

**FLOOD REPORT**  
**24/02/2021**

**52 KAURILANDS ROAD**  
**TITIRANGI**  
**AUCKLAND**

PO BOX 84004  
WESTGATE MASSEY  
AUCKLAND 0657

PHONE  
EMAIL  
WEB SITE

0210451125  
INFO@LDCIVIL.CO.NZ  
WWW.LDCIVIL.CO.NZ

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# DOCUMENT CONTROL RECORD

PROJECT NAME	52 KAURILANDS ROAD, TITIRANGI	
CLIENT NAME	KAMRAN KHAN	
PROJECT REFERENCE NUMBER	LDC 19243	
<i>ACTION</i>	<i>AUTHOR</i>	<i>DATE</i>
REVISION 1	FELIX NGUYEN	24 FEBRUARY 2021
REVIEWED	DANIEL THOMAS	24 FEBRUARY 2021
APPROVED	DANIEL THOMAS	24 FEBRUARY 2021

## LIMITATIONS

Land Development & Civil (LDC) has prepared this report for the exclusive use by **Kamran Khan** for the project at *52 Kaurilands Road, Titirangi*.

It is prepared in accordance with the scope of work and for the purpose outlined in the scope of works and terms of engagement.

LDC disclaims responsibility for any changes that may have occurred after this time. This report should be read in full and in reference to the scope of works. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners. No responsibility or liability to any third party is accepted for any loss or damage whatsoever arising out of the use of or reliance on this assessment by any third party.

LDC accepts no liability for inaccuracies in third party information used as part of this report. This report uses information available to the writer during the preparation. This includes Auckland Council information, specifically Geospatial Information and other information provided by third parties. Geospatial Information current to the site at the time of this document's production. Professional judgement and engineering standards have been adhered to in accordance with the usual care and thoroughness of the consulting profession.

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# INTRODUCTION

Land Development and Civil Ltd (LDC) has been engaged by Kamran Khan to provide a Flood Report for the property at 52 Kaurilands Road, Titirangi.

The flood report is required to assist a consent application to Council to redevelop the property.

## SITE CONTEXT

The subject site is located at 52 Kaurilands Road, Titirangi, Auckland. It is a triangular shaped property which is situated just off Kaurilands Road to the south west. The site falls towards the road verge from its rear boundary in a gentle manner. The legal description of the site is PT LOT 1 DP 34220 with a site area of 809m<sup>2</sup> more or less.

There is a single residential dwelling presently occupying the site's southern corner with a detached garage located toward the site's eastern corner. Access to the garage is currently obtained via an existing driveway directly off Kaurilands Road. An aerial image extracted from Council's Geomaps below describes general site profile, layout, features and public services.



Figure 1: Site Location – 52 Kaurilands Road (February 2021).



The applicant proposes to undertake a three-lot subdivision onsite. LDC was notified that the proposed scheme plan is still under development at the time of preparing this report. As therefore the Flood Report is solely aimed to provide a peak flood level during 100year ARI storm event for the site with a required freeboard proposed as specified within the Code of Practice for any future development onsite.

Auckland Council's GIS Viewer anticipates that the property is affected by 100year floodplain associated with an overland flow path (OLFP) traversing 50 Kaurilands Road property during 100year ARI storm event, as shown in Figure 2 below.

[illegible]

As shown in Figure 2 above, the OLFP commences at the property of 3 The Drive Titirangi, from here the OLFP travels north. It enters 50 Kaurilands Road at its south east boundary. Council's Geomaps provide a catchment area of 69 hectares associated with the OLFP. A floodplain is anticipated to be formed during 100year ARI storm event that would potentially affect the subject site.

## RAPID FLOOD MAPPING

The subject site is situated within the Oratia – Waitemata as indicated on Council's Geomaps. In 2014 Auckland Council commissioned Jacobs to perform a catchment study for the Oratia Catchment. This study has produced inundation mapping with consideration for future climate change and Maximum Probable Development (MPD) scenario for the subject site. The Floodplain Map is retrieved from Council's record and included in Appendix B.

It was predicted that the floodplain resultant from the OLFP infringes the eastern corner of the site. A peak flood level of **RL 49.10** was modelled across Section – 0180 of the study which shall be used as the peak flood level for the site.

Refer to Figure 3 below for details of the floodplain.

The peak flood as mentioned above was later imported into the topographical plan of the site provided by Trig Consultants dated December 2020 to point out the area potentially affected by the floodplain. As shown in Appendix C, the existing garage would be located within the floodplain whilst the existing dwelling is anticipated to be free from inundation.

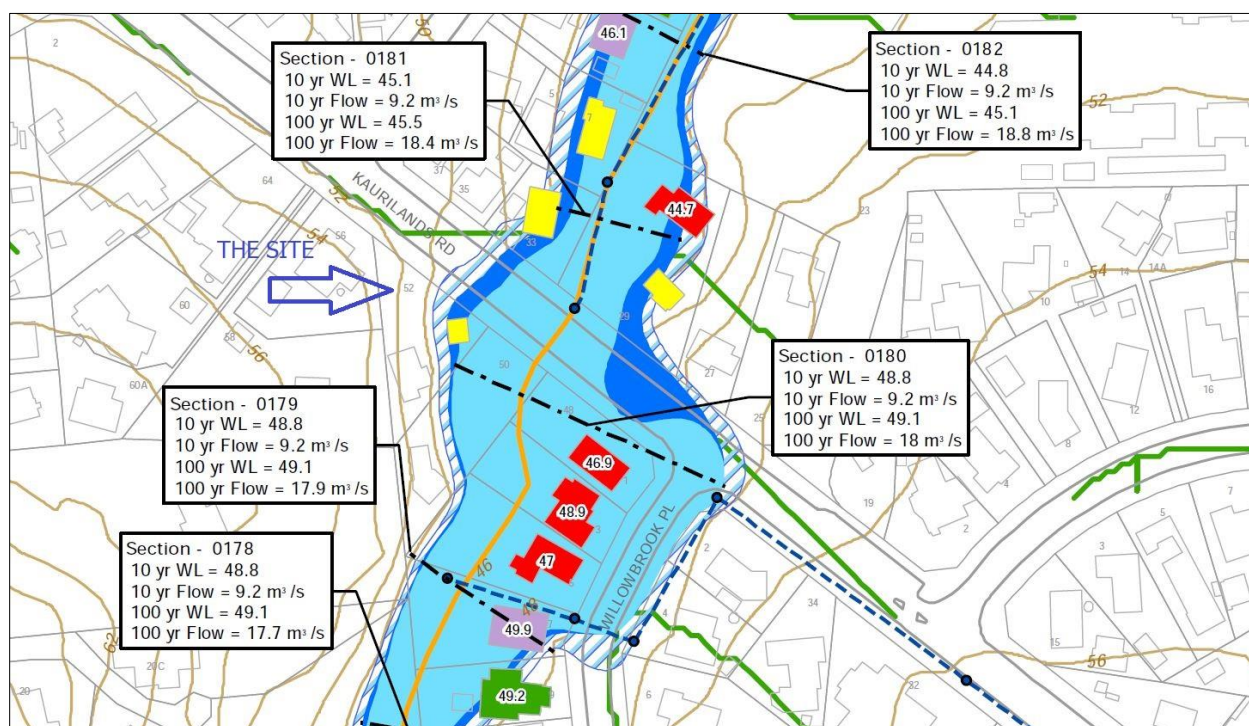


Figure 3: 100year ARI storm Floodplain at 52 Kaurilands Road, Titirangi.

## FLOOD PRONE AREA

A Flood Prone Area (or ponding area) in a moderate size extending upstream from Kaurilands Road towards 40D Konini Road Titirangi property is expectedly formed in the event of failure of a public 1650mm culvert laid under Kaurilands Road. Figure 4 below shows the information



associated with the ponding area. It is anticipated that the flood prone area has a spill elevation of RL 48.34m.

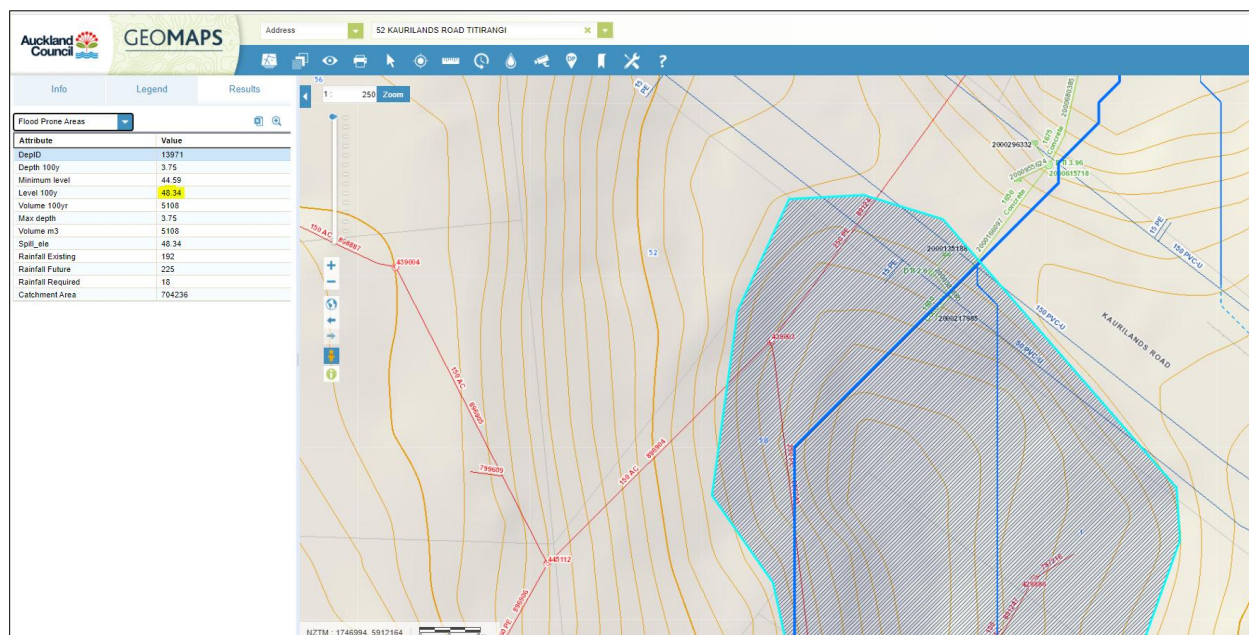


Figure 4: Flood Prone Area Information

## MINIMUM FREEBOARD

Table 4.5: Freeboard Requirements for the 1% AEP Event

Freeboard	Minimum height
Vulnerable Activities*	500mm
Less Vulnerable Activities*	300mm
Overland flow paths where flow is less than 2m <sup>3</sup> /s	<ul style="list-style-type: none"> <li>500mm where surface water has a depth of 100mm or more and extends from the building directly to a road or car park, other than a car park for a single dwelling</li> <li>150mm for all other cases</li> </ul>
Overland flow paths, where flow is equal to or in excess of 2m <sup>3</sup> /s	<ul style="list-style-type: none"> <li>500mm for Vulnerable Activities*</li> <li>300mm for Less Vulnerable Activities*</li> </ul>

\* As defined in the PAUP

Figure 5: Table 4.5 extracted from Stormwater Code of Practice - Auckland Council

As shown in Figure 5 above, the flow affecting 52 Kaurilands Road property exceeds 2m<sup>3</sup>/s, this normally would require a 500mm freeboard to be added on top of the peak flood level.

Specifically, the minimum habitable floor level should be:

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100year ARI storm flood level	RL. 49.10m
Free board	0.50m
Minimum habitable Floor Level	<b>RL. 49.60m</b>

## WORKS WITHIN FLOODPLAIN

Any works proposed to be undertaken in the 1 in 100-year floodplain must not increase adverse effects from flood hazards or increased flood depths and velocities, to other properties upstream or downstream of the site. This includes any earthworks, fencing, retaining walls and structures.

It is advisable that, once a proposed scheme plan is developed, a further assessment should be conducted to ensure no identified exacerbation on current inundation hazards resulting from the development on neighbouring properties as well as support the subdivision application to Council.



## RECOMMENDATIONS AND CONCLUSIONS

1. The property at 52 Kaurilands Road, Titirangi is situated within Oratia Catchment. Council's Geomaps indicates that the property is affected by floodplain during 100year ARI storm event.
2. Auckland Council has published the Floodplain Map for the Oratia Catchment. The Map provides a peak flood level for the site.
3. The Finished Floor Level (FFL) of any proposed dwellings needs to be **minimum RL 49.60** (Auckland datum) to provide a minimum freeboard above the maximum flood level.
4. Any works proposed to be undertaken within the 1 in 100-year floodplain **must not** either reduce the flood basin storage capacity or increase the flood level on other properties.

Report Prepared by:



Date: 24/02/2021

Felix Nguyen  
Civil Engineer  
Land Development and Civil Ltd.

Report Reviewed and Approved by:

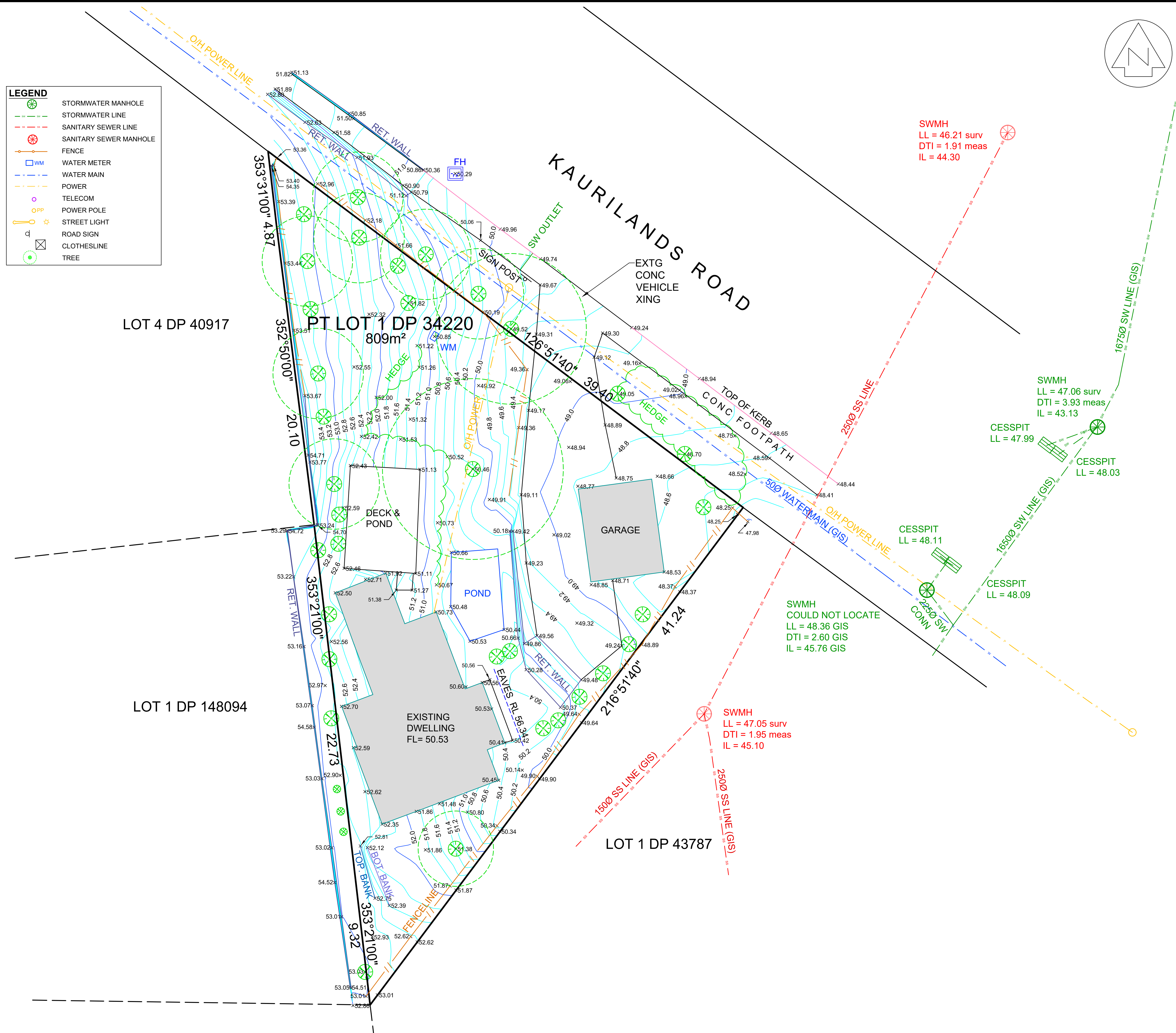
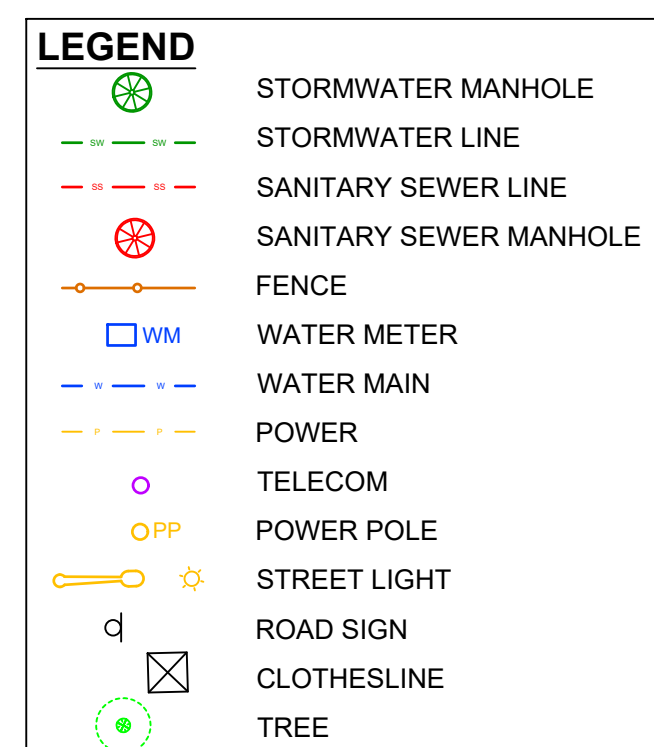


Date: 24/02/2021

Daniel Thomas  
Director  
Land Development and Civil Ltd.

# **APPENDICES**

## **Appendix A: TOPOGRAPHICAL INFORMATION BY TRIG CONSULTANTS DATED 12/2020**

[illegible]

NOTES:

- (1) COORDINATES AND BEARINGS ARE IN TERMS OF THE NEW ZEALAND GEODETIC 2000 DATUM BASED ON THE MT EDEN CIRCUIT.
- (2) THE ORIGIN OF COORDINATES FOR THIS PROJECT IS:  
SM 121 SO 51321  
794908.11mN 390036.237mE
- (3) LEVELS/HEIGHTS ARE IN TERMS OF THE LINZ DATUM "AUCKLAND VERTICAL DATUM 1946".
- (4) THE ORIGIN OF LEVELS FOR THIS PROJECT IS:  
RM III DP 60242 LINZ CODE: ERH7 RL = 54.10m
- (5) THE BOUNDARIES SHOWN WAS PLOTTED USING DATA FROM DP 34220.
- (6) STORM WATER, SANITARY SEWER AND WATER MAIN SERVICE LINE - DIRECTION AND DEPTHS TO BE CONFIRMED BY CONTRACTOR
- (7) MANHOLE DEPTHS TO INVERT OBTAINED FROM COUNCIL RECORDS UNLESS SHOWN AS MEASURED
- (8) CONTOUR INTERVAL  
MAJOR: 1.00m  
MINOR: 0.20m

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**TRIGCONSULTANTS**  
SURVEYORS AND PLANNERS

299 Hobsonville Road, Hobsonville, Auckland 0618 Ph: 09-416 4635

Mobile 021 801 505  
Email: Stephen.Anderson@hotmail.co.nz

CLIENT	
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PROJECT

52 KAURILANDS ROAD  
TITIRANGI

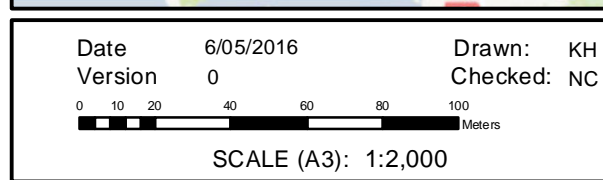
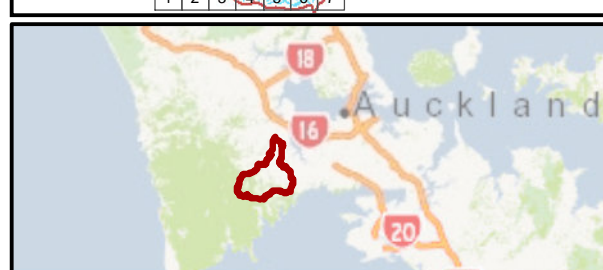
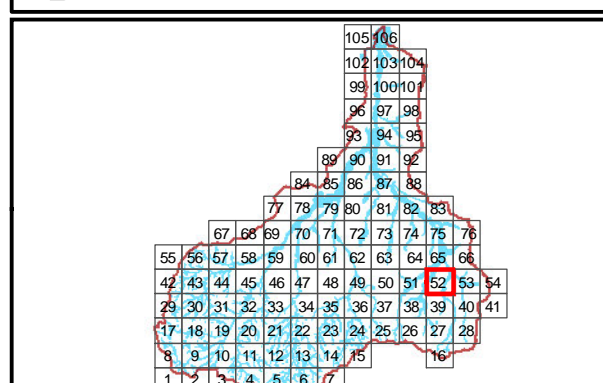
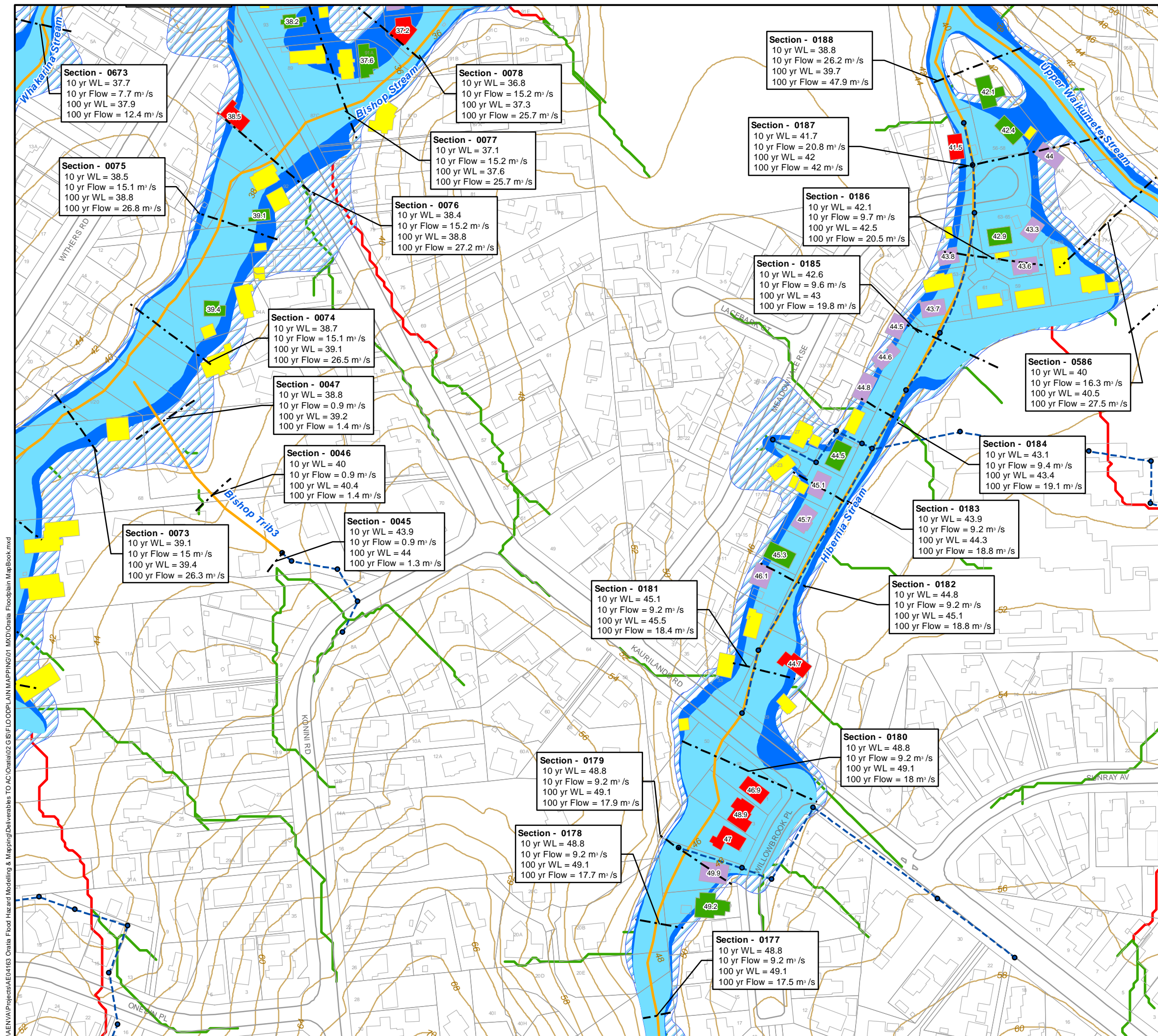
TITLE

TOPOGRAPHICAL SURVEY  
OF  
PT LOT 1 DP 34220

SCALE	1:125 (A1)	1:250 (A3)
DRAWING PATH	Y:\JOBS\2020 JOBS\20620 - 52 KAURILANDS ROAD, TITIRANGI. TOPO. REFRESH RENOS\CAD DRAWINGS\52 KAURILANDS ROAD, TITIRANGI - TOPO.JN20620 REV1.DWG	
DRAWING No	SHEET	REVISION
20620	1... of 1...	1

**APPENDIX B: ORATIA SYSTEM PERFORMANCE ASSESSMENT  
– FIGURE H.1 FLOOD MAP (MPD SCENARIO).**





**APPENDIX C: EXISTING SITE PLAN WITH PROPOSED  
FLOODPLAIN – 52 KAURILANDS ROAD, TITIRANGI**



[illegible]

## NOTES

GENERAL:

LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM 1946.

WORKS TO BE CARRIED OUT IN ACCORDANCE WITH NEW ZEALAND BUILDING CODES AND AUCKLAND COUNCIL'S CODE OF PRACTICE.

ANY PROPOSED WORKS TO BE UNDERTAKEN IN A MANNER THAT WILL NOT EXACERBATE INUNDATION ISSUES ON NEIGHBOURING PROPERTIES NOR REDUCE STORAGE BASIN CAPACITY OF THE OVERLAND FLOW PATH CHANNEL.

ANY VARIATIONS OR DISCREPANCIES BETWEEN  
DRAWINGS AND ON THE SITE ARE TO BE REFERRED TO  
THE ENGINEER FOR RESOLUTION.



SCALE 1:250 (A3)

DRAWING No.	REVISION
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19243.FP A

SHEET 1 of 1

CLIENT \_\_\_\_\_

KAMRAN KHAN

PROJECT \_\_\_\_\_

52 KAURILANDS ROAD  
TITIRANGI  
PT LOT 1 DP 34220

TITLE \_\_\_\_\_

PROPOSED  
100YEAR FLOODPLAIN  
EXISTING SITE

FOR RESOURCE CONSENT