A	Preliminary Issue	MM	06.23
B	Minor Updates	MM	06.23
C	Minor Updates	MM	09.23	

DESIGN	MM	131 MAIN STREET OXFORD
DRAWN	MM	
CHECKED	MM	
APPROVED	MM	

GLOVEHORN LIMITED

LOT 3 SITE PLAN + ELEVATIONS

SCALE	1:250@A3	REV
COUNCIL	Waimakariri District Council	4C
DWG NO	1057.Main Street.Scheme Plan.dwg	

DEVCORP

WAIMAKARIRI DISTRICT COUNCIL - APPROVED APPLICATION - RC225255&RC225256 APPROVED by Authorised Officer Ian Carstens 31/10/2023

NOTES

1. All works in the legal road to be in accordance with local authority ECoP.
2. All works in private property to be in accordance with NZBC.
3. Service locations are indicative only. It is the contractors responsibility to locate all services prior to works commencing.
4. Wastewater laterals to be 100Ø uPVC SN16 at 1:60 grade.
5. Soak pit to be Type (A) as per Figure 13 NZBC E1/VM1. Soak pits to be sized for 2% AEP critical duration event.
6. Soak pit to be Type (A) as per Figure 13 NZBC E1/VM1. Soak pits to be sized for 2% AEP critical duration event.

REVISION DETAILS		BY	DATE
A	Preliminary Issue	MM	06.23
B	Urbanisation Change	MM	10.23

DESIGN	MM	131 MAIN STREET OXFORD
DRAWN	MM	
CHECKED	MM	
APPROVED	MM	

GLOVEHORN LIMITED

PRELIMINARY ENGINEERING PLAN

SCALE	1:300@A3	REV
COUNCIL	Waimakariri District Council	E2
DWG NO	1057.Main Street.Scheme Plan.dwg	

ATTACHMENT 2 – SECTION 32AA ASSESSMENT

SECTION 32AA ASSESSMENT

A section 32AA assessment has been undertaken as an amendment to the District Plan is sought by the re-zoning of the site at 131 Main Street, Oxford from Large Lot Residential Zone to General Residential Zone. This submission is not proposing any new objectives or rules to be added to the District Plan, nor any further changes.

Section 32AA(1)(b) states that a further evaluation required under this Act must be undertaken in accordance with Section 32(1) to (4). A section 32 report requires the submitter (and the Council) to evaluate, at a level of detail corresponding to the scale and significance of the anticipated environmental, economic, social and cultural effects:

- The extent to which the objectives of the proposal are the most appropriate to achieve the purpose of the RMA.
- Whether the provisions (rules) are the most appropriate way for achieving the objective (purpose), by including consideration of any other reasonably practicable options, the efficiency and effectiveness of the provisions in achieving the purpose, and reasons for deciding on the provisions.

Two options have been assessed below; retain the current proposed Large Lot Residential Zoning; or provide for a new General Residential Zoning. The Quality Planning Guidance note on section 32 analysis states that the most appropriate option means “suitable, but not necessarily superior”. The most appropriate option does not need to be the most optimal or best option but must demonstrate that it will meet objectives in an efficient and effective way.

OPTION	BENEFIT	COST
OPTION 1: **RE-ZONE TO PROPOSED GENERAL RESIDENTIAL ZONE**	• Enables compatibility with the consented environment. • Potential for affordable housing with an additional dwelling available on the market. • Does not create an undersized allotment within a new District Plan review process. • Rectifies a previous historic split zoning issue.	• The possibility of reverse sensitivity issues from adjoining residential neighbours.
OPTION 2: **RETAIN THE PROPOSED LARGE LOT RESIDENTIAL ZONE (STATUS QUO)**	• Retaining the zone would result in limited change to the existing environment.	• Retaining an undersized allotment that does not meet the intent of the new District Plan. • The proposed LLRZ is contrary to the approved resource consent activity. • Costs of preparing application(s) with uncertain outcome (of achieving future consent approval).

EFFICIENCY

Option 1, rezoning the site to General Residential has been assessed as the most efficient use of the land and is the most appropriate option when the costs and benefits of both are compared. The benefits of Option 1 outweigh the costs meaning that it is the most efficient option, and therefore the most suitable use of land.

EFFECTIVENESS

The proposed re-zoning to General Residential meets the relevant objectives and policies of the proposed District Plan. The benefits of the re-zoning the site to General Residential outweigh the costs. Therefore Option 2 has been determined as the most appropriate.

ATTACHMENT 3 – DETAILED SITE INVESTIGATION

Practical Solutions for Built Environments
EINZ Ltd
Suite 4, 102 Victoria Street
CHRISTCHURCH, 8011
NZBN 9429 047 896 017
E service@eianz.co.nz
W www.eianz.co.nz
T 03 261 6100

18 September 2023
Document No: ZE1023.E02_Rev0

Waghorn Builders Ltd.
c/o Jack Farrow
New Zealand Geotechnical Consultants

Email Address: jack@nzgcl.co.nz

Dear Jack

Re: Detailed Site Investigation, 131 Main Street, Oxford

1. Introduction

On behalf of Waghorn Builders Limited (the client), EI NZ carried out a detailed site investigation (DSI) at 131 Main Street, Oxford (the site). Legally identified as Lot 1 DP 80871, the site was located within the local government area of Waimakariri District Council (WDC) as presented in **Figure 1**, **Attachment A**. Covering an approximate area of 2,400 m^2 on the southern side of Main Street, the site contained one residential dwelling in the central part of the property, with two associated shed(s) and one garage in the southern part, as shown in **Figure 2**, **Attachment A.** The existing land use activities represented a residential land use scenario as defined by the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* (the 'NES').

Subdivision of the site is proposed, for residential use. Previous consultants, NZ Geotechnical Consultants Ltd. (NZGC) previously completed a Preliminary Site Investigation (PSI), and this investigation follows on from the PSI, to assess the contamination risk posed by soil within the site, to support a consent application for the proposed subdivision and soil disturbance activities.

1.1 Objective

The primary objective of this investigation was to assist the client to meet their responsibilities required under the NES. This will be achieved by:

- Establishing the activities to occur as a result of the proposed development;
- Establishing whether the site represents a 'piece of land'; and
- Determine the activity designation as prescribed by the regulation, by determining the likelihood of risk posed to human health as a result of the activities occurring on a 'piece of land'.

Further objectives include the provision of controls to minimise the exposure of sensitive receptors to contaminants during soil disturbance activities, through the provision of a soil management plan (SMP) provided as **Attachment H.**

1.2 Scope of Works

To achieve the above objectives, the following scope of works was carried out:

- A review of the NZGC PSI report;
- A review of relevant maps for the project area, as provided by Canterbury Maps (www.canterburymaps.co.nz);
- A review of land information memorandums (LIM), publically held council records and historical aerial photographs to determine the operational history of the site and surrounds;
- Complete a detailed site walkover inspection; and

- Development of a Conceptual Site Model (CSM), to identify potential contamination sources, the associated contaminants of potential concern (COPC) and the likely human and ecological receptors relevant for the existing and future land use scenario's (including development).
- Excavation of additional test pits (TP7-TP9) for the collection and analysis of soil samples, to achieve a 15 m systematic sampling grid across accessible areas of the site;
- Comparison of the existing and additional results against the soil contaminant standards (SCS) regulated by the NES; and
- Preparation of a report detailing the findings of the works, in accordance with the *Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand* (CLMG1).

1.3 Proposed Development

Devcorp Ltd. have prepared a Fee Simple Subdivision Scheme Plan for the proposed layout changes (Dwg No. 1057: Main Street, Rev 2B) which will create three individual property titles, as shown in **Figure 1** below. Relocatable homes will be transported to the site, for use within Lots 1 and 3, with the existing dwelling to be retained within Lot 2. Robust Structures Design Consultants (RSDC) have developed building plans of the housing relocations proposed for Lots 1 and 3, as presented in **Attachment B.** These plans suggest the works will involve demolition of the existing sheds, followed by minor excavation for the installation of services and timber piles. No significant excavation is proposed as the timber piles will be used for the structural foundations. The dwelling of Lot 3 is to be installed along the eastern boundary, to preserve the potential subdivision of this lot for the future. No significant garden areas were proposed.

In accordance with the NES, the proposed activities include subdividing land and soil disturbance. As the existing residential land use will continue to occur for the proposed development, no change in land use will occur.

Figure 1: Proposed Subdivision Layout

2. Site Setting

Details regarding the identification and relevant site setting details are presented in **Table 2-1**. Figures showing the location of the site and its setting are presented in **Attachment A.**

Table 2-1 Site Identification

Attribute	Description
Street Address	131 Main Street, Oxford comprising Lot 1 in DP 80871
Current Zoning	General Residential Zone (GRZ) covers the northern half, with Large Lot Residential Zoning (LLRZ) across the southern half of site, as per the Proposed Waimakariri District Plan 2023.
Local Authority	Waimakariri District Council (WDC) and to a lesser extent, Environment Canterbury (ECan).
Mana Whenua	The site is within the takiwā of Ngāi Tūāhuriri Rūnanga, who hold mana whenua status. No wahi tapu sites were identified within the subject site.
Site Area	2,362 m^2
Background Soils	The site overlies late pleistocene to holocene river deposits (lQa). Background soil concentrations applicable to the site represent 'regional recent' soils, with expected trace element concentrations presented in **Table 1, Attachment C**. (Source: https://canterburymaps.co.nz)
Local Land Use	The site was situated in an area of residential use. Surrounding activities included low density residential activities in all directions, with rural activities to the far north and far south.

2.1 Site Inspection

Sari Eru, a Suitably Qualified Environmental Consultant carried out an inspection of the site on 18 August 2023. Photos taken during the inspection are presented in **Attachment D** and the following observations were made:

- The site was situated on the southern side of Main Street, Oxford, with Cheapside Street present along the western boundary.
- Within the central part of the site was a 1920's timber constructed dwelling (**Photo 1**) with exposed lawn fronting Main Street. A newly constructed timber fence defined the site along the northern and western boundaries, with trees defining the eastern and a small chain link fence defining the southern boundaries of site.
- Behind the house was a timber constructed wood shed and a metallic garage (**Photo 2** and **5**) and a large relocated house stored on raised metal framing (**Photo 3**). Exposed areas of the site are generally covered with grass, soil and gravel.
- At the time of inspection, clearing activities had commenced, and all former trees along the western and northern boundaries had been removed. (**Photo 4**).
- A storage container storing tools was present along the western boundary (**Photo 6**) and a second metallic structure containing firewood was present to the north of the storage container (**Photo 7**). No significant chemical storage was observed.
- Further storage containers and machinery was stored in the south western corner of the property (**Photo 8**).
- No significant waste piles or evidence of significant deposition to land activities was observed, and the vegetation did not show signs of distress. Soil was generally undisturbed in the advanced test pits, with the typical soil profile encountered in **Photo 9**.
- Topsoil across the site was found to contain some ecological species including pink earthworms and spiders.

2.2 Previous Investigations

NZGC carried out a preliminary site investigation for the proposed activities, and the findings were reported as NZGC (2023) *Preliminary Site Investigation Report for 131 Main Street, Oxford (Lot 1 DP 80871 BLK VIII Oxford SD)*. A summary of the findings are provided below:

- NZGC understood the site was to be split into four separate sections, with the existing residential building to remain within one of the subdivided lots. The proposed activities included soil disturbance and the disposal of soils.
- The occurrence of activities listed by the Hazardous Activities and Industries List (HAIL) as published by the Ministry of the Environment (MfE, October 2011) was not identified by the listed land use register (LLUR).
- 12 soil samples were collected from six test pit (TP) locations at depths ranging from 0 – 0.6 m below ground level (BGL). The TPs appeared to be distributed in a systematic based fashion across accessible areas of the site.
- Soil samples were analysed for contaminants of potential concern (COPC), being the metals, arsenic, boron, cadmium, chromium, copper, lead, mercury and zinc as well as total petroleum hydrocarbons (TPH) and organochlorine pesticides (OCPs).
- The result reported concentrations to exceed background levels, however no consideration of the soil contaminant standards (SCS) regulated by the NES was given. No site history was reported as part of the NZGC PSI.

The NZGC PSI was submitted as part of the consent application for the proposed activities, however was not overseen by a suitably qualified environmental practitioner (SQEP). Furthermore, ECan identified a potential for uncontrolled land filling activities to have occurred within the site, and as a result the site was identified as potentially contaminated on ECan's LLUR.

3. Site History

3.1 Land Information Memorandum (LIM)

EINZ obtained a copy of the LIM from the client, which was obtained from WDC on 12 October 2021 (LIM No. LM2101728) and relevant findings are presented in **Table 3-1** below.

Table 3-1 Summary of LIM

Attribute	Description
Resource Consents	Resource consent was granted for the site (RC990101) on 13 April 1999. The consent authorised a 2 lot boundary adjustment, with no new lot created. No other consent information was held by WDC. Two resource consents were granted for properties in close vicinity to the subject site, both of which were related to residential activities. No significantly contaminating activities were identified from consents in the current site, nor in neighbouring land.
Building Permits	Three building permits were held for the site, being: ▪ BP00779, issued 28.12.1979 for the erection of a shed in the south eastern corner; ▪ BP981467, issued 11.11.1998 for connection of the sewer; and ▪ BP011807, issued 10.08.2001 for the erection of a garage, directly behind the dwelling.
Heritage Sites	No heritage sites were identified.
Special Land Features	The site is positioned in a high wind zone and an open drain was noted to be running through the property, as shown on **Figure 2, Attachment A.**

3.2 Listed Land Use Register (LLUR)

EINZ searched ECan's LLUR in relation to the site, which revealed the site to have been 'verified HAIL' as site no. 350775. The activity identified was G5 – Waste Disposal to land, and was restricted to the south western corner of the property only. A copy of the findings is given as **Attachment E**.

HAIL category G5 is intended to capture land where deliberate waste disposal has occurred as a thin layer on or in the ground, and includes disposal of wastewater to land. The associated report verifying the HAIL activity was stated to be the NZGC PSI, summarised in **Section 2.2**, however no waste disposal activities were reported by the PSI. The accompanying geotechnical report however, identified a 'surficial rubbish pile' in the south western corner of the site, which verified the occurrence of G5 HAIL activities as stated by the LLUR. EINZ consider this to represent a potential occurrence of G5 HAIL activities, rather than true verification of these activities.

Note, the occurrence of HAIL activities would be restricted to land to be subdivided as Lot 3 only, and did not affect the northern or central parts of site.

3.3 Aerial Photography Review

A review of aerial photography made available by Canterbury Maps (www.canterburymaps.co.nz) was carried out, with copies of the aerials reviewed presented as **Attachment E**. The following observations were made:

- 1940 - 45: The site appeared in a similar setting as existing today. Large trees defined the northern, eastern and western boundaries, and a residential dwelling could be seen in the central part of the site. A small shed was apparent to the southwest of the dwelling and the rear of the property appeared to be grassed. Main Street and Cheapside Streets were apparent and residential land use activities were apparent in the surrounding areas. Remnants of the natural drainage line were apparent to the northwest and southeast of site, with large trees remaining in the south eastern portion of this feature which may represent an original, native landscape.
- 1955 - 59: Improved clarity revealed the former central dwelling to represent the existing dwelling remaining on site currently, and the small shed (wood shed) was apparent behind the dwelling, along the western boundary. Vehicle access to the site was observed from the western boundary, similar to that existing today and a number of large trees were observed across the southern half of the site. Surrounding land use activities appeared similar to the previous aerials, apart from the former drainage line to the north east and south west. Levelling had occurred within these areas, and no drainage line was observed, with all of the former trees now cleared. These areas were now grassed and may have been used for agricultural purposes.
- 1965 - 69: No observable change from the previous aerial was identified within the site, however low scale gardening activities may be occurring in the north eastern corner of the property. Groupings of large trees were apparent in the south western and south eastern corners of the property, as well as the central part of the rear yard (southern part of site). Residential activities are increasing in areas to the east and west, with potential market gardening activities observed in neighbouring land to the south.
- 1975 - 79: The site appeared similar to the previous aerial, apart from the clearing of trees in the south west and central parts of the backyard, south of site. A small area of disturbed land was apparent in the southwestern corner, which appeared related to the tree removal. No significant change in land use activities was observed in land surrounding site.
- 1990 – 94: Poor image quality made observations difficult to define however the general site layout and surrounding areas appeared similar to the previous aerial. The construction of a shed (BP00779, **Table 3-1**) was apparent in the south eastern corner of site.
- 2010 – 14: Trees formerly present along the northern boundary had been cleared and replaced by a timber like fence, and a metal garage had been constructed directly behind the dwelling (BP011807, **Table 3-1**). A small fenced area was observed in the south eastern part of site, to the northeast of the shed., which appeared similar to an animal pen. The southernmost part of the site appeared to be seperated from the northern part by a fence which extended from the western

boundary towards the southwestern corner of the garage, and continued on to connect to the north western corner of the shed, south east of site. The surface of this southern yard was grassed, and scattered with boats and small rectangular features which could represent sheds and/or animal shelters. Vehicle tracks were observable however no exposed soil was present, and the lack of metal or roadbase would restrict heavy vehicle movements across this part of the site. The area appears to be used for the storage of machinery and small scale grazing, with landfilling activities unlikely.

- 2015 – 19: The tree line along the western and eastern boundaries in the southern half of the site had been cleared, and large stumps were observed to the west. Remnants of the trees appeared in a large heap within the center of the southern yard, and appeared to be decomposing. The rectangular features and much of the machinery had been removed from the southern part, with grassed pasture remaining. Grazing activities may have occurred, and the potential for isolated, small scale burn pits was identified however no evidence of landfilling or significant piles of waste were identified.

3.4 Summary of Site History

Based on the information obtained for this investigation, the site appears to have been used for low density residential purposes from at least 1940, with the original homestead remaining present to the current day. Small scale gardening and agricultural activities were identified as occurring within the north eastern and southern parts, however no evidence of haulage roads, waste deposits or land filling activities were observed. Soil disturbance was apparent in the southern half of the site, which was likely to be a result of tree clearing activities, and given the removal of all large stumps and logs, the heaping of the smaller branches and vegetation may represent composting, and soil generation rather than the disposal of waste. Heaping of this material appeared similar to that observed in composting facilities, on a much smaller scale. Given the size of the stumps observed in the 2010 aerial, it is likely that the removal of these stumps would create large voids within the surface. It is therefore possible that that this smaller mulch like material was left to decompose so as to generate an organic fill of similar composition to the surrounding soil, which could then be used to level the surface, following removal of the stumps. Analysis of soil in this location is necessary to determine the potential for contamination to exist, and thereby verify the occurrence of waste disposal activities in the southwestern corner of site.

Given the age of the building and associated wood shed, the use of asbestos containing materials and/or paint containing lead was identified, which may pose a low level risk of contamination in shallow soils in exposed areas surrounding these buildings (i.e. the building halo). However, given the existing residential use, the potential risk posed to site receptors would be no greater than that existing currently.

4. Conceptual Site Model

A conceptual site model (CSM) is a representation of the potential sources of contamination and those exposed to potentially contaminated soil such as the human and or ecological receptors of the site. The CSM provides a framework to determine the completeness of the investigation, and is used to identify potential risks posed by soil contamination within the site. Contaminants of potential concern resulting from an identified source, that may be exposed to a receptor would be deemed a potential risk, therefore the identification of a contaminant source alone would not necessarily be deemed a risk. A summary of the preliminary CSM developed for the site is presented **Table 4-1**.

4.1 Data Gaps

Data gaps were revealed by the CSM, and closure of these gaps is necessary to achieve adequate characterisation of the site. Closure of the data gaps will form the focus of the intrusive works, and included the potential presence of contaminants in soil resulting from the disposal of waste and the potential presence of lead and asbestos in shallow soils within the building halo.

Table 4-1 Conceptual Site Model

Potential Source	COPC	Exposure Pathway	Site Receptor	Likelihood of Risk
Waste Disposal (south western corner)	▪ Heavy Metals (HMs) ▪ Asbestos ▪ Pesticides (OCPs) ▪ Hydrocarbons (screened using TPH) ▪ Foreign materials	▪ Inhalation ▪ Ingestion ▪ Dermal Contact ▪ Bioaccumulation (ecological)	▪ Residents and their visitors (current and future) ▪ Site workers (during construction) ▪ Service / maintenance workers ▪ Ecological receptors Where significant contamination is identified, potential receptors may also include groundwater and Papatūānuku.	**To be defined** Given the absence of significant waste deposition observed in aerials and the lack of contamination reported for NZGC soil samples (SS) 11 and 12 (9 and 10) the potential for contamination was low, however warrants further assessment under the supervision of a SQEP.
Hazardous building material contained in existing site structures (building halo)	▪ Heavy Metals (HMs) in particular, lead; and ▪ Bonded asbestos (ACM). Where the presence of ACM is found to be significant, the potential presence of asbestos fines (AF) should be considered.	▪ Inhalation; ▪ Ingestion; ▪ Dermal Contact; ▪ Bioaccumulation (ecological)	▪ Residents and their visitors (current and future) ▪ Site workers (during construction) ▪ Service and maintenance workers ▪ Ecological receptors	**To be defined** Given the age of structures, hazardous materials may be present within the building fabric and could result in shallow soil impacts. Any low level exposure to site soils is unlikely to pose a more than minor risk for human health receptors, in the absence of hotspots (i.e. concentrations 2.5 times greater than the relevant SCS).
Grazing activities in southern part of site (southern part)	▪ Heavy Metals (HMs)	▪ Ingestion; ▪ Dermal Contact; ▪ Bioaccumulation (ecological)	▪ Residents and their visitors (current and future) ▪ Ecological receptors	**To be defined** Given the fencing identified across the southern part of site and the small rectangular structures, grazing was likely.
Gardening Activities (north eastern corner)	▪ HMs ▪ OCPs	▪ Ingestion ▪ Dermal Contact ▪ Bioaccumulation (ecological)	▪ Residents and their visitors (current and future) ▪ Ecological receptors	**Minor – No Risk** Given the absence of contaminants reported for NZGC SS 1 to 4, the potential for contamination to exist was minor.

5. Soil Investigation

The soil investigation works conducted at the site are described in **Table 5-1**.

Table 5-1 Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site investigation was conducted on 18 August 2023, under the supervision of a suitably qualified environmental practitioner (SQEP). Three test pits (TPs) were advanced (TP7 – TP9) to achieve a systematic, 15 m grid across accessible areas of the site, with soil samples collected from fill and natural soils. All TP were excavated to at least 0.6 m BGL and were terminated in natural soil.
Field Observations	No suspicious odours were detected during any stage of the field investigation. No fragments of fibre cement sheeting were observed at the surface of the site within the building halo, however, no identification of hazardous building materials was carried out by EI for the existing dwelling as no demolition of this structure was proposed. No significant foreign materials or evidence of waste piles were observed within TP9, however tree branches and organic material were abundant.
Soil Sampling	Soil samples were collected using a dry grab method (unused, dedicated nitrile gloves) & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars. Soil was collected undisturbed for the analysis of asbestos and placed directly into laboratory supplied zip-lock bags. Following collection, the samples were stored in a refrigerated (ice-filled) chest, whilst on-site and in transit to the laboratory. All samples were submitted and analysed within the required holding period as reported by the lab (see **Attachment F**). Soil cuttings were used as backfill for the boreholes.
Sample Nomenclature	Samples were collected from BH1 to BH21 at nominal depths as follows: ▪ -A samples were collected from 0 to 0.1 mBGL ▪ -B samples were collected from 0.2 to 0.3 mBGL; and ▪ -C samples were collected from 0.5 to 0.6 mBGL. All samples collected for asbestos analysis were obtained from soil exposed at the surface of each borehole, and were submitted as the –A sample for each location.
Decontamination Procedures	The hand auger was decontaminated between sampling locations with a solution of Decon 90 and potable water then rinsed with potable water, to ensure the apparatus was free of all residual materials. Dedicated gloves were used for each sample, and replaced after use.
Laboratory Analysis and QAQC	Soil samples were submitted for analysis of the contaminants of potential concern by Eurofins Laboratories. Samples were transported under Chain-of-Custody and internal laboratory QAQC procedures were met (**Attachment F**). Internal QAQC procedures were followed in accordance with the laboratories IANZ accreditation, and no non-conformances were reported (**Attachment G**).
Field based QAQC	One duplicate sample (QC1) was collected during the field investigation, being a duplicate of BH9-5. The duplicate samples were collected and reviewed in accordance with AS 4964 (2004). See **Section 0**.
Adopted Criteria	Results of the soil sampling event were compared to: ▪ "Regional Recent" trace element soil concentrations (95th percentile values) defined the natural background concentrations of contaminants, ▪ Soil Contaminant Standards (SCS) regulated by the NES, for residential (no produce) land use settings, as presented in Section 6 of the Methodology for Deriving Soil Contaminant Standards to protect Human Health (2012); and ▪ Site specific ecological criteria derived in accordance with Cavanagh & Harmsworth (2023) *An implementation framework for ecological soil guideline values* (the 'Eco-SGVs). Individual values applied to the dataset are presented in **Table 1, Attachment C**.

6. Results

Soil samples collected by EINZ were combined with the results of the NZGC sampling event, for comparison to the adopted criteria. A total of 15 samples were collected from soils within the site, and an adequate density was achieved for site characterisation as defined MfE's *Contaminated Land Management Guideline No.5, Site Investigation and Analysis of Soils, 2021* (CLMG 5). A comparison of the results against the adopted criteria is presented in **Table 1, Attachment C** and the lab reports are provided in **Attachment F**. A plan showing the sample locations are presented as **Figure 2; Attachment A** and test pit logs are presented in **Attachment G.**

6.1 Site Stratigraphy

The stratigraphy encountered can be generally described as:

- **0 to 0.2-0.3 mBGL**: Topsoil, dark brown silt with minor fine to coarse gravels, trace rootlets.
- **0.2 to 0.7 mBGL +**: light brown silt and fine to coarse gravels, low - moderate plasticity, firm.

A lens of organic rich filling material containing tree branches and stumps was identified at NZGC sampling location, TP4 (SS7/8) and EINZ test pit TP9. These test pits were positioned within the 'waste disposal' area in the southwestern corner of the site. Inclusions of river type gravels were identified, which appeared to be related to the natural soil profile of the locality, and no significant inclusions of anthropogenic waste materials were identified.

6.2 Analytical Results

The results reported individual concentrations of trace metals over 'regional recent' background levels applicable to the site for arsenic (As), cadmium (Cd), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni) and zinc (Zn). Elevated metal concentrations were observed throughout the topsoil layer (to at least 0.3 m depth), however apart from lead, the levels did not follow a discernible trend. No detectable concentrations of organochlorine pesticides (OCPs), volatile (short chain) TPH or asbestos was detected in any of the soil samples analysed, with no visible fragments of asbestos containing materials (ACM) identified anywhere across the site. A table of results is provided in **Table 1, Attachment C**. In addition, no significant contaminant concentrations were detected in soils sampled from the possible HAIL land area to the southwest, being NZGC samples 7 and 8, as well as samples collected from EINZ TP9.

Variable lead concentrations were reported across the site as a whole, and given that lead is a largely immobile contaminant, with an affinity for fine particulate matter, the variation observed is typical of a fine grained (silty) soil type. However, in areas surrounding the former buildings elevated lead concentrations were detected which exceed the soil contaminant standards for a residential setting (being NZGC Sample 9_0-0.2, and EINZ samples TP7_0-0.1 and TP8_0-0.1).

Statistical analysis of the dataset was assessed for suitability as described in **Section 6.3.1** below, which found the dataset appropriate for calculating the 95% upper confidence limits (UCL) of the mean, for most of the metal contaminants. The 95% UCL values were considered to better represent the risk posed by site soils as a whole, given the likelihood of soil movement across the areas exposed. The calculated values are presented in Table 1 Attachment C, which were calculated using software developed specifically for environmental investigations by the United States Environmental Protection Agency (USEPA), being ProUCL. All of the 95% UCL values were calculated to be less than the residential (no produce) SCS for metals (except B and Cr) while all individual concentrations for the remaining contaminants were reported to be less than the residential (no produce) SCS. In addition, the standard deviations calculated for the metal contaminants were all less than 50% of the residential SCS, with all reported concentrations found to be well below the SCS for commercial settings.

6.3 Quality Assurance / Quality Control

Quality Assurance and Quality Control (QAQC) was assessed for the field works using duplicate sample, QC1. A bulk quantity of soil was collected from the primary sample location without mixing, and divided into two identical sampling jars. The samples were then presented blind to the laboratory

(to avoid bias) and analysed for metals. At least one duplicate sample was collected for every 20 primary soils analysed, and the results were used to calculate the relative percentage difference (RPD). The methods were in line with AS4482.1 (2005) using the following equation:

$$RPD = \frac{|C_O - C_R|}{[(C_O + C_R)/2]} \times 100$$

Where C_O = Concentration obtained for the primary sample; and
C_R = Concentration obtained for the duplicate sample.

Results are presented in **Table 6-1** and were within the acceptable standard (i.e. less than 30 to 50%). Standardised procedures were adhered to and the sampling met the minimum density required for adequate site assessment in accordance with CLMG 5. The dataset was considered fit for use.

Table 6-1 Field QAQC results

Sample ID	Description	Priority Metals						
		Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
TP9_0.5	Soil	4.6	0.03	20	11	18	15	63
QC1	BFD	5.1	0.04	22	12	20	16	70
RPD (%)		**10**	**29**	**10**	**9**	**11**	**6**	**11**

6.3.1 Statistical Analysis

Given the variability observed in site soils, statistical analysis of the dataset was carried out by EINZ, to develop a broad understanding of the nature or spatial distribution of the contamination onsite. Criteria to be met in order to validate the use of this analysis is prescribed by Section 7.4.1 of CLMG 5 (MfE 2021), which was achieved by the current investigation as follows:

- Soil sampling locations were distributed in a systematic grid across accessible parts of the site and the sampling density meets the minimum requirements for a site of 2,400 m^2 prescribed by CLMG5;
- The coefficient of variation (CV) was less than 1.2, therefore the dataset was considered to be normally distributed (as defined by NSW EPA (2022) *Sample Design Part 2: Interpretation* Guidance, which was relied on in the absence of NZ based guidelines).
- The dataset was collected from the same exposure area, being the primary unit to be exposed to sensitive receptors as identified by the CSM (**Table 4-1**)
- No over representation of results below the laboratory limit of reporting (LOR) was identified, with most concentrations exceeding the LOR for metals.

Additional Data Validation steps were evaluated as presented in **Table 1, Attachment C**, all of which found the application of 95% UCL values for the metal contaminants to be fit for use. Given the exposure of site soils to the open environment, and the expected movement of vehicles to occur across the site as a whole, due to the proposed activities, the 95% UCL was considered to better evaluate the level of risk posed by soil across the exposure area.

7. Risk Assessment

7.1 Human Health Risk

Soil within the site was investigated and did not identify significant concentrations of the contaminants of potential concern (COPC). Although elevated lead was identified which exceeded the SCS for the more conservative, residential (10%) exposure setting, the risk posed by these soils was considered to remain low due to:

- The lack of waste disposal (HAIL) activities;
- The aged condition of the lead;
- The silty stratigraphy that would significantly reduce the bioavailability through binding of the lead contaminant to fine particulate matter;

- Retention of the contaminant source, being the existing dwelling that is likely to contain paint with lead in the external parts;
- The reduction of exposed soil that would result from the subdivision and house relocation activities and the lack of excavation proposed for the development;
- The presence of ecological species in site soils and the lack of visible impacts to flora observed within the site;
- The increased concrete coverage that would reduce the generation of dust;
- All of the concentrations reported were below the SCS for high density residential (no produce) and commercial settings; and
- No change in land use activities was proposed.

Given that the elevated lead concentrations were positioned in the vicinity of the existing dwelling which will not be removed, any excavations in this area would need to ensure the structural integrity of this aged villa is retained. Furthermore, given the retention of the structure, it cannot be assured that future exposure to painted surfaces of the structure (containing lead) will not occur in the future. In the existing setting, any significant removal of old painted surfaces would pose a greater risk of contaminant spread than if no action was taken, therefore coverage of these surfaces was proposed, to manage any future risk of exposure to lead based paints. Limiting exposed soil areas would further reduce any potential risk posed by lead in soil, and with consideration of the evidence stated above; soil within the site was expected to pose a no more than minor risk as a result of the proposed activities.

Management measures will assist with the control of soil exposure during development, and are provided in **Attachment H**.

7.2 Ecological Risk

Ecological criteria was derived based on Cavanagh & Harmsworth (2023) to evaluate the potential risk posed to ecological species within the site, or any offsite location where soil may be deposited. Given the heterogeneity expected for silty soils, the 95% upper confidence limits (UCL) of the mean were calculated to derive a site specific 'benchmark' concentration that represented the site as a whole. Such a number is considered to better represent the risk posed to ecological species across the site, given the likely disturbance and movement of soils resulting from the proposed activities. The 95% UCLs were calculated using Pro UCL, developed by the USEPA, and the dataset was verified as suitable for use in accordance with NSW EPA (2022) Sample Design Guidelines – Part 2 (Interpretation) in the absence of NZ guidance. All of the calculated 95% UCL values for the individual metal concentrations, as well as individual concentrations of all other contaminants were below the ecological guideline values derived for the site, and a no more than minor risk was identified for ecological receptors.

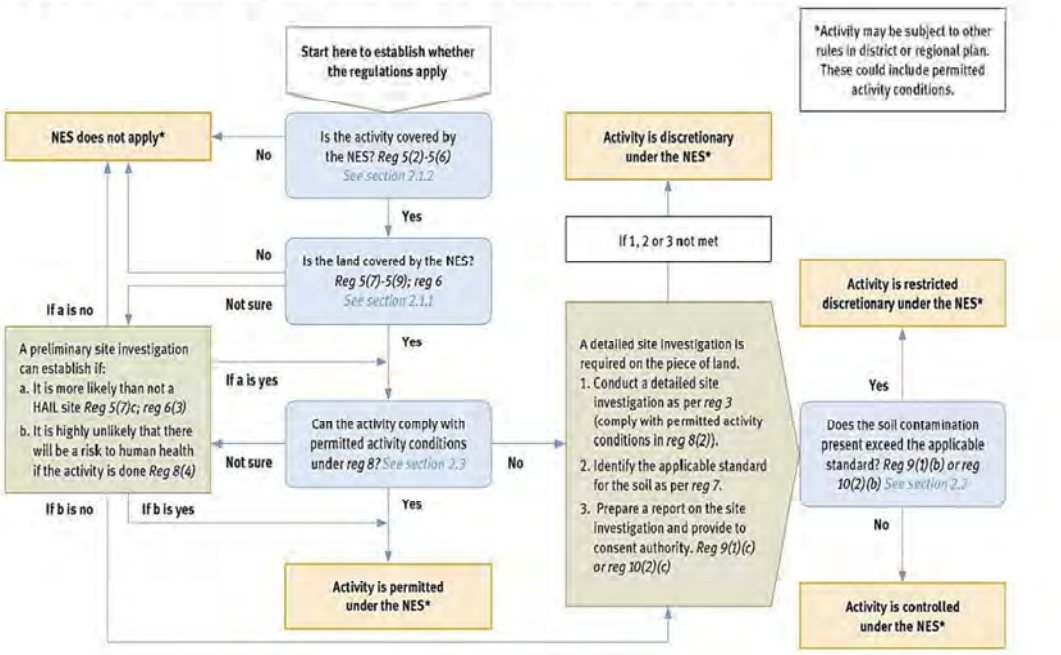
7.3 NES-CS

The findings of this investigation were evaluated in accordance with Figure 3 of the *NES Users Guide* to determine the consenting requirements under the NES. Soil disturbance and subdivision activities were regulated by the NES and the occurrence of HAIL activities was previously identified (yet was not confirmed by this DSI). This DSI revealed the concentrations of soil contaminants to be below the SCS applicable to the residential (no produce) land use setting, and given the evidence in Section 7.1, a no more than minor risk was expected as a result of the works. Based on the findings of this investigation, the proposed subdivision represents a controlled activity.

Excavation of soil will be limited to the installation of services and piles only, and were unlikely to exceed the 'permitted limit' volumes defined by regulation 8(2). As all concentrations were below the SCS for residential land uses, any soil disturbance works would represent a permitted activity. However, environmental controls must be in force during the proposed works, as detailed within the soil management plan (**Attachment H**).

A copy of the '*Users Guide*' flowchart is presented below.

Figure 3: Determining resource consent requirements under the NES



8. Closure

The investigation found the historic use of the site to be residential, and given the absence of anthropogenic materials and contaminant concentrations reported for soil in the south western corner of the site, waste disposal activities identified by the LLUR were considered unlikely to have occurred on the land to a degree that posed a contamination risk.

With consideration of the limitations of this report (**Section 9**) EINZ found the soils to pose a no more than minor risk to human and ecological receptors as a result of the proposed activities. No evidence of waste disposal to land was confirmed, with evidence suggesting the cleared tree mulch was left in the southwestern part to break down and use for levelling this part following the removal of stumps. It was considered unlikely that HAIL activities have occurred on the southwestern 'piece of land'.

The subdivision represents a controlled activity while soil disturbance works were permitted, in light of the absence of HAIL activities.

Any surplus soils generated by the works were unlikely to represent cleanfill material and would require disposal at an alternative deposition site, such as Burwood Landfill. A Soil Management Plan has been prepared (see **Attachment H**) for use during development.

8.1 Certifying Statement:

With consideration of the report limitations (**Section 9**) this investigation was conducted in general accordance with the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* and any other regulations / guidelines relevant to the works at the time of completion, and under the supervision of a Suitably Qualified Environmental Practitioner (SQEP). Evidence of competency is available on request.

9. STATEMENT OF LIMITATIONS

This report has been prepared for the exclusive use of Waghorn Builders Ltd. (the client) whom is the only intended beneficiary of our work and this report. The scope of the investigations carried out for the purpose of this report was limited to those agreed to by the client and CGW as outlined in the proposal for the works.

No other party should rely on the document without the prior written consent of EINZ, and we undertake no duty, nor accept any responsibility or liability, to any third party who purports to rely upon this document without EINZ's approval. In particular, EINZ assumes no responsibility to any third party accepting waste in reliance on this report, for any loss or damage including indirect, consequential or special losses as a result of reliance on this document, except as expressly agreed in writing between EINZ and that third party.

EINZ has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in New Zealand as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited investigation of conditions, with specific sampling locations chosen to be as representative as possible under the given circumstances.

Whilst EINZ has used the degree of care and skill referred to above, this report or information provided or issued by EINZ in relation to fill or soil conditions or contamination is limited to EINZ's evaluation of the samples collected by EINZ from specific sampling locations at the Site in accordance with the Scope of Work between EINZ and the Client. EINZ therefore cannot warrant or guarantee that the results or conclusions contained in this report or information that apply across all or any part of the Site or that all or any part of the Site is free from contamination. The Client accepts responsibility for ensuring that the Scope of Work is suitable for the Client's purposes.

EINZ's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EINZ may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not be verified by EINZ.

EINZ's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

For and on behalf of
EINZ Limited

Sari Eru
Senior Environmental Scientist / SQEP

Emmanuel Woelders
Senior Environmental Engineer

Encl:

Attachment A	Figures
Attachment B	Proposed Development Plans
Attachment C	Results Tables & ProUCL Calculations
Attachment D	Photo Log
Attachment E	Aerial Photographs
Attachment F	Lab Documentation
Attachment G	Test Pit Logs
Attachment H	Soil Management Plan

Abbreviations

ACM	Asbestos-containing material
CLMG	Contaminated Land Management Guideline
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
DP	Deposited Plan
DSI	Detailed Site Investigation
EINZ	Environmental Investigations New Zealand
HAIL	Hazardous Activities and Industries List
IANZ	Institute of Accreditation New Zealand
MfE	Ministry for the Environment
MSL	Mean Seal Level
m BGL	Metres Below Ground Level
NES	National Environmental Standard for Contaminants in Soil
OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
RMA	Resource Management Act (1991)
SCS	Soil Contaminant Standard
SQEP	Suitably Qualified Environmental Practitioner
TPH	Total Petroleum Hydrocarbons (analysis of organic compounds)
UCL	Upper Confidence Limit (population mean)

References

AS4482.1 (2005) Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.

Cavanagh & Harmsworth (2023) An implementation framework for ecological soil guideline values.

MfE (2021a) Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand, Ministry for the Environment.

MfE (2021b) Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (Revised 2021) Ministry for the Environment.

WasteMINZ (2022) Technical Guidelines for Disposal to Land, Waste Management Institute New Zealand Incorporated (WasteMINZ) 3rd Edition, 2022.

Attachment A

Figures

Map sourced from Canterbury Maps, accessed 17 September 2023

einz
Suite 4, 102 Victoria Street
Christchurch, New Zealand 8011

Drawn:	L.C.
Approved:	S.E.
Date:	11-09-23

Waghorn Builders Ltd

Detailed Site Investigation

131 Main North Road, Oxford

Site Locality Plan

Figure: 1

Project: ZE1023.E02

0 5 10 15 20 meters

LEGEND (all locations are approximate)

TP XX NZGC Test Pit location

TP XX EINZ Test Pit Location:

Site Boundary

Proposed Subdivision

einz
Suite 4, 102 Victoria Street
Christchurch, New Zealand 8011

Drawn:	L.C.
Approved:	S.E.
Date:	11-09-23

Waghorn Builders Ltd

Detailed Site Investigation

131 Main Street, Oxford

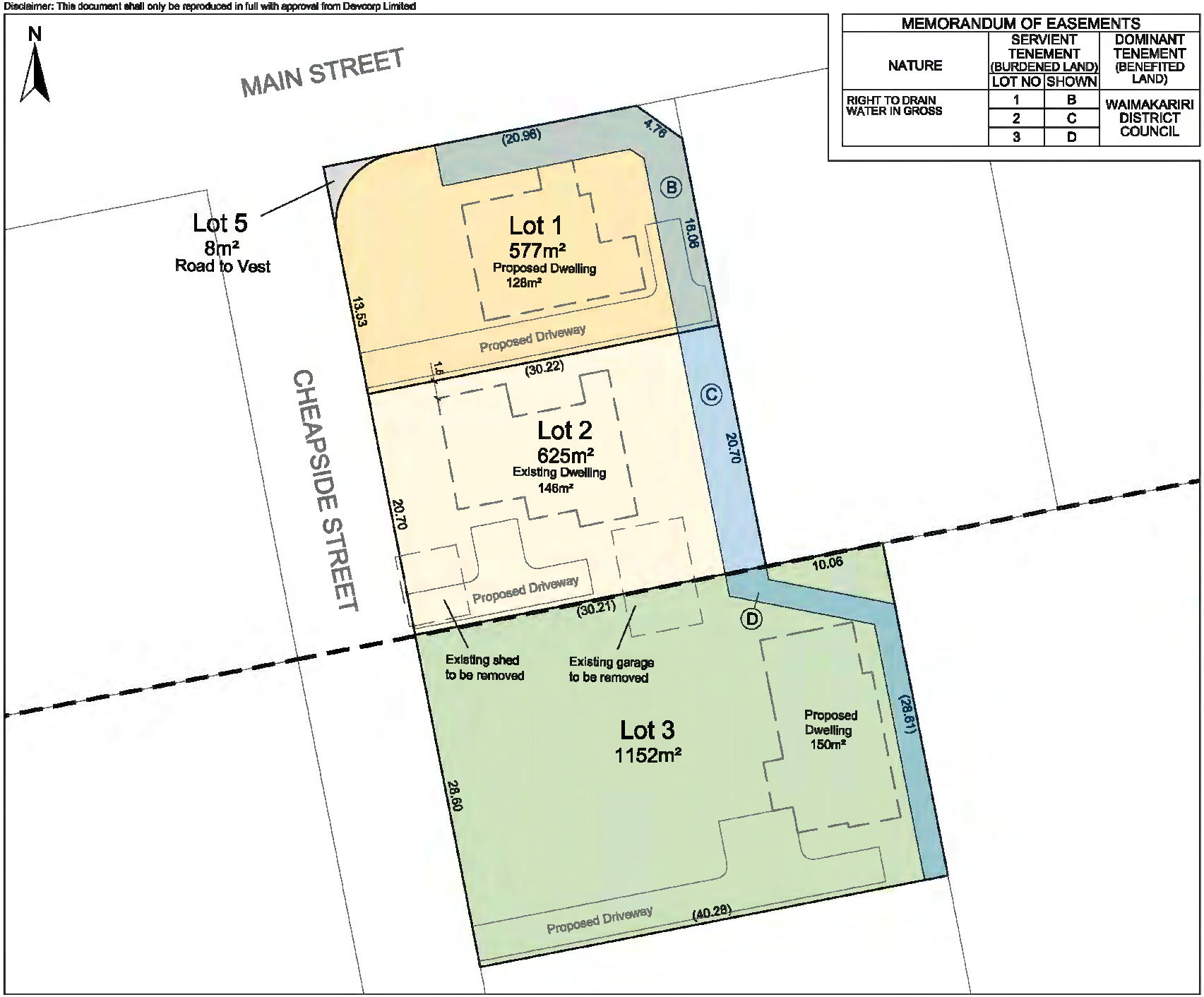
Sampling Location Plan

Figure: 2

Project: ZE1023.E02

Attachment B

Selected Development Plans



MEMORANDUM OF EASEMENTS			
NATURE	SERVIENT TENEMENT (BURDENED LAND)		DOMINANT TENEMENT (BENEFITED LAND)
	LOT NO	SHOWN	
RIGHT TO DRAIN WATER IN GROSS	1	B	WAIMAKARIRI DISTRICT COUNCIL
	2	C	
	3	D	

DEVCORP

NOTES:

Description - Lot 1 DP 80671
Record of Title - CB46B/975
Area - 2362m²
Owner - Glovehorn Limited

Areas and dimensions are subject to survey approval

A full assessment of easements will be undertaken after the engineering is complete. This may result in additional easements to those already shown

Zone Bdy

Easement Area

REVISION DETAILS		BY	DATE
A	Preliminary Issue	MM	07.22
B	Layout Changes	MM	04.23

DESIGN	MM	131 MAIN STREET OXFORD
DRAWN	MM	
CHECKED	MM	
APPROVED	MM	

GLOVEHORN LIMITED

FEE SIMPLE SUBDIVISION SCHEME PLAN

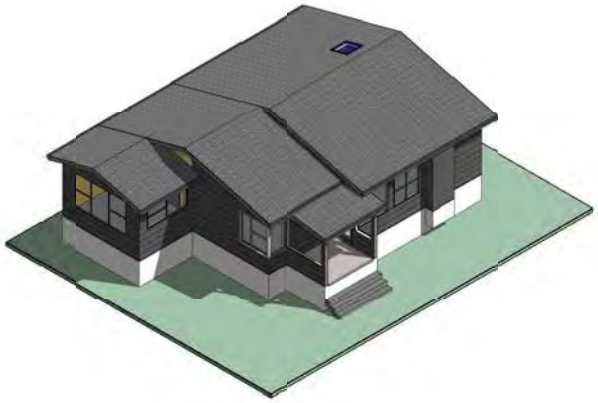
SCALE	1:300@A3	REV
COUNCIL	Waimakariri District Council	2B
DWG NO	1057.Main Street.Scheme Plan.dwg	

HOUSE RELOCATION TO

131 MAIN STREET, OXFORD; LOT 1

	DRAWING INDEX:	Revision	Date
A0.01	GENERAL NOTES		
A1.01	SITE PLAN		
A1.02	SEDIMENT AND EROSION CONTROL PLAN		
A2.01	GROUND FLOOR PLAN		
A3.01	ELEVATIONS		
A3.02	ELEVATIONS		
A4.01	EXISTING CROSS-SECTION		
A4.02	PROPOSED CROSS-SECTION		
A4.03	PROPOSED CROSS-SECTION		
A4.04	PROPOSED CROSS-SECTION		
A5.01	TRENCHING DETAILS		
A5.02	PLUMBING AND DRAINAGE DETAILS		
S1.01	PROPOSED PILE PLAN		
S1.02	PROPOSED FLOOR FRAMING PLAN		
S1.03	BRACING PLAN		
S1.04	EXISTING AND PROPOSED ROOF FRAMING PLANS		
S2.01	STRUCTURAL DETAILS		
S2.02	STRUCTURAL DETAILS		
S2.03	STRUCTURAL DETAILS		
S2.04	STRUCTURAL DETAILS		
S3.01	LUMBERLOK PILE CONNECTION		
S3.02	GIB BRACING SCHEDULE		

TOTAL: 22



ADDRESS:		131 MAIN STREET, OXFORD
LEGAL DESCRIPTION:		LOT 3 DP 80871 BLK VIII OXFORD SD
SITE AREA:		577 m²
SITE COVERAGE:		
FOOTPRINT		114 m²
ROOF OVERHANGS > 600 mm		0 m²
TOTAL AREA		114 m²
SITE COVERAGE		20% (35% PERMITTED)
ZONING	-	RES2
WIND ZONE	-	SED
LEE ZONE	-	YES
SNOW ZONE	-	N4
EARTHQUAKE ZONE	-	2
EXPOSURE ZONE	-	B
CLIMATE ZONE	-	3
FLOOD MANAGEMENT AREA	-	YES

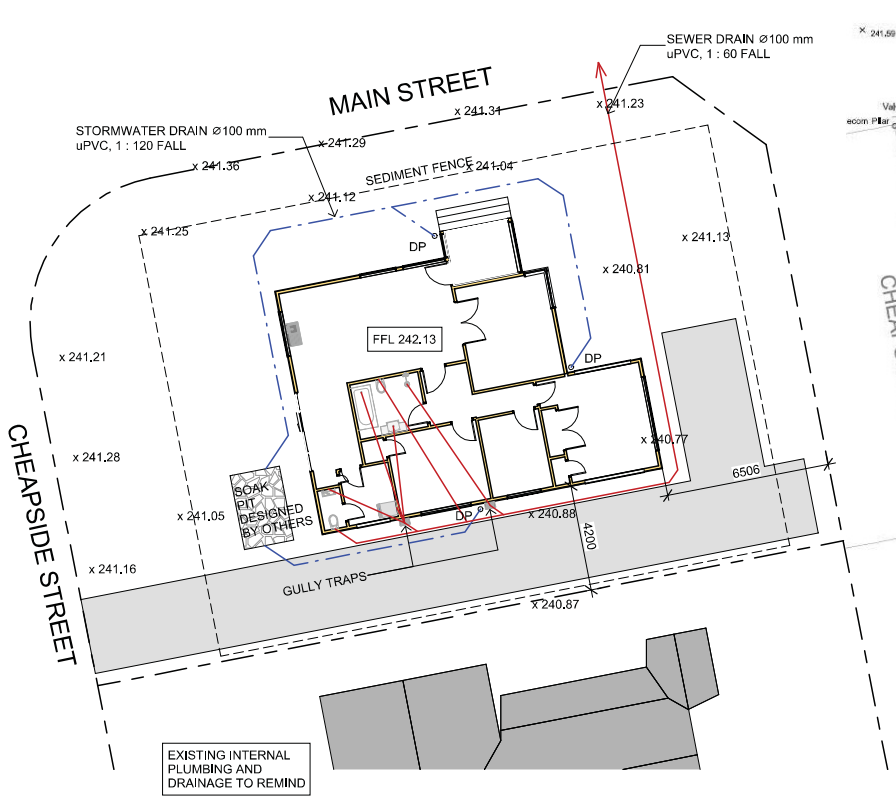
LEVELS KEY:

241.1 FFL - PROPOSED FLOOR LEVELS

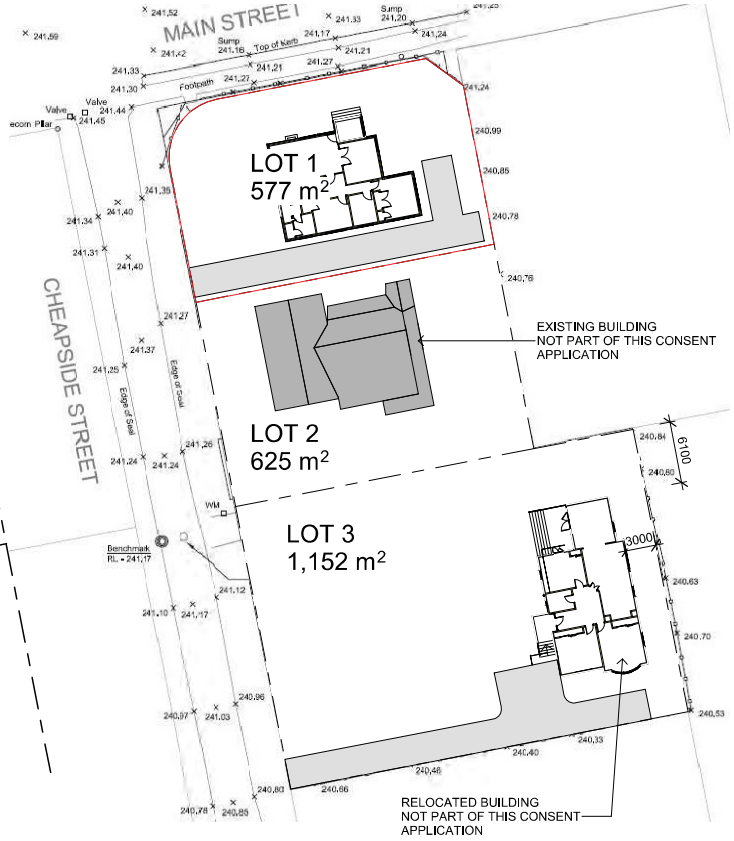
× 240.6 - EXISTING LEVELS TO CHRISTCHURCH DRAINAGE DATUM (CDD)

— — — - LEGAL SITE BOUNDARY

REFER TO DUE DILIGENCE REPORT BY PROCERTO FOR DRAINAGE PLAN INCLUDING SIZES OF WASTE WATER AND STORM WATER PIPES AND SOAK PIT DESIGN



SITE PLAN
Scale 1:200



LOCALITY SITE PLAN
Scale 1:500

SUMMARY OF ORIGINAL AND PROPOSED SITES

	ORIGINAL	PROPOSED
ADDRESS	141 WESTON ROAD, SAINT ALBANS, CHRISTCHURCH	131 MAIN ST, OXFORD, WAIMAKARIRI DISTRICT
SITE ELEVATION	6 m	242 m
WIND ZONE	LOW	SED, LEE ZONE
EARTHQUAKE ZONE	ZONE 2	ZONE 2

SITE HAZARD SIGNS TO BE PLACED AT GATE NOTING EXPECTED HAZARDS, SITE LOG REQUIREMENTS AND SAFETY EQUIPMENT

SITE TO BE FENCED WITH MIN 2.0 m HIGH SAFETY FENCES WITH PAD LOCKED GATE TO PREVENT UNAUTHORISED ACCESS DURING CONSTRUCTION.

SAFETY FENCES TO BE CONSTRUCTED WITH GALVANISED CHAINLINK NETTING HAVING A MAXIMUM SIZED GRID OF 50 mm × 50 mm.
SPACING OF POSTS SHALL BE A MAXIMUM OF 2.5 m. GAP BETWEEN THE BOTTOM OF THE FENCE AND GROUND SHALL BE MAX 100 mm.

ROST
ROBUST STRUCTURES DESIGN CONSULTANTS
ROBUST STRUCTURES DESIGN CONSULTANTS
021 085 29 575 Alexander Zamshin
15/27 Waterman Pl, Ferrymead, Christchurch
info@rost.nz www.rost.nz

The contractor shall verify all dimensions and levels onsite before work commences

Do not scale off drawings

JOB TITLE:
HOUSE RELOCATION TO
131 MAIN STREET, OXFORD; LOT 1

DRAWING TITLE:
SITE PLAN

REVISION HISTORY

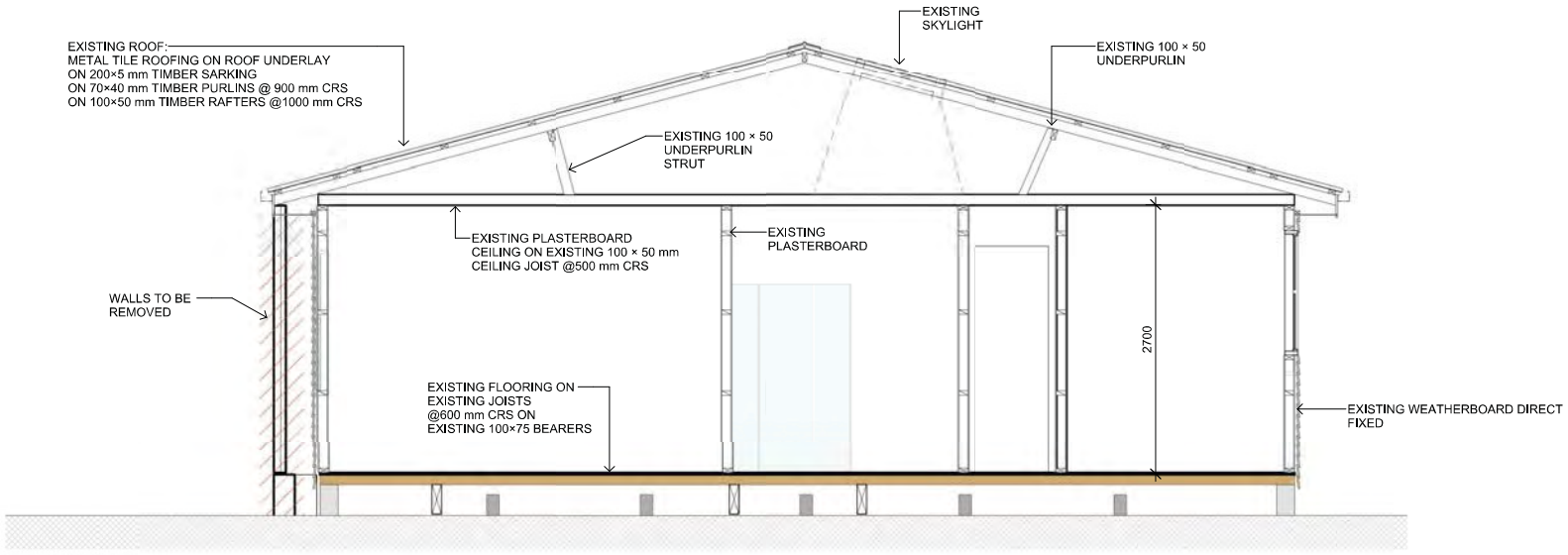
SCALE: As indicated @ A3

ISSUE: FOR CONSENT
DATE: 12/07/2023
DRAWN BY: E TURUEVA
DESIGNED BY: E TURUEVA
APPROVED BY: D CHERNYSHOV

SHEET No A1.01

REVISION:

12/07/2023 10:46:11 am



1 / A2.01 SCALE 1 : 50

ROST ROBUST STRUCTURES DESIGN CONSULTANTS	**ROBUST STRUCTURES DESIGN CONSULTANTS** 021 085 29 575 Alexander Zamshin 15/27 Waterman Pl, Ferrymead, Christchurch info@rost.nz www.rost.nz	**The contractor shall verify all dimensions and levels onsite before work commences** **Do not scale off drawings**	JOB TITLE: HOUSE RELOCATION TO 131 MAIN STREET, OXFORD; LOT 1	DRAWING TITLE: EXISTING CROSS-SECTION	REVISION HISTORY	SCALE: 1 : 50 @ A3 ISSUE: FOR CONSENT DATE: 12/07/2023 DRAWN BY: E TURUEVA DESIGNED BY: E TURUEVA APPROVED BY: D CHERNYSHOV	SHEET No A4.01 REVISION:

12/07/2023 10:46:41 am

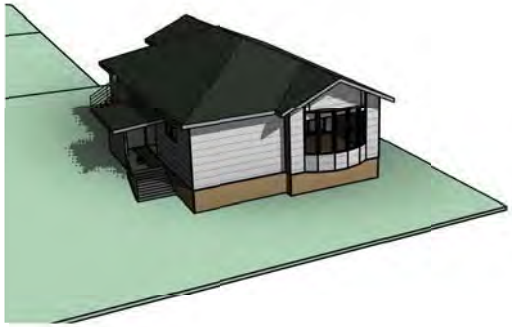
HOUSE RELOCATION TO

131 MAIN ST, OXFORD; LOT 3

FOR BUILDING CONSENT ISSUE

	DRAWING INDEX:	Revision	Date
A0.01	GENERAL NOTES		
A1.01	SITE PLAN		
A1.02	SEDIMENT AND EROSION CONTROL PLAN		
A2.01	GROUND FLOOR PLAN		
A3.01	ELEVATIONS		
A4.01	SECTION 1		
A4.02	SECTION 2		
A5.01	PLUMBING PLAN		
A5.02	TRENCHING DETAILS		
A5.03	HWC INSTALLATION AND PLUMBING DETAILS		
A5.04	PLUMBING AND DRAINAGE DETAILS		
S1.01	PROPOSED FOUNDATION PLANS		
S1.02	BRACING AND LINTEL PLAN		
S1.03	EXISTING AND PROPOSED ROOF FRAMING PLANS		
S1.04	STRUCTURAL DETAILS		
S1.05	STRUCTURAL DETAILS		
S1.06	STRUCTURAL DETAILS		
S1.07	STRUCTURAL DETAILS		
S1.08	STRUCTURAL DETAILS		
S1.09	LUMBERLOK 12 kN PILE CONNECTION		
S1.10	LUMBERLOK LINTEL FIXING		
S1.11	GIB BRACING SCHEDULE		

TOTAL: 22



ADDRESS:		131 MAIN STREET, OXFORD
LEGAL DESCRIPTION:		LOT 1 DP 80871 BLK VIII OXFORD SD
SITE AREA:		1,152 m²
SITE COVERAGE:		
FOOTPRINT		150 m²
ROOF OVERHANGS > 600 mm		0 m²
TOTAL AREA		150 m²
SITE COVERAGE		13% (35% PERMITTED)
ZONING	-	RES2
WIND ZONE	-	SED
LEE ZONE	-	YES
SNOW ZONE	-	N4
EARTHQUAKE ZONE	-	2
EXPOSURE ZONE	-	B
CLIMATE ZONE	-	3
FLOOD MANAGEMENT AREA	-	YES

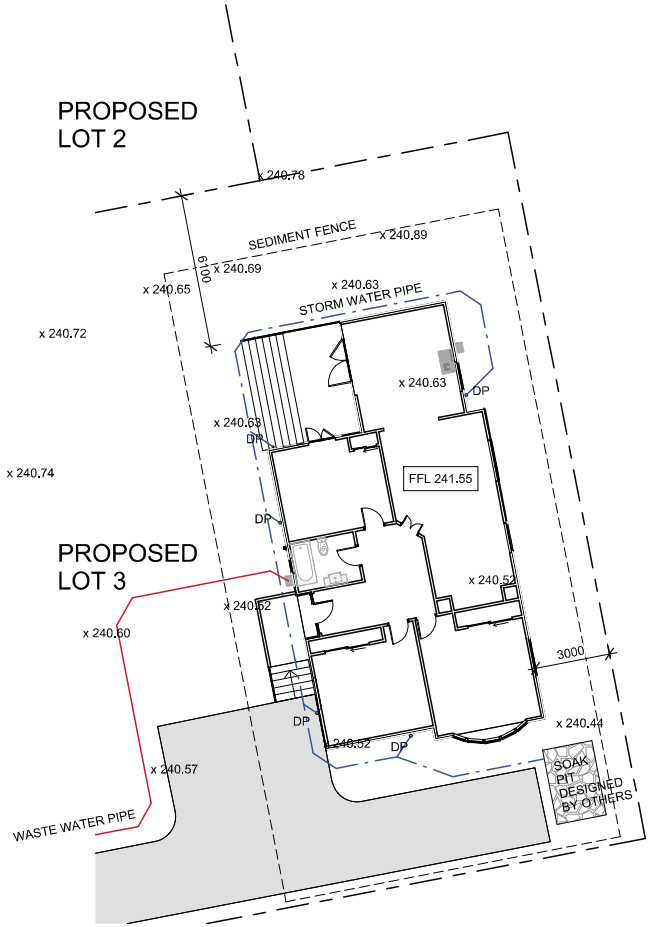
LEVELS KEY:

241.55 FFL - PROPOSED FLOOR LEVELS

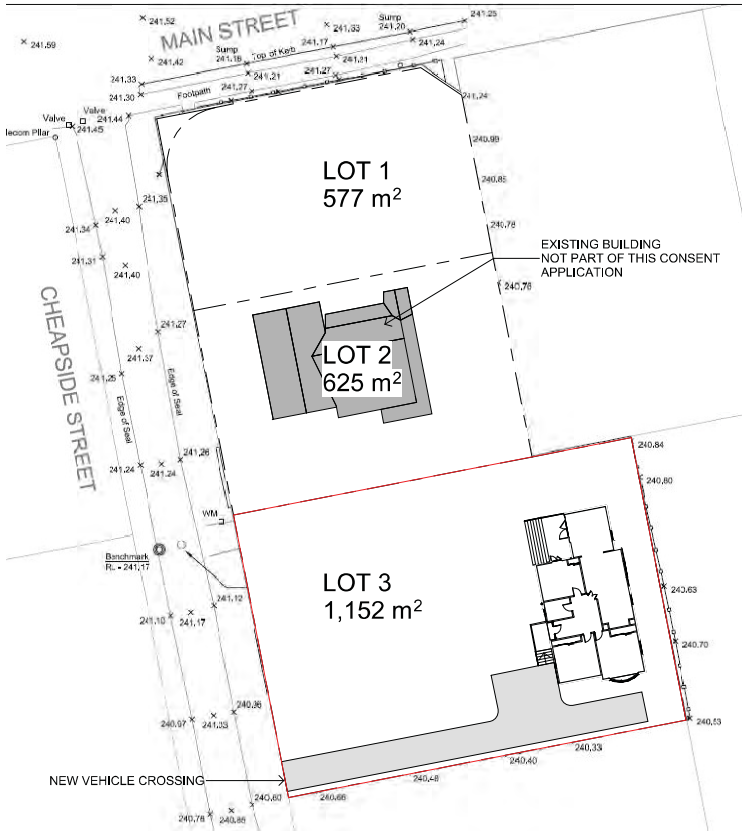
× 240.6 - EXISTING LEVELS TO CHRISTCHURCH DRAINAGE DATUM (CDD)

— — - LEGAL SITE BOUNDARY

REFER TO DUE DILIGENCE REPORT BY PROCERTO FOR DRAINAGE PLAN INCLUDING SIZES OF WASTE WATER AND STORM WATER PIPES AND SOAK PIT DESIGN



SITE PLAN
Scale 1:200



LOCALITY SITE PLAN
Scale 1:500

SUMMARY OF ORIGINAL AND PROPOSED SITES

	ORIGINAL	PROPOSED
ADDRESS	120 EDWARD AVE, EDGEWARE, CHRISTCHURCH	131 MAIN ST, OXFORD, WAIMAKARIRI DISTRICT
SITE ELEVATION	6 m	241 m
WIND ZONE	LOW	SED, LEE ZONE
EARTHQUAKE ZONE	ZONE 2	ZONE 2

SITE HAZARD SIGNS TO BE PLACED AT GATE NOTING EXPECTED HAZARDS, SITE LOG REQUIREMENTS AND SAFETY EQUIPMENT

SITE TO BE FENCED WITH MIN 2.0 m HIGH SAFETY FENCES WITH PAD LOCKED GATE TO PREVENT UNAUTHORISED ACCESS DURING CONSTRUCTION.

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SPACING OF POSTS SHALL BE A MAXIMUM OF 2.5 m. GAP BETWEEN THE BOTTOM OF THE FENCE AND GROUND SHALL BE MAX 100 mm.

ROST
ROBUST STRUCTURES DESIGN CONSULTANTS
021 085 29 575 Alexander Zamshin
15/27 Waterman Pl, Ferrymead, Christchurch
info@rost.nz www.rost.nz

The contractor shall verify all dimensions and levels onsite before work commences

Do not scale off drawings

JOB TITLE: HOUSE RELOCATION TO 131 MAIN ST, OXFORD; LOT 3

DRAWING TITLE: SITE PLAN

REVISION HISTORY

00	FOR CONSENT	23/01/2023

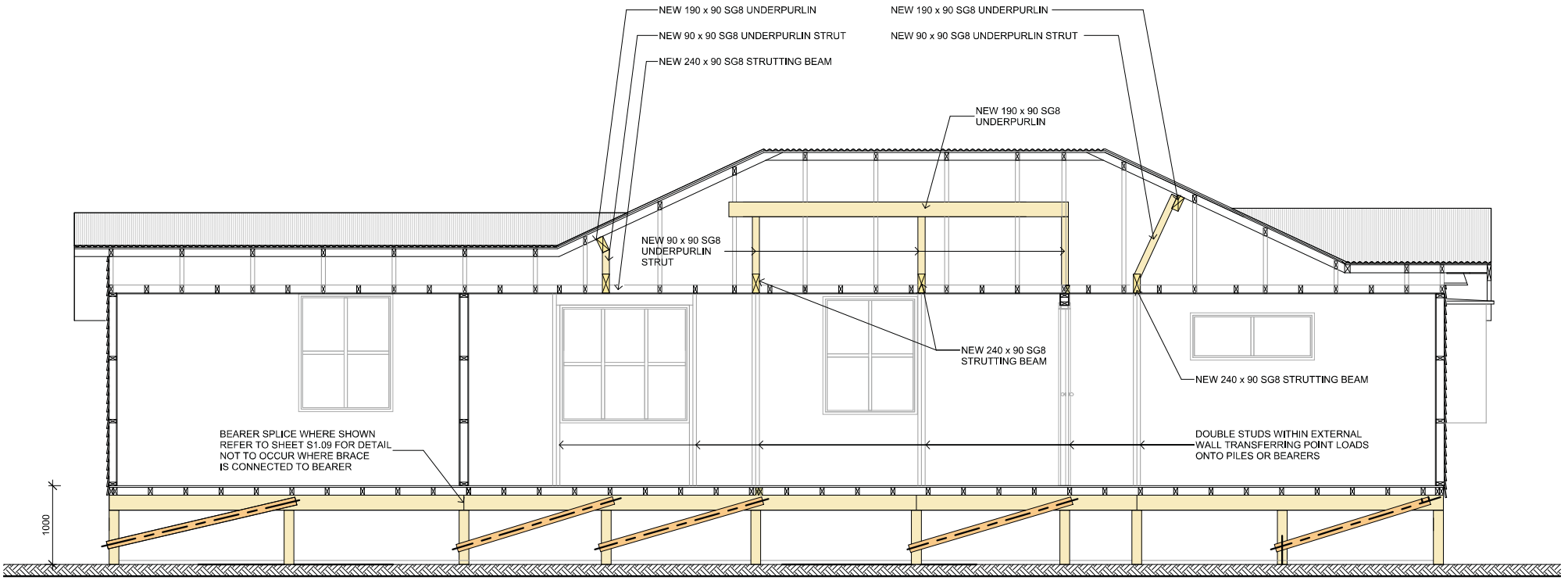
SCALE: As indicated @ A3

ISSUE: FOR CONSENT
DATE: 5/07/2023
DRAWN BY: A ZAMSHIN
DESIGNED BY: A ZAMSHIN
APPROVED BY: D CHERNYSHOV

SHEET No A1.01

REVISION:

7/07/2023 11:59:40 am



ROST
ROBUST STRUCTURES DESIGN CONSULTANTS

ROBUST STRUCTURES
DESIGN CONSULTANTS

021 085 29 575 Alexander Zamshin
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info@rost.nz www.rost.nz

The contractor shall verify all dimensions and levels onsite before work commences

Do not scale off drawings

JOB TITLE:

HOUSE RELOCATION TO
131 MAIN ST, OXFORD; LOT 3

DRAWING TITLE:

SECTION 1

REVISION HISTORY

00	FOR CONSENT	23/01/2023

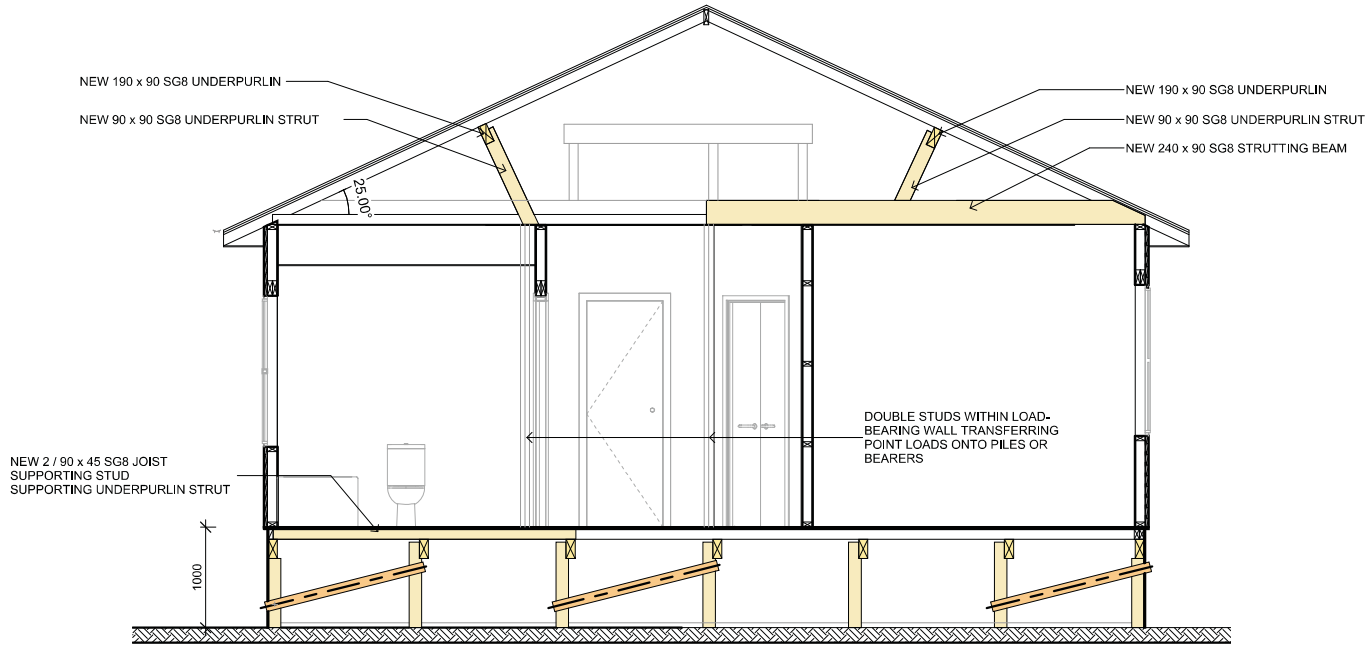
SCALE: 1 : 50 @ A3

ISSUE: FOR CONSENT
DATE: 5/07/2023
DRAWN BY: A ZAMSHIN
DESIGNED BY: A ZAMSHIN
APPROVED BY: D CHERNYSHOV

SHEET No A4.01

REVISION:

7/07/2023 11:59:50 am



ROST
ROBUST STRUCTURES DESIGN CONSULTANTS

ROBUST STRUCTURES
DESIGN CONSULTANTS

021 085 29 575 Alexander Zamshin
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The contractor shall verify all dimensions and levels onsite before work commences

Do not scale off drawings

JOB TITLE:

HOUSE RELOCATION TO
131 MAIN ST, OXFORD; LOT 3

DRAWING TITLE:

SECTION 2

REVISION HISTORY

00	**FOR CONSENT**	**23/01/2023**

SCALE: 1 : 50 @ A3

ISSUE: FOR CONSENT
DATE: 5/07/2023
DRAWN BY: A ZAMSHIN
DESIGNED BY: A ZAMSHIN
APPROVED BY: D CHERNYSHOV

SHEET No A4.02

REVISION:

7/07/2023 11:59:51 am

Attachment C
Results Tables

Table 1: Soil Analytical Results

Sample ID	Sample Depth (m)	Heavy Metals									Total Petroleum Hydrocarbons			Organochlorine Pesticides			Asbestos ID
		As	B	Cd	Cr	Cu	Pb	Hg	Ni	Zn	$C_7 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{36}$	Total DDT	Aldrin	Dieldrin	
NZGC Sampling - 22 March 2023																	
1	0 - 0.2	7	1.7	**0.25**	23	**21.6**	**146**	**0.17**	12.8	136	<10	<15	307	0.06	<0.005	<0.05	NA
2	0.3 - 0.5	3.4	<1.3	0.023	18.1	7.5	21.6	0.05	10.3	62.2	<10	<15	79	<0.02	<0.005	<0.05	NA
3	0 - 0.2	5.4	2	**0.16**	19.5	15.7	**130**	0.13	12.8	105	<10	<15	70	<0.02	<0.005	<0.05	NA
4	0.2 - 0.4	5.3	1.9	0.055	20.5	13.7	**56.1**	0.13	14.1	88.5	<10	<15	36	<0.02	<0.005	<0.05	NA
5	0 - 0.2	5.6	2.3	0.1	18.6	15.7	**109**	**0.17**	13.1	110	<10	<15	78	<0.02	<0.005	<0.05	NA
6	0.3 - 0.5	3.6	2.8	0.042	17.2	8.14	**35.1**	**0.66**	11.4	70.4	<10	<15	51	<0.02	<0.005	<0.05	NA
7	0.2 - 0.4	5.2	3.8	**0.17**	19.4	**24.1**	**123**	0.11	13.8	**158**	<10	<15	46	<0.02	<0.005	<0.05	NA
8	0.4 - 0.6	4.4	2	0.05	20.1	10.1	27.2	0.092	15	80.9	<10	<15	<25	<0.02	<0.005	<0.05	NA
9	0 - 0.2	5.3	5.4	**0.21**	19.2	**22.8**	**350**	**0.19**	14.9	**189**	<10	<15	47	<0.02	<0.005	<0.05	NA
10	0.3 - 0.5	5.4	2.8	0.077	20.7	12.8	**56.8**	0.079	15.8	98	<10	<15	<25	<0.02	<0.005	<0.05	NA
11	0 - 0.2	4.4	2	0.06	19.3	**19.3**	19.3	0.071	13.6	75.3	<10	<15	<25	<0.02	<0.005	<0.05	NA
12	0.4 - 0.6	5.8	2.5	0.042	22.4	**22.4**	22.4	0.11	**17.2**	88.9	<10	<15	<25	<0.02	<0.005	<0.05	NA
EINZ Sampling - 18 August 2023																	
TP7	0 - 0.1	6.4	NA	**0.29**	20	**28**	**390**	**0.32**	13	**210**	NA	NA	NA	NA	NA	NA	No
TP8	0 - 0.1	**7.9**	NA	**0.32**	17	46	**440**	**0.4**	11	**360**	NA	NA	NA	NA	NA	NA	No
TP9	0.4 - 0.5	4.6	NA	0.03	20	11	18	0.13	15	63	NA	NA	NA	NA	NA	NA	No
Statistical Analysis using Pro UCL software(See Data Validation adjacent)																	
No. of detected concentrations[A]		15	12	15	15	15	15	15	15	15	12	12	12	12	12	12	3
Minimum Concentration[B]		3.4	1.7	0.023	17	7.5	19.3	0.05	10.3	62.2	<10	<15	36	<0.02	<0.005	<0.05	No
Maximum Concentration[C]		7	5	0.3	23	28	390	0.66	17	210	<10	<15	307	0.06	<0.005	<0.05	No
Mean value ($\bar{x}$)		5.3		0.1		15.6	57	0.19	14	126							
Standard deviation (SD)[D]		1.2		0.1		9.8	144	0.16	1.9	79							
Standard error(SE $\bar{x}$)		0.31		0.03		2.5	37	0.04	0.5	20							
Coefficient of variation (CV)[E]		0.2		0.9		0.5	1.1	0.86	0.1	0.6							
95% upper confidence limit(UCL) of $\bar{x}$ [F]		5.9		0.2		23.1	237	0.28	14	162							
Adopted Criteria																	
Background: Regional Recent Soil[1]		7	NR	0.1	28	16	30	0.13	16	148	110	70	1,300	2.4	NR		No [9]
SCS: Residential (no produce)[3]		24	NL	110	770 Cr (VI)	>10,000	250 (inorganic)	510 (inorganic)	400 [8]	1,200 [8]	710	1,500	NA	120	22		
SCS: Commercial[2]		70	NR	1,300	6,300 Cr (VI)	>10,000	3,300 (inorganic)	4,200 (inorganic)	NR	NR	500	1,700	NA	1,000	160		
SGV: Ecological[4]		20	14	1.5	200	95	290	NR	NR	180	110	70	1,300	2.4	NR		
Disposal to Land (WasteMINZ 2022)																	
Wheatsheaf Fill Acceptance[5]		17	NL	0.8	290 Cr (VI)	>10,000	160	200 (inorganic)	400 [8]	150 [8]	110	58	1,300	45	1.1		No
Class 4 Controlled Fill[6]		17	NL	0.8	150	220	160	0.7 (inorganic)	35	190	110	58	NR	2	0.1		< 0.001% w/w
Burwood Landfill[7]		80	> 10,000	400	2,700 Cr (VI)	> 10,000	880	1,800	600	14,000	120	6,500	10,000	400	70		> 0.001% w/w
Class 2 Landfill[6]	no TCLP	20	2	4	20	10	20	0.8	20	20	200	600	NR	NR	0.002		TBC
	TCLP (mg/L)	1	40	0.2	1	0.5	1	0.04	1	1					0.04		
Class 1 Landfill[6]	TCLP (mg/L)	5	20	1	5	5	5	0.2	10	10	NR	NR	NR	NR	0.02		

Notes: All results are recorded in mg/kg (unless otherwise stated)

X.XX	Bold values indicate value exceeding background criteria, with pale green values indicating background value exceeded
	Highlighted yellow values indicates an individual concentration which exceeds criteria, with pale yellow cell indicating criteria exceeded.
	Pale red values indicates concentration exceedance of the 95% UCL value calculated for the site
12.34	Bold red values indicate 95% UCL result applied to site for suitability assessment.

NA	'Not Analysed' i.e. the sample was not analysed.
ND	'Not detected' i.e. all concentrations of the compounds within the analyte group were found to be below the laboratory limits of detection.
NR	No relevant published criterion.
1	Background concentrations were Tonkin & Taylor (2007) *Background Concentrations of Selected Trace Elements in Canterbury,* for *Christchurch Urban - Recent soils* . Values indicate 'Cleanfill' limits
2	For Generic Settings, see tables 54 and 55 of the NES Methodology (2011).
3	Residential (no produce) values as published in the ' *Methodology for Deriving Standards for Contaminants in Soil to protect Human Health' (2012)* Tables 54 and 55.
4	Ecological criteria developed by *Cavagnagh and Harmsworth (July 2023) An implementation framework for ecological soil guideline values* . Values for sensitive soils applied
5	Values reflect the Rural Residential 25% produce values of the NESCS (indicative of Wheatsheaf Cleanfill)
6	Criteria as per WasteMINZ 2022 *Technical Guidelines for Disposal to Land*
7	Consented Acceptance Value for Burwood Managed Fill.
8	Value based on NEPM (2013) Values for Residential (accessible soil) settings
9	Values derived from BRANZ (2017) *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*

Data Validity (For use of 95% UCL)

Dataset suitability for use of 95% UCL follows CLMG5 as well as NSW EPA Sample Design Part 2: Interpretation, prescribed by NEPM (2013) which is the second tier heirachy of guidance recommended by CLMG2. See Section 6.3.1 of report.

Use of 95% UCL considered valid where all criteria are met, as follows:

Note	Criteria Applied to meet suitability
A	No. of samples must meet the 'minimum number of sampling points' recommended for the site area, as presented in CLMG5
B	Where the concentrations are reported to be below the limit of reporting (LOR) the value used for calculation will be 50% of the laboratory LOR.
C	No concentration shall exceed more than 250% of the adopted criteria
D	SD should be less than 50% of the criteria.
E	CV less than 1.2 = lognormal distribution (may not be suited to 95% UCL)
F	95% UCL should be less than criteria.

Attachment D

Photo Log

Site Inspection Photographic Log

18 August 2023

ZE1023.E02

131 Main Street, Oxford

No. and Description	Photograph
Photo No. 1 Existing Dwelling with new fencing being installed in far distance. Excavator arm shows dimensions of scoop used for test pitting.	
Photo No.2 Rear of dwelling looking north. Small wood shed observed along western boundary. Photo taken by NZGC in June 2023, shows western boundary plantings (now removed).	
Photo No.3 Relocatable home in southern part of property.	

No. and Description	Photograph
Photo No.4 Current eastern site boundary looking north, showing TP08 location NZGC sample locations SS1 & 2 in far distance.	
Photo No.5 Rear garage	
Photo No.6 Rear garage, eastern boundary looking north. TP07 in distance, with tool shed along eastern boundary	

No. and Description	Photograph
Photo No.7 Tool shed along eastern boundary, looking south	
Photo No.8 Rear boundary looking east.	
Photo No.9 Soil profile showing stratigraphy	

Attachment E
Aerial Photography

1940-45 131 Main St

Rating Units

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0 0.01 0.02 0.03 0.04
Kilometres

Scale: 1:700 @A1

1955-59 131 Main St

N

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0 0.01 0.02 0.02 0.03 Kilometres

Scale: 1:400 @A1

Copyright Environment Canterbury, Waimakariri DC, LINZ 2010

1965-69 131 Main St

N

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0 0.01 0.01 0.02 0.03 Kilometres

Scale: 1:350 @A1

1975-79 131 Main St

N

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0 0.01 0.01 0.02 0.03 Kilometres

Scale: 1:350 @A1

Copyright Environment Canterbury, Waimakariri DC, LINZ 2010

canterbury maps

1990-94 131 Main St

N

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Information from this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

0 0.01 0.01 0.02 0.03 Kilometres

Scale: 1:350 @A1

2010-14 131 Main St

N

0 0.01 0.01 0.02 0.03 Kilometres

Scale: 1:150 @A1

Map Created by Canterbury Maps on 14/09/2023 at 8:13 PM

2015-19 131 Main St

N

0 0.01 0.01 0.02 0.03 Kilometres

Scale: 1:150 @A1

Map Created by Canterbury Maps on 14/09/2023 at 8:14 PM

Attachment F
Laboratory Documentation

einz

Suite 4, 102 Victoria Street CHCH 8011
Ph: (03) 261 6100
Em:service@eianz.co.nz

TO: **Eurofins Christchurch**
43 Detroit Drive,
Rolleston CHCH 8042
Ph: 03 - 343 5227

PROJECT: 2E1023

ADDRESS: Main Street @ Oxford

Sample ID	Laboratory ID	Container Type	Sampling Date	WATER	SOIL	MATERIAL	B21A-NZ: Asbestos ID, HM[A]	B21C-NZ: Asbestos (BRANZ), HM[A]	B1-NZ: TPH (TPHSG-NZ), BTEXN	B3-NZ: Phenols/PAHs	B4-NZ: TPH/BTEXN/PAHs	B7-NZ: TPH/BTEXN/PAHs/HM[A]	M7-NZ: HM[B]	M8-NZ: HM[A]	Asbestos ID (Qualitative)	Asbestos BRANZ (Quantitative)	TCLP_As, Cr, Cu, Pb, Zn (waste)				HOLD	Comments
TP7-0.1		1XJ+1X2LB	19.8.23		X		X															
TP7-0.5		1XJ																			X	
TP8-0.1		1XJ+1X2LB					X															
TP8-0.5		1XJ																			X	
TP9-0.1		J+2LB																			X	
TP9-0.5		J+2LB					X															
TP9-1.0		J+2LB																			X	
QC1		J																			X	
QC2		J											X									

TURNAROUND
- X STD
- 24 HRS
- 48 HRS
- 72 HRS
- OTHER

Container Type:

J = solvent washed, acid rinsed, Teflon sealed glass jar
ZLB = Zip-Lock Bag

Field Sampling Technician:

I attest that these samples were collected in accordance with standard EINZ field sampling procedures.

Sampler's Name (EINZ):
Print: ~~SB~~ SARI ERM
Signature:
Date: 21.8.23

Received by (Eurofins):
Print: Orla Harris
Signature:
Date: 21.8.23

IMPORTA Please e-mail Sample Receipt & Results to service@eianz.co.nz

Date/Time: 21.8.23 2:30PM

Chilled: Yes / No
Temp: 16.3 - 0.1
Correction:
Final Temp: 16.2 °C

1018603

eurofins | Environment Testing

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

EINZ Limited
Unit 4, 102 Victoria Street
Christchurch
New Zealand 8011

Attention: **Sari Eru**

Report **1018603-S**
Project name MAIN STREET OXFORD
Project ID ZE1023
Received Date Aug 21, 2023

Client Sample ID			**TP7 _0.1**	**TP8_0.1**	**TP9_0.5**	**QC1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**Z23-Au0050333**	**Z23-Au0050334**	**Z23-Au0050335**	**Z23-Au0050336**
Date Sampled			**Aug 19, 2023**	**Aug 19, 2023**	**Aug 19, 2023**	**Aug 19, 2023**
Test/Reference	LOR	Unit				
Metals M8 (NZ MfE)						
Arsenic	0.1	mg/kg	6.4	7.9	4.6	-
Cadmium	0.01	mg/kg	0.29	0.32	0.03	-
Chromium	0.1	mg/kg	20	17	20	-
Copper	0.1	mg/kg	28	46	11	-
Lead	0.1	mg/kg	390	440	18	-
Mercury	0.01	mg/kg	0.32	0.40	0.13	-
Nickel	0.1	mg/kg	13	11	15	-
Zinc	5	mg/kg	210	360	63	-
Sample Properties						
% Moisture	1	%	23	18	14	14
Metals M7 (NZ MfE)						
Arsenic	0.1	mg/kg	-	-	-	5.1
Cadmium	0.01	mg/kg	-	-	-	0.04
Chromium	0.1	mg/kg	-	-	-	22
Copper	0.1	mg/kg	-	-	-	12
Lead	0.1	mg/kg	-	-	-	20
Nickel	0.1	mg/kg	-	-	-	16
Zinc	5	mg/kg	-	-	-	70

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Metals M8 (NZ MfE)	Auckland	Aug 22, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Auckland	Aug 21, 2023	14 Days
- Method: LTM-GEN-7080 Moisture Content in Soil by Gravimetry			
Metals M7 (NZ MfE)	Auckland	Aug 22, 2023	6 Months
- Method: LTM-MET-3040 Metals in Waters Soils Sediments by ICP-MS			

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
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Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

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Perth
46-48 Banksia Road
Welshpool
WA 6106
Tel: +61 8 6253 4444
NATA# 2377
Site# 2370

Company Name: EINZ Limited
Address: Unit 4, 102 Victoria Street
Christchurch
New Zealand 8011

Project Name: MAIN STREET OXFORD
Project ID: ZE1023

Order No.:
Report #: 1018603
Phone: 02 2672 7910
Fax:

Received: Aug 21, 2023 2:30 PM
Due: Aug 28, 2023
Priority: 5 Day
Contact Name: Sari Eru

Eurofins Analytical Services Manager : Katyana Gausel

Sample Detail						HOLD	Moisture Set	Metals M7 (NZ MfE)	Eurofins Suite B21A-NZ: Asbestos, Metals (As,Cd,Cr,Cu,Ni,Pb,Zn,Hg) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									X
Tauranga Laboratory - IANZ# 1402									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TP7 _0.1	Aug 19, 2023		Soil	Z23-Au0050333		X		X
2	TP8_0.1	Aug 19, 2023		Soil	Z23-Au0050334		X		X
3	TP9_0.5	Aug 19, 2023		Soil	Z23-Au0050335		X		X
4	QC2	Aug 19, 2023		Soil	Z23-Au0050336		X	X	
5	TP7_0.5	Aug 19, 2023		Soil	Z23-Au0050337	X			
6	TP8_0.5	Aug 19, 2023		Soil	Z23-Au0050338	X			
7	TP9_0.1	Aug 19, 2023		Soil	Z23-Au0050339	X			
8	TP9_1.0	Aug 19, 2023		Soil	Z23-Au0050340	X			
9	QC1	Aug 19, 2023		Soil	Z23-Au0050341	X			
Test Counts						5	4	1	3

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram | **mg/L**: milligrams per litre | **µg/L**: micrograms per litre

ppm: parts per million | **ppb**: parts per billion | **%**: Percentage

org/100 mL: Organisms per 100 millilitres | **NTU**: Nephelometric Turbidity Units | **MPN/100 mL**: Most Probable Number of organisms per 100 millilitres

CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR: RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Metals M8 (NZ MfE)							
Arsenic	mg/kg	< 0.1			0.1	Pass	
Cadmium	mg/kg	< 0.01			0.01	Pass	
Chromium	mg/kg	< 0.1			0.1	Pass	
Copper	mg/kg	< 0.1			0.1	Pass	
Lead	mg/kg	< 0.1			0.1	Pass	
Mercury	mg/kg	< 0.01			0.01	Pass	
Nickel	mg/kg	< 0.1			0.1	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Metals M8 (NZ MfE)							
Arsenic	%	104			80-120	Pass	
Cadmium	%	110			80-120	Pass	
Chromium	%	108			80-120	Pass	
Copper	%	113			80-120	Pass	
Lead	%	112			80-120	Pass	
Mercury	%	114			80-120	Pass	
Nickel	%	109			80-120	Pass	
Zinc	%	106			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Metals M8 (NZ MfE)				Result 1					
Arsenic	K23-Au0050683	NCP	%	105			75-125	Pass	
Chromium	K23-Au0050683	NCP	%	87			75-125	Pass	
Copper	K23-Au0050683	NCP	%	106			75-125	Pass	
Lead	K23-Au0050713	NCP	%	115			75-125	Pass	
Mercury	K23-Au0050683	NCP	%	113			75-125	Pass	
Nickel	K23-Au0050683	NCP	%	106			75-125	Pass	
Zinc	K23-Au0050683	NCP	%	96			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Metals M8 (NZ MfE)				Result 1	Result 2	RPD			
Arsenic	K23-Au0050712	NCP	mg/kg	9.2	8.2	12	30%	Pass	
Cadmium	K23-Au0050712	NCP	mg/kg	0.05	0.04	19	30%	Pass	
Chromium	K23-Au0050712	NCP	mg/kg	2.6	2.5	5.4	30%	Pass	
Copper	K23-Au0050712	NCP	mg/kg	3.0	2.9	4.1	30%	Pass	
Lead	K23-Au0050712	NCP	mg/kg	4.0	3.7	7.2	30%	Pass	
Mercury	K23-Au0050712	NCP	mg/kg	0.05	0.05	3.0	30%	Pass	
Nickel	K23-Au0050712	NCP	mg/kg	0.8	0.7	9.5	30%	Pass	
Zinc	K23-Au0050712	NCP	mg/kg	32	32	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	K23-Au0050681	NCP	%	32	34	5.5	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Authorised by:

Katyana Gausel	Analytical Services Manager
Raymond Siu	Senior Analyst-Metal
Sophie Bush	Senior Analyst-Asbestos

Raymond Siu
Senior Instrument Chemist (Key Technical Personnel)

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates IANZ accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

EINZ Limited
Unit 4, 102 Victoria Street
Christchurch
New Zealand 8011

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Attention:	Sari Eru
Report	1018603-AID
Project Name	MAIN STREET OXFORD
Project ID	ZE1023
Received Date	Aug 21, 2023
Date Reported	Aug 23, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence IANZ Accreditation does not cover the performance of this service (non-IANZ results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

eurofins | Environment Testing

Project Name MAIN STREET OXFORD
Project ID ZE1023
Date Sampled Aug 19, 2023
Report 1018603-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP7 _0.1	23-Au0050333	Aug 19, 2023	Approximate Sample 144g Sample consisted of: Fine grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP8_0.1	23-Au0050334	Aug 19, 2023	Approximate Sample 293g Sample consisted of: Fine grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
TP9_0.5	23-Au0050335	Aug 19, 2023	Approximate Sample 247g Sample consisted of: Fine grained soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Christchurch	Aug 21, 2023	Indefinite

eurofins

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Eurofins Environment Testing NZ Ltd
NZBN: 9429046024954

Auckland	Christchurch	Tauranga
35 O'Rorke Road	43 Detroit Drive	1277 Cameron Road,
Penrose,	Rolleston,	Gate Pa,
Auckland 1061	Christchurch 7675	Tauranga 3112
Tel: +64 9 526 4551	Tel: +64 3 343 5201	Tel: +64 9 525 0568
IANZ# 1327	IANZ# 1290	IANZ# 1402

Eurofins Environment Testing Australia Pty Ltd
ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road	19/8 Lewalan Street	179 Magowar Road	Unit 1,2 Dacre Street	1/21 Smallwood Place	1/2 Frost Drive
Dandenong South	Grovedale	Girraween	Mitchell	Murarrie	Mayfield West NSW 2304
VIC 3175	VIC 3216	NSW 2145	ACT 2911	QLD 4172	Tel: +61 2 4968 8448
Tel: +61 3 8564 5000	Tel: +61 3 8564 5000	Tel: +61 2 9900 8400	Tel: +61 2 6113 8091	Tel: +61 7 3902 4600	NATA# 1261
NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	NATA# 1261	Site# 25079 & 25289
Site# 1254	Site# 25403	Site# 18217	Site# 25466	Site# 20794	

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool
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NATA# 2377
Site# 2370

Company Name: EINZ Limited
Address: Unit 4, 102 Victoria Street
Christchurch
New Zealand 8011

Project Name: MAIN STREET OXFORD
Project ID: ZE1023

Order No.:
Report #: 1018603
Phone: 02 2672 7910
Fax:

Received: Aug 21, 2023 2:30 PM
Due: Aug 28, 2023
Priority: 5 Day
Contact Name: Sari Eru

Eurofins Analytical Services Manager : Katyana Gausel

Sample Detail						HOLD	Moisture Set	Metals M7 (NZ MfE)	Eurofins Suite B21A-NZ: Asbestos, Metals (As,Cd,Cr,Cu,Ni,Pb,Zn,Hg) (NZ MfE)
Auckland Laboratory - IANZ# 1327						X	X	X	X
Christchurch Laboratory - IANZ# 1290									X
Tauranga Laboratory - IANZ# 1402									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TP7 _0.1	Aug 19, 2023		Soil	Z23-Au0050333		X		X
2	TP8_0.1	Aug 19, 2023		Soil	Z23-Au0050334		X		X
3	TP9_0.5	Aug 19, 2023		Soil	Z23-Au0050335		X		X
4	QC2	Aug 19, 2023		Soil	Z23-Au0050336		X	X	
5	TP7_0.5	Aug 19, 2023		Soil	Z23-Au0050337	X			
6	TP8_0.5	Aug 19, 2023		Soil	Z23-Au0050338	X			
7	TP9_0.1	Aug 19, 2023		Soil	Z23-Au0050339	X			
8	TP9_1.0	Aug 19, 2023		Soil	Z23-Au0050340	X			
9	QC1	Aug 19, 2023		Soil	Z23-Au0050341	X			
Test Counts						5	4	1	3

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V = r x t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
Sampling	Unless otherwise stated Eurofins are not responsible for sampling equipment or the sampling process.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Asbestos Counter/Identifier:

Kate Stuart	Senior Analyst-Asbestos

Authorised by:

Sophie Bush	Senior Analyst-Asbestos

Sophie Bush
Senior Analyst-Asbestos (Key Technical Personnel)

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates ISO/IEC 17025:2017 accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Attachment G

Test Pit Logs

INVESTIGATION LOG

HOLE NO.: TP6

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Consultants

JOB NO.: 086-1

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 22/03/2023
END DATE: 22/03/2023
LOGGED: 22/03/2023

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist.	1	0.2		4, 3, 5		Groundwater Not Encountered
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity-moderate plasticity.	2	0.4		8, 8, 7		
Dense,light brown fine to coarse GRAVEL with some fine to coarse sand,minor cobbles,moist.		0.6 0.8		9, 12, 25 >>		
End of Hole at 1.40m-Target Depth Reached.		1.0 1.2 1.4 1.6 1.8				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18

PHOTO(S)

LINKED POINT IDs

REMARKS

End of Hole at 1.40m-Target Depth Reached.No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

HOLE NO.: TP5

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Consultants

JOB NO.: 086-1

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 22/03/2023
END DATE: 22/03/2023
LOGGED: 22/03/2023

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low plasticity.	3	0.0	TS	3		Groundwater Not Encountered
	4	0.2	TS	5, 7		
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity-medium plasticity.		0.4		6, 7		
		0.6		12, 13		
Dense,light brown,fine to coarse GRAVEL with minor/some cobbles and minor fine to coarse SAND,moist.		0.8		25 >>		
		1.0				
End of Hole at 1.20m-Target Depth Reached.		1.2				
		1.4				
		1.6				
		1.8				

PHOTO(S)

LINKED POINT IDs

REMARKS

End of Hole at 1.20m-Target Depth Reached.No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

HOLE NO.: TP2

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Investigation

JOB NO.: 086

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 12/05/2022
END DATE: 12/05/2022
LOGGED: 12/05/2022

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low-plasticity.	5	0.2	TS	3, 3, 5		Groundwater Not Encountered
Firm,light brown SILT with some fine to coarse gravel,trace cobbles,moist,low plasticity.	6	0.4		5, 7		
Dense,light brown fine to coarse GRAVEL with some cobbles and fine to coarse sand,moist.		0.6		15		
		0.8		17, 25 >>		
		1.0				
		1.2				
		1.4				
		1.6				
		1.8				
		2.0				
		2.2				
		2.4				
		2.6				
Becomes wet.		2.8				
End of Hole at 3.00m-Target Depth Reached.		3.0				
		3.2				
		3.4				
		3.6				

SCALA PENETROMETER scale: 2 4 6 8 10 12 14 16 18

PHOTO(S)

LINKED POINT-IDs

REMARKS

End of Hole at 3.00m-Target Depth Reached.No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

HOLE NO.: TP4

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Investigation

JOB NO.: 086

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 12/05/2022
END DATE: 12/05/2022
LOGGED: 12/05/2022

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low-plasticity.	7	0.2	TS	2, 3, 4, 7, 7, 10, 20, 25 >>		Groundwater Not Encountered
FILL-Loose,dark grey fine to coarse GRAVEL with metal and organics including tree stumps.	8	0.6				
Dense,light brown fine to coarse GRAVEL with some cobbles and fine to coarse sand,moist.		1.0				
Becomes wet.		2.8				
End of Hole at 2.80m-Target Depth Reached.		3.6				

PHOTO(S)

LINKED POINT-IDs

REMARKS

End of Hole at 2.80m-Target Depth Reached.No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

HOLE NO.: TP3

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Investigation

JOB NO.: 086

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 12/05/2022
END DATE: 12/05/2022
LOGGED: 12/05/2022

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low-plasticity.	9	0.0	TS	2		Groundwater Not Encountered
		0.2	TS	6		
Firm,light brown SILT with some fine to coarse gravel,moist,low-plasticity.	10	0.4		7		
		0.6		6		
Dense,light brown fine to coarse GRAVEL with some cobbles and fine to coarse sand,moist.		0.8		7		
		1.0		11		
		1.2		13		
		1.4		14		
		1.6		23 >>		
		1.8		25 >>		
		2.0				
		2.2				
		2.4				
		2.6				
		2.8				
End of Hole at 3.00m-Target Depth Reached.		3.0				
		3.2				
		3.4				
		3.6				

SCALA PENETROMETER (Blows / 100mm): 2 4 6 8 10 12 14 16 18

PHOTO(S)

LINKED POINT-IDs

REMARKS

End of Hole at 3.00m-Target Depth Reached.No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

HOLE NO.: TP1

SITE LOCATION: 131 Main Street,Oxford
PROJECT: Geotechnical Investigation

JOB NO.: 086

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: NZGCL
LOGGED BY: JF

START DATE: 12/05/2022
END DATE: 12/05/2022
LOGGED: 12/05/2022

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	HAND SHEAR VANE (Uncorrected)	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low-plasticity.	11	0.0	TS	4		Groundwater Not Encountered
		0.2	TS	6		
			TS	5		
		0.4	TS	7		
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity-moderate plasticity.	12		TS	18		
		0.6		25 >>		
Becomes with some fine to coarse gravel,minor cobbles.						
Dense light brown fine to coarse GRAVEL with minor cobbles and fine to coarse sand,moist.		0.8				
		1.0				
		1.2				
		1.4				
		1.6				
		1.8				
		2.0				
		2.2				
		2.4				
		2.6				
Becomes wet.		2.8				
End of Hole at 3.00m-Target Depth Reached.		3.0				
		3.2				
		3.4				
		3.6				

PHOTO(S)

LINKED POINT-IDs

REMARKS

End of Hole at 3.00m-Target Depth Reached. No Groundwater Encountered.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [ ] Hand Auger
- [x] Test Pit

INVESTIGATION LOG

SITE LOCATION: 131 Main Street,Oxford

HOLE NO.: TP7

JOB NO.: ZE1023

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: EINZ
LOGGED BY: SE

START DATE: 18/08/2023
LOGGED: 18/08/2023

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm) 2 4 6 8 10 12 14 16 18	COMMENTS	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low plasticity.		0.2	TS			Groundwater Not Encountered
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity-medium plasticity.		0.4				
		0.6				
End of Hole at 0.7 m-Target Depth Reached.		0.8				
		1.0				
		1.2				
		1.4				
		1.6				
		1.8				

INVESTIGATION LOG

HOLE NO.: TP8

JOB NO.: ZE1023

SITE LOCATION: 131 Main Street,Oxford

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: EINZ
LOGGED BY: SE

START DATE: 18/08/2023
LOGGED: 18/08/2023

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm) 2 4 6 8 10 12 14 16 18	COMMENTS	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low plasticity.		0.2	TS			Groundwater Not Encountered
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity-medium plasticity.		0.4				
End of Hole at 0.6 m-Target Depth Reached.		0.6				
		0.8				
		1.0				
		1.2				
		1.4				
		1.6				
		1.8				

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INVESTIGATION LOG

SITE LOCATION: 131 Main Street,Oxford

HOLE NO.: TP9

JOB NO.: ZE1023

CLIENT: Waghorn Builders Limited

RIG: TP
DRILLER: EINZ
LOGGED BY: SE

START DATE: 18/08/2023
LOGGED: 18/08/2023

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm) 2 4 6 8 10 12 14 16 18	COMMENT	WATER
TOPSOIL-Firm,dark brown SILT with minor fine to coarse gravel,trace roots,moist,low-plasticity.		0.2	TS			Groundwater Not Encountered
FILL-Loose,dark brown silty gravel with organics including tree branches		0.4				
		0.6				
Firm,light brown SILT with minor fine to coarse gravel,moist,low plasticity		0.8				
		1.0				
End of Hole at 1.0m-Target Depth Reached.		1.2				
		1.4				
		1.6				
		1.8				
		2.0				
		2.2				
		2.4				
		2.6				
		2.8				
		3.0				
		3.2				
		3.4				
		3.6				

Attachment H

Soil Management Plan

Soil Management Plan

Waghorn Builders (the client) is seeking approval to subdivide land at 131 Main Street, Oxford (the 'site') and environmental controls will be necessary to ensure the proposed activities do not impact users of the site and surrounds. A detailed site investigation failed to identify the occurrence of HAIL activities for the piece of land to be redeveloped, and the activities were expected to result in a no more than minor risk to human health. A summary of the site setting is presented in **Table 1** below.

Table 1 Site Setting

Aspect	Site Details
Site Details	131 Main Street, Oxford.
Site Stratigraphy	**Surface:** Grass and concrete **Topsoil:** Dark brown silty topsoil across site, approx. 0.3 m thick **Natural:** Light brown and grey silts with gravels is present beneath topsoil
NESCS Application	
HAIL[1] Activities?	HAIL activities were unlikely.
Background levels[2]?	Soil exceeded background concentrations and did not represent cleanfill. Any surplus soil that may be generated by the works would be considered (Class 3) managed fill waste. Seek approval from the desired facility prior to disposal.
Contamination Risk?	None
Designation of Activity [3]	Subdivision represented a controlled activity. Soil disturbance represents a permitted activity
Additional WH&S[4] Requirements?	Typical health, safety and environmental measures for construction sites would be adequate. See *Site Management Measures* for further detail.
Soil Disposal Options	Surplus soil generated by the works was expected to represent **MANAGED FILL WASTE.** Offsite disposal of any surplus soils should occur at facilities able to accept managed fill material, such as Burwood Landfill. The receiving site is ultimately responsible for ensuring that the material deposited is representative of the soil sampled by the DSI and is suitable for deposition. Approval of waste should be sought from the receiving facility prior to tipping, and is the responsibility of the site contractor. Any buried waste found below ground does not represent cleanfill and will require disposal as general refuse, and should be deposited at a Class 2 landfill. If material is found to be smelly, colourful, oily or may contain asbestos, all work must cease, and the unexpected finds protocol should be followed.

NOTES: mBGL = meters below ground level of the existing surface
1 –HAIL = The Hazardous Activity and Industry List (MfE, October 2011)
2 – Predicted Background Concentrations as listed for the site (www.lris.govt.nz) .
3 – As defined by Clauses 8 to 1 of the NESCS
4 – As required by the Health and Safety at Work Act (2015) and associated regulations.

Work Schedule

Following the demolition and removal of the existing structures, the following schedule of works is recommended:

1 **Site Preparation:** Lead contractor to ensure all health and safety at work (H&SaW) requirements are met and is responsible for the preparation of site specific plans required to undertake the activity. Ensure any / all environmental controls are installed and working onsite, prior to the commencement of works.

2 **Demolition:** Complete the demolition of external sheds, and remove all construction and demolition (C&D) waste from site.

3 **Waste Acceptance:** Approval from the receiving facility is recommended for the deposition of any surplus soils generated by the activities, prior to tipping. The site contractor is responsible for the approval of any soil deposited at an offsite location, however was not expected to generate more than 20 m^2 of waste requiring offsite disposal, for the 2,400 m^2 site. Contact your preferred waste facility for further detail.

4 **Site Excavation and Construction:** Once the deposition of surplus soil is approved by the receiving facility, soil may be excavated from within the proposed service trenches. The excavated material should be reused within the property wherever possible, however any material requiring offsite disposal must be transported from the site using distinguished haul roads. Suitably experienced haulage contractors should be engaged to transport the excess soils and should adhere to all legislation relevant for the task.

Site Management Measures

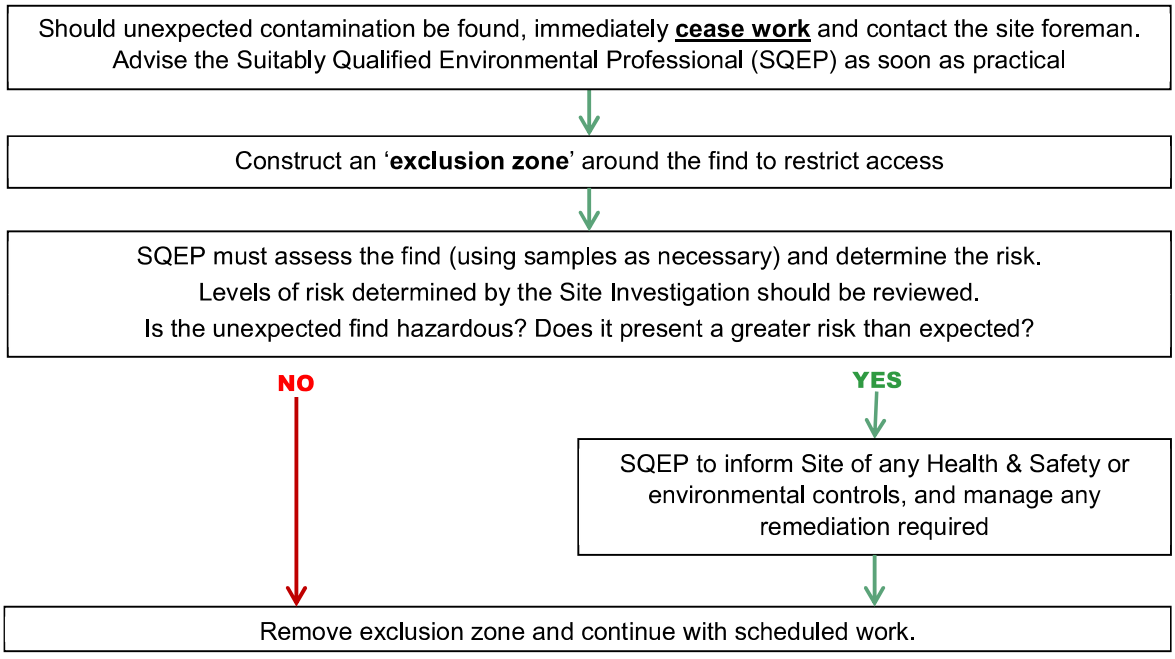
Site specific management plans for the construction activities are the responsibility of the site contractor, and must include any requirements of any Consent issued for the works. Measures for a typical construction site are provided

Site Management Measures

Category	Measure
Site Setup (Prior to any works)	▪ Site entry and exits should be identified, and haul routes established; ▪ Fencing should be built to ensure members of the public cannot enter site; ▪ Toilet and hand washing facilities recommended for washing hands prior to eating; All environmental controls installed as required by consent, Councils DCP and any site specific management plans.
Stormwater Management	If rainfall occurs that makes tracking of wet soils unmanageable, works must stop until the weather improves. Sediment laden water should not leave the boundary of the site, or enter any drain that discharges to the local stormwater system.
Sediment and Erosion Control	Contractors should prepare a Sediment and Erosion Control Plan that includes: ▪ Details of a clearly distinguished haul route for vehicles transporting soil; ▪ A facility to remove sediment from vehicles prior to entering the public road; ▪ Requirements to cover loads and/or soil handling and management measures; ▪ Locations of designated stockpiling areas (if required); ▪ Surface water, noise, vibration and dust management; and ▪ Details for the rehabilitation of any exposed soil surface.
Noise & Vibration	Noise and vibration must remain at reasonable levels, defined by Councils DCP. Any machinery used on site must be adequately serviced to reduce noise and vibration.
Dust and Odour	Control of dust and odour during the construction is the responsibility of the appointed contractor. All works must ensure that no nuisance dust or odours occur at or beyond the site boundary. Controls may include: ▪ Wetting of exposed soil surfaces to reduce dust; ▪ Ceasing works during periods of high winds or heavy rain; and ▪ Regular checking of the site boundary for fugitive dust and odour.
Demolition / Asbestos Management	Demolition activities must be completed as required by any Asbestos Removal Plans (ARP) developed or the site. All works must comply with the: ▪ Health and Safety at work (Asbestos) Regulations 2016; and ▪ WorkSafe Approved Code of Practice (ACOP) for the Management and Removal of Asbestos (ACOP, 2016).
Waste tracking	Surplus soil removed from the site must be tracked from their source to their deposition location (i.e. from cradle to grave). The volume of material removed, the location, haulage contractor and disposal dockets must be maintained by site contractors for provision to the Environmental Consultant.

Category	Measure
Complaints	The Contractor shall have a procedure for recording and responding to any complaints resulting from the activities onsite. Contact details for the Contractor shall be displayed on a noticeboard at the site entrance.
Site Records	Documentation will be required from the site as follows: ▪ Disposal documentation for any material removed from site, including details of the haulage contractor, the deposition location and any consent details; ▪ Volumes and details of source for any material brought to site; ▪ Details of any unexpected finds, additional sampling, variations to the Work Schedule; and ▪ Details of any complaints / fines related to the environment.

Unexpected Finds Protocol



ATTACHMENT 4 – REMEDIAL ACTION PLAN

26 February 2023
Document No: ZE1023.E06_Rev0

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Jake Waghorn
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Dear Jake

Re: Remedial Action Plan for 131 Main Street, Oxford

1. Introduction

Waghorn Builders Limited (the client) engaged EI NZ to prepare a Remedial Action Plan (RAP) for land within the proposed Lot 3, 131 Main Street, Oxford. Located within the local government area of Waimakariri District Council (WDC), on the southern side of Main Street, the site was in use for residential activities, and subdivision of the site was proposed. This RAP continues on from the findings of a Detailed Site Investigation (DSI) reported by EINZ (Report ZE1023.E02_Rev0 dated 18 September 2023) which revealed the site to represent a 'piece of land' as defined by the *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health regulation (2011)* (the 'NESCS'). A plan showing the DSI sampling locations is presented as **Figure 1, Attachment A** and the soil analysis reported by the DSI are presented in **Table 1, Attachment B**.

The DSI found revealed shallow soils impacted by lead (SS9) at the surface of test pit TP5, in the north eastern corner of Lot 3, and at the surface of TP7 and TP8 surrounding the existing dwelling in Lot 2. The impacts appeared to be a result of weathering and damage to external surfaces of the structures, likely to be coated in lead based paint given their age. As the existing dwelling would be retained within Lot 2, and no change in activity was proposed, no remediation for the impacted soils identified in Lot 2 was necessary.

Previous consultants had identified an area within the western part of Lot 3 to have been potentially used for the uncontrolled disposal of waste. However, on review of the historic information available for the site, and in the absence of any significant contaminant concentrations or waste material inclusions identified at TP4 and TP9, it was unlikely that waste disposal activities had occurred on site. Instead, the area appeared to have been used for grazing of goats and other small animals, parking of boats and vehicles and for the stockpiling of vegetation removed from the shelter belt of the site itself. No activities identified by the Ministry for the Environment's (MfE's) Hazardous Activities and Industries List (HAIL) were considered to have occurred on the land by EINZ, and it was considered that information identified by Environment Canterbury's listed land use register, was not representative of the contamination risk posed by site soils.

1.1 Objective

WDC granted subdivision consent (RC225255) and land use consent (RC225256) on 31 October 2023 for the proposed works (**see Attachment C**). Conditions 20 (RC225255) and Condition 2 (RC225256) of the consents were identical, and related to *Contaminated Materials.* The conditions state:

20.1 / 2.1 *The areas of elevated lead in the burn pad/waste disposal area within Lot 3 ('SS9') shall be remediated to comply with the residential soil contaminant standards (SCS) prior to the occupation of any dwelling onsite.*

EINZ Note, SS9 was NOT located in any burn pad or waste disposal area. The source of the lead impacts identified by SS9 were considered to be a result of lead in paint used on the external surfaces of the sheds, and were attributed to the residential activities of the site. No HAIL activities were identified by the Site Investigation carried out by EINZ.

20.2 / 2.2 *The Consent Holder shall prepare a RAP for the site remediation of contaminated topsoil on Lot 3. The Remedial Action Plan shall be in accordance with the requirements of the NESCS and shall be prepared by a suitably qualified and experienced professional (SQEP) and submitted in writing to the Resource Consents Team Leader, for review and approval by Council, prior any work including remediation work starting on site.*

See **Section 4** for the remediation required at Lot 3.

20.3 / 2.3 *The Remedial Action Plan shall include a site management plan that identifies the areas of soil contamination and the areas of operation to carry out the remedial earthworks, health and safety measures such as vehicle, plant and staff decontamination, proposed temporary stock piles, erosion and sediment control and dust control measures and any other measures to ensure the safety of the staff working on the site, the public and the environment.*

See **Section 5** for Site Management Plan

20.4 / 2.4 *The Consent Holder shall provide evidence to the Resource Consents Team Leader in the form of weight dockets confirming the volume of any contaminated fill taken off-site for disposal.*

See **Table 5-2** for Waste Documentation requirements.

20.5 / 2.5 *The Consent Holder shall prepare and submit to the Resource Consents Team Leader a post-earthworks report (a Site Validation Report) in accordance with the requirements of the NESCS to be prepared and approved by a SQEP confirming that all earthworks in and around the contaminated material have been carried out in accordance with the RAP. This shall be supplied prior to, or with the application for a Section 224 Certificate or Building Consent, whichever occurs first in relation to Lot 3, to confirm that site validation works are complete.*

See **Section 6** for Site Validation Strategy.

1.2 Scope of Works

The primary objective of this RAP was to outline the remedial works required for Lot 3, as required by consent RC225255/RC255256/231026170667. This will be achieved by:

- Updating the Conceptual Site Model (CSM) derived for the site, using the findings of the DSI;
- Outlining procedures for the excavation, stockpiling and offsite disposal of lead impacted soils associated with SS9, collected from 0 – 0.2 m depth at TP5;
- Providing control methods for the management of surface water, noise and dust, including contingency measures for common scenarios that may be encountered during

the works; and

- Detailing any health and safety management measures to minimise the exposure of contaminated soil for users of the site and surrounds**.**

The RAP was prepared in general accordance with the Ministry for the Environment's (MfE) guidance document *Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand* (CLMG1).

1.3 Proposed Activities

Devcorp Ltd. prepared a Scheme Plan for the proposed subdivision (Dwg No. 1057, 131 Main Street, Rev 2C). A copy of this plan is presented in the consent (**Attachment C**) and is shown in **Figure 1** below.

Figure 1 Proposed Subdivision Plan

As indicated by the plan, the subdivision will remove the south eastern shed to create three individual property titles which incorporate:

- The relocation of a residential dwelling at Lot 1, covering 577 m^2 in the northern part of site, fronting Main Street;
- The retention of the existing dwelling and garage at Lot 2, covering 625 m^2 in the central part;
- The relocation of a residential dwelling in the eastern part of Lot 3, covering 1152 m^2 across the southern third of the site; and
- The installation of a vehicle crossing in Lot 1 from Main Street, and adjoining driveways along the eastern boundaries of Lots 2 and 3.