INFRASTRUCTURE REPORT

538 Karangahape Road, Newton

CIVIL ENGINEERING ▾ SURVEYING ▾ LAND DEVELOPMENT

PROJECT INFORMATION

CLIENT:	James Kirkpatrick Group Ltd
PROJECT:	274001

DOCUMENT CONTROL

DATE OF ISSUE:	20 November 2023
REVISION	A
AUTHOR	 Anoop Saini Senior Engineer
REVIEWED BY	 Ama Chandrasena Team Leader
APPROVED BY	 Toby Mandeno Principal

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Table of Contents

1. OVERVIEW

1.1 PROJECT

The purpose of this report is to provide an assessment of the infrastructure associated with the proposed development at 538 Karangahape Road, Newton, as identified in Figure 1 Concept Plan (below).

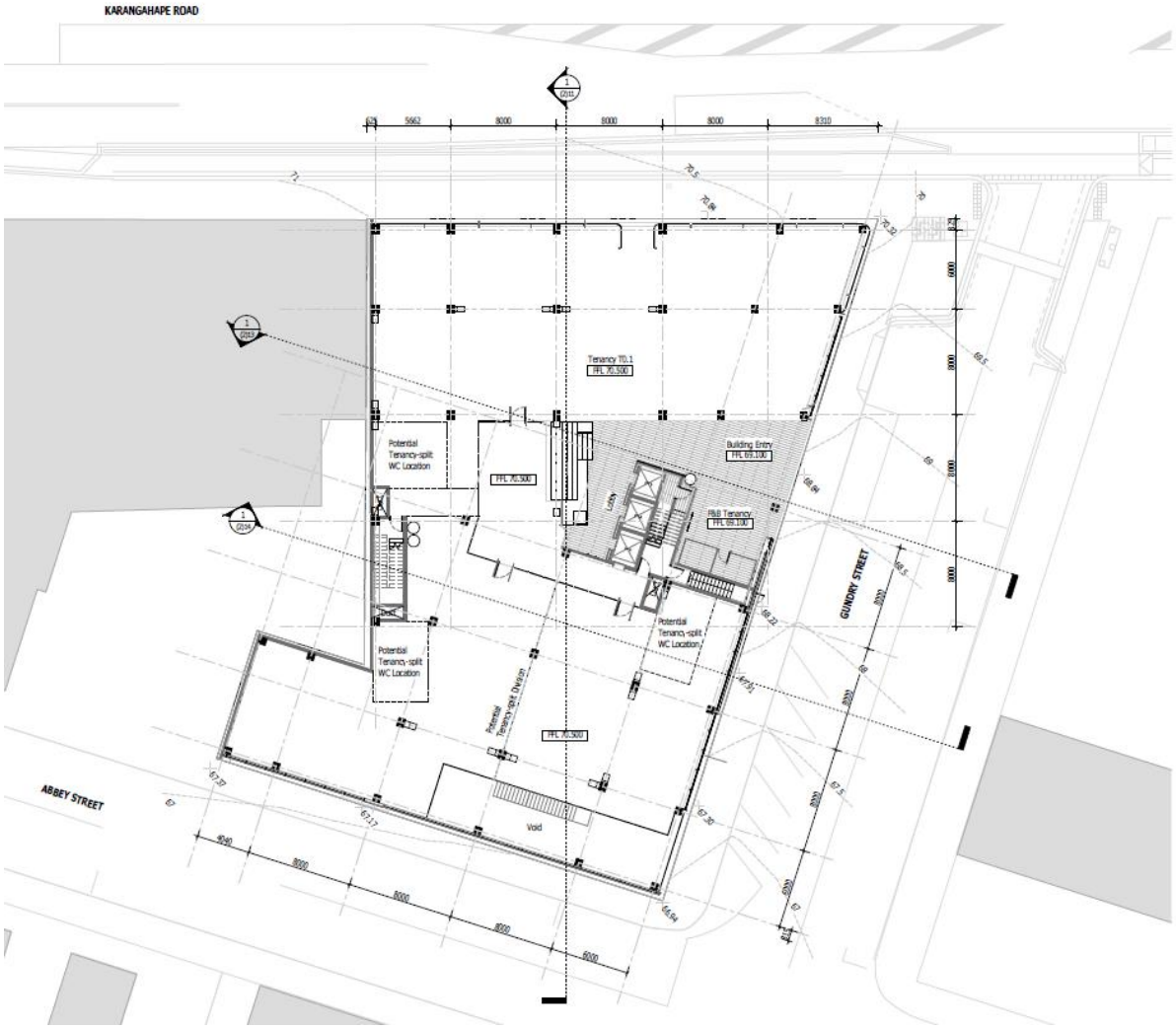


Figure 1 Concept Plan

The information provided herein relates to earthworks, wastewater, stormwater, water supply, and other service infrastructure and the potential capacity to service the proposed development.

This report provides information in support of resource consent. This report is to be read in conjunction with the concept drawings and is to accompany the resource consent application.

The calculations and assessments included in this report are 'desktop' analysis and are preliminary in nature based on information available at the time of issue. As required, final design plans and calculations will be provided at the Engineering Approval and Building Consent stage.

1.2 LEGAL DESCRIPTION

Applicant	James Kirkpatrick Group Limited
Record of Title	1032339
Legal Description	LOT 1 DP 570848
Site Area	1,597m²
District Plan	Auckland Unitary Plan Operative in Part ("AUP – OP")
Zoning	Business - City Centre Zone

1.3 SITE DESCRIPTION

The site is located within Newton and previously contained a commercial building with multiple tenancies that has now been demolished. The site is bound by Karangahape Road on the north, Gundry Street to the east and Abbey Street to south. The site is currently accessed from Gundry Street and Abbey Street.

The site has no notable vegetation of significance. The site slopes towards the south-east at a moderate grade. The entire site is hardstand, being either paved concrete areas or previous buildings foundations (some of which has been demolished). The location of the subject site and its surrounding features, as an extract from Auckland Council Geomaps, is displayed in Figure 2 below.

Figure 2: Site Locality Plan (site in blue). Source AC Geomaps

As per Auckland Council Geomaps and Beforeudig, stormwater, wastewater, water, power, telecommunication, and gas service networks are present near the site area.

Connections to these networks are proposed to service the proposed development. This existing public drainage has been shown in the appended Geomaps Plans (Appendix A).

1.4 PROPOSED DEVELOPMENT

The proposed development comprises of a large 10-storey commercial building with two basement levels. The building footprint covers the total site area. The main entrance is from Gundry Street on the eastern property boundary and the carpark (Basement 1) is accessed via a new vehicle crossing from Gundry Street to the east.

2. EARTHWORKS

Earthworks will be required over the total site area that involves largely cut to waste operations associated with the required finished ground levels.

Earthworks will involve ground disturbance of 1,596m². It is expected that the maximum cut will be approximately 9m in height consisting of 9,500m³ volume. The site will be progressively stabilized with hardfill backfill and sheet piles around the basement subject to the Geotech recommendations.

The Engineering Drawings (Refer to Appendix B) detail the extent of works and sediment control measures.

2.1 GEOTECH REPORTING

A Geotechnical Assessment and report have been prepared by Soil and Rock Ltd, (dated August 2023 Job No. 20111). All earthworks will be undertaken in accordance with the recommendations contained within; and will be under observation of the Geotech engineer. Given the large depth of excavation and presence of nearby buildings, temporary support in the form of barrier pile or 'palisade' walls and/or top-down construction will be required for the proposed excavations.

A specific construction methodology of temporary support and earthworks is required to mitigate the potential for localised instability during construction. The earthwork operations will be undertaken in accordance with these recommendations.

2.2 CONTAMINATION

A DSI was prepared by Soil and Rock Ltd. It found that there was elevated levels of heavy metals and other areas of contamination that does not meet cleanfill criteria. As such, a RAP/SMP was prepared, and the recommendations of this report dated 30 August 2023 (Job No. 220086) will need to be followed. Once the contamination has been cleared, testing and validation reporting will be completed.

2.3 EARTHWORKS MANAGEMENT PLAN

Earthworks Management Plan (EMP) has been proposed for the earthworks on site. The EMP outlines the associated earthworks methodology. Refer to the EMP for further details contained within Appendix F.

The EMP outlines the associated earthworks methodology including the proposed erosion and sediment control measures, and other potential environmental effects. Subject to standard consent conditions,

adhering to the EMP will mitigate any actual or potential adverse effects from the proposed bulk earthworks.

2.4 EROSION AND SEDIMENT CONTROL

Erosion and sediment control measures shall be implemented and maintained in accordance with the engineering design and the Guideline Document (GD05) standard.

The existing kerb and channel around the site will act as clean water diversion bund, this will stop rainwater from entering/ leaving the site. A sump pit with aggregate will be placed at the low point of the site and clean water will be pumped to the existing manhole connected to the site. The basement excavation will contain dirty water which will be treated by skip bins or silt stopper bins. These bins will provide adequate treatment prior to being discharged into the stormwater system.

Silt control measures will need to be installed onsite prior to or during (as specified) earthworks commencement. All silt control measures will be checked and confirmed acceptable by the Engineer before relevant earthworks commence. As-built plans of these measures will be provided to Auckland Council's monitoring offices where applicable.

3. FLOODING AND OVERLAND FLOW

3.1 OVERLAND FLOWPATHS ('OLFPS')

Auckland Council's Geomaps does not identify any overland flowpaths within the site, as can be seen below within Figure 3. A small OLFP originates from the intersection of Abbey Street and Gundry Street and flows south contained within the Gundry Street carriageway.

Figure 3: Overland Flowpaths and Flooding. Source: AC Geomaps

3.2 FLOODING

As per Auckland Council's Geomaps (Appendix A) and Figure 3 above, the site is not impacted by any flood plain. Therefore, minimum FFLs are not affected, and governed instead by the Building Code.

4. STORMWATER

The Auckland Council Stormwater Code of Practice sets out design and construction standards for stormwater and requires all land development projects to be provided with a means of stormwater disposal and treatment.

4.1 STORMWATER RETICULATION

According to the Auckland Council GeoMaps, there is an existing 300 mm diameter concrete public stormwater pipe located within the carriageway on Abbey Street to the South of the site. This pipeline runs southwest along Abbey Street and then southeast along Newton Road, parallel with another 300 mm diameter concrete pipeline.

The site has some private manholes along the southern boundary and kerb outlets located within Abbey Street south of the site. It is envisaged that some stormwater from the site is also discharged to the road. There are several catchpits which appears to discharge into the combined public 450mm concrete wastewater network located within the carriageway of Gundry Street.

A CCTV investigation was completed on the existing building private drainage to trial the connection points into the public system. Based on the CCTV investigation, the stormwater runoff from the roof collects into a private combined manhole and discharges into the Wastewater combined network in Gundry Street via 225mm diameter connection line. Refer to CCTV as built data included in Appendix D. The existing network can be seen below within Figure 4:

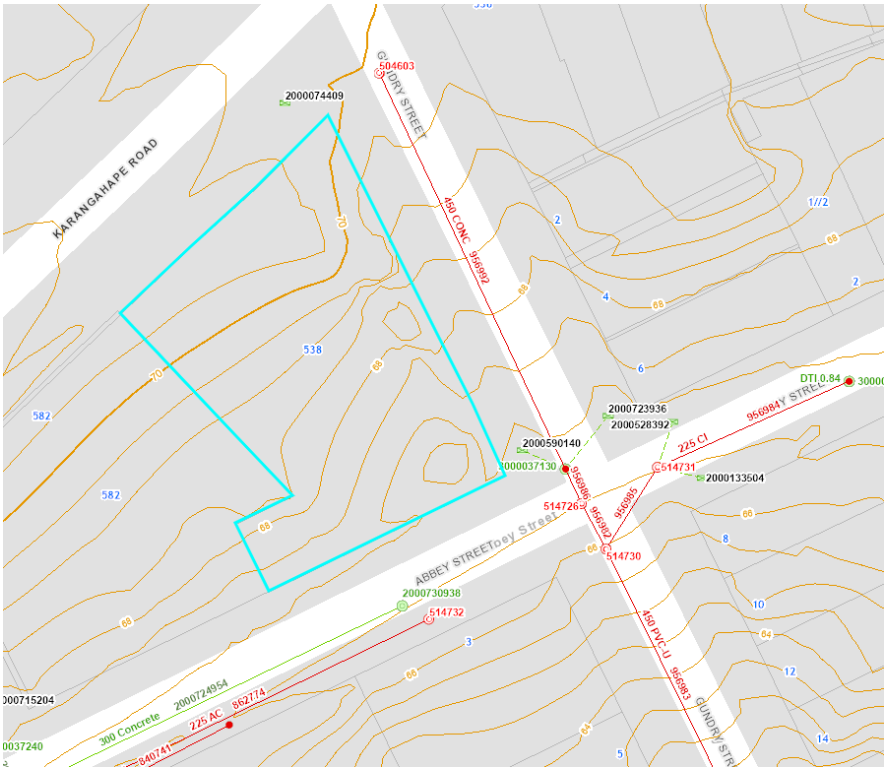


Figure 4: Existing Stormwater Network. Source: AC Geomaps

4.2 PROPOSED STORMWATER

As part of the development, it is proposed to extend a new 300mm diameter pipe from the existing manhole in Abbey Street to a terminating manhole in the carriageway. All downpipes and network internal to the building will be routed to discharge to the new stormwater connection.

4.3 STORMWATER CAPACITY

The existing site area is fully impervious with a large roof and adjacent paved areas. Therefore, the total impervious area of the site will not be increased as a result of the proposed development. The post-development peak flow during the 10-year ARI rainfall event, including the effects of climate change, was calculated based on the entire site area being impervious. The site generates a peak flow rate of 35.9 L/s which is as per the pre-development condition.

For Greenstar reasons, water harvesting is also provided within the building. This will allow for non-potable reuse and would reduce the pre-development flowrates further.

A capacity assessment was undertaken to determine whether the new public extension and the immediate downstream pipe has sufficient capacity to accommodate the peak stormwater flows from the development. Based on the capacity calculation, it is found that the stormwater connection and the existing 300mm diameter pipe has a sufficient capacity of 93.6 l/s and 79.1 l/s respectively to accommodate the peak flows from the development.

Refer to the capacity calculations included in Appendix C.

Any further upgrades to the stormwater connection and private stormwater network will be subject to future Engineering Approval / Building Consent and will be designed to have capacity for the 10-year rainfall event.

4.4 STORMWATER QUALITY

There is no requirement for the redevelopment area to be provided with treatment. All car parking spaces will not be exposed and are located within the basement levels.

5. WASTEWATER

The Watercare Code of Practice for Land Development and Subdivision sets out the design principles for wastewater drainage and requires any development project to be provided with a means of wastewater disposal.

5.1 WASTEWATER RETICULATION

Watercare's GIS indicates an existing 450 mm diameter concrete combined public wastewater pipe located within the carriageway on Gundry Street to the East. This pipeline transitions into a 150 mm diameter PVC pipe for a short section at the intersection with Abbey Street and then continues as a 450 mm diameter PVC pipe towards the south-east.

GIS indicates that there is a 225 mm diameter AC public wastewater pipe located along the south-western kerb on Abbey Street to the south. This pipeline runs south-west along Abbey Street and then south-east along Newton Road. Site investigation undertaken by Maven Associates has confirmed that the wastewater line does not exist in the berm, and we believe that the line is within the Abbey Street carriageway. The manhole lid is cracked, and a service request has been lodged with Watercare (ref SR

10062208 #4417696). Until this is resolved, Maven is unable to confirm invert depth, or confirm if this asset exists.

The existing network can be seen below within Figure 5:

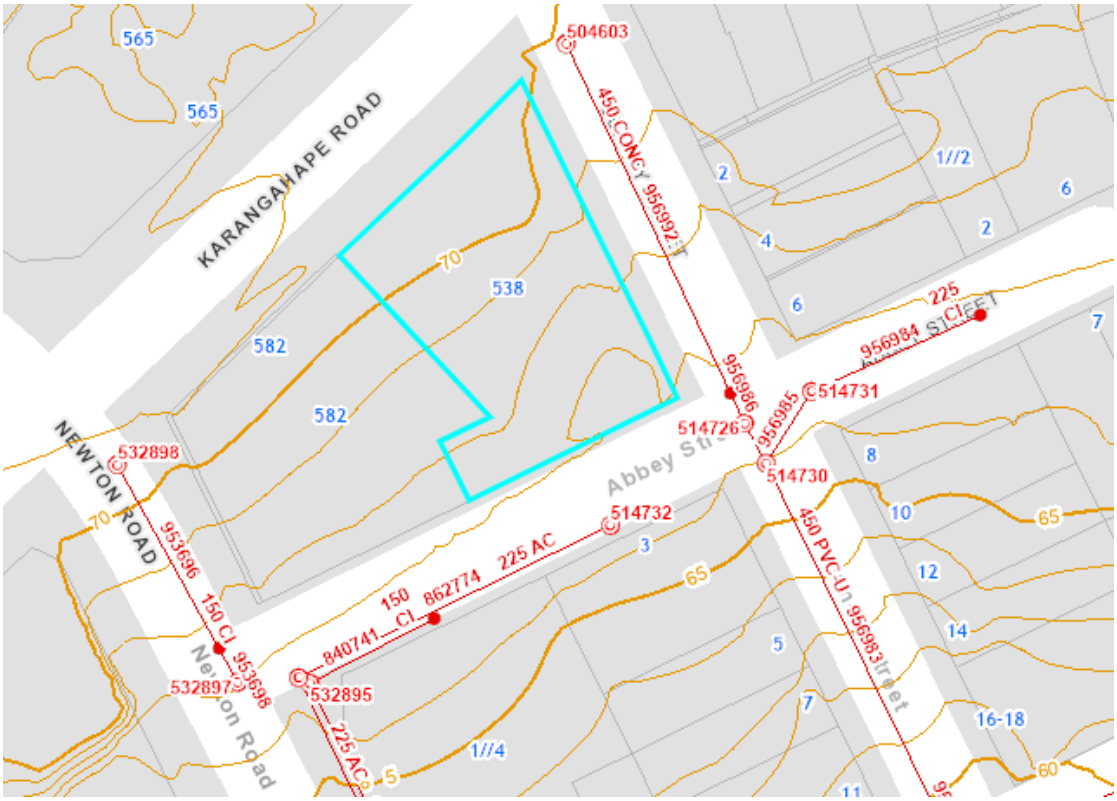


Figure 5: Existing Wastewater Network. Source: AC Geomaps

Onsite surveys undertaken to confirm a vent and private manhole located within the southwestern corner of the site. Along with this, CCTV investigations further confirm that the wastewater from the existing building discharges into the 450mm diameter public network in Gundry Street. Refer to the CCTV as-built data included in Appendix D.

5.2 PROPOSED WASTEWATER

A separate wastewater connection will be made along the southern façade of the building to a new manhole in Abbey Street. The manhole will need to be in the carriageway (and will require departure of standards from AT) as there is insufficient room to fit a manhole between the building (built to the boundary) and the existing public watermain.

At the time of writing, the final wastewater connection point is not yet known. The connection point will either be to the 225mm line via WWMH 514732 (if the invert level works / we can confirm there is a wastewater network) present. This network is being investigated, as it would appear to be more separated and thus less prone to overflows.

Alternatively, wastewater will be directed to the existing shared 450mm line in Gundry Street, to WWMH 514726.

All private wastewater pipes internal to the building will be routed to this connection. The final location will be confirmed once Watercare has fixed the damaged manhole. The final design will be subject to engineering plan approval, and we welcome any input from Watercare on the preferred solution.

5.3 WASTEWATER CAPACITY

A peak flow assessment was undertaken to check the capacity of the existing wastewater networks in the vicinity of the site.

The appended calculations identify the post-development PWWF of 2.2 L/s.

A network capacity assessment was undertaken to determine if the immediate receiving 450mm diameter pipe has sufficient capacity to accommodate the peak wastewater flows combined with stormwater flows. Based on the calculations, the existing 450mm diameter pipe has a capacity of 932.4 L/s and is therefore sufficient to accommodate the total combined flows from the surrounding catchment. Refer to the calculations included in Appendix C.

A wastewater capacity assessment has also been undertaken on the existing 225mm line. This confirms that the existing 225mm pipe has a sufficient capacity of 33.98 L/s.

Please refer to the Watercare Planning Assessment attached to Appendix E. Capacity confirmation will be sought as part of the resource consent process.

6. WATER SUPPLY

The Watercare Code of Practice for Land Development and Subdivision sets out the design principles for water supply and requires assessment against SNZPAS 4509:2008 NZ Fire Service Fire Fighting Water Supply Code of Practice.

6.1 POTABLE WATER RETICULATION

Auckland Council Geomaps indicates that the site is currently serviced by a 20mm diameter PE connection from the 250mm diameter CI watermain located within the footpath on Karangahape Road directly outside the site. There is a 200 mm diameter CI watermain located within the footpath on Gundry Street to the East and a 200 mm diameter concrete-lined cast iron (CLCI) watermain located within the footpath on Abbey Street to the South.

There is a bulk supply point (BSP) and a 390 mm diameter CI transmission watermain located within the opposite footpath on Gundry Street, as well as a 150 mm diameter AC watermain in the opposite footpath and an abandoned 100 mm diameter watermain within the carriageway. There is also a 100 mm diameter AC watermain and an abandoned 100 mm diameter watermain within the Southern side of the carriageway along Abbey Street. Refer to the water supply servicing plan in Figure 6.

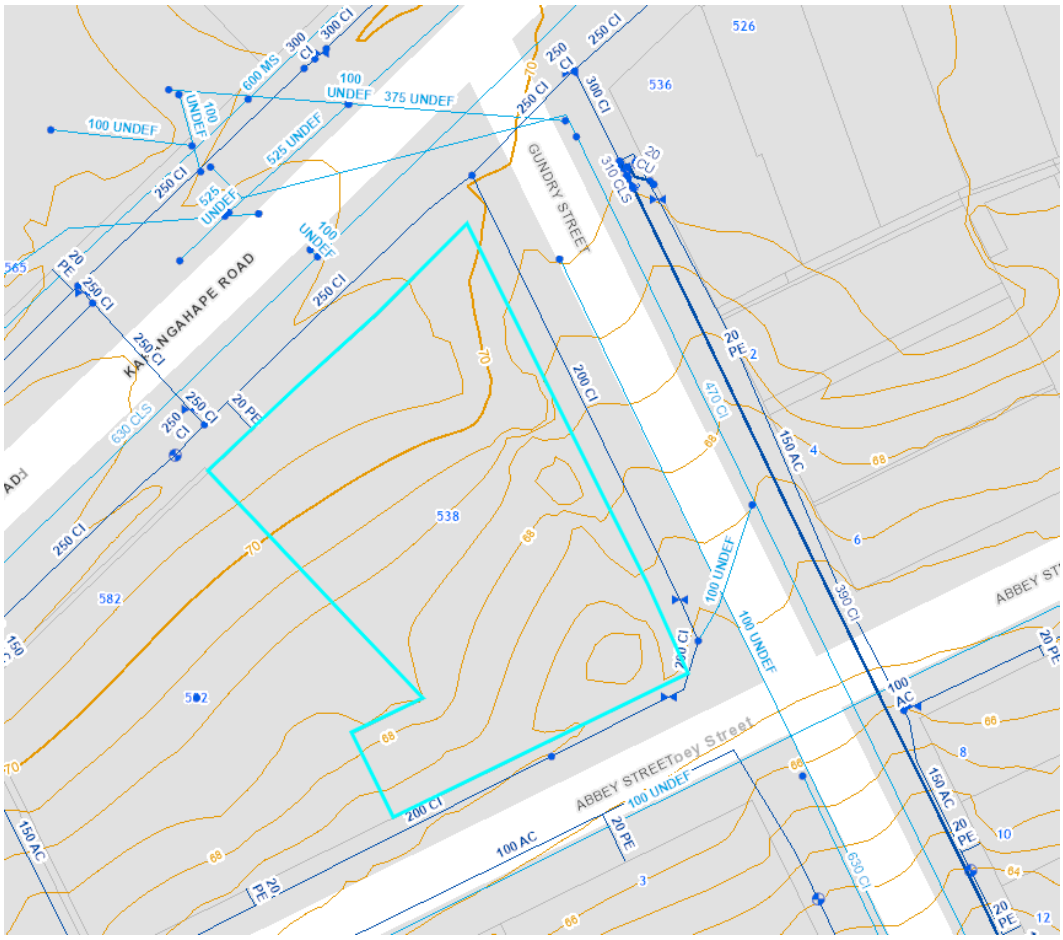


Figure 6: Existing Wastewater Network. Source: AC Geomaps

6.2 PROPOSED WATER SUPPLY

It is proposed to retain the existing service connection from the 250 mm diameter CI watermain in K-Road, within the footpath to supply potable water to the site. The connection will be upgraded to provide sufficient potable and firefighting supply to the building. The specific design will be confirmed by the Hydraulic Engineer and Fire Specialist at the detailed design phase. From the new water meter, the private water supply reticulation is to be plumbed to the building and will be detailed by the Hydraulics Engineer at the Building Consent phase.

The appended Watercare Development Assessment is attached (Appendix E). Capacity will be confirmed as part of the resource consent process.

6.3 FIRE FIGHTING SUPPLY

The minimum firefighting water supply classification for commercial retail/office developments is FW3. Therefore, any future residential development must meet the following water supply requirements:

- A primary water flow of 12.5 litres/sec within a radial distance of 135m
- An additional secondary flow of 12.5 litres/sec within a radial distance of 270m
- The required flow must be achieved from a maximum of one or two hydrants operating simultaneously.
- A minimum running pressure of 100kPa

According to the Auckland Council Geomaps, there are a number of fire hydrants located within close proximity to the site. One fire hydrant (GIS: 1081144) is located approximately 4 m to the North-West, outside the site on Karangahape Road. A second fire hydrant (GIS: 1093700) is located approximately 31 m further West along Karangahape Road. Third hydrant is located approximately 37m further east in front of 526 Karangahape Road. There are also two fire hydrants (GIS: 1086357 and 1093675) located approximately 27 m and 36 m to the South-East on Gundry Street. The fire hydrant (GIS: 1093689) on Abbey Street is approximately 36 m South-West of the site. Refer to Figure 7 below for the fire hydrant locations.

Flow rates and pressure test was conducted in November 2020 by Nova Flowtec resulting in the closest Hydrant in Karangahape Road having a maximum flow of 1070 Lpm (17.8 L/s) at 225 kPa. Refer to the Hydrant Flow test in Appendix E.

Given the number of hydrants present in the vicinity of the site, the firefighting requirements will be met with the sufficient flow in the network.

7. OTHER SERVICES

BeforeUdig provides that there is an existing network present in the surrounding area and service is available for Power, Gas and Telecommunications.

Telecommunications in the area are managed by Chorus, Power and Gas supply in the area is managed by Vector. It is anticipated that network upgrades will not be required to service the proposed development. This will be confirmed upon the detailed design and to be undertaken as required by the service providers. However, given the nature of the current use of the site and the surrounding area, no issues are expected.

Services will be connected to the proposed development as per respective service agreements.

8. CONCLUSION

Resource Consent will require that erosion and sediment control measures are implemented and maintained in accordance with the engineering drawings.

Auckland Council's Geomaps does not identify an overland flowpath or flooding within the site.

Suitable wastewater disposal can be provided for the development, through an existing connection to public network. The final location and design are ongoing at time of writing.

Suitable stormwater disposal can be provided for the development, through a proposed network extension to the site.

There is public water supply infrastructure surrounding the site which is considered sufficient for potable water supply for the proposed development. Firefighting supply has been confirmed as acceptable by others. A suitable size connection will be provided to service the development at detailed design phase.

A telecommunications, power and gas network are present in the surrounding area and it is anticipated that service can be made available to the proposed development.

Information gathered to date confirms the site is suitable for the proposed development.

9. APPENDICES

9.i Appendix A – Geomaps and Topo Survey

EASDALE SURVEYORS LTD
39 MEADOWLAND DRIVE, HOWICK p: 09 534 8452 e: surveyors@easdales.co.nz

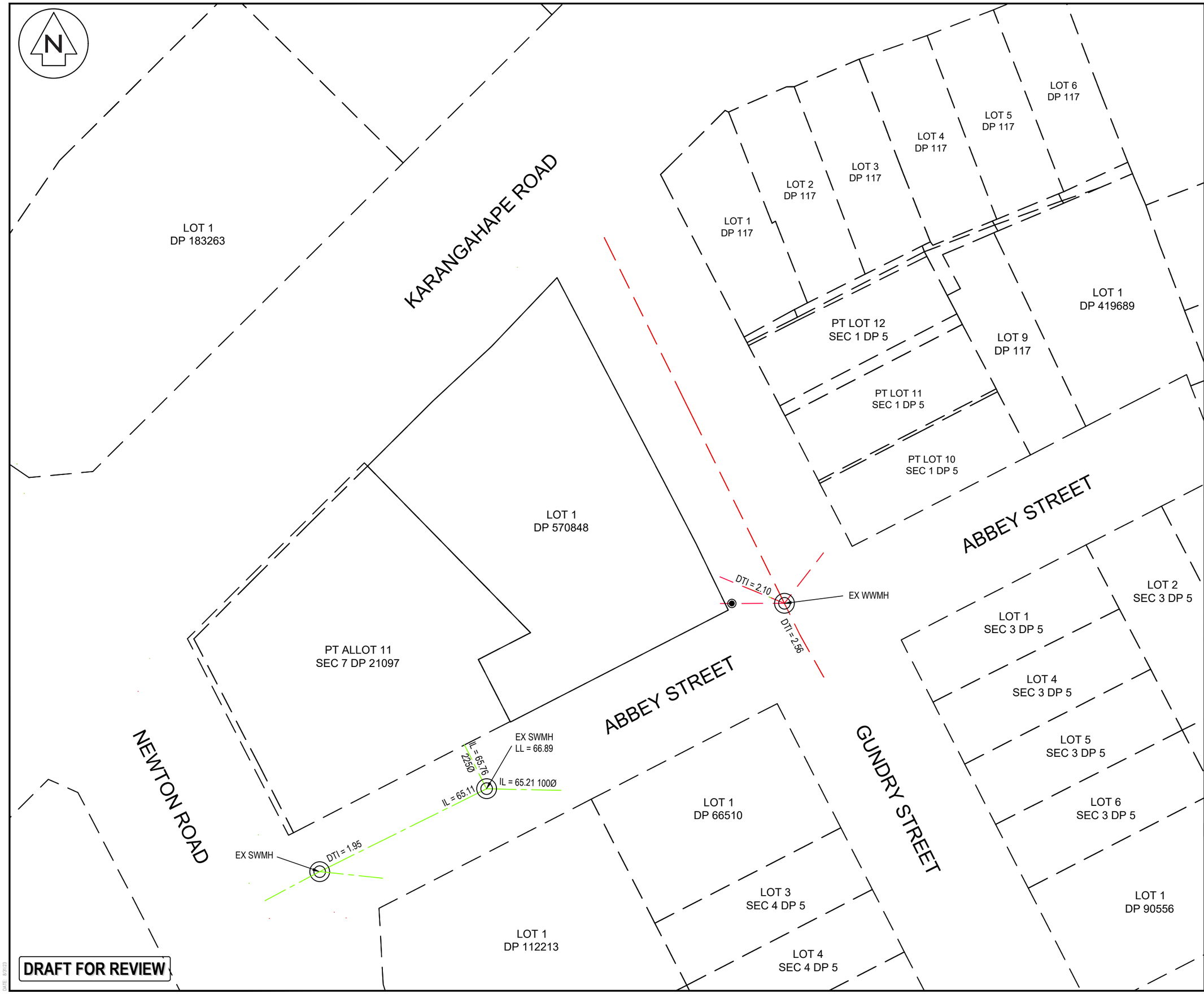
Job Title

Topographical Survey
FOR
James Kirkpatrick Group
538-550 Karangahape Rd
Lots 1-3, 8-9 Sect 2 DP 5

Design	N/A
Survey	SK & JS
Drawn	SK
Checked	ML
Date	May 2020
Scale	1: 200 (A1)

Drawing Title:
Site Plan

File No.	Rev.	Dwg No.
14208	A	



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. PIPE BEDDING: 0 - 10% GRANULAR BEDDING,10 - 20% WEAK CONCRETE BEDDING.GREATER THAN 20% WEAK CONCRETE BEDDING (7MPA PLUS ANTI SCOUR BLOCKS AT 6M CRS).
5. EACH CONNECTION SHALL BE MARKED BY A 50MMX50MM TREATED PINE STAKE EXTENDING 600MM ABOVE GROUND LEVEL WITH THE TOP PAINTED. THIS MARKER POST SHALL BE PLACED ALONGSIDE A TIMBER MARKER INSTALLED AT THE TIME OF PIPELAYING AND EXTENDING FROM THE CONNECTION TO 150MM BELOW FINISHED GROUND LEVEL. CONNECTIONS SHALL BE ACCURATELY INDICATED ON "AS BUILT" PLANS.
6. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL ROAD CROSSINGS AND VEHICLE CROSSINGS TO COUNCIL STANDARDS.
7. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
8. ALL MANHOLES ARE TO BE 1050MMØ PRECAST CONCRETE UNLESS SHOWN OTHERWISE.
9. ALL CATCHPIT LEADS SHALL HAVE MIN COVER 1.0M.
10. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.
11. ALL LOT CONNECTION TO BE MIN 100mm uPVC SN16 UNLESS SHOWN OTHERWISE.

Legend

- EX BDY
- PROP BDY
- EX STORMWATER
- PR STORMWATER
- EX/PROP SWMH
- PROP SWCP SINGLE
- PROP SWCP DOUBLE

Rev	Description	By	Date
A	DRAFT	YG	08/2023

	By	Date
Survey	Easdale SurveyorsLTD	05/2020
Design	APS	07/2023
Drawn		
Checked		

Maven Associates
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www.maven.co.nz
5 Owens Road, Epsom
Auckland 1023

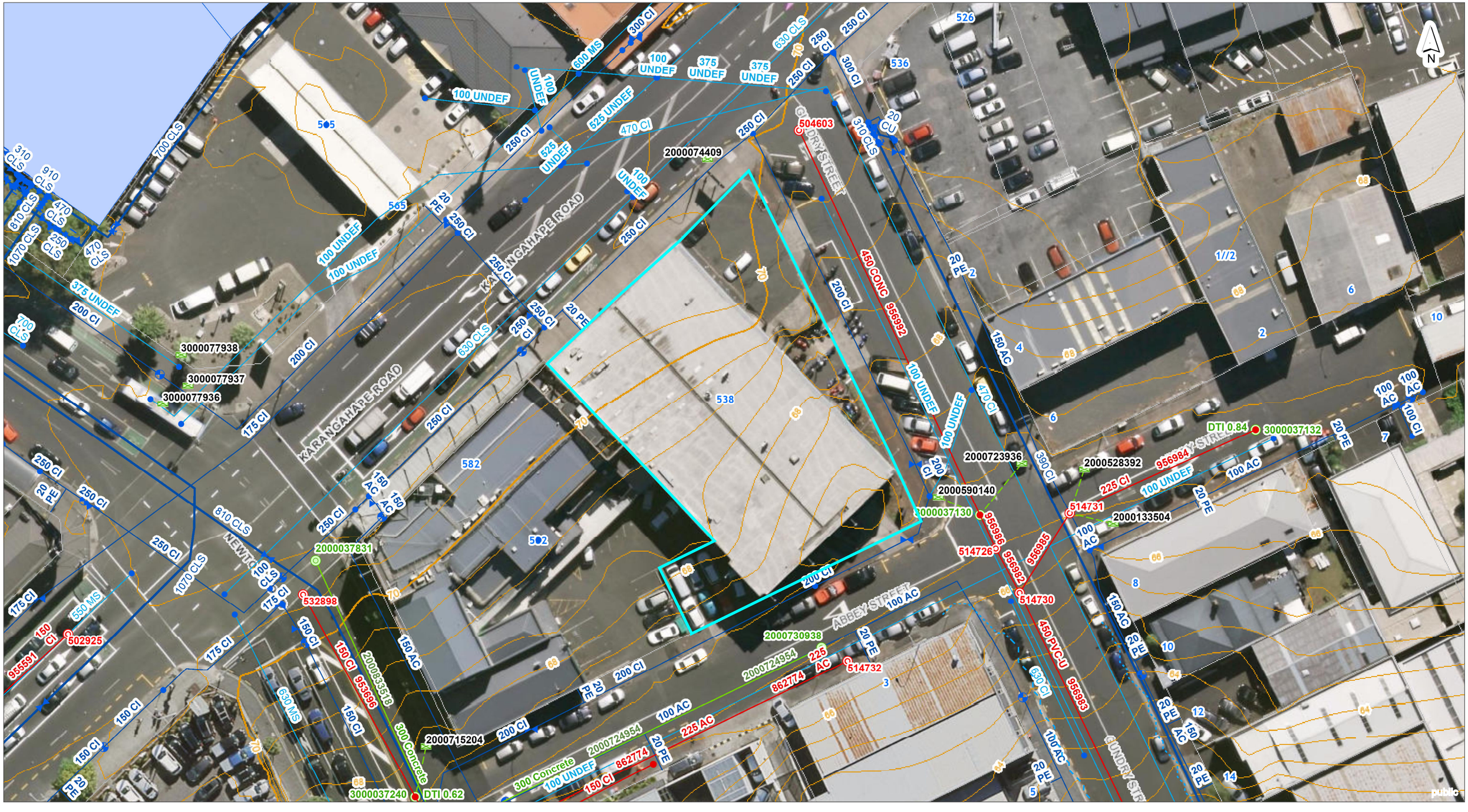
Project

538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED STORMWATER DRAINAGE PLAN

Project no.	274001		
Scale	1:500 @ A3		
Cad file	274001 C400.DWG		
Drawing no.	C400	Rev	A



538 Karangahape Road, Newton

0 5 10 15
Meters

Scale @ A3
= 1:500

Date Printed:
13/10/2023

Auckland Council
Te Kaunihera o Tāmaki Makaurau

9.ii Appendix B - Engineering Drawings

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
4. ORIGIN OF LEVELS = SM XXXX SO XXXX(XXXX) PUBLISHED RL=XX.XX, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
9. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

Legend

- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- FSL: ??? FINISHED SUBGRADE LEVEL

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Project

538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED EARTHWORKS PLAN

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C200.DWG		
Drawing no.	C200	Rev	A

DATUM 60.00m

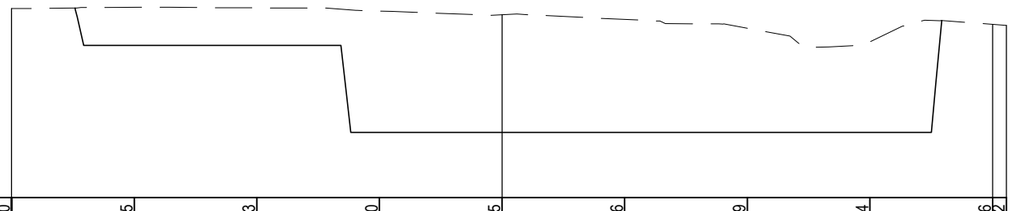
EXISTING LEVELS	66.85	67.11	67.93	68.75	68.80	68.67	69.04	69.51	70.02	70.53	70.85	70.75
DESIGN LEVELS		62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-4.46	-5.28	-6.10	-6.15	-6.02	-6.39	-6.86	-7.37	-7.88		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	52.14

SECTION Y-1
SCALE: HORI 1:250 VERT 1:250

DATUM 60.00m

EXISTING LEVELS	66.74	66.49	66.69	67.21	68.67	69.13	68.41	69.72	69.93	70.23	70.32	70.44	70.32
DESIGN LEVELS		62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-3.84	-4.04	-4.56	-6.02	-6.48	-5.76	-7.07	-7.28	-7.58	-7.67		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	58.08

Y-2
SCALE: HORI 1:250 VERT 1:250



DATUM 60.00m

EXISTING LEVELS	67.70	67.75	67.73	67.60	67.45	67.26	66.89	66.34	67.06	67.02
DESIGN LEVELS		66.20	66.20	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-1.55	-1.53	-4.95	-4.80	-4.61	-4.24	-3.69		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	40.56

X-1
SCALE: HORI 1:250 VERT 1:250

RESOURCE CONSENT

DATE: 1/12/23

Legend
EX GROUND
PROP GROUND

Rev	Description	By	Date
A	FOR INFORMATION	GSS	07/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Auckland 1023

Project
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title
PROPOSED EARTHWORKS SECTIONS

Project no.	274001		
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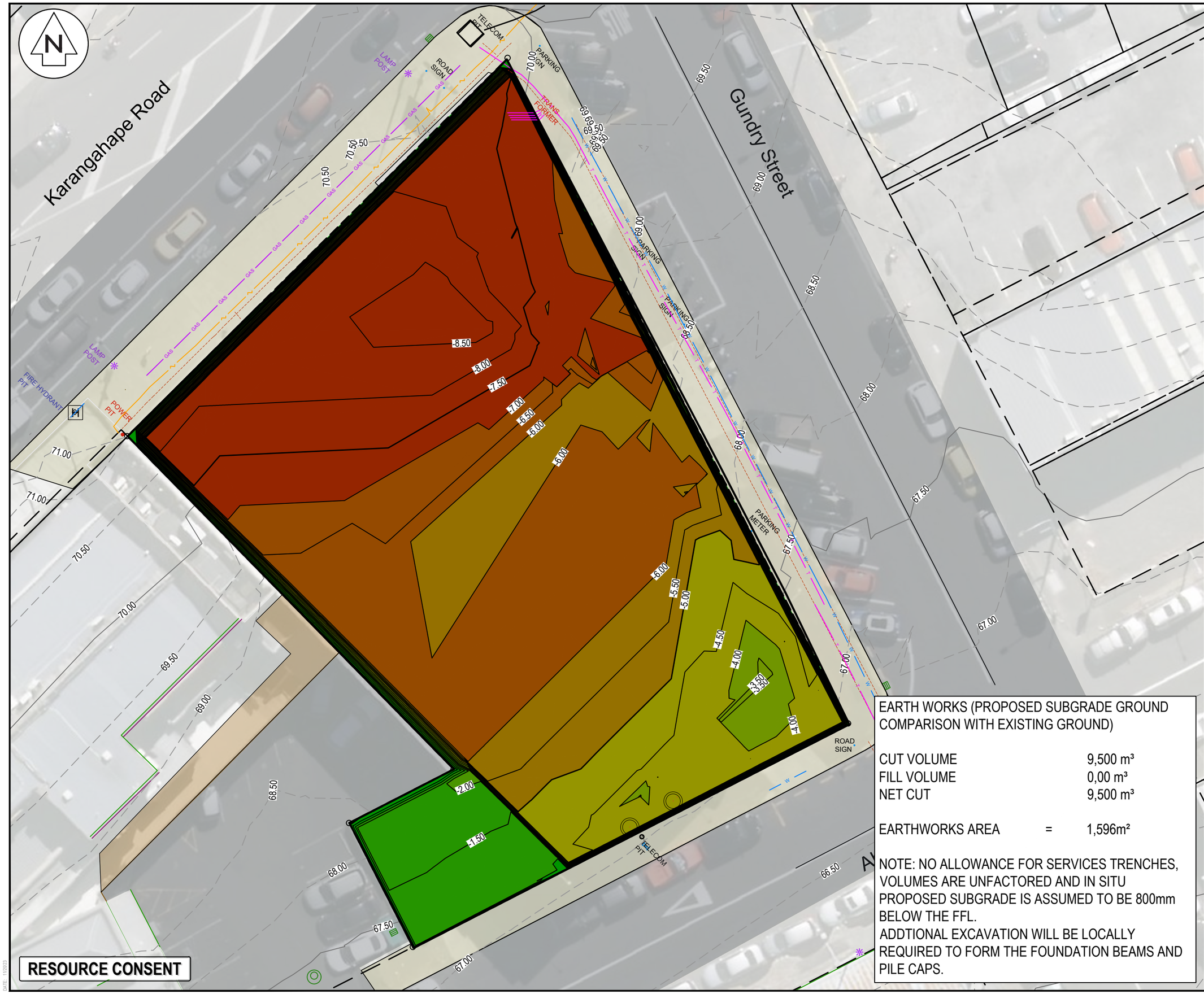
Cad file	C200.DWG		
Drawing no.	C210	Rev	A



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Legend

- EX BDY
- PROP BDY
- PROP EXTENT WORK

Cut/Fill Table			
Number #	Minimum Elevation	Maximum Elevation	Color
1	-9.000	-8.000	
2	-8.000	-7.000	
3	-7.000	-6.000	
4	-6.000	-5.000	
5	-5.000	-4.000	
6	-4.000	-3.000	
7	-3.000	-2.000	
8	-2.000	-1.000	
9	-1.000	0.000	

EARTH WORKS (PROPOSED SUBGRADE GROUND COMPARISON WITH EXISTING GROUND)

CUT VOLUME		9,500 m³
FILL VOLUME		0,00 m³
NET CUT		9,500 m³
EARTHWORKS AREA	=	1,596m²

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES, VOLUMES ARE UNFACTORED AND IN SITU
PROPOSED SUBGRADE IS ASSUMED TO BE 800mm BELOW THE FFL.
ADDTIONAL EXCAVATION WILL BE LOCALLY REQUIRED TO FORM THE FOUNDATION BEAMS AND PILE CAPS.

Rev	Description	By	Date
A	FOR INFORMATION	GSS	07/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Project

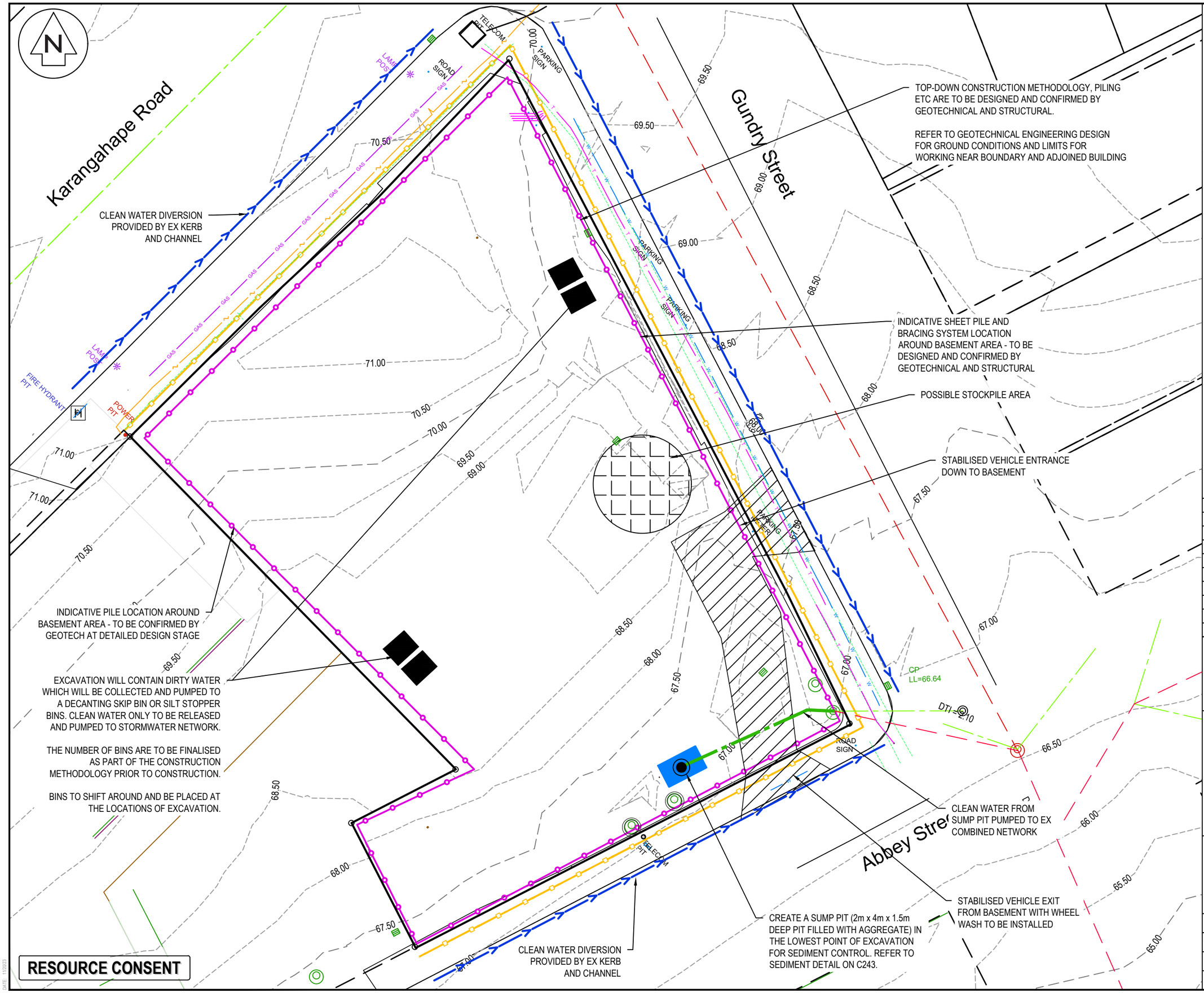
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED CUT/FILL PLAN

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C200.DWG		
Drawing no.	C220	Rev	A

DATE: 11/09/23



RESOURCE CONSENT

DATE: 17/10/23

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
3. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
5. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
6. CONTRACTOR SHALL PROVIDE ASBUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
7. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

Legend

- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP CLEAN WATER
- PROP DIRTY WATER
- PROP SILT FENCE
- PROP STOCKPILE
- PROP DECANT
- PROP DECANT BAR
- PROP SITE FENCE
- PROP SHEET PILE
- PROP STOCKPILE

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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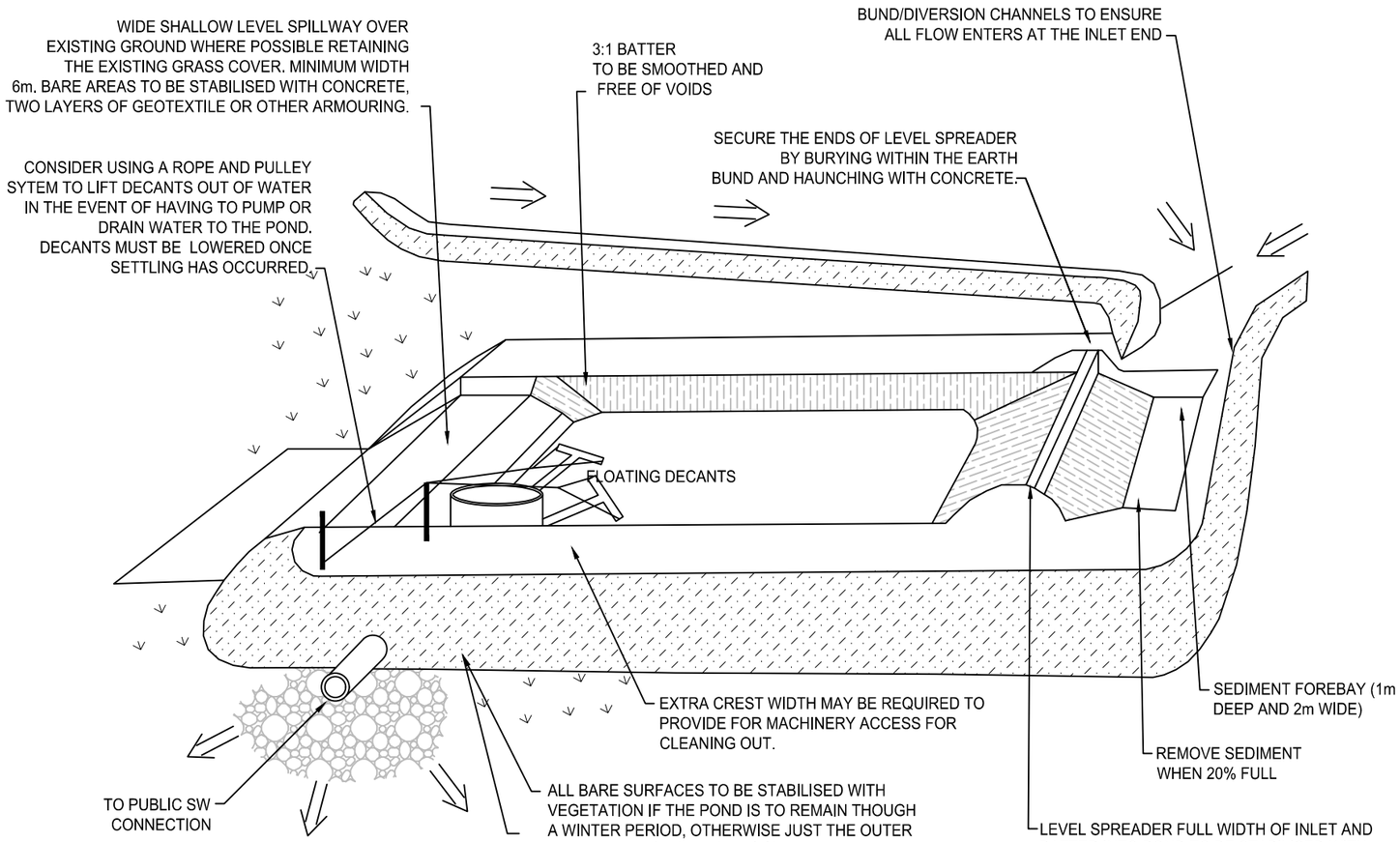
538 KARANGAHAPE ROAD, NEWTON AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD

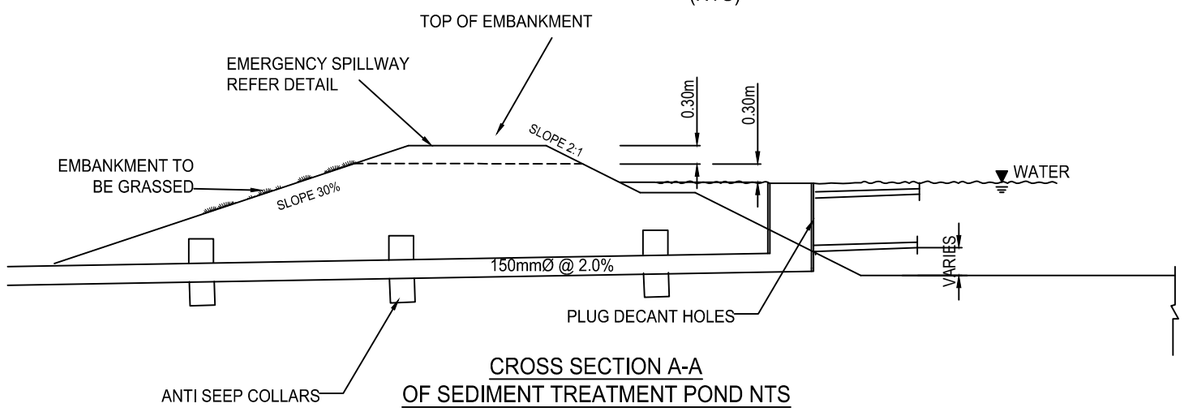
Title

PROPOSED SEDIMENT EROSION CONTROL PLAN

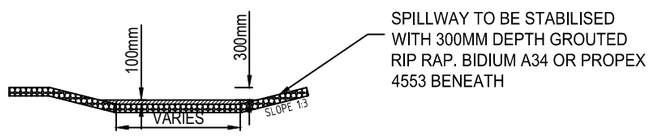
Project no.	274001		
Scale	1:250 @ A3		
Cad file	C230.DWG		
Drawing no.	C230	Rev	A



SEDIMENT POND DETAILS
(NTS)



CROSS SECTION A-A
OF SEDIMENT TREATMENT POND NTS



DETAIL I
EMERGENCY SPILLWAY

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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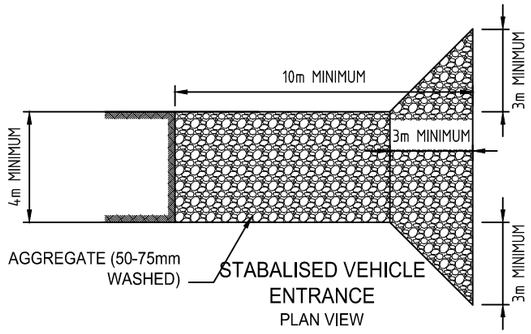
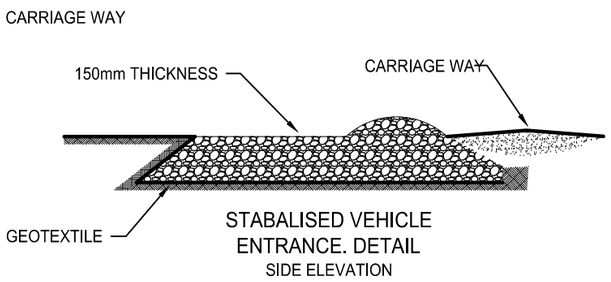
Project
538 KARANGAHAPE ROAD, NEWTON AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD

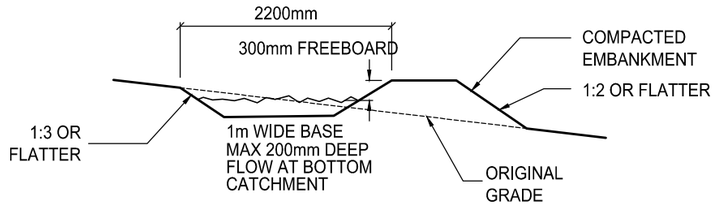
Title
SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C240	Rev	A

DATE: 11/2023

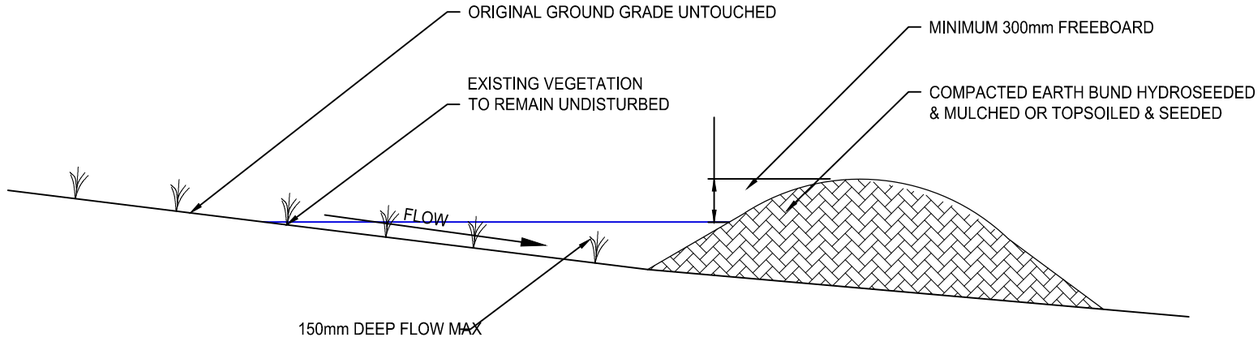






TYPICAL CROSS SECTION OF A RUNOFF DIVERSION

TYPICAL DIMENSIONS UNLESS OTHERWISE NOTED



CLEAN WATER DIVERSION BUND DETAIL

A	DRAFT	EZ	10/2023
Rev	Description	By	Date

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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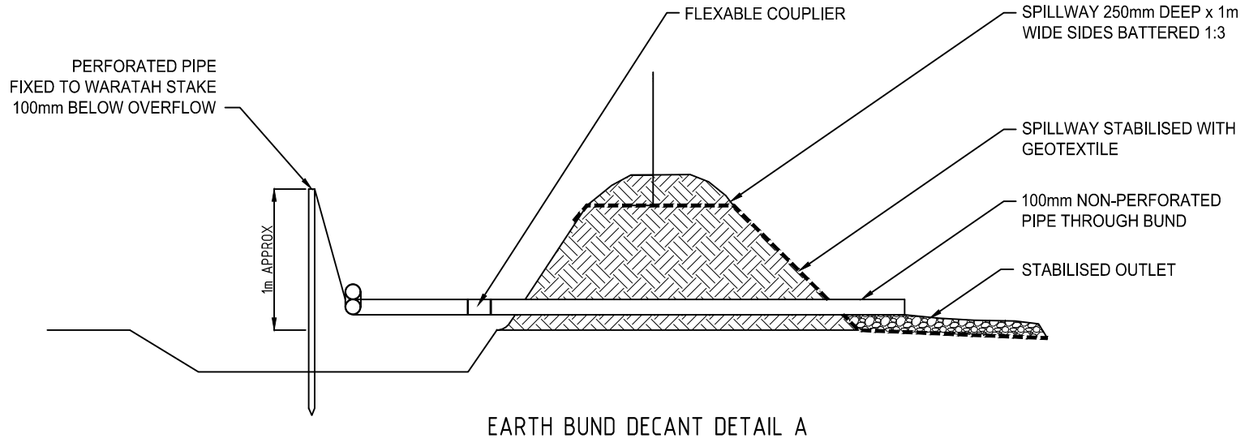
538 KARANGAHAPE ROAD, NEWTON AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD

Title

SEDIMENT EROSION CONTROL STANDARD DETAILS

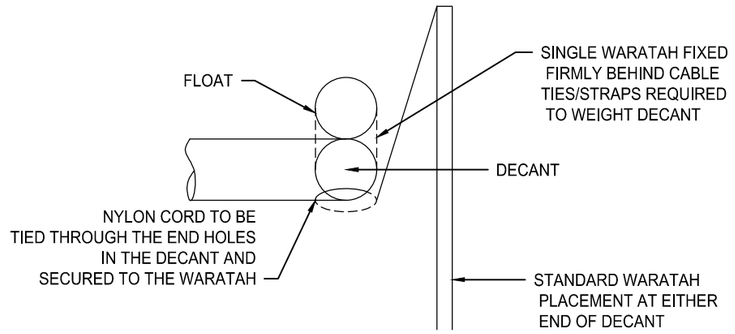
Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C241	Rev	A

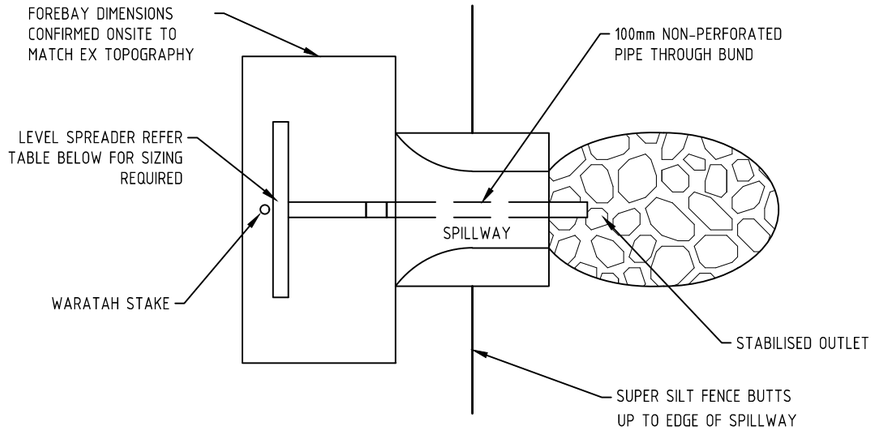
DATE: 11/2023



EARTH BUND DECANT DETAIL A

N.T.S

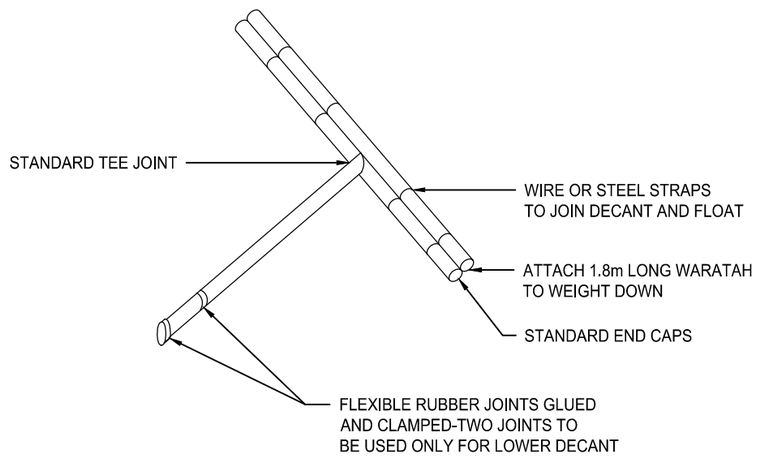




DECANT PLAN VIEW

N.T.S

LEVEL SPREADER DESIGN CRITERIA (20 YEAR STORM EVENT)				
DESIGN FLOW (m^3/sec)	INLET WIDTH (m)	DEPTH (m)	END WIDTH (m)	LENGTH (mm)
0-0.3	3	150	1	3
0.3-0.6	5	180	1	7
0.6-0.9	7	220	1	10



Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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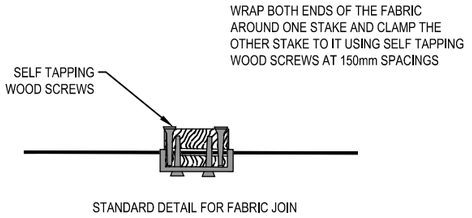
Title

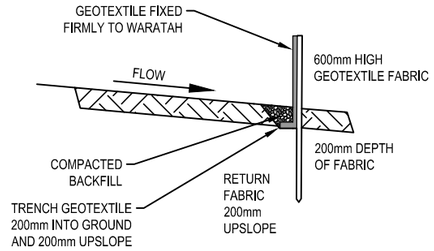
SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C242	Rev	A

DATE: 10/2023

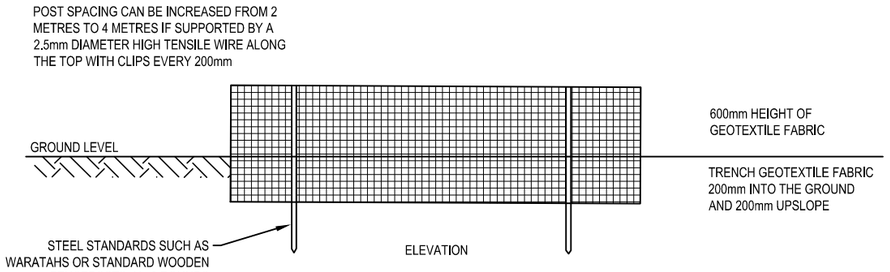


STANDARD DETAIL FOR FABRIC JOIN

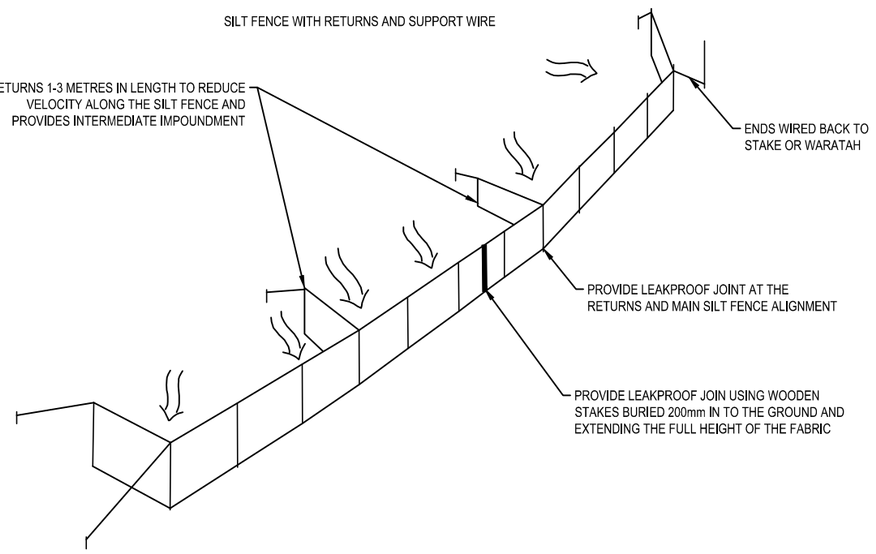


CROSS SECTION

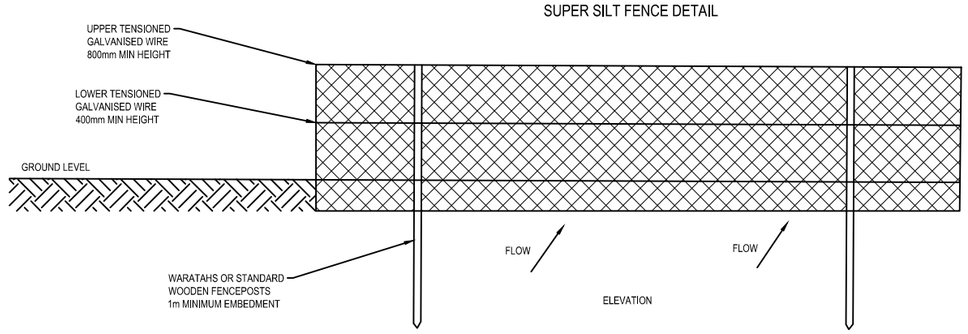
STANDARD DETAIL FOR SILT FENCE



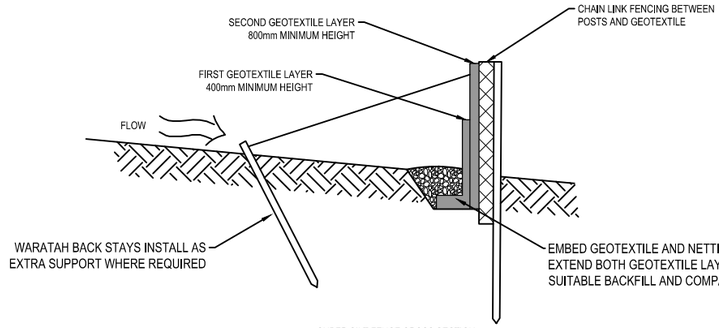
ELEVATION



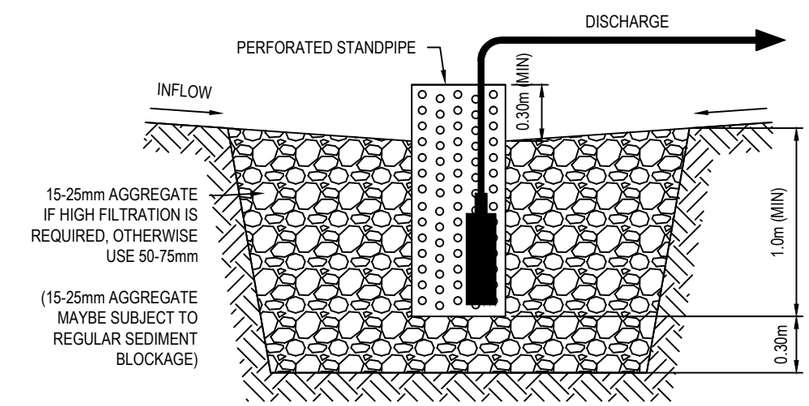
SUPER SILT FENCE DETAIL



ELEVATION



SUPER SILT FENCE CROSS SECTION



TYPICAL ARRANGEMENT OF A SUMP PIT

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Project

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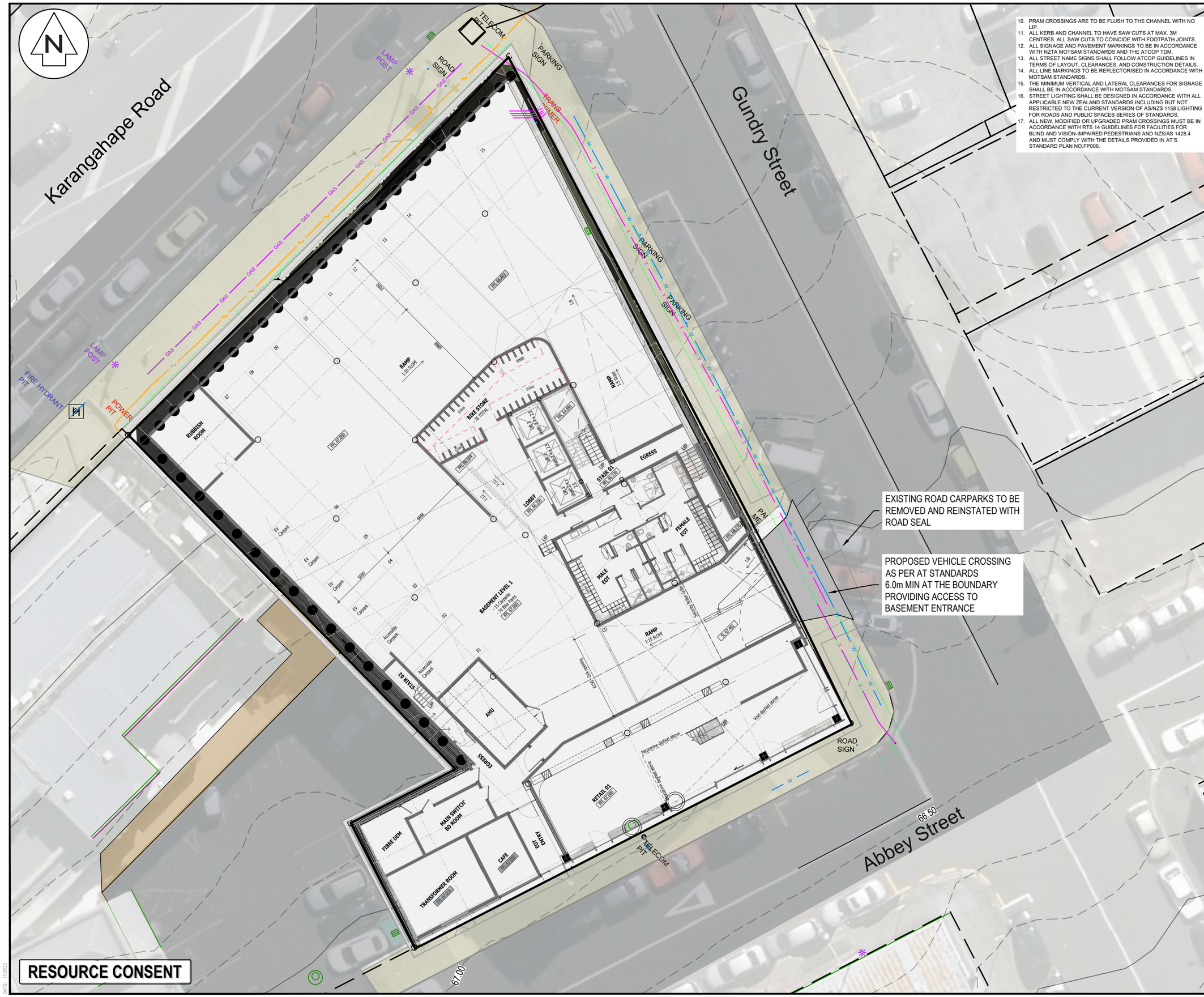
Title

SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C243	Rev	A

DATE: 10/2023



NOTES

10. PRAM CROSSINGS ARE TO BE FLUSH TO THE CHANNEL WITH NO LIP.
11. ALL KERB AND CHANNEL TO HAVE SAW CUTS AT MAX. 3M CENTRES. ALL SAW CUTS TO COINCIDE WITH FOOTPATH JOINTS.
12. ALL SIGNAGE AND PAVEMENT MARKINGS TO BE IN ACCORDANCE WITH NZTA MOTSAM STANDARDS AND THE ATCOP TDM.
13. ALL STREET NAME SIGNS SHALL FOLLOW ATCOP GUIDELINES IN TERMS OF LAYOUT, CLEARANCES, AND CONSTRUCTION DETAILS.
14. ALL LINE MARKINGS TO BE REFLECTORISED IN ACCORDANCE WITH MOTSAM STANDARDS.
15. THE MINIMUM VERTICAL AND LATERAL CLEARANCES FOR SIGNAGE SHALL BE IN ACCORDANCE WITH MOTSAM STANDARDS.
16. STREET LIGHTING SHALL BE DESIGNED IN ACCORDANCE WITH ALL APPLICABLE NEW ZEALAND STANDARDS INCLUDING BUT NOT RESTRICTED TO THE CURRENT VERSION OF AS/NZS 1158 LIGHTING FOR ROADS AND PUBLIC SPACES SERIES OF STANDARDS.
17. ALL NEW, MODIFIED OR UPGRADED PRAM CROSSINGS MUST BE IN ACCORDANCE WITH RTS 14 GUIDELINES FOR FACILITIES FOR BLIND AND VISION-IMPAIRED PEDESTRIANS AND NZS/AS 1428.4 AND MUST COMPLY WITH THE DETAILS PROVIDED IN AT'S STANDARD PLAN NO.FP006.

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. CONTRACTOR IS TO AVOID USING GPS FOR SET OUT OF THE KERB LEVELS WHERE GRADIENTS ARE LESS THAN 1%.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVALS FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
6. FINAL PAVEMENT DESIGN SUBJECT TO CBR/BEAM TESTS ON SUBGRADE MATERIAL.
7. SETOUT SCHEDULE WITH COORDINATES OF CHAINAGE POINTS ALONG ROAD CENTRELINE TO BE SUPPLIED TO THE CONTRACTOR PRIOR TO CONSTRUCTION.
8. REFER TO LONG SECTION FOR FINISHED CENTRELINE LEVELS. REFER TO TYPICAL CROSS SECTIONS TO OBTAIN LEVELS FOR OTHER LOCATIONS.
9. ALL DUCTS SHALL HAVE LOCATIONS MARKED ON KERB LINES IN ACCORDANCE WITH SPECIFICATION.

Line Marking

	EX BDY
	PROP BDY
CENTER LINE 1-	WC100R (30m)
CENTER LINE 2-	WC100R
NO STOPPING LINE-	YI100R1x1
CONTINUITY LINE-	WI100R1x3
LIMIT LINE-	WC300R

Legend

AC	AC PAVING
CB	BRUSHED CONCRETE
CEA	EXPOSED CONCRETE
DC	DISH CHANNEL
K&C	KERB AND CHANNEL
K&N	KERB AND NIB
WS	WHEEL STOP
	PROP SWCP SINGLE
	PROP STREET LIGHT
	PROP STREET SIGN
	ROAD NAME SIGN
	TACTILE PAVERS

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	XX	09/2023
Design	APS	07/2023
Drawn	APS	07/2023
Checked	AC	07/2023

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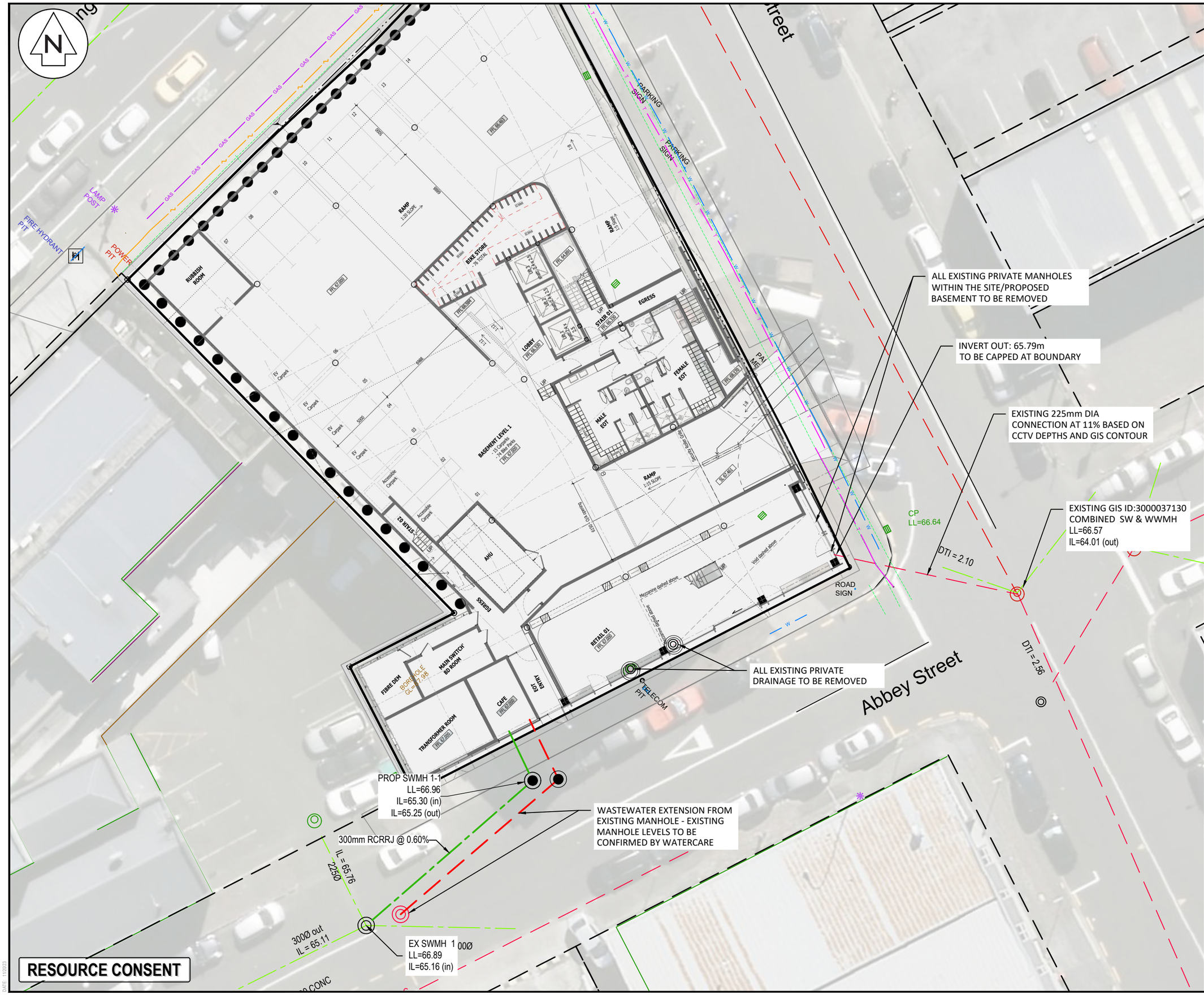
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED ROADING PLAN

Project no.	PROMO		
Scale	1:250 @ A3		
Cad file	C300.DWG		
Drawing no.	C300	Rev	A



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. PIPE BEDDING: 0 - 10% GRANULAR BEDDING,10 - 20% WEAK CONCRETE BEDDING.GREATER THAN 20% WEAK CONCRETE BEDDING (7MPA PLUS ANTI SCOUR BLOCKS AT 6M CRS).
5. EACH CONNECTION SHALL BE MARKED BY A 50MMX50MM TREATED PINE STAKE EXTENDING 600MM ABOVE GROUND LEVEL WITH THE TOP PAINTED. THIS MARKER POST SHALL BE PLACED ALONGSIDE A TIMBER MARKER INSTALLED AT THE TIME OF PIPELAYING AND EXTENDING FROM THE CONNECTION TO 150MM BELOW FINISHED GROUND LEVEL. CONNECTIONS SHALL BE ACCURATELY INDICATED ON "AS BUILT" PLANS.
6. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL ROAD CROSSINGS AND VEHICLE CROSSINGS TO COUNCIL STANDARDS.
7. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
8. ALL MANHOLES ARE TO BE 1050MMØ PRECAST CONCRETE UNLESS SHOWN OTHERWISE.
9. ALL CATCHPIT LEADS SHALL HAVE MIN COVER 1.0M.
10. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.
11. ALL LOT CONNECTION TO BE MIN 100mm uPVC SN16 UNLESS SHOWN OTHERWISE.

Legend

- EX BDY
- PROP BDY
- EX STORMWATER
- PR STORMWATER
- EX/PROP SWMH
- PROP SWCP SINGLE
- PROP SWCP DOUBLE

Rev	Description	By	Date
A	DRAFT	YG	08/2023

	By	Date
Survey	Easdale SurveyorsLTD	05/2020
Design	APS	07/2023
Drawn	EZ	07/2023
Checked	AC	07/2023

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Project

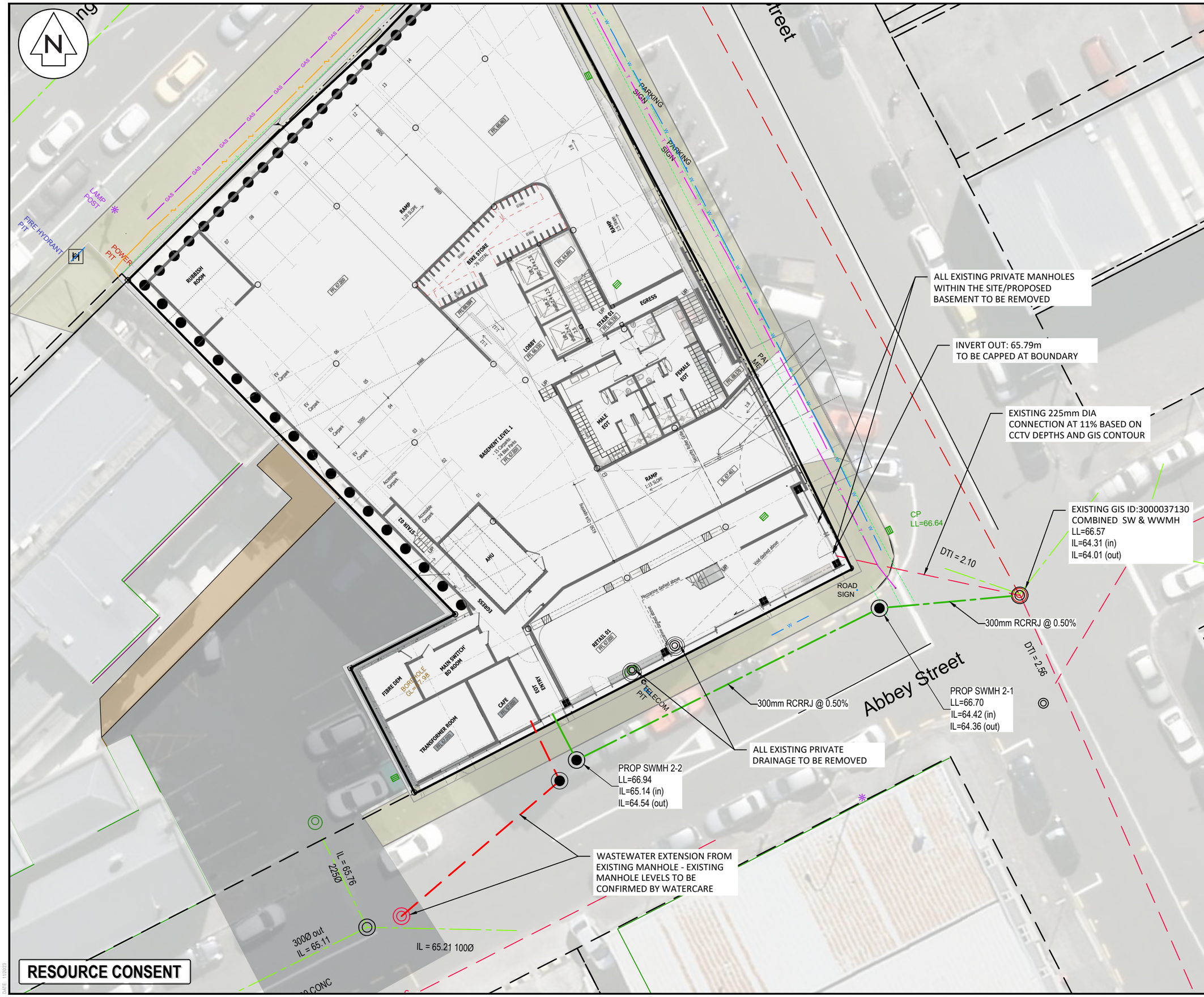
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED DRAINAGE PLAN-1

Project no.	274001
Scale	1:250 @ A3
Cad file	C400.DWG
Drawing no.	C400 Rev A

DATE: 16/2/23



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. PIPE BEDDING: 0 - 10% GRANULAR BEDDING,10 - 20% WEAK CONCRETE BEDDING.GREATER THAN 20% WEAK CONCRETE BEDDING (7MPA PLUS ANTI SCOUR BLOCKS AT 6M CRS).
5. EACH CONNECTION SHALL BE MARKED BY A 50MMX50MM TREATED PINE STAKE EXTENDING 600MM ABOVE GROUND LEVEL WITH THE TOP PAINTED. THIS MARKER POST SHALL BE PLACED ALONGSIDE A TIMBER MARKER INSTALLED AT THE TIME OF PIPELAYING AND EXTENDING FROM THE CONNECTION TO 150MM BELOW FINISHED GROUND LEVEL. CONNECTIONS SHALL BE ACCURATELY INDICATED ON "AS BUILT" PLANS.
6. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL ROAD CROSSINGS AND VEHICLE CROSSINGS TO COUNCIL STANDARDS.
7. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
8. ALL MANHOLES ARE TO BE 1050MMØ PRECAST CONCRETE UNLESS SHOWN OTHERWISE.
9. ALL CATCHPIT LEADS SHALL HAVE MIN COVER 1.0M.
10. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.
11. ALL LOT CONNECTION TO BE MIN 100mm uPVC SN16 UNLESS SHOWN OTHERWISE.

Legend

- EX BDY
- PROP BDY
- EX STORMWATER
- PR STORMWATER
- EX/PROP SWMH
- PROP SWCP SINGLE
- PROP SWCP DOUBLE

Rev	Description	By	Date
A	DRAFT	YG	08/2023

	By	Date
Survey	Easdale SurveyorsLTD	05/2020
Design	APS	07/2023
Drawn	EZ	07/2023
Checked	AC	07/2023

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Project

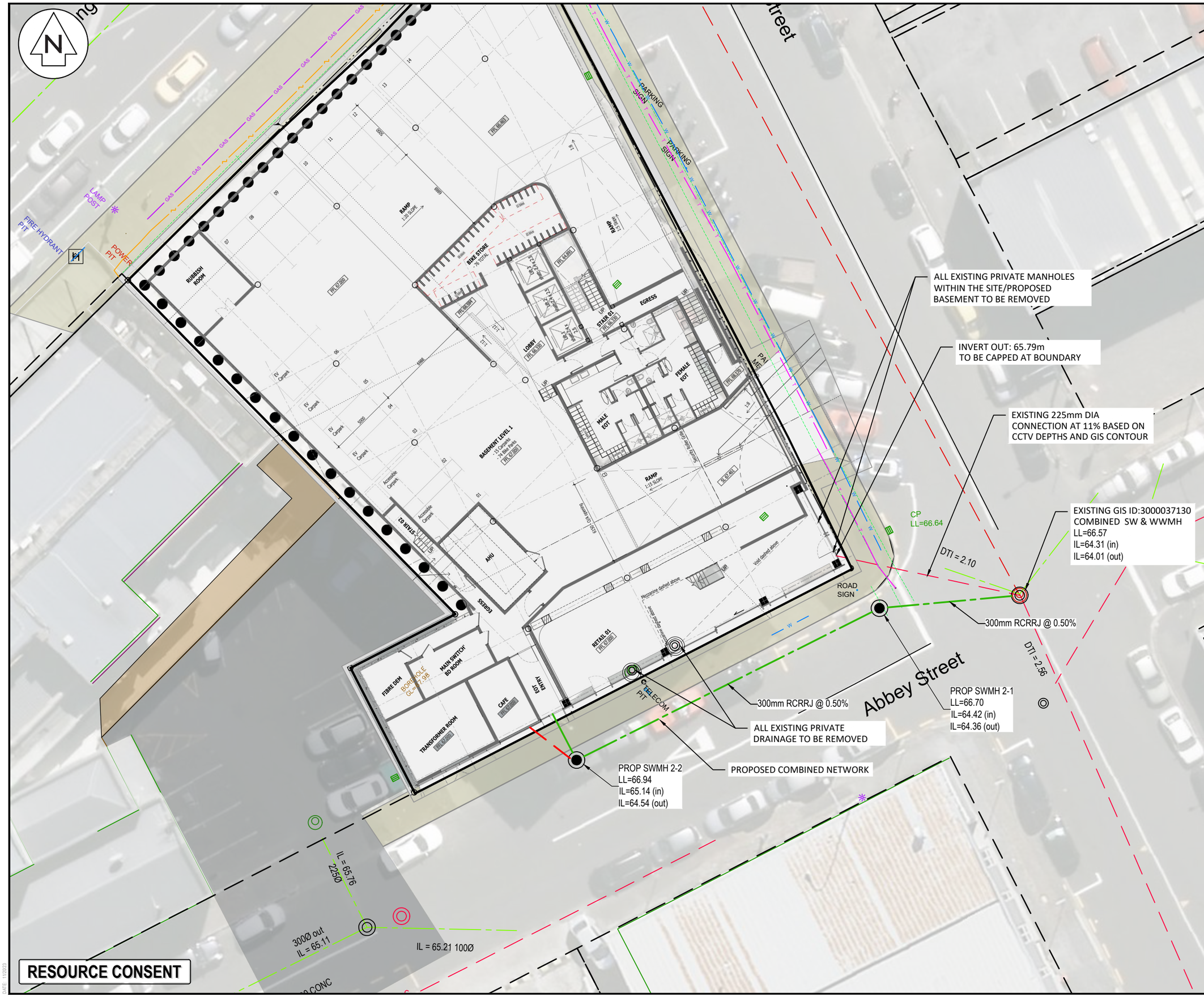
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED DRAINAGE PLAN-2

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C400.DWG		
Drawing no.	C401	Rev	A

DATE: 1/2023



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. PIPE BEDDING: 0 - 10% GRANULAR BEDDING,10 - 20% WEAK CONCRETE BEDDING.GREATER THAN 20% WEAK CONCRETE BEDDING (7MPA PLUS ANTI SCOUR BLOCKS AT 6M CRS).
5. EACH CONNECTION SHALL BE MARKED BY A 50MMX50MM TREATED PINE STAKE EXTENDING 600MM ABOVE GROUND LEVEL WITH THE TOP PAINTED. THIS MARKER POST SHALL BE PLACED ALONGSIDE A TIMBER MARKER INSTALLED AT THE TIME OF PIPELAYING AND EXTENDING FROM THE CONNECTION TO 150MM BELOW FINISHED GROUND LEVEL. CONNECTIONS SHALL BE ACCURATELY INDICATED ON "AS BUILT" PLANS.
6. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL ROAD CROSSINGS AND VEHICLE CROSSINGS TO COUNCIL STANDARDS.
7. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
8. ALL MANHOLES ARE TO BE 1050MMØ PRECAST CONCRETE UNLESS SHOWN OTHERWISE.
9. ALL CATCHPIT LEADS SHALL HAVE MIN COVER 1.0M.
10. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.
11. ALL LOT CONNECTION TO BE MIN 100mm uPVC SN16 UNLESS SHOWN OTHERWISE.

Legend

- EX BDY
- PROP BDY
- EX STORMWATER
- PR STORMWATER
- EX/PROP SWMH
- PROP SWCP SINGLE
- PROP SWCP DOUBLE

Rev	Description	By	Date
A	DRAFT	YG	08/2023

	By	Date
Survey	Easdale SurveyorsLTD	05/2020
Design	APS	07/2023
Drawn	EZ	07/2023
Checked	AC	07/2023

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Project

538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED DRAINAGE PLAN-3

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C400.DWG		
Drawing no.	C402	Rev	A

DATE: 1/2023

EXISTING CONNECTION OFF K. ROAD IS TO BE REUSED AND UPGRADED TO A LARGER DIAMETER CONNECTION AS REQUIRED FOR THE NEW BUILDING - TO BE CONFIRMED BY HYDRAULICS ENGINEER

Karangahape Road

Gundry Street

Abbey Street

TELECOM PIT
PARKING SIGN
ROAD SIGN
TRANS-FORMER
LAMP POST
FIRE HYDRANT
POWER PIT
PARKING METER
UNDEF (Abandoned)
CP LL=66.64
DTI = 2.10
DTI = 2.56
ROAD SIGN
TELECOM PIT

TENANCY 1 FFL 65.850
ENTRY FFL 65.850
F&B TENANCY FFL 65.850
SERVICE ZONE WC, BOH F&B
LEFT LOBBY FFL 65.850
STAIR 01 FFL 65.850
LOBBY FFL 65.850
ACCESSIBLE ENTRY FFL 65.850
WC BLOCK FFL 65.850
STAIR 02 FFL 65.850
TENANCY 3 FFL 65.850
TENANCY 2 FFL 65.850
Retaining Wall Behind Building

RESOURCE CONSENT

DATE: 1/09/23

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF WORKS.
3. MINIMUM COVER SHALL BE:
   - ROADS AND FRONT1M OF BERM: 900MM
   - BERMS 600MM
   - SERVICE CONNECTIONS: 450MM
4. WATERMAINS LAID ACROSS ROADS SHALL BE BACKFILLED WITH HARDFILL COMPACTED IN 200MM LAYERS ABOVE THE EMBEDMENT MATERIAL.
5. ALL UPVC PIPE SHALL BE PN12 MINIMUM PRESSURE RATED WITH SPIGNOT AND SOCKET RUBBER RING JOINTS.
6. ALL PE PIPE SHALL BE PN12.5 MINIMUM PRESSURE RATED WITH BUTT-WELDED. WELD BEADS SHALL BE REMOVED TO PROVIDE A SMOOTH BORE.
7. ALL NON-METALIC PIPES ARE TO HAVE TRACER WIRE FITTED TO COUNCIL STANDARDS.
8. PIPES SHALL BE BEDDED AND SURROUNDED TO 150MM ABOVE THE PIPE SOFFIT WITH SAND OR AP20.
9. METAL DETECTOR TAPE PRINTED WITH "WATER PIPE BELOW" SHALL BE LAID 150MM ABOVE ALL WATERMAINS.
10. A YELLOW ISOSCELES TRIANGLE WITH CATS EYE POINTING TO FH SHALL BE PAINTED IN THE CENTRE OF ALL SEALED ROADS.
11. ALL VALVES TO BE MARKED WITH SAWCUT KERB AND BLUE PAINT.
12. ALL FLANGE JOINTS TO BE PROTECTED WITH DENSO TAPE OR SIMILAR APPROVED BY THE ENGINEER.

LEGEND

- EX BDY
- PROP BDY
- EX WATERMAIN
- PROP WATERMAIN
- EX/PROP HYDRANT
- EX/PROP METER
- EX SLUICE VALVE
- EX PEET VALVE
- PROP SLUICE VALVE
- PROP PEET VALVE

Rev	Description	By	Date
A	DRAFT	YG	08/2023

	By	Date
Survey	Easdale SurveyorsLTD	05/2020
Design	APS	07/2023
Drawn	EZ	07/2023
Checked	AC	07/2023

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Project
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title
PROPOSED WATER SUPPLY PLAN

Project no.	274001
Scale	1:250 @ A3
Cad file	C600.DWG
Drawing no.	C600 Rev A

9.iii Appendix C - Engineering Calculations

MAVEN ASSOCIATES	Job Number	Sheet	Rev	538 Kroad	Author		Date	Checked
	274001	1	A	Calc Title: Pipe Capacity Check	AS		19/10/2023	TM

Rainfall Depth	ARI 10YR (mm)	
TP108 rainfall data	120	(from TP108 Maps)
Climate change Increase	135.96	

Pipe ks factor = 1.5 mm combined pipe
0.6 mm concrete pipes
0.15 mm pvc pipes

	CN Number	
Impervious area	98	Proposed Roads
Pervious	74	Residential Lots

Discharge Point: 450mm dia line

Line number	MH to MH number	Flow From description	Catchment letter	Catchment Area m2	CN	Peak Flow rate - 10YR ARI l/s	Cum. Flow l/s	Pipe dia m	Gradient %	Capacity l/s	Percent Capacity %	Remaining l/s	Velocity m/s	Check OK
Connection 956983	PVT 514730 to 3000037134	Site		1597	98	35.9	35.9	0.300	0.50	69.5	51.6%	33.6	0.98	OK
				12850	98	289.0	324.9							
		Total					324.9	0.450	10.50	932.4	34.8%	607.5	5.86	OK

With Wastewater Combined flows

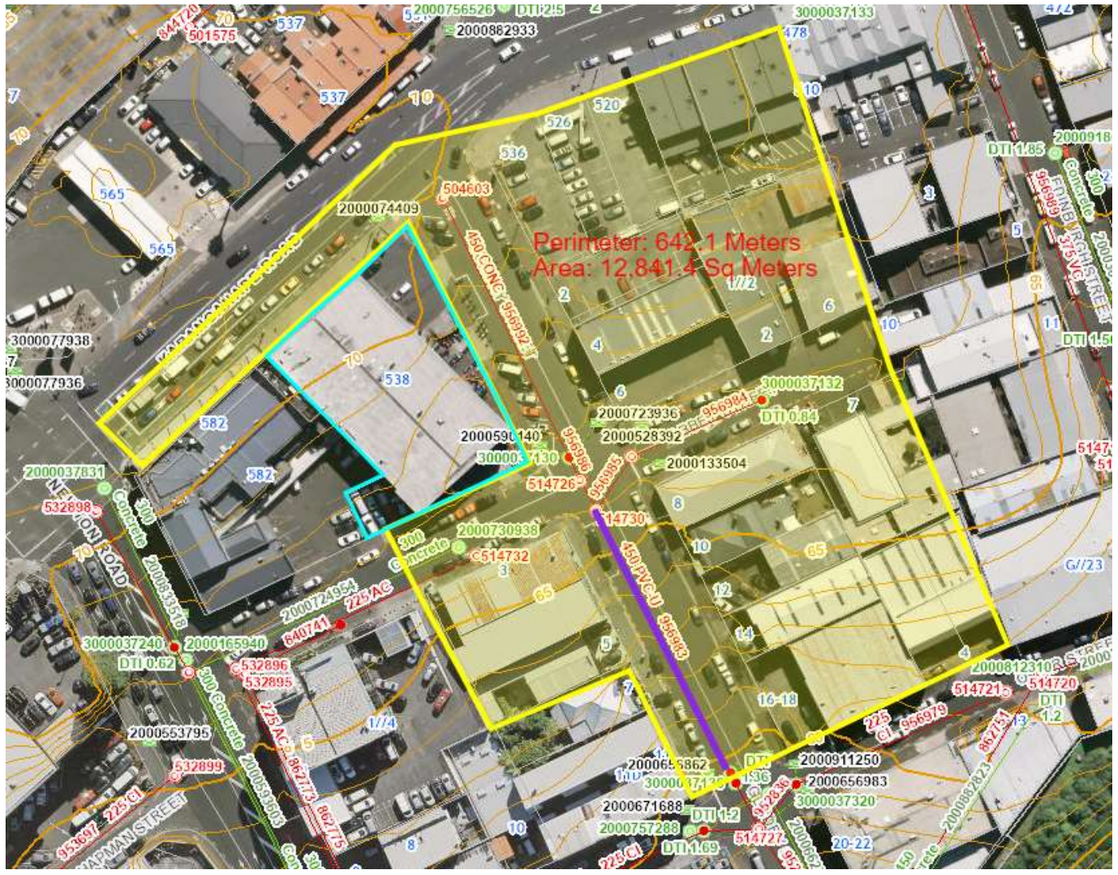
NODE	Unit type	Number of Units	Commercial Activity	Area	Occupancy	ADWF	PDWF	PWWF
0	Ex Site Use	1	Dry Retail	1100	22	0.017 l/s	0.033 l/s	0.083 l/s
2	Catchment to 450mm Green	1	Office	8256	551	0.415 l/s	0.829 l/s	2.073 l/s
2	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s
2	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s

Assumed Single Storey dey retail

4.3 L/s

Line number	MH to MH number	Flow From description	Catchment letter	Catchment Area m2	CN	Peak Flow rate l/s	Cum. Flow l/s	Pipe dia m	Gradient %	Capacity l/s	Percent Capacity %	Remaining l/s	Velocity m/s	Check OK
Refer to WW demand calcs above						4.3	329.2							
956983	514730 to 3000037134						329.2	0.450	10.50	932.4	35.3%	603.3	5.86	OK

Stormwater Catchment - Assumed All impervious 12850 m2



Wastewater Catchment - Assumed 5160 m2 is 2 storey (total 10320 m2) and 80% of total is occupied with offices.

MAVEN ASSOCIATES	Job Number	Sheet	Rev	538 K Road	Author		Date	Checked
	274001	1	A	Calc Title: Pipe Capacity Check	AS		13/10/2023	TM

Rainfall Depth	ARI 10YR (mm)
TP108 rainfall data	120
Climate change Increase	135.96

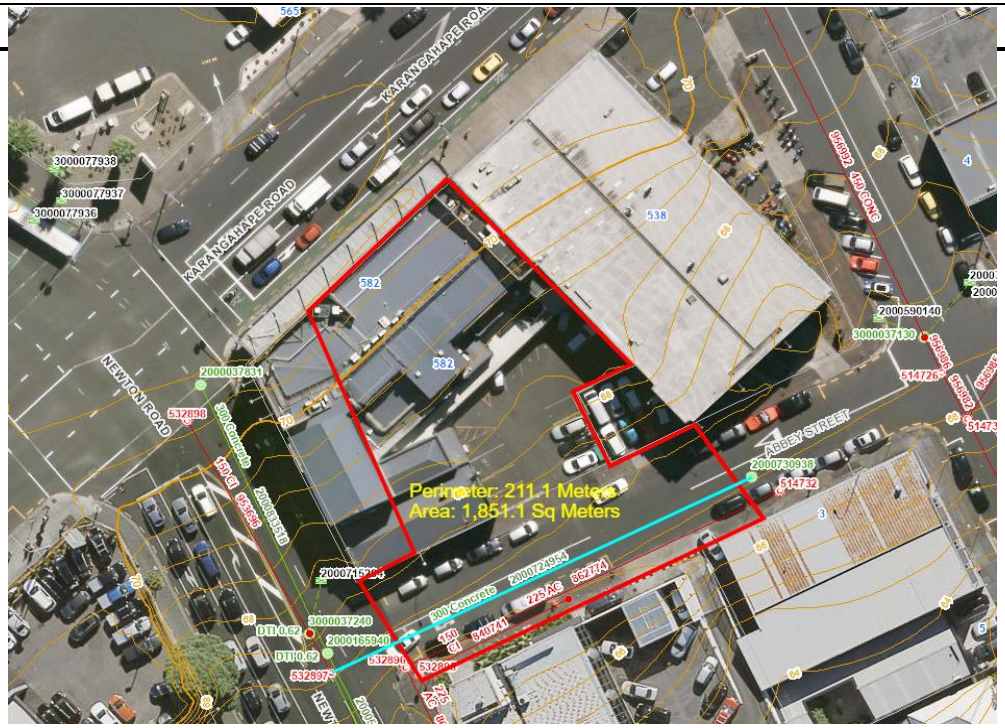
(from TP108 Maps)

	CN Number	
Impervious area	98	Proposed Roads
Pervious	74	Residential Lots

Pipe ks factor = 1.5 mm combined pipes and wastewater pipes
0.6 mm concrete pipes
0.15 mm pvc pipes

Discharge Point: 300mm dia line

Line number	MH to MH number	Flow From description	Catchment letter	Catchment Area m2	CN	Peak Flow rate - 10YR ARI l/s	Cum. Flow l/s	Pipe dia m	Gradient %	Capacity l/s	Percent Capacity %	Remaining l/s	Velocity m/s	Check OK
Connection	PVT	Site		1597	98	35.9	35.9	0.300	0.70	93.6	38.4%	57.7	1.32	OK
2000724954				1850	98	41.6	77.5							
		Total			98	0.0	77.5	0.300	0.50	79.1	98.0%	1.6	1.12	OK



Discharge Rates (Retail Other) - Dry Retail WWCOP Table 5.1.3

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Retail Major 02)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Cinemas)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Food & Beverage Excludes Decks)

Average dry weather flow =	15	litres/person/day
Peak dry weather diurnal flow =	30	litres/person/day
peak wet weather flow =	101	litres/person/day

Discharge Rates (Food & Beverage Including Outdoor Area)

Average dry weather flow =	15	litres/person/day
Peak dry weather diurnal flow =	30	litres/person/day
peak wet weather flow =	101	litres/person/day

Discharge Rates (Commercial)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Office Specialty - Excludes Decks)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Office - Open Plan Excludes Decks)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Hotel)

Average dry weather flow =	180	litres/person/day
Peak dry weather diurnal flow =	540	litres/person/day
peak wet weather flow =	1206	litres/person/day

CATCHMENT A - OFFICE & COMMERCIAL

Proposed	Occupancy	Net Floor Area (m2)	People	
Office building (1-2 levels)	1 per 15 m2	8685	579	
		tenancy areas only		

CATCHMENT B - FOOD & BEVERAGE

Proposed			
Population	Net Area		
	16	wet retail	

CATCHMENT C - RETAILS -OTHERS & MAJOR

Proposed	Area	People	
Population		0	from email

CATCHMENT D- HOTEL-(1 BEDROOM & STUDIO UNITS)

Proposed	No Of Units
Population	

CATCHMENT E- RESIDENTIAL-(2 BEDROOM UNITS)

Proposed	No of Units	People
Population		0

CATCHMENT F- RESIDENTIAL-(1 BEDROOM & STUDIO UNITS)

Proposed	No of Units	People
Population		0

CATCHMENT A - OFFICE & COMMERCIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	579	65	0.44
PDWDF	579	130	0.87
PWWF	579	325	**2.18**

CATCHMENT B - FOOD & BEVERAGES

Discharges	Area	Rate l/p/day	Flow l/s
ADWF	16	15	0.00
PDWDF	16	30	0.01
PWWF	16	101	**0.02**

CATCHMENT C - (Retails- Others & Major)

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	65	0.00
PDWDF	0	130	0.00
PWWF	0	325	**0.00**

CATCHMENT D - HOTEL

Discharges	Room	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	540	0.00
PWWF	0	1206	**0.00**

CATCHMENT E - RESIDENTIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	360	0.00
PWWF	0	900	**0.00**

CATCHMENT F - RESIDENTIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	360	0.00
PWWF	0	900	**0.00**

residential flow	0.00	L/s
Non residential flow	2.20	L/s
TOTAL	**2.20**	

Maven Associates	Job Number 274001	Sheet 1	Rev A
Job Title: 538 Karangahape Road, Newton Calc Title: Water Demand (Commercial)	Author: APS	Date: 13/10/2023	Checked: TM

Proposed Development - Office building and Dry Retail

As per Watercare standards: 1 person per 15m2

Peaking Factor	2
Peaking Hourly Factor	2.5

Discharge Rates

Design water flow allowance = 65 litres/person/day (office)
15 litres/day/m2 (wet retail)

Net area (office) 8685 m2 (tenancy area)
Net area (Wet retail) 16 m2 (café)
No. of people 579 people

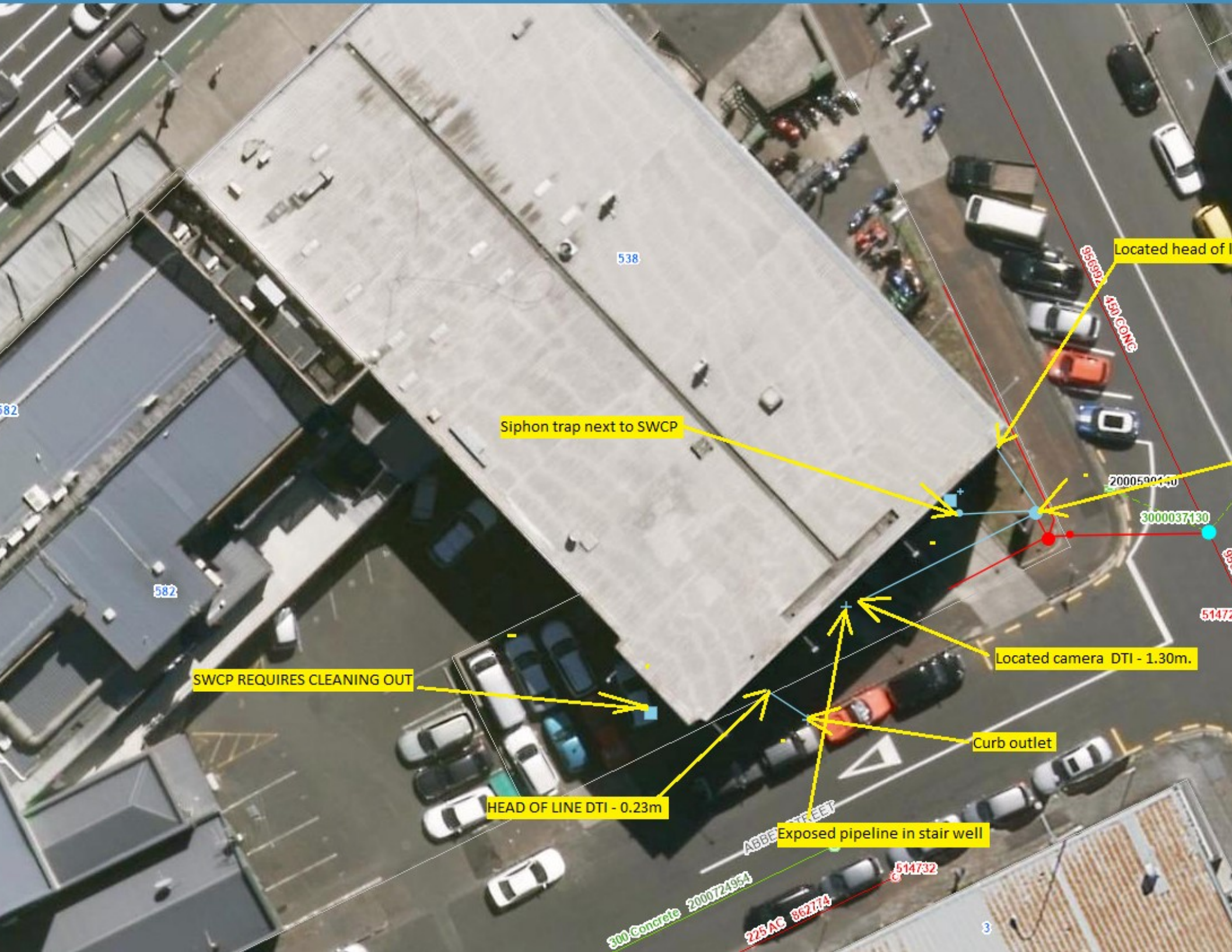
Discharges	L/d	L/s
Average Daily Demand All stages	37875	0.44
Peak Commercial Daily Water Demand All Stages=	75750	0.88
Peak Commercial Hourly Water Demand All Stages =		**2.19**

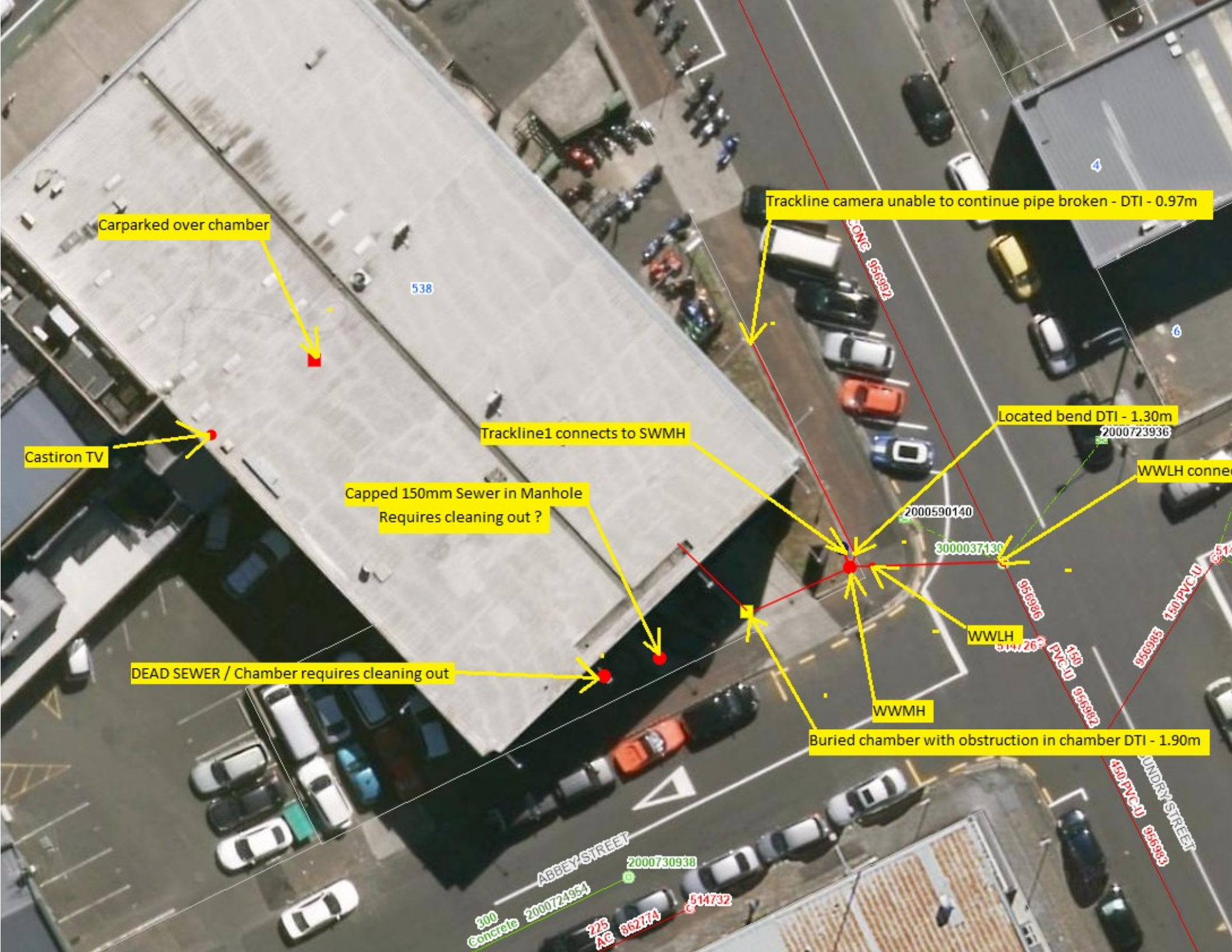
MAVEN ASSOCIATES						Job Number	Sheet	Rev	538 K Road, Newton		Author	Date
						274001	1	A	Calc Title: Pipe Capacity Check		AS	19/10/2023
LINE	SECTION		LOT Type	Contributing LOTS/NODES	System Type	PWW Flow	Accumulated PWW Flow	Pipe dia	Gradient	Capacity	Velocity	Check
	Start MH	End MH				l/s	l/s	m	%	l/s	m/s	
WW Line 225mm (862774)	514732	532896	Commercial	1	Gravity	2.66	2.66	0.225	0.55	33.98	0.85	OK
WW Line 450mm (956983)	514730	3000037134	Commercial	2	Gravity	4.27	6.93	0.45	10.50	932.43	5.86	OK

NODE	Unit type	Number of Units	Commercial Activity	Area	Occupancy	ADWF	PDWF	PWWF	
0	Ex Site Use	1	Dry Retail	1100	22	0.017 l/s	0.033 l/s	0.083 l/s	
1	Catchment to 225mm Yellow	1	Office	1856	124	0.093 l/s	0.187 l/s	0.466 l/s	
1	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s	
1	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s	2.66
2	Catchment to 450mm Green	1	Office	8256	551	0.415 l/s	0.829 l/s	2.073 l/s	
2	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s	
2	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s	4.27

Note: The total wastewater flow is calculated based on 80% of catchment area times by 2 storey is occupied with offices.

9.iv APPENDIX D – CCTV AS-BUILTS


Located head of
450 CONC
Siphon trap next to SWCP
3000037130
Located camera DTI - 1.30m.
SWCP REQUIRES CLEANING OUT
Curb outlet
HEAD OF LINE DTI - 0.23m
Exposed pipeline in stair well
538
582
582
514732
300 Concrete
225 AC


Carparked over chamber
Trackline camera unable to continue pipe broken - DTI - 0.97m
Castiron TV
Trackline1 connects to SWMH
Located bend DTI - 1.30m
Capped 150mm Sewer in Manhole
Requires cleaning out ?
DEAD SEWER / Chamber requires cleaning out
WWLH
WWMH
Buried chamber with obstruction in chamber DTI - 1.90m
538
2000723936
2000590140
3000037130
956986
956985
956982
956983
150 PVC-U
450 PVC-U
ABBEY STREET
2000730938
2000724954
514732
862774
300 Concrete
225 AC
LAUNDRY STREET

9.v APPENDIX E – WATERCARE DEVELOPMENT ASSESSMENT

Development Application Form – Water Supply/Wastewater Planning Assessment		
Development Application Status	**RC**	*Pre-Purchase Enquiry / Enquiry to Support Plan Change Application / Pre-Application Enquiry / Resource Consent Application / Engineering Approval*
Date of Application	**12/10/2023**	
Address of Development	**538 K-Road, Newton**	
Layout Plan of Proposed Development clearly showing: • Aerial photograph • Road names • Boundary of development • Preferred point of connection to existing water supply and wastewater asset	See attached	
	Description	**Comment**
Current Land Use	Vacant site (demolished building)	*Residential (Single family dwellings) / Residential (Multi-unit dwellings) / Residential (Multi-storey apartment blocks) / Commercial / Industrial / Other (Please Specify)*
Proposed Land Use	Commercial (Multi – storey 10) Office space and retail	
Total Development Area	*1597 m^2*	
Unitary Plan Zoning		
Number of Residential Households (Consent & Ultimate)	N/A	

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 6 Water Supply

Water Supply Development Assessment		
Average and Peak Residential Demand (L/s)	N/A	*Show calculations based on Watercare CoP*
Average and Peak Non-Residential Demand (L/s)	Average daily 0.44l/s Peak Commercial Daily 2.2 l/s	*Show calculations based on Watercare CoP*
Non Residential Demand Typical Daily Consumption Profile / Trend	9am-5pm would be assumed peak.	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Filling on-site storage at certain frequency)*
Fire- fighting Classification required by the proposed site	FW4	*Refer to New Zealand Standard SNZ PAS 4509:2008*
Hydrant Flow Test Results	☒ Yes ☐ No	*Attach hydrant flow test layout plan and results showing test date & time; location of hydrants tested and pressure logged; static pressure; flow; residual pressure*
Sprinkler System in building?	☒ Yes ☐ No	*Sprinkler design should consider Watercare Level of Service: minimum pressure at 200kPa and minimum flow at 25 l/min. The building owner shall conduct periodic review of sprinkler design.*
Further Water Supply Comments: **Refer to the calculation sheets attached.**		

Refer to Water and Wastewater Code of Practice for Land Development and Subdivision Section 5 Wastewater

Wastewater Development Assessment		
Peak DWF and WWF Residential Design Flows (L/s)	N/A	*Show calculations based on Watercare CoP. If relevant for ultimate development scenario include No. of Potential Units/ lots for calculations.*
Peak DWF and WWF Non-Residential Design Flows (L/s)	Peak DWF 0.877l/s Peak WWF 2.2 l/s	*Show calculations based on Watercare CoP.*
Non-Residential Discharge Profile / Trend (i.e. Operations)	9am-5pm peak	*E.g. 24 hr operation / 10 hr (9am – 5pm) / Other*
New Assets Required for Development	WW extension and manholes	*If applicable please provide supporting calculations and indicative design parameters (i.e. Pump Station and rising main or storage)*
Down Stream Sewer Capacity Check **Proposed Connection Sewer Capacity Check**	WW Line 225mm (862774) capacity - 33.98 l/s WW Line 450mm (956983) capacity - 932.4 l/s (combined SW and WW flows with upstream catchment to 450mm pipe – 329.2 l/s)	*Provide capacity assessment at proposed connection point and impact on network to nearest pump station, or connecting 300 mm diameter sewer (i.e. hydraulic boundary) for developments over 20 dwellings.* *Developer to:* - *Count number of residential dwellings upstream and downstream to nearest hydraulic boundary as above to establish related existing catchment design flows for PDWF and PWWF as per CoP.* - *Calculate capacity of the connecting pipe, with size and grade to hydraulic boundary point.* - *Spreadsheet and supporting catchment assessment map to be provided.* *Watercare to provide technical information as required especially for pump station hydraulic boundaries.*
Further Wastewater Comments: **Refer to the calculation sheets attached.**		

For internal Watercare use only

Date Application Received	
Application Ref No.	
Assigned Connection Engineer	
Prior Developer Correspondence with Watercare	
Neighbouring Developments to Consider in Capacity Assessment	

Discharge Rates (Retail Other) - Dry Retail WWCOP Table 5.1.3

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Retail Major 02)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Cinemas)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Food & Beverage Excludes Decks)

Average dry weather flow =	15	litres/person/day
Peak dry weather diurnal flow =	30	litres/person/day
peak wet weather flow =	101	litres/person/day

Discharge Rates (Food & Beverage Including Outdoor Area)

Average dry weather flow =	15	litres/person/day
Peak dry weather diurnal flow =	30	litres/person/day
peak wet weather flow =	101	litres/person/day

Discharge Rates (Commercial)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Office Specialty - Excludes Decks)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Office - Open Plan Excludes Decks)

Average dry weather flow =	65	litres/person/day
Peak dry weather diurnal flow =	130	litres/person/day
peak wet weather flow =	325	litres/person/day

Discharge Rates (Hotel)

Average dry weather flow =	180	litres/person/day
Peak dry weather diurnal flow =	540	litres/person/day
peak wet weather flow =	1206	litres/person/day

CATCHMENT A - OFFICE & COMMERCIAL

Proposed	Occupancy	Net Floor Area (m2)	People	
Office building (1-2 levels)	1 per 15 m2	8685	579	
		tenancy areas only		

CATCHMENT B - FOOD & BEVERAGE

Proposed			
Population	Net Area		
	16	wet retail	

CATCHMENT C - RETAILS -OTHERS & MAJOR

Proposed	Area	People	
Population		0	from email

CATCHMENT D- HOTEL-(1 BEDROOM & STUDIO UNITS)

Proposed	No Of Units
Population	

CATCHMENT E- RESIDENTIAL-(2 BEDROOM UNITS)

Proposed	No of Units	People
Population		0

CATCHMENT F- RESIDENTIAL-(1 BEDROOM & STUDIO UNITS)

Proposed	No of Units	People
Population		0

CATCHMENT A - OFFICE & COMMERCIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	579	65	0.44
PDWDF	579	130	0.87
PWWF	579	325	**2.18**

CATCHMENT B - FOOD & BEVERAGES

Discharges	Area	Rate l/p/day	Flow l/s
ADWF	16	15	0.00
PDWDF	16	30	0.01
PWWF	16	101	**0.02**

CATCHMENT C - (Retails- Others & Major)

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	65	0.00
PDWDF	0	130	0.00
PWWF	0	325	**0.00**

CATCHMENT D - HOTEL

Discharges	Room	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	540	0.00
PWWF	0	1206	**0.00**

CATCHMENT E - RESIDENTIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	360	0.00
PWWF	0	900	**0.00**

CATCHMENT F - RESIDENTIAL

Discharges	Persons	Rate l/p/day	Flow l/s
ADWF	0	180	0.00
PDWDF	0	360	0.00
PWWF	0	900	**0.00**

residential flow	0.00	L/s
Non residential flow	2.20	L/s
TOTAL	**2.20**	

MAVEN ASSOCIATES						Job Number	Sheet	Rev	538 K Road, Newton		Author	Date
						274001	1	A	Calc Title: Pipe Capacity Check		AS	19/10/2023
LINE	SECTION		LOT Type	Contributing LOTS/NODES	System Type	PWW Flow	Accumulated PWW Flow	Pipe dia	Gradient	Capacity	Velocity	Check
	Start MH	End MH				l/s	l/s	m	%	l/s	m/s	
WW Line 225mm (862774)	514732	532896	Commercial	1	Gravity	2.66	2.66	0.225	0.55	33.98	0.85	OK
WW Line 450mm (956983)	514730	3000037134	Commercial	2	Gravity	4.27	6.93	0.45	10.50	932.43	5.86	OK

NODE	Unit type	Number of Units	Commercial Activity	Area	Occupancy	ADWF	PDWF	PWWF	
0	Ex Site Use	1	Dry Retail	1100	22	0.017 l/s	0.033 l/s	0.083 l/s	
1	Catchment to 225mm Yellow	1	Office	1856	124	0.093 l/s	0.187 l/s	0.466 l/s	
1	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s	
1	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s	2.66
2	Catchment to 450mm Green	1	Office	8256	551	0.415 l/s	0.829 l/s	2.073 l/s	
2	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s	
2	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s	4.27

Note: The total wastewater flow is calculated based on 80% of catchment area times by 2 storey is occupied with offices.

MAVEN ASSOCIATES	Job Number	Sheet	Rev	538 Kroad	Author		Date	Checked
	274001	1	A	Calc Title: Pipe Capacity Check	AS		19/10/2023	TM

Rainfall Depth	ARI 10YR (mm)	
TP108 rainfall data	120	(from TP108 Maps)
Climate change Increase	135.96	

Pipe ks factor = 1.5 mm combined pipe
0.6 mm concrete pipes
0.15 mm pvc pipes

	CN Number	
Impervious area	98	Proposed Roads
Pervious	74	Residential Lots

Discharge Point: 450mm dia line

Line number	MH to MH number	Flow From description	Catchment letter	Catchment Area m2	CN	Peak Flow rate - 10YR ARI l/s	Cum. Flow l/s	Pipe dia m	Gradient %	Capacity l/s	Percent Capacity %	Remaining l/s	Velocity m/s	Check OK
Connection 956983	PVT 514730 to 3000037134	Site		1597	98	35.9	35.9	0.300	0.50	69.5	51.6%	33.6	0.98	OK
				12850	98	289.0	324.9							
		Total					324.9	0.450	10.50	932.4	34.8%	607.5	5.86	OK

With Wastewater Combined flows

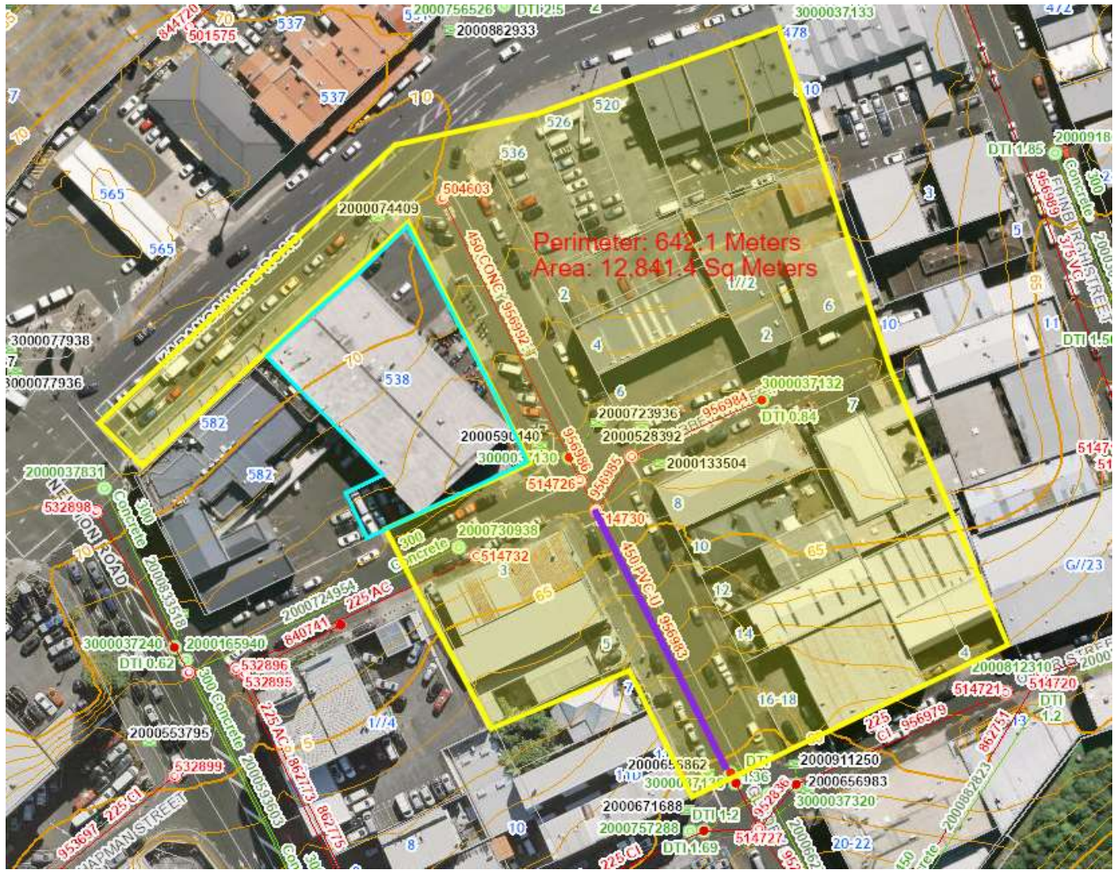
NODE	Unit type	Number of Units	Commercial Activity	Area	Occupancy	ADWF	PDWF	PWWF
0	Ex Site Use	1	Dry Retail	1100	22	0.017 l/s	0.033 l/s	0.083 l/s
2	Catchment to 450mm Green	1	Office	8256	551	0.415 l/s	0.829 l/s	2.073 l/s
2	Prop Site Use - Office	1	Office	8685	579	0.436 l/s	0.871 l/s	2.178 l/s
2	Prop Site Use - Café	1	Wet Retail	16	-	0.003 l/s	0.006 l/s	0.019 l/s

Assumed Single Storey dey retail

4.3 L/s

Line number	MH to MH number	Flow From description	Catchment letter	Catchment Area m2	CN	Peak Flow rate l/s	Cum. Flow l/s	Pipe dia m	Gradient %	Capacity l/s	Percent Capacity %	Remaining l/s	Velocity m/s	Check OK
Refer to WW demand calcs above						4.3	329.2							
956983	514730 to 3000037134						329.2	0.450	10.50	932.4	35.3%	603.3	5.86	OK

Stormwater Catchment - Assumed All impervious 12850 m2



Wastewater Catchment - Assumed 5160 m2 is 2 storey (total 10320 m2) and 80% of total is occupied with offices.

Maven Associates	Job Number 274001	Sheet 1	Rev A
Job Title: 538 Karangahape Road, Newton Calc Title: Water Demand (Commercial)	Author: APS	Date: 13/10/2023	Checked: TM

Proposed Development - Office building and Dry Retail

As per Watercare standards: 1 person per 15m2

Peaking Factor	2
Peaking Hourly Factor	2.5

Discharge Rates

Design water flow allowance = 65 litres/person/day (office)
15 litres/day/m2 (wet retail)

Net area (office) 8685 m2 (tenancy area)
Net area (Wet retail) 16 m2 (café)
No. of people 579 people

Discharges	L/d	L/s
Average Daily Demand All stages	37875	0.44
Peak Commercial Daily Water Demand All Stages=	75750	0.88
Peak Commercial Hourly Water Demand All Stages =		**2.19**

NOVA FLOWTEC SERVICES LTD
HYDRANT TESTING SPECIALISTS

E: info@novaflowtec.co.nz
T: 09 444 8375
PO Box 241, Albany Village, Auckland 0755
www.novaflowtec.co.nz

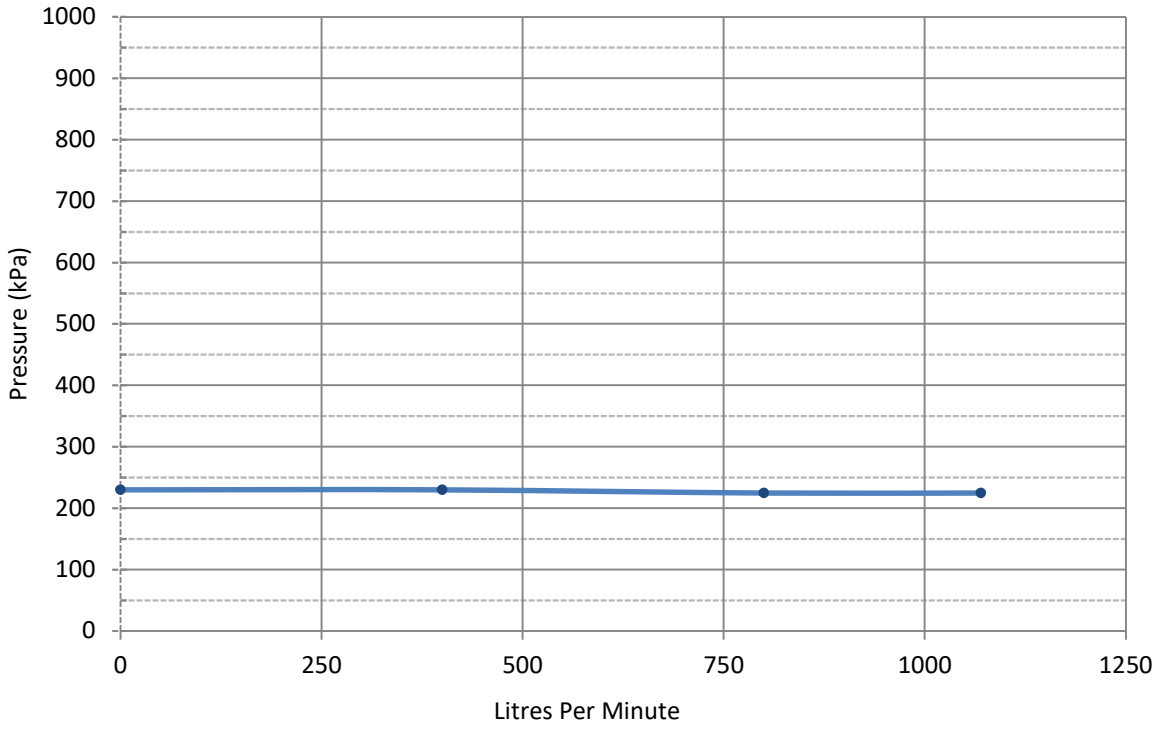
Mains Flow and Pressure Report

Hydrant locations: K Road
Date: 23rd November 2020
Time: 11:00pm
Flow: Hydrant 1
Residual pressure: Hydrant 2 kPa
Maximum flow result: 1070Lpm at 225kPa
Test Supervisor: Jason Goodwin

Data:

Flow (Lpm)	Pressure (kPa)
0	230
400	230
800	225
1070	225

Graph:



Notes: Nil.

Hydrant Map: See page 2

Hydrant Map

9.vi APPENDIX F – EARTHWORKS MANAGEMENT PLAN (EMP)

EARTHWORKS MANAGEMENT PLAN (EMP)

538 KARANGAHAPE ROAD,

NEWTON

AUCKLAND

Maven Associates	**Job Number** 274001		**Rev** A
Job Title 538 Karangahape Road, New ton **Title** Earthworks Management Plan (EMP)	**Author** AS	**Date** 20.11.2023	**Checked** TM

CONTENTS

1.0 INTRODUCTION

1.1 PROJECT

The purpose of this report is to provide an Earthworks Management Plan (EMP) for the proposed earthworks for a building on 538 Karangahape Road, Newton. The information provided herein outlines the methodology associated with the proposed earthworks onsite.

This report provides information in support of a resource consent application for land use. This report is to be read in conjunction with the Earthworks Plans (Appendix A) and is to accompany the resource consent application.

1.2 SITE DESCRIPTION

The site is bound by Karangahape Road on the north, Gundry Street to the east and Abbey Street to the south. The Site is irregular in shape, comprising a total land area of approximately 1597 m2. The site is zoned as Business – City Centre Zone as per AUP(OP) and surrounded by commercial, and community uses. Please refer Figure 1 for the site locality.

The site previously contained a commercial building with multiple tenancies that has now been demolished and used as a carparking facility. The main access to the site is from via eastern and southern boundaries from Gundry Street and Abbey Street.

The proposed development comprises of a large 10-storey commercial building with two basement levels. The building footprint covers the total site area. The main pedestrian entrance is from Karangahape Road on the northern property boundary and the carpark (Basement 1) is accessed via Gundry Street on the east.

Figure 1. Site Locality Source: Geomaps

2.0 PROPOSED EARTHWORKS

As part of the current consent, the proposed earthworks will take place over the total site rea of 1597 m^2 and entail largely cut operations associated with the works.

Proposed earthworks involve a maximum cut of approximately 9m in height. Approximately 9,500 m^3 material will be removed from site and minor amounts of cleanfill (GAP) will be imported after to stabilise the site.

The extent of the works will be fenced to restrict entry to authorised workers and prevent access to the general public.

The Engineering Drawings detail the extent of works and sediment control measures attached with the Resource consent application.

2.1 GEOTECHNICAL INVESTIGATION

A geotechnical investigation report has been undertaken by Soil and Rock Consultants and is submitted as part of the resource consent application. A completion certificate will be provided at the completion of the earthworks as required.

The Geotechnical Report indicates the site generally is underlain by up to 6m thick layers of granular fill. This layer comprises pavement/concrete material, scoria and silts.

The top 0.4m of fill is underlain by Waitemata group clayey silt, with a trace of fine sand and very stiff moist moderately plastic sits from depths ranging from 0.4m to approx. 13m. The lower layers consists of slightly weathered grey fine to medium sandstone that lies up to 15m+.

Groundwater is expected to be between 4.3m to 5.4m below ground level over the site. The proposed cut heights may infringe on the existing groundwater level.

All earthworks and methodology are to be in line with Soil and Rock Consultants Report.

Upon completion of the proposed earthwork, an Earthworks Completion Report will be prepared by the Geotechnical Engineer. This report will certify the adequacy of the earthworks and make a recommendation on bearing strengths of foundation design purposes.

2.2 RESOURCE CONSENT REQUIREMENTS

Proposed measures for erosion and sediment control have been designed in accordance with the guidelines of Auckland Council's GD05 document.

These matters are subject to Resource Consent for Earthworks accordingly. The conditions of consent will require that erosion and sediment control measures are implemented and maintained in accordance with these guidelines and the approved Engineering drawings.

2.3 PROGRAMME OF WORKS

Earthworks will commence when all necessary consents are in place. It is proposed to begin the proposed earthworks at the start within the earthworks season (2023/2024) pending resource consent approval.

It is envisaged that all earthworks will be completed within the single earthworks season. Applications for winter works will be lodged as and when required.

It is proposed that earthworks will comprise a single stage in terms of resource consent and construction onsite.

Works are intended to be carried out in the following steps:

- Demolish existing buildings.
- Install silt control measures, as shown on Engineering Drawings.
- Carry out Bulk Earthworks.
- Retain silt control measures until completion.

2.4 CONTAMINATION

The ground contamination assessment conducted by Soil and Rock reviewed the historic land use activities of the site. Soil and Rock identified a number of possible sources of contamination.

Soil and Rock have conducted a desktop review and site walkover assessment advising that HAIL (hazardous activities and industries List) activities are likely to have been undertaken historically at the site. The potential sources of contamination outlined by Soil and Rock include unconfirmed sources of fill, metals and hydrocarbon leakage from a neighbouring site service station and asbestos from the demolition of buildings. The identification of HAIL activities on the site would necessitate the approval of the Auckland Council for the offsite disposal of any material from the development works.

In addition, the extent of the contaminated material will be identified, samples will be taken for testing, and a Site Management Plan will be prepared based on these results. If the material is required to be moved off-site it shall be correctly identified, properly contained, securely transported, and disposed of at an approved waste disposal facility.

A suitably qualified person will carry out an inspection to validate the site meets contamination guidelines and consent requirements upon completion of the earthworks.

2.5 EARTHWORKS SUMMARY

The Engineering Drawings (**Appendix A**) detail the extent of the works. The following is a summary of the proposed works:

Total area of ground disturbance	= 1596 m^2
Total Volume of Cut	= 9,500 m^3
Total Volume of Fill	= 0 m^3
Maximum cut and fill depth	= 0m Fill, 9m Cut

The total volume of cut does not include any drainage or service trench spoil. The volume of cut from drainage and service trenches may be used for areas requiring fill. If a surplus of fill is still required, the material will be imported onsite.

3.0 SEDIMENT CONTROL

Silt control measures must be installed onsite before the earthworks commence. All silt control measures will be checked and confirmed acceptable by the Engineer before works commence.

During earthworks, the sediment control measures will be maintained such that they function as proposed. Refer to section 5.0 of this report for further details in this regard.

Silt control measures will only be removed once the site is considered stable in terms of silt run-off by Auckland Council and the Site Engineer.

3.1 PROPOSED CONTROLS

The following system of silt and sediment control protection measures are proposed:

Erosion Controls

A perimeter diversion bund (the existing curbs) will stop rainwater from entering/ leaving the site.

Sediment Controls

Stabilised entranceway down to the basement from the eastern side of the site off Gundry Street that will provide an entrance to the earthwork catchment and stabilised exit way with the use of a wheel wash will minimise the potential for sediment to leave the site with construction traffic. A wheel wash facility will be provided to ensure all trucks wheels and tyres are washed prior to leaving the site.

The kerb and channel on the surrounding roads will act as clean water diversion to stop rainwater from entering/ leaving the site.

Since the excavation is self-contained, there will be no risk of discharging the sediment-laden runoff. The excavation will contain dirty water which will be collected and pumped to decanting skip bins and/or silt stopper bins, where then the dirty water will be treated and then discharged to the stormwater connection.

The treatment devices such as Skip bins and/or Silt Stopper bins have an effective flow rate of approx. $20m^3$/hr that will provide sediment retention from the pumped water prior to discharging in the stormwater network if required. The treatment devices will be implemented subject to site conditions. An appropriate-size pump will be used to pump the water from the bins to the stormwater network.

A clean water sump pit will be installed at the lowest point of excavation, where the aggregate will provide further sediment control. All the clean water from the sump pit will be pumped to the stormwater network.

A Chemical treatment plan will be provided as part of the appointed contractor's construction management plan to ensure only clean water has been discharged to the SW network where 100mm depth water treatment would be advised. Regular clarity checks will be carried out with a dipstick in the treatment device.

The excavation will be staged to enable the sheet piles (designed to the Geotech engineer's recommendations) to the depths required.

All material will be carted off-site during basement excavation. All trucks will go through the wheel wash facility once loaded to avoid any leaking sediment-laden and the wheels are cleaned prior to leaving the site. If required, sweeper trucks will be utilised in the adjacent road once a day to clean any sediment in the road.

Different areas will be opened for excavation as per the construction programme and/or subject to the contractor's methodology.

Site fences will be installed around the site's perimeter and will prevent unauthorised personnel from entering the construction site. The site will also be progressively stabilized during earthworks.

All the above is subject to the construction management plan by the appointed contractor which can be a condition to consent. The extent of the works area will also be confirmed prior to construction.

3.2 POTENTIAL ENVIRONMENTAL EFFECTS

Other effects on the surrounding environment include visual amenity impacts and noise generation from earthmoving equipment and noise. Control measures are to be proposed in a construction management plan by the contractors to minimise these effects.

4.0 ADDITIONAL INFORMATION

4.1 FILL COMPACTION

Refer to Geotech for testing and compaction requirements.

4.2 MONITORING

All sediment control measures will be checked regularly, to ensure that they are performing as intended by design.

A site walkover shall be undertaken weekly to identify any corrective maintenance required. A more thorough inspection will be undertaken at the end of each month, or before and after a forecast major storm event, to identify any preventative and/or corrective maintenance required.

A regular program of sediment, debris and trash removal will be undertaken to ensure sediment control measures do not become blocked and ensure they function as proposed. Any large floating matter including any organic matter, ie fallen tree litter, reaching the pond or discharge structures are to be removed immediately.

Specific monitoring and maintenance of each mitigation method are included below:

Diversion Drains/ Clean Water cut-off bunds

- Inspect after every rainfall event and during periods of prolonged rainfall for scour and areas where they may breach.
- Repair immediately if required to ensure that the design capacity is maintained.

Stabilised Vehicle Entrance

- Maintain the Stabilised Construction Entrance in a condition to prevent sediment from leaving the construction site. After each rainfall inspects any structure used to trap sediment for the Stabilised Construction Entrance and clean out as necessary.

Decanting Earth Bund and Silt Stopper

- Clean out the Silt Stoppers regularly.

Stockpiles

- All cut material will be carted off-site. No stockpiles are expected in the process of earthworks. If any stockpiles are required, they will be contained within the site boundaries. No stockpiles will be placed outside the site boundaries.

5.0 CONCLUSION

Overall, it is it our opinion that subject to standard consent conditions, adhering to the EMP will mitigate any actual or potential adverse effects from the proposed bulk earthworks.

APPENDIX A

EARTHWORKS DRAWINGS

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
4. ORIGIN OF LEVELS = SM XXXX SO XXXX(XXXX) PUBLISHED RL=XX.XX, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
9. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

Legend

- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- FSL: ??? FINISHED SUBGRADE LEVEL

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Project

538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED EARTHWORKS PLAN

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C200.DWG		
Drawing no.	C200	Rev	A

DATUM 60.00m

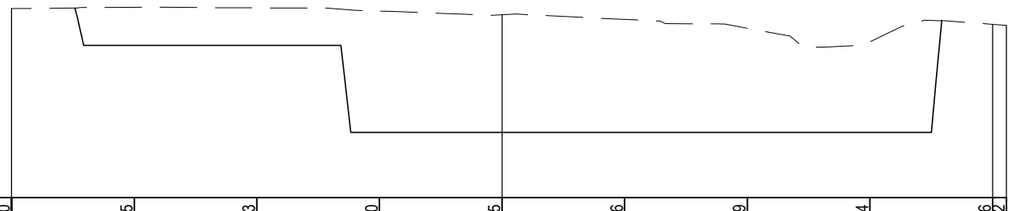
EXISTING LEVELS	66.85	67.11	67.93	68.75	68.80	68.67	69.04	69.51	70.02	70.53	70.85	70.75
DESIGN LEVELS		62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-4.46	-5.28	-6.10	-6.15	-6.02	-6.39	-6.86	-7.37	-7.88		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	52.14

SECTION Y-1
SCALE: HORI 1:250 VERT 1:250

DATUM 60.00m

EXISTING LEVELS	66.74	66.49	66.69	67.21	68.67	69.13	68.41	69.72	69.93	70.23	70.32	70.44	70.32
DESIGN LEVELS		62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-3.84	-4.04	-4.56	-6.02	-6.48	-5.76	-7.07	-7.28	-7.58	-7.67		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	58.08

Y-2
SCALE: HORI 1:250 VERT 1:250



DATUM 60.00m

EXISTING LEVELS	67.70	67.75	67.73	67.60	67.45	67.26	66.89	66.34	67.06	67.02
DESIGN LEVELS		66.20	66.20	62.65	62.65	62.65	62.65	62.65		
CUT/FILL		-1.55	-1.53	-4.95	-4.80	-4.61	-4.24	-3.69		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	40.56

X-1
SCALE: HORI 1:250 VERT 1:250

RESOURCE CONSENT

DATE: 1/12/23

Legend
EX GROUND
PROP GROUND

Rev	Description	By	Date
A	FOR INFORMATION	GSS	07/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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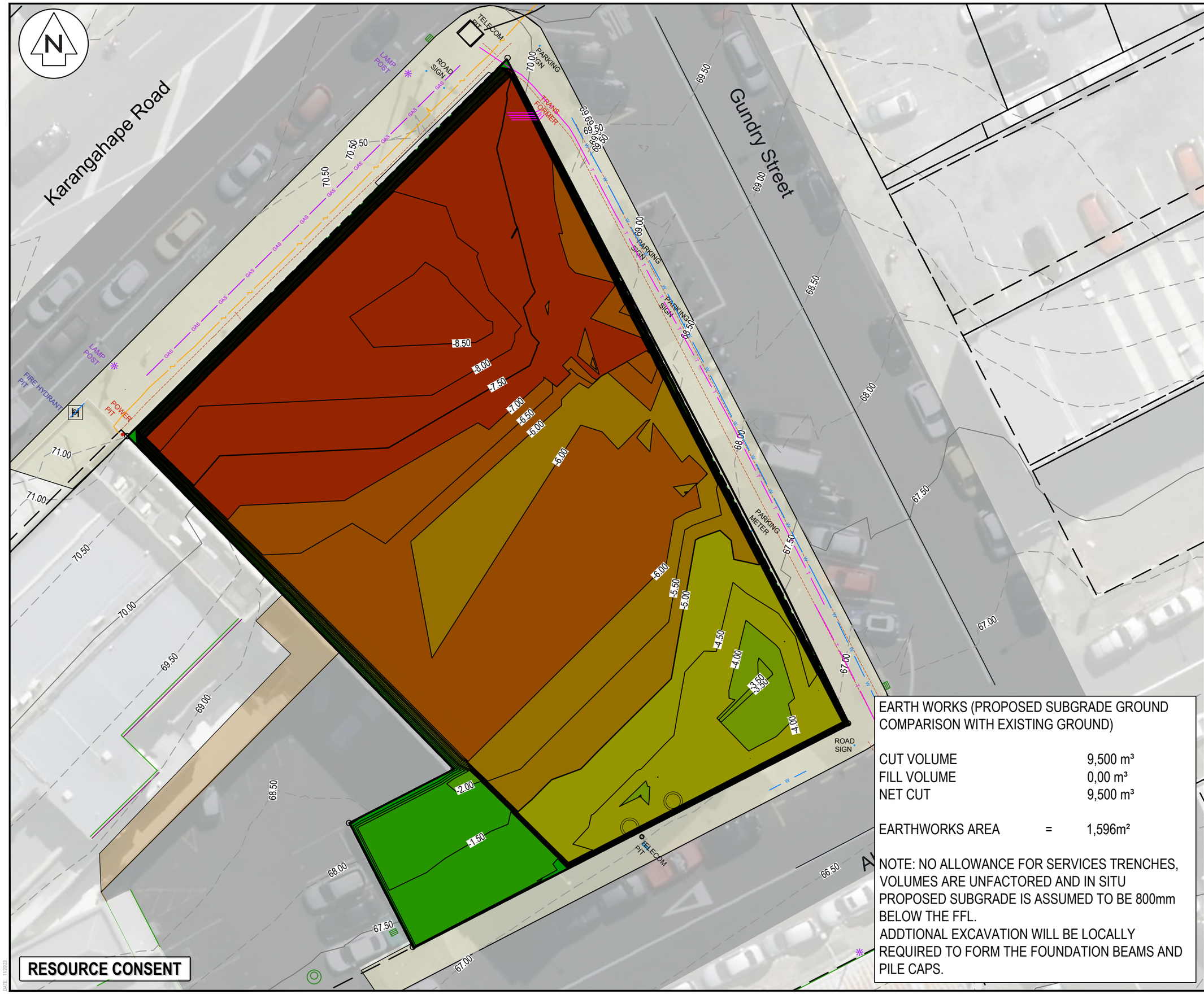
Project
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title
PROPOSED EARTHWORKS SECTIONS

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C200.DWG		
Drawing no.	C210	Rev	A



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
3. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
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6. CONTRACTOR SHALL PROVIDE ASBUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
7. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

Legend

- EX BDY
- PROP BDY
- PROP EXTENT WORK

Cut/Fill Table			
Number #	Minimum Elevation	Maximum Elevation	Color
1	-9.000	-8.000	
2	-8.000	-7.000	
3	-7.000	-6.000	
4	-6.000	-5.000	
5	-5.000	-4.000	
6	-4.000	-3.000	
7	-3.000	-2.000	
8	-2.000	-1.000	
9	-1.000	0.000	

EARTH WORKS (PROPOSED SUBGRADE GROUND COMPARISON WITH EXISTING GROUND)

CUT VOLUME		9,500 m³
FILL VOLUME		0,00 m³
NET CUT		9,500 m³
EARTHWORKS AREA	=	1,596m²

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES, VOLUMES ARE UNFACTORED AND IN SITU
PROPOSED SUBGRADE IS ASSUMED TO BE 800mm BELOW THE FFL.
ADDTIONAL EXCAVATION WILL BE LOCALLY REQUIRED TO FORM THE FOUNDATION BEAMS AND PILE CAPS.

Rev	Description	By	Date
A	FOR INFORMATION	GSS	07/2023

	By	Date
Survey	GIS	09/2023
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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Auckland 1023

Project

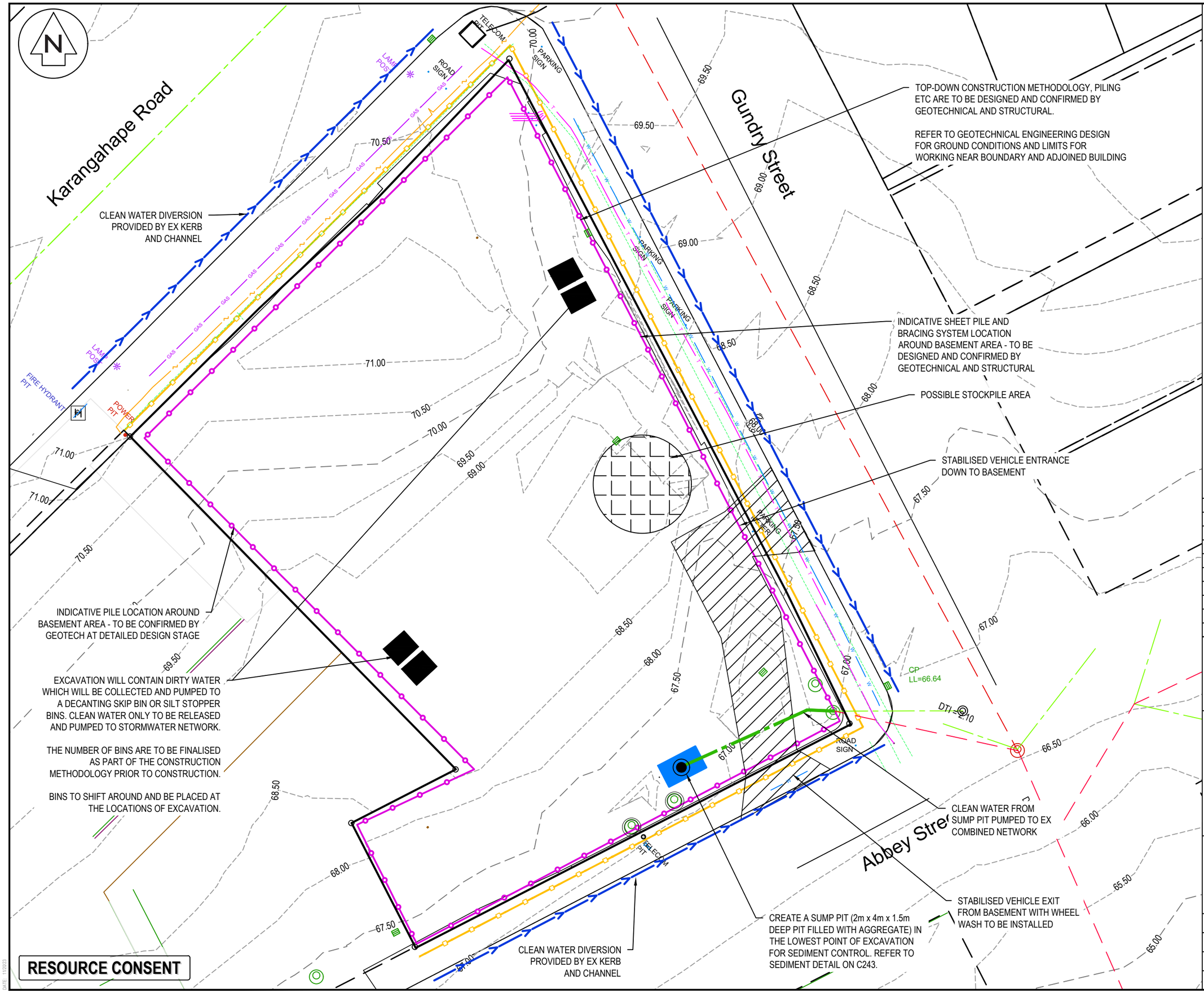
538 KARANGAHAPE ROAD, NEWTON 1010. AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD.

Title

PROPOSED CUT/FILL PLAN

Project no.	274001		
Scale	1:250 @ A3		
Cad file	C200.DWG		
Drawing no.	C220	Rev	A

DATE: 11/09/23



RESOURCE CONSENT

DATE: 17/10/23

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
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7. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

Legend

- EX BDY
- PROP BDY
- EX MAJOR CONTOUR
- EX MINOR CONTOUR
- PR MAJOR CONTOUR
- PR MINOR CONTOUR
- PROP EXTENT WORK
- PROP CLEAN WATER
- PROP DIRTY WATER
- PROP SILT FENCE
- PROP STOCKPILE
- PROP DECANT
- PROP DECANT BAR
- PROP SITE FENCE
- PROP SHEET PILE
- PROP STOCKPILE

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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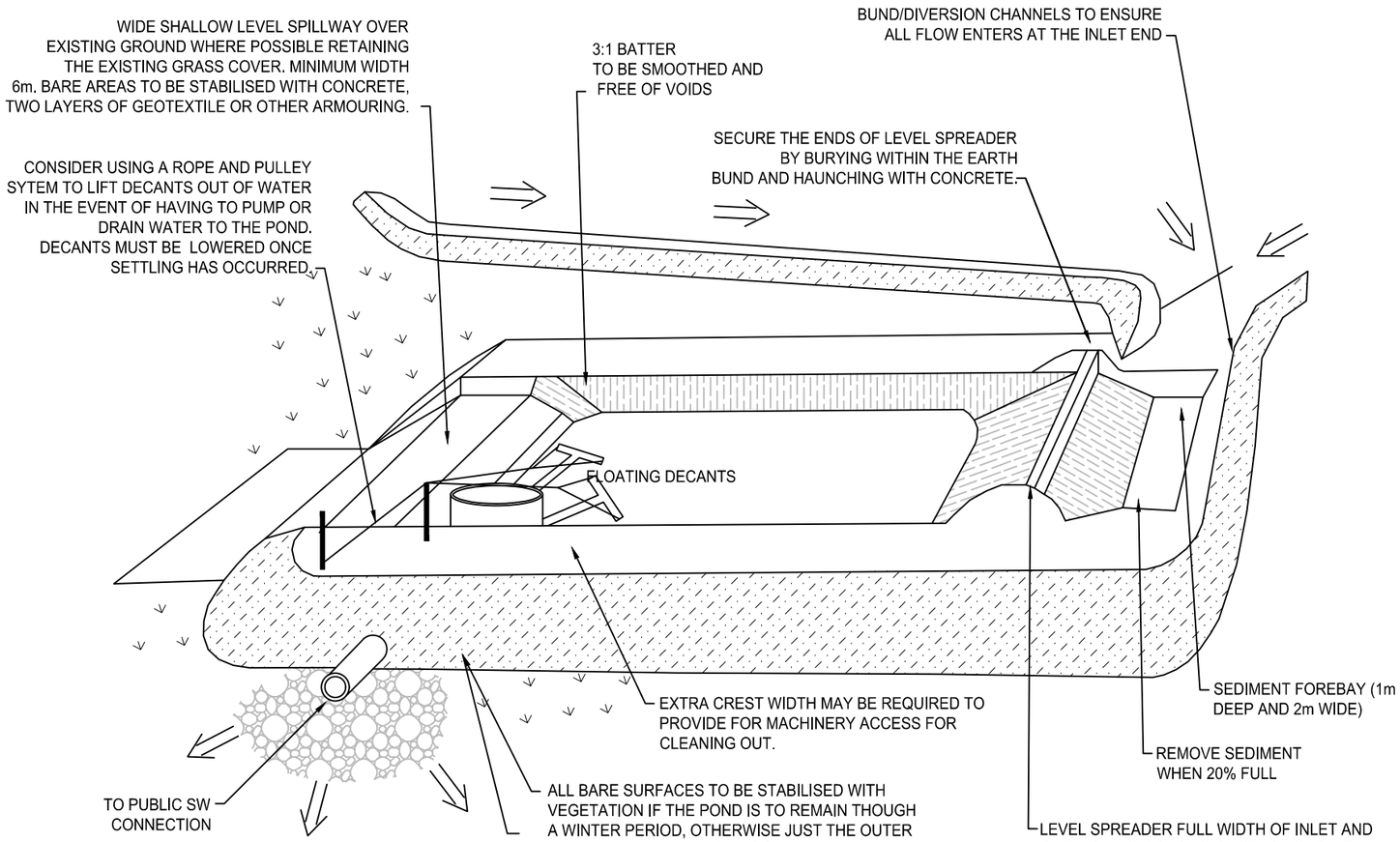
538 KARANGAHAPE ROAD, NEWTON AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD

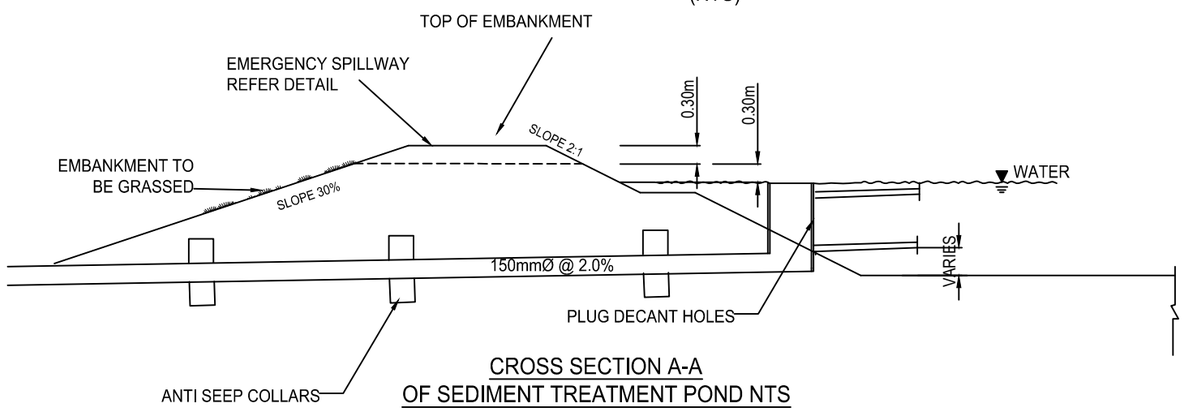
Title

PROPOSED SEDIMENT EROSION CONTROL PLAN

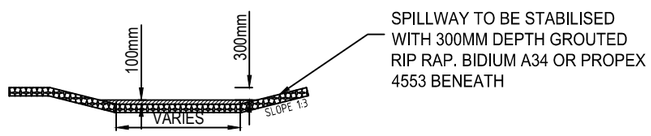
Project no.	274001		
Scale	1:250 @ A3		
Cad file	C230.DWG		
Drawing no.	C230	Rev	A



SEDIMENT POND DETAILS
(NTS)



CROSS SECTION A-A
OF SEDIMENT TREATMENT POND NTS



DETAIL I
EMERGENCY SPILLWAY

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
Drawn	GSS	07/2023
Checked	AC	07/2023

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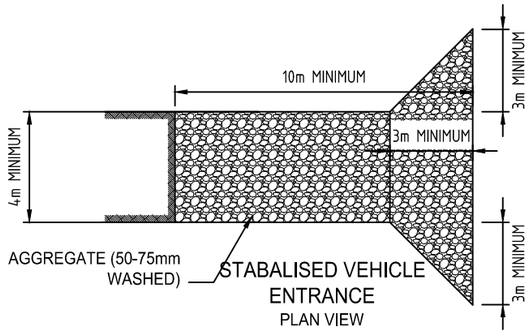
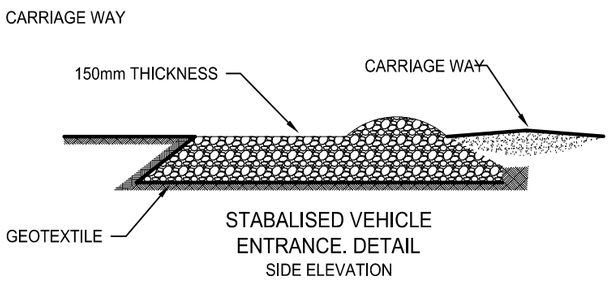
538 KARANGAHAPE ROAD, NEWTON AUCKLAND FOR JAMES KIRKPATRICK GROUP LTD

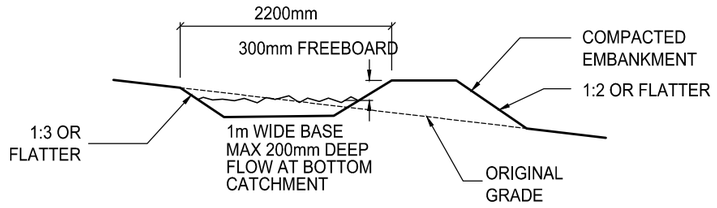
Title
SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C240	Rev	A

DATE: 11/2023

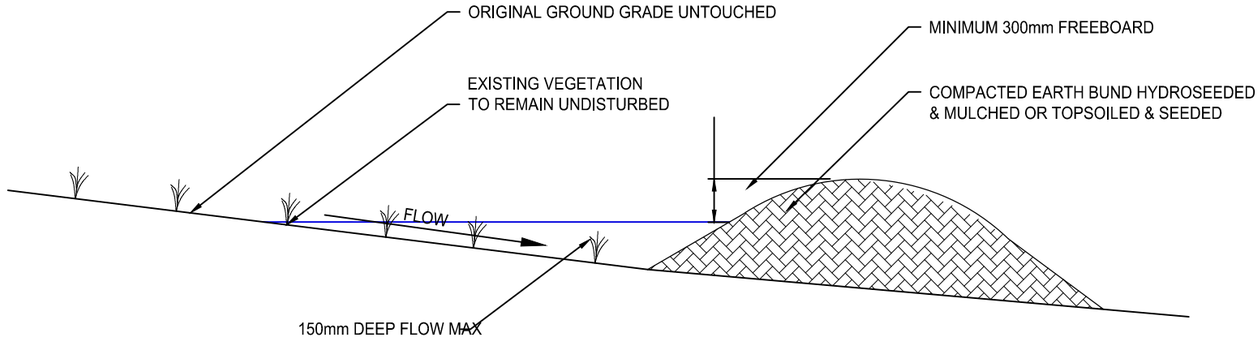






TYPICAL CROSS SECTION OF A RUNOFF DIVERSION

TYPICAL DIMENSIONS UNLESS OTHERWISE NOTED



CLEAN WATER DIVERSION BUND DETAIL

A	DRAFT	EZ	10/2023
Rev	Description	By	Date

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
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Checked	AC	07/2023

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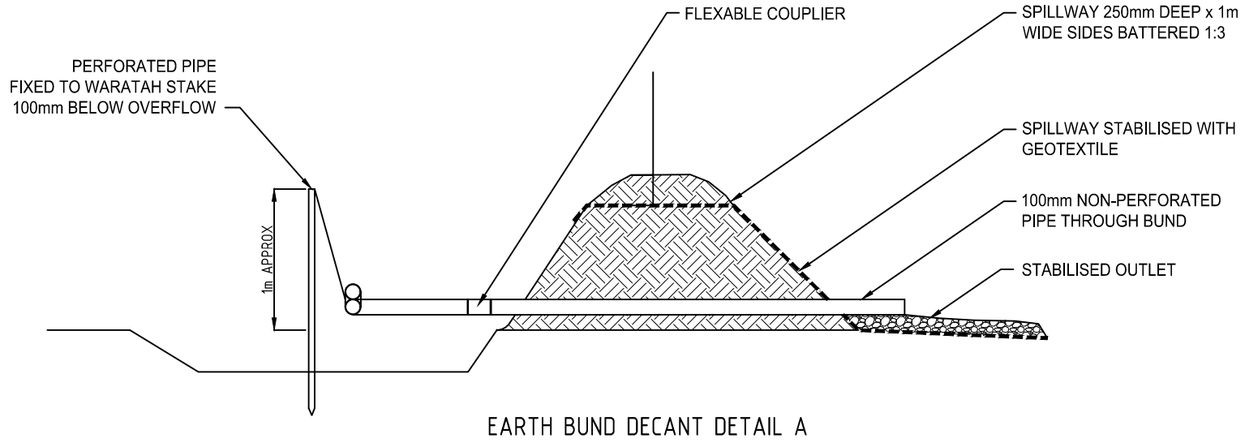
SEDIMENT EROSION CONTROL STANDARD DETAILS

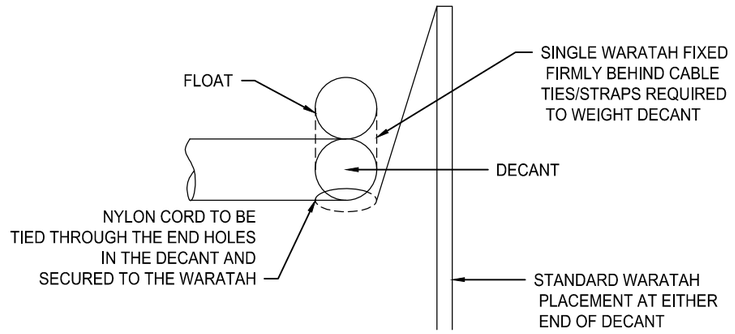
Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C241	Rev	A

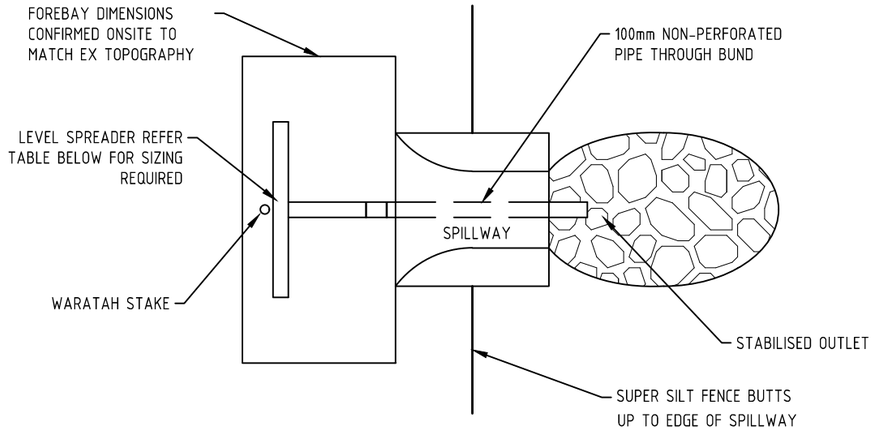
DATE: 11/2023



EARTH BUND DECANT DETAIL A

N.T.S

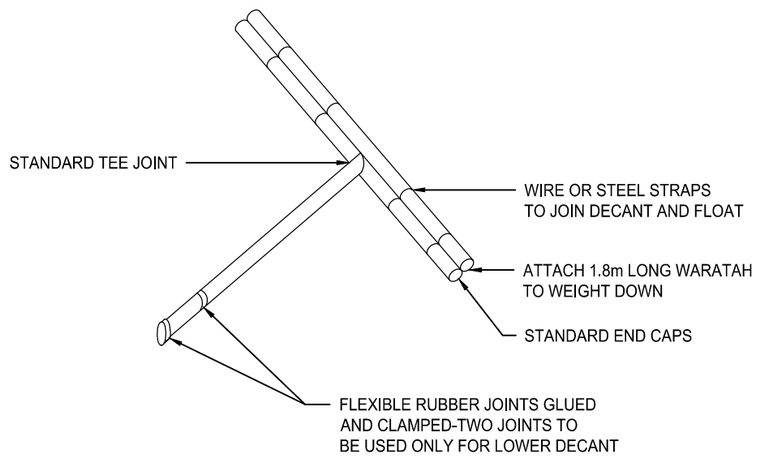




DECANT PLAN VIEW

N.T.S

LEVEL SPREADER DESIGN CRITERIA (20 YEAR STORM EVENT)				
DESIGN FLOW (m^3/sec)	INLET WIDTH (m)	DEPTH (m)	END WIDTH (m)	LENGTH (mm)
0-0.3	3	150	1	3
0.3-0.6	5	180	1	7
0.6-0.9	7	220	1	10



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	By	Date
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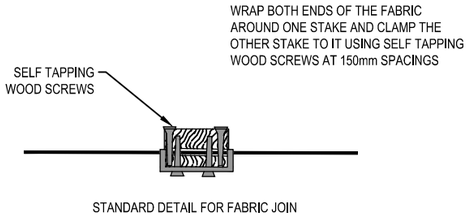
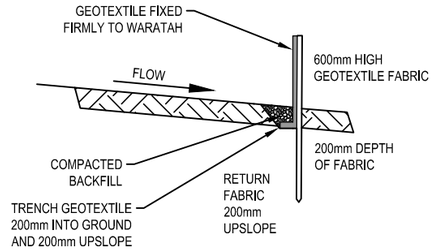
SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C242	Rev	A

DATE: 10/2023

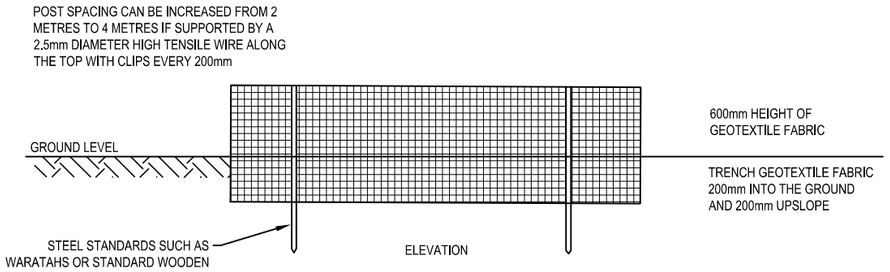


STANDARD DETAIL FOR FABRIC JOIN

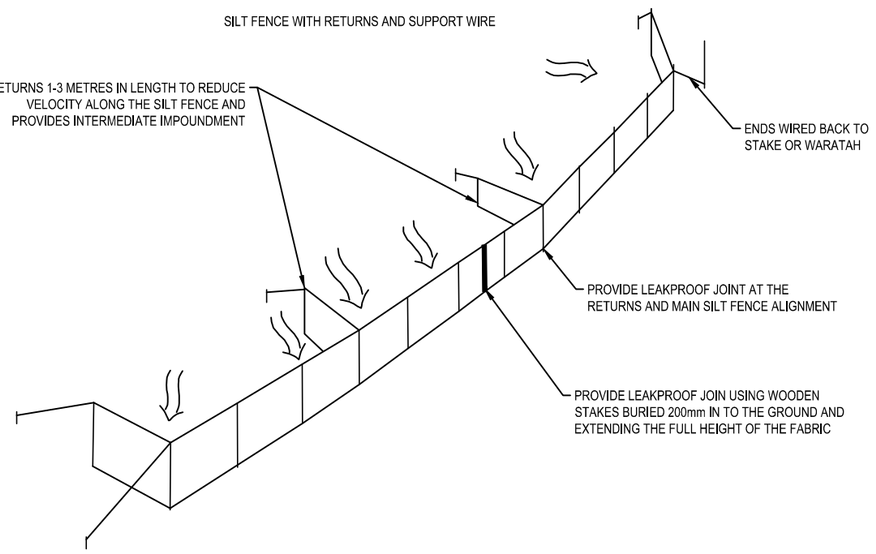


CROSS SECTION

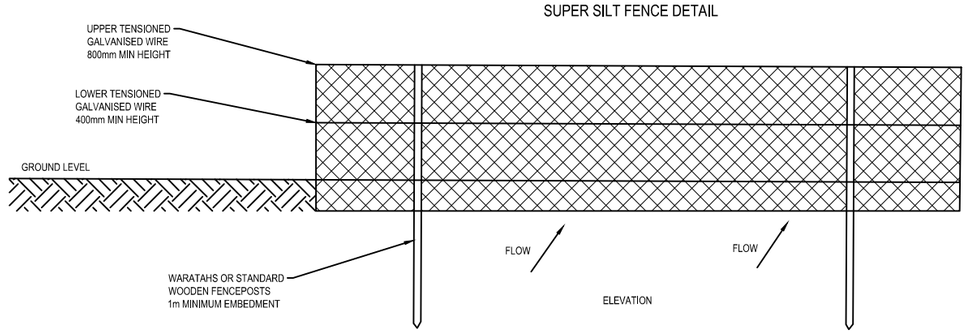
STANDARD DETAIL FOR SILT FENCE



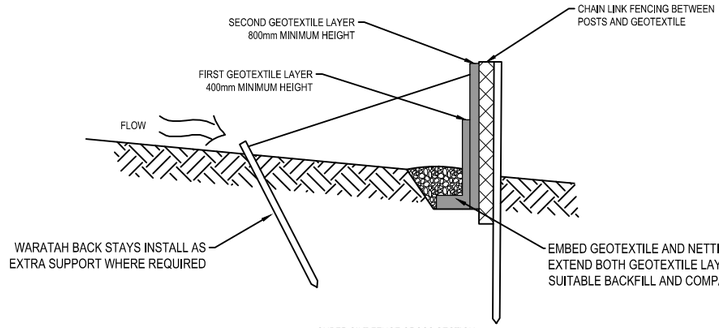
ELEVATION



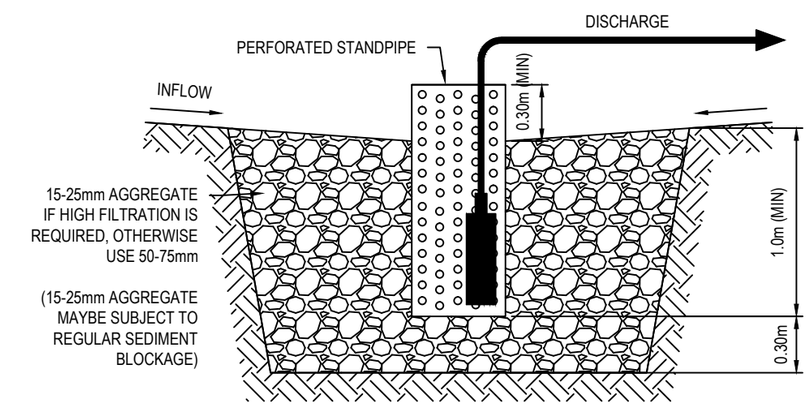
SUPER SILT FENCE DETAIL



ELEVATION



SUPER SILT FENCE CROSS SECTION



TYPICAL ARRANGEMENT OF A SUMP PIT

Rev	Description	By	Date
A	DRAFT	EZ	10/2023

	By	Date
Survey	GIS	05/2020
Design	APS	07/2023
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SEDIMENT EROSION CONTROL STANDARD DETAILS

Project no.	274001		
Scale	NTS		
Cad file	C230.DWG		
Drawing no.	C243	Rev	A

DATE: 10/2023