Dominion & Valley Road Apartments

Civil Engineering Report

for: Precinct Properties New Zealand Limited

Job No: 67467#C1

Revision: 2

Date: 10 Oct 2024

DOCUMENT CONTROL

This report was prepared by Michael Martin and reviewed by Will Djongianto

Respectfully submitted

Babbage Consultants Limited

Michael Martin
Civil Engineering Principal

Will Djongianto
Civil Engineering Manager

8 Oct 2024	2	Michael Martin	Will Djongianto
5 Sep 2024	1	Michael Martin	Will Djongianto
3 Sep 2024	0	Michael Martin	Will Djongianto
Date	**Version**	**Author(s)**	**Reviewer(s)**

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

1 INTRODUCTION

Babbage Consultants Limited (Babbage) have been engaged by Precinct Properties New Zealand Limited (Precinct) to prepare a civil engineering report for the proposed Dominion & Valley Road Apartments, located at the corner of Dominion and Valley Roads, Mount Eden.

This report has been prepared to support a resource consent application for the proposed development and provides information on the civil engineering aspects of the proposed development as follows:

- existing site
- proposed development
- flood hazards
- proposed earthworks and erosion and sediment controls
- stormwater drainage and management
- wastewater drainage and water supply
- utility services

We note this assessment is based on preliminary design information only which will be developed through subsequent design stages.

2 EXISTING SITE DESCRIPTION

2.1 Site Location and Property Details

The site is located at the corner of Dominion Road and Valley Road as shown in Figure 1 below.

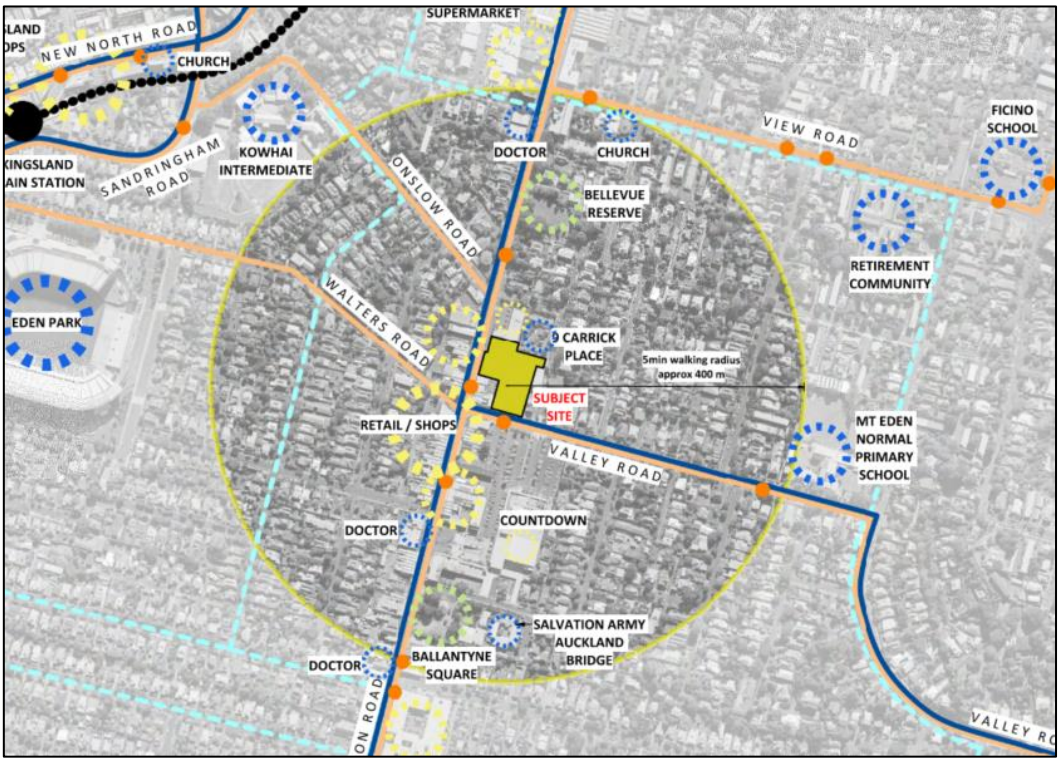


Figure 1. Site Location (from Ashton Michell Architects)

The site consists of four properties as shown on Table 1 below.

Table 1. Site Properties

Address	Legal Description
198 - 202 Dominion Road	Lot 1 DP 51797 & Pt Lot 4 DP 182 Pt Lot 5 DP 182
214 - 22 Dominion Road	Lot 2 DP 54203 & Pt Lot 1 DP 31896 Pt Lot 3 Allot 8 SEC 10
113 - 117 Valley Road	Lot 1 DP 54203 Pt Lot 3 DP1

Refer to Yeoman's Site Survey in **Appendix A** for property locations. The total site area is 5,254 m^2.

The AUP zonings for the site are Business – Local Centre and Residential – Terrace Housing and Apartment Buildings.

2.2 Existing Features

The existing site development is shown in Figure 2 below.

Figure 2. Existing Surfaces (from GeoMaps)

The existing site is almost entirely covered by existing building roofs and pavements. There are two existing vehicle accessways from Dominion Road, two from Valley Road and one from Carrick Place. There are existing buildings on neighbouring properties at the western end of the northern boundary and the northern end of the eastern boundary.

2.3 Topography

The current ground contours are shown on Yeoman's Site Survey drawings in **Appendix A**. The site measures approximately 95 m from north to south and approximately 70 m from west to east across the central area of the site.

The site generally slopes downwards from the northern boundary to the southern boundary, although there is a low point within a depression in the north-western area of the site, and the southern area of the site is relatively flat.

The existing ground elevation at the north-west corner is approximately RL 55.5 m and at the north-east corner approximately 56.0 m. The existing ground elevation at the south-west corner is approximately RL 52.4 m, and at the south-east corner, approximately 52.5 m. The elevation difference between the northern and southern boundaries, therefore, varies between approximately 3.1 m and 3.5 m. The elevation of the low point within the depression in the north-western area is approximately 51.3 m.

3 PROPOSED DEVELOPMENT

The preliminary layout of the proposed development is illustrated in Ashton Mitchell's Proposed Plan – Level 1, included in Appendix B. The development consists of three, five-storey residential buildings, housing a total of 135 apartments, with a basement carpark extending beneath all three buildings. Retail units are proposed along the Valley Road frontage.

Pedestrian access is proposed from Dominion Road, Valley Road, and Carrick Place, with vehicle access from Valley Road and Carrick Place. The podium level (Level 1) is set at RL 52.25 m, while the basement carpark is at RL 51.85 m, with vehicle access provided from Valley Road. The surface areas for the proposed development are detailed in Table 2 below. Surface areas for the proposed development are shown in Table 2 below.

Table 2. Proposed Development Surface Areas

Area	**Area (m^2)**
Building roofs	3,250
External vehicle pavements & Footpaths	957
Landscaping	1,067
Total	**5,254**

4 FLOOD HAZARDS

A separate flood hazard report has been prepared by Babbage to address the implications of the existing flood hazards on the proposed development

5 EARTHWORKS

5.1 General Scope and Methodology

The bulk earthworks will largely consist of excavation for the proposed basement once existing building floor slabs and existing pavement surfacing has been removed.

The maximum bulk excavation depth is estimated to be approximately 1.0 m with some deeper bulk excavation in the north-western corner. We have assumed the depth of excavation will extend to approximately 0.35 m below the basement floor finished floor level. The cut materials from the excavation are to be largely transported and disposed off site.

Some bulk fill, up to approximately 1.0 m thickness, is required in the western and eastern areas of the site. Excavated existing hardfill materials are likely to be used for this bulk fill.

Geotechnical investigations indicate the site is underlain by a capping layer of hardfill and minor cohesive material, then basalt rubble and fractured rock, overlying solid basalt rock. Refer to Initia's Geotechnical Interpretative Report. Bulk excavations are likely to largely within the fill and basalt rubble but will also extend into the solid basalt rock.

The basement excavation will require temporary batters or rock bolts and permanent retaining walls up to approximately 3.6 m in the north-western corner. Refer to Initia's Geotechnical Interpretative Report for details on retaining methods.

Geotechnical investigations also indicate the groundwater level in the basalt rock aquifer is at approximately 20 m below existing ground level and therefore should not be encountered during bulk excavation.

Ground contamination has been assessed in Williamson Water & Land Advisory's (WWLA) Ground Contamination Review, 31 July 2024. This review concluded that existing fill materials on 214 – 222 Dominion Road contain contaminants (metals and hydrocarbons with traces of asbestos) and the same contaminants are likely to be present across the site. WWLA has prepared a contamination Site Management Plan which states that standard earthwork controls are appropriate to mitigate the heavy metals but that further testing will be required during construction to mitigate the hydrocarbon and asbestos contamination.

Bulk excavation of basalt rock may require the use of heavy plant (35 to 50 tonne excavators) or pneumatic breakers. The remaining earthworks is expected to require conventional earthmoving plant and equipment, such as excavators, trucks, compactors and pumps.

5.2 Extent and Quantities

The extent of the proposed earthworks, finished ground levels, subgrade levels and cut and fill depths are shown on the preliminary earthworks drawings included in **Appendix C**.

The approximate extent and depths for the bulk earthworks are shown in Figure 3 below.

Figure 3. Bulk Earthworks Extent and Depths

The estimated earthworks quantities for the proposed basement excavation, and carparking and landscaping areas, are provided in Table 3 below.

Table 3: Estimated Earthworks Quantities

Activity	Quantity
Total earthworks area	**5,250 m²**
Cut materials:	
- Strip existing asphalt to disposal off site	200 m³
- Bulk cut to bulk fill	300 m³
- Bulk cut to disposal off site	2,500 m³
Total cut materials	**3,000 m³**
Fill materials:	
- Bulk cut to bulk fill	300 m³
- Import hardfill to building platform and pavements	1,000 m³
Total fill materials	**1,300 m³**

5.3 Construction Working Hours and Timeframes

High noise generating construction works are proposed to be undertaken during daytime hours. Refer to Marshall Day's Assessment of Acoustic Effects, 28 August 2024.

It is estimated the bulk earthworks construction period would be approximately 2 months.

Erosion and sediment controls would be installed prior to the commencement of bulk earthworks.

5.4 Construction Plant

The anticipated methodology for constructing the earthworks will include the use of the following construction plant:

- Large excavator for rock excavation and/or pneumatic breakers
- Medium and small excavators
- Dump trucks
- Rollers and compactors
- Semi-trailer and 6 wheel trucks
- Generator and pumps
- Other specialist equipment

5.5 Construction Access and Vehicle Movements

The main construction access to the site for the earthworks is expected to be from Valley Road.

The duration for the bulk earthworks is expected to be approximately 2 months, which equates to approximately 9 working weeks. At 5 working days per week, this gives a total of 45 working days for the bulk earthworks for the basement excavation.

The anticipated vehicle movements per day are provided in Table 4 below.

Table 4. Estimated Vehicle Movements

Construction Phase	Vehicle Type	Average vehicles / day	Average trips / day
Bulk Earthworks			
Dispose cut material off site	Semi trailer truck	7.5	15.0
Import hardfill to site	Semi trailer truck	2.8	5.6
Totals		**10.3**	**20.6**

5.6 Erosion and Sediment Controls

The proposed erosion and sediment controls have been designed in accordance with Auckland Council's GD05 and are shown on the drawings in **Appendix C**.

We note the existing volcanic materials are considered to be low sediment generating materials. The proposed measures are described below.

Stabilised Construction Entrance

A stabilised construction entrance in accordance with the standard detail from Auckland Council's GD05 will be installed at the proposed construction access from Valley Road.

Diversion Measures

A clean water run off diversion measure, either a bund or sandbags, will be installed along the northern side of the proposed earthworks area to divert clean water run off away from the basement excavation to adjacent pavement areas.

Existing Stormwater Inlet Protection

There are existing stormwater catch pits within the site and on Valley Road. To mitigate sediment entering these existing catchpits, a silt sock will be placed around the existing catchpits.

Basement Excavation Dewatering

Sediment laden water within the basement excavation will be directed to a sump or sumps excavated into the base of the excavation. From the sumps the water will be pumped to existing ground level to multi-chamber settlement skip bins or a Silt-buster or equivalent device. Clarified water from the settlement skip will be discharged to an existing stormwater soakpit.

Dust Control

As the earthworks are largely associated with a basement excavation, dust nuisance to surrounding areas is expected to be significantly less than a large, open elevated site. Dust generation will be monitored by the contractor and dust will be controlled by water sprays or proprietary dust suppressant sprays.

Stockpiles

It is likely that most materials will be cut and loaded directly off site rather than being stockpiled on site. Erosion and sediment control for any temporary stockpiles of sediment generating materials will be managed in accordance with GD05. This will include:

- Installing super silt fence as required.
- Limiting the average height to less than 2.5 m.

Site Stabilisation

The basement excavation is to be stabilised progressively, by the placement of hardfill over the base of the excavation. Other areas are also to be progressively stabilised either by the placement of hardfill or placement of topsoil and grassing.

Monitoring and Maintenance

Monitoring and maintenance are to be carried out generally in accordance with GD05 and consists of:

- Weekly monitoring and recording of status of ESC control measures.
- Monitoring immediately before and after any significant rainfall event.
- Immediate repair of any defects in ESC control measures.
- Monitoring of any change in catchment areas through the progress of the works.
- Cleaning out of accumulated sediment from devices when 20% full.
- Preparation of contingency provisions for main ESC measures, e.g. mulching if grassing not complete.
- Decommission only after stabilisation of upstream catchment.

Earthworks Construction Management Plan

An Earthworks Construction Management Plan will be prepared by the contractor and submitted to Auckland Council for certification prior to commencement of the earthworks.

This plan will include detailed information on:

- General site management.
- Council communications and approvals.
- Engineer's communications and certification.
- Earthworks construction timeframes and staging.
- Earthworks construction methodology:
  - Site access and traffic management.
  - Work hours.
  - Off site disposal site(s).

  - Plant, equipment and personnel.
  - Protection of existing property and services.
  - Excavation support or instability control.
  - Hazardous substance spill protection.
  - Dust control.
- Erosion and sediment control measures.
- Accidental discovery (cultural, archaeological, etc).
- Contamination management.
- Site stabilisation.
- Site reinstatement methodology.
- Earthworks and sediment control monitoring.

6 STORMWATER

6.1 Existing Stormwater

Existing Impervious Areas

The existing site consists almost entirely of impermeable surfaces with approximately 3,100 m^2 of roofs and 2,150 m^2 of pavements. There is a small area of existing landscaping which is approximately 24 m^2.

Existing Primary and Secondary Flows

Primary (10 year) stormwater discharges to existing on-site rock bore soakpits but they are limited in number and likely to be in poor condition. The soakpits discharge to the underlying volcanic aquifer.

Secondary (100 year) stormwater ponds in the low point in the north-west area of the site and then discharges south to Valley Road.

We have calculated the existing 10 year and 100 year peak flows from the site using TP108 method. (with 3.8 degrees climate change) at 31 l/s and 86 l/s, respectively. The calculations are presented in **Appendix D**.

Existing Stormwater Quality

There is no existing stormwater quality treatment in place for vehicle pavements

6.2 Proposed Stormwater

Proposed Impervious Areas

The proposed site will have a significant reduction in impervious surfaces from the pre-development of approximately 100% to post-development of approximately 80%. The pre-development and post-development surface areas are shown in Table 5 below.

Table 5. Pre-Development and Post-Development Surface Areas

Area	Pre-Development (m^2)	Post-Development (m^2)
Impervious Areas:		
Building roofs	3,100 (59%)	3,250 (62%)
Exposed pedestrian and vehicle pavements	2,150 (41%)	957 (18%)
Pervious Areas:		
Landscaping	24 (0.5%)	1,067 (20%)
Total	**5,274 (100%)**	**5,274 (100%)**

Proposed Primary and Secondary Flows

We have calculated the proposed 10 year and 100 year peak flows from the site. These have been calculated using TP108 method including 3.8 degrees climate change in accordance with the Auckland

Council's draft Stormwater Code of Practice, Version 4. The post-development flow rates are compared to the pre-development peak flow rates in Table 6 below. The preliminary flow calculations are presented in **Appendix D**.

Table 6. Pre-Development and Post-Development Peak Flows

Storm Event	Pre-Development	Post-Development
10 year	119 l/s	105 l/s
100 year	219 l/s	203 l/s

Primary (10 year) stormwater flows are to discharge to on-site rock bore soakpits to the underlying volcanic aquifer. The new soakpits will have pre-treatment via sumps prior to discharge and be designed in accordance with Auckland Council's GD07.

Soakage testing was completed by Tonkin & Taylor in 2017 for the previous Eke Panuku development in two boreholes on the site which resulted in soakage rates of approx. 35 l/s in each borehole. T&T recommended a design soakage rate of 27 l/s. For soakpits with two boreholes, this equates to a total of 3 soakpits proving a total disposal flow of approximately 140 l/s.

To reduce secondary (100 year) stormwater flows and volumes it is also proposed to discharge 33% (or 33 l/s) of the secondary flow to ground soakage. This would be provided by an additional soakpit with two boreholes. The balance of the secondary flows would discharge to Dominion Road and Valley Road.

The preliminary stormwater drainage for the site is shown on the preliminary civil drawings in **Appendix C**.

Stormwater Quality

Stormwater quality treatment in accordance with Auckland Council's GD01 is proposed for the approximately 320 m^2 of exposed vehicle access pavements in the eastern area of the site prior to discharge to the on-site soakpits.

Stormwater from building roofs is to be discharged via catchpits prior to discharge to the on-site soakpits. Soakpits will be fitted with filter cages in accordance with Auckland Council's GD07 which provide pre-treatment as gross pollutant traps prior to discharge to the underlying volcanic aquifer.

7 WASTEWATER

7.1 Existing Wastewater

Based on the information derived from GeoMaps, there are currently 150 mm and 225 mm public wastewater pipelines traversing across the site and existing public wastewater manholes located within No. 115 Valley Road and No. 200 Dominion Road as shown in Figure 4 below.

Figure 4. Existing Public Wastewater (from GeoMaps)

While not explicitly shown on GeoMaps, it can be assumed that wastewater discharge from the existing development on-site is being discharged into the existing public wastewater system via private lot connections.

As part of the demolition process, all existing private wastewater connections from the existing development on the site are to be disconnected and capped.

There also appears to be existing connections into public manholes from neighbouring properties at 9 Carrick Place (into MH 531376) and 224 – 228 Dominion Road (into MH 531403).

The existing public wastewater layout is also shown on Yeoman's Site Survey drawings in **Appendix A**.

7.2 Proposed Wastewater

7.2.1 Public Wastewater Network

In order to accommodate the proposed building footprint, the majority of the existing public wastewater network within the site is to be relocated around the eastern side of the site. The proposed realignment consists of the decommissioning and removal of the northern public wastewater manhole (MH 531376) on site and the addition of eight new public wastewater manholes. The proposed layout of the relocated public wastewater network is shown the preliminary civil drawings in **Appendix C**.

The western public manhole (MH 531403) is to be retained within the carpark basement to continue to provide connections for the adjacent properties at 224 – 228 Dominion Road. The existing public pipe downstream of MH 531403 is to be bridged by the foundations for the proposed buildings.

7.2.2 Wastewater Generation

Wastewater generation demand for the proposed development has been calculated in accordance with Watercare Code of Practice Section 6.3.5.3. These calculations are provided in **Appendix F**.

This assessment indicates a wastewater peak dry weather flow of 2.3 l/s and a wastewater peak wet weather flow of 3.9 l/s from the proposed development. We note this is significantly lower than the 5.0 l/s for the previously consented development.

7.2.3 Wastewater Network Capacity

In accordance with Watercare Code of Practice for Land Development and Subdivision, capacity assessment of the public wastewater network needs to be undertaken to the nearest downstream 300 mm public pipeline. However, the nearest 300 mm wastewater pipeline located more than 650 m downstream of the proposed development and we consider it more appropriate to undertake a capacity assessment on the section of the public wastewater pipeline immediately downstream of the proposed connection point.

A capacity assessment for this pipeline has been undertaken in accordance with Watercare Code of Practice Section 6.3.5.3. The assessment included topographical survey of the invert level of the first public manhole downstream of the proposed development to provide greater accuracy. The results of the assessment are as shown in the calculations in **Appendix F**. The output of this downstream capacity assessment indicates that the peak wet weather flow from the contributing catchment is 18 l/s which is significantly lower than the capacity of the public wastewater pipe of 52 l/s.

8 WATER SUPPLY

8.1 Existing Water Supply

GeoMaps indicates there are existing 100 mm watermains within the eastern berm of Dominion Road and the northern road carriageway of Valley Road, adjacent to the western and southern boundary of the site, respectively. These existing watermains are shown on Figure 5 below.

Figure 5. Existing Public Water Network (from GeoMaps)

There is also a 200 mm watermain within the western berm of Dominion Road, across the road from the site. There are three existing hydrants in close proximity to the site, two in Valley Road at the southern boundary of the site and one in Dominion Road at the western boundary of the site.

The existing buildings on site are currently being serviced by 20 mm lot connections off either of the existing 100 mm public watermains.

8.2 Proposed Water Supply

8.2.1 Water Network Connection

It is proposed to connect to the existing 100 mm watermain in Valley Road on the southern boundary of the site. The proposed connection is shown on the preliminary civil drawings in **Appendix C**.

8.2.2 Potable Water Demand

Potable water demand for the proposed development has been calculated in accordance with Watercare Code of Practice Section 6.3.5.3. These calculations are provided in **Appendix F**.

This assessment indicates a water peak daily demand of 151 m^3 and a water peak hourly demand of 4.4 l/s from the proposed development.

8.2.3 Firefighting

In accordance with the New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008, the proposed development is classified under category FHC 1 (for both the apartment units and café). Based on the proposed floor area of less than 599m^2 for each apartment unit and cafe, the water supply classification for the proposed development is expected to be FW3, subject to confirmation from the fire engineer.

Based on the fire water classification of FW3, the reticulated firefighting water supply requirement for the proposed development is 1,500 l/min (25 l/s) of water flow within 135m with an additional 1,500 l/min (25 l/s) within 270m through a maximum number of 3 fire hydrants.

8.2.4 Water Supply Capacity

Based on the size of the existing public mains (100 mm) as part of a closed-loop system, it is expected the existing water supply network will have sufficient capacity for the potable water demand from the proposed development.

Flow and pressure testing is yet to be undertaken to confirm flow and pressure of public water system. On site storage tanks and booster pumps may be needed if pressure and flows are not sufficient for firefighting water supply for the proposed development. We note the firefighting supply is no greater than the previously consented apartment development on the site.

9 UTILITY SERVICES

9.1 Power

Based on the information provided by BeforeUDig, there are existing underground 11kV and 400V power lines within the berms of Dominion Road and Valley Road adjacent to the site boundary. There are also existing streetlights and power supply pillars within the berm. As the current usage of the site and the surrounding area includes retail and commercial activities, it is likely that the existing network will have adequate capacity to service the electricity demands of the proposed development.

9.2 Gas

Based on the information provided by BeforeUDig, there are existing MP4 gas lines within the berms along Dominion Road and Valley Road. There are existing gas connections servicing the existing development, and therefore, we consider it is likely that the existing gas network will have adequate capacity to service the demands of the proposed development.

9.3 Communications

Based on the information provided by Vector, there is existing underground communication and fibre infrastructure within proximity of the site. We consider that it is likely that the existing network will have adequate capacity to service the communications demands of the proposed development. However, this would need to be confirmed by a third-party service provider (Vector/Chorus) once the layout of the proposed development has been finalised.

10 SUMMARY AND CONCLUSIONS

Earthworks

10.1 Bulk earthworks for the site are to be undertaken over an area of approximately 5,200 m^2 and cut and full volumes of approximately 3,000 m^3 and 1,300 m^3, respectively and as such require resource consent under E12.4.1 of the AUP.

10.2 Bulk earthworks will involve excavating generally up to 1.0 m depth, and locally up to 3.6m depth in the northwest corner. The excavation will mostly involve basalt rubble and rock, but some solid rock excavation using heavy equipment and rock breaking is likely to be required. Noise and vibration are to be managed in accordance with Marshall Day's Assessment of Acoustic Effects, 27 August 2024.

10.3 The fill and volcanic rubble and rock are low sediment generating materials. Erosion and sediment controls in accordance with Auckland Council's GD05 are to be implemented to mitigate adverse sediment effects and these will be monitored during construction via an Earthworks Construction Management Plan.

Stormwater

10.4 The impervious surfaces on the site are to be reduced from approximately 100% (5,250 m^2) to approximately 81% (4,210 m^2.). As such, the proposed development is considered a Brownfield Small under the Auckland Council's NDC and also requires resource consent under E8.4.1 of the AUP.

10.5 Post-development primary (10 year) stormwater flows are reduced by 12% from pre-development flows and are to be discharged via on-site ground soakage. Soakage testing has been undertaken at the site and preliminary soakage design undertaken in accordance with Auckland Council's GD07 and this indicates sufficient soakage is readily available.

10.6 Post-development secondary (100 year) flows are reduced by 7% from the pre-development flows and are to be directed to the adjacent road carriageway on Valley Road in accordance with the Auckland Council's Stormwater Code of Practice.

10.7 As a result of the above, there will no increase in nuisance or damage to other properties during 10% (10 year) or 1% AEP (100 year) rainfall events. Also, refer to separate Babbage Flood Report.

10.8 Stormwater quality treatment in accordance with Auckland Council's GD01 is proposed for the uncovered vehicle pavements in the eastern area of the site prior to discharge to the on site soakpits.

Wastewater and Water Supply

10.9 The peak wastewater flows from the proposed development have been assessed against the capacity of the existing public network which indicates the public network has sufficient capacity for the proposed development.

10.10 The peak potable water demand from the proposed development has been assessed against the layout and size of the existing public network which indicates the public network is expected to sufficient capacity for the proposed development.

10.11 The firefighting water demand from the proposed development has been assessed against the layout and size of the existing public network which indicates the public network is expected to sufficient capacity for the proposed development subject to flow and pressure testing of the existing public network.

Utility Services

10.12 There are existing power supply, telecommunication and gas networks within the berms of Dominion Road and Valley Road and these are likely to have sufficient capacity to meet the demands of the proposed development subject to confirmation form the utility asset owners.

APPLICABILITY AND LIMITATIONS

Restrictions of Intended Purpose

This report has been prepared solely for the benefit of Precinct Properties New Zealand Limited as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such party's sole risk.

Legal Interpretation

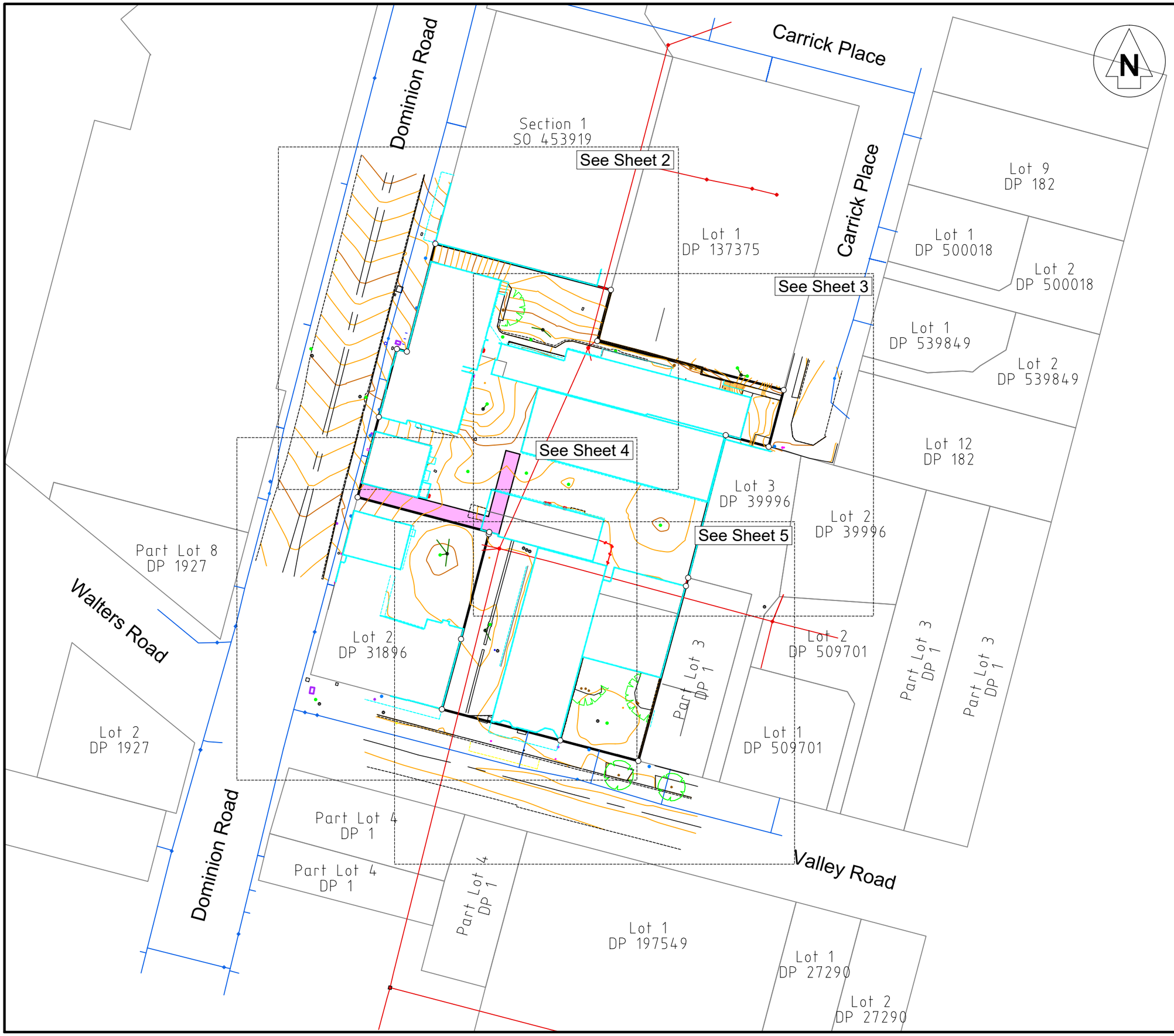
Opinions and judgements expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgements are to be relied on they should be independently verified with appropriate legal advice.

Maps and Images

All maps, plans, and figures included in this report are indicative only. Do not scale any of the maps, plans or figures in this report. Sources for map and plan compositions include LINZ Data and Map Services and local council GIS services.

Appendix A

Topographical Survey



NOTES:

1) Origin of Levels M12 SO 48562 with Reduced Level 58.28 meters Auckland Vertical Datum 1946.

2) Areas and boundaries are SUBJECT TO SURVEY.

3) Spot heights are shown thus : + 55.80

4) Drainage information from Council Records.

Manhole = Sanitary Sewer

= Stormwater Drainage

= Watermain

5) Abutting property information from GRIP.

6) Abbreviations

DP - Down Pipe	FH- Fire Hydrant
GL - Ground Level	GT - Gully Trap
GUT - Gutter	PB- Power Box
PP - Power Pole	TT - Tree Trunk
WM - Water Meter	
FFL - Finished Floor Level	
FCR - From Council Records	

PREPARED FOR

PRECINCT PROPERTIES

SITE SURVEY
216,218 & 222 DOMINION ROAD, 113, 115 & 117 VALLEY ROAD & 17 CARRICK PLACE MOUNT EDEN

Being: Part Lot 4 & 5 DP 182, Part Lot 3 DP 1, Part Lot 1 DP 31896, Lot 1 & 2 DP 54203 and Lot 1 DP 51797.

Comprised in CFR: NA3B/311, NA262/171, NA117/69, NA5C/567, NA31B/1219, NA88C/665, NA185/140 & NA5C/568

Total Area (By Title) = 5254 m²
Total Area (By Calc) = 5276 m²

SCALE	DATE	
1:750 (A3)	April 2024	
	SURVEYED JS/CD	DRAWN JS

YEOMANS survey solutions

Yeomans Survey Solutions Limited
Unit 1C Level 1 29 Karaka St Newton
PO Box 7184 Auckland
p:(09) 309 0880 f:(09) 369 9210
e: info@yeomansurvey.co.nz

FILE	Drawing	Rev.
8902/SS	1	
	of 5 Drawings	

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Section 1
SO 453919

Lot 1
DP 137375

Dominion Road

Existing Neighbouring Building

BASEMENT FFL = 51.850
GROUND FLOOR FFL = 55.250

Existing Building with Basement

Existing Building

Area in Seal

Sealed Driveway

Sealed Footpath

Concrete Path

Timber Retaining Wall

Steps

Planter

Vehicle Crossing

Edge of Seal

Kerbline

Site Datum
RL 52.25
Plug in Seal

Manhole
(Not Located)

200 Ø Water Main

100 Ø Water Main

150 Ø WW Line (FCR)

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1:250	(A3)	SURVEYED JS/CD	DRAWN JS

YEOMANS survey solutions

Yeomans Survey Solutions Limited
Unit 1C Level 1 29 Karaka St Newton
PO Box 7184 Auckland
p:(09) 309 0880 f:(09) 369 9210
e: info@yeomansurvey.co.nz

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	of 5 Drawings	

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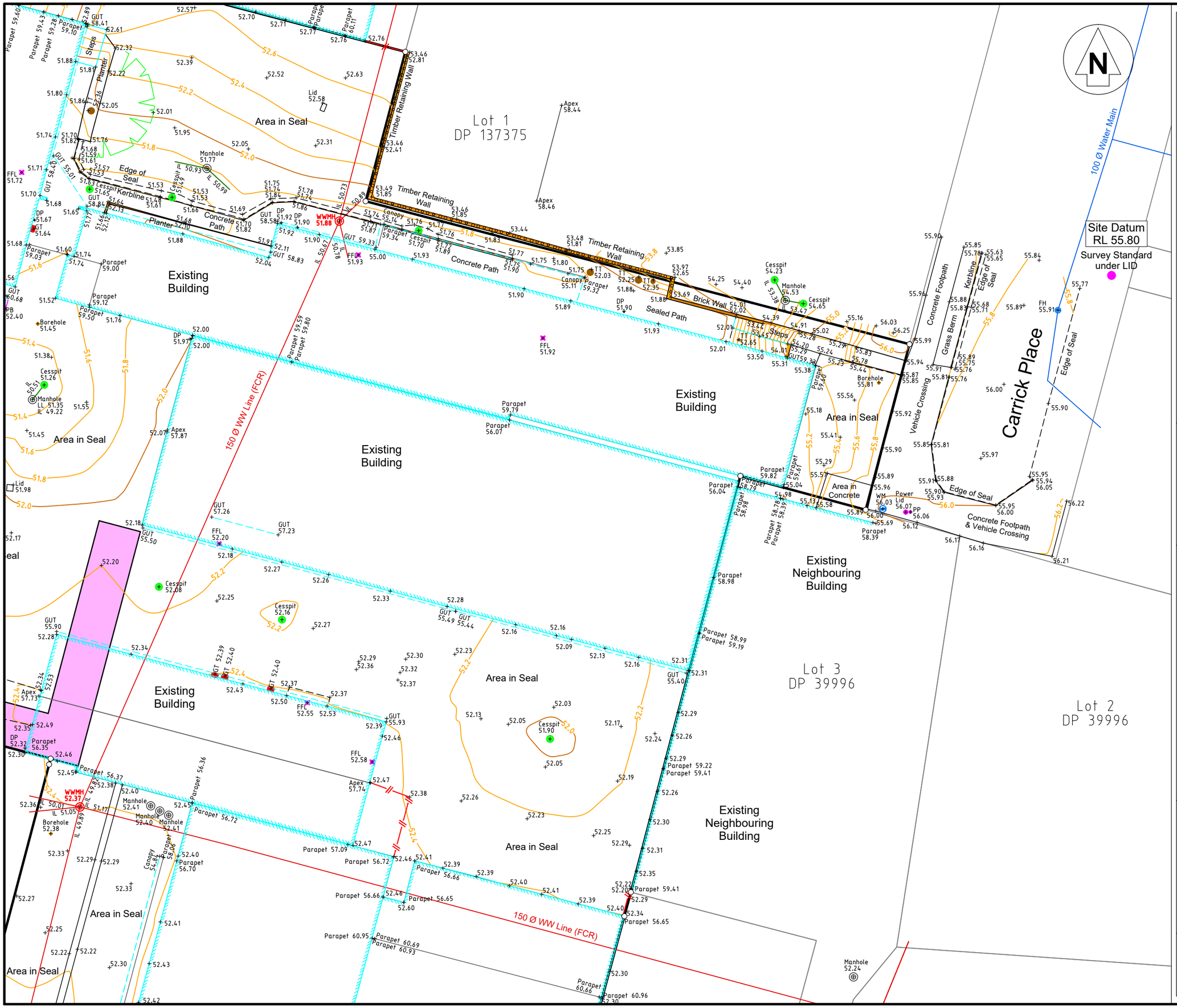

NOTES:

1) Origin of Levels M12 SO 48562 with Reduced Level 58.28 meters Auckland Vertical Datum 1946.

2) Areas and boundaries are SUBJECT TO SURVEY.

3) Spot heights are shown thus : + 55.80

4) Drainage information from Council Records.

Manhole = Sanitary Sewer

= Stormwater Drainage

= Watermain

5) Abutting property information from GRIP.

6) Abbreviations

DP - Down Pipe	FH- Fire Hydrant
GL - Ground Level	GT - Gully Trap
GUT - Gutter	PB- Power Box
PP - Power Pole	TT - Tree Trunk
WM - Water Meter	
FFL - Finished Floor Level	
FCR - From Council Records	

PREPARED FOR

PRECINCT PROPERTIES

SITE SURVEY
216,218 & 222 DOMINION ROAD, 113, 115 & 117 VALLEY ROAD & 17 CARRICK PLACE MOUNT EDEN

Being: Part Lot 4 & 5 DP 182, Part Lot 3 DP 1, Part Lot 1 DP 31896, Lot 1 & 2 DP 54203 and Lot 1 DP 51797.

Comprised in CFR: NA3B/311, NA262/171, NA117/69, NA5C/567, NA31B/1219, NA88C/665, NA185/140 & NA5C/568

Total Area (By Title) = 5254 m²
Total Area (By Calc) = 5276 m²

SCALE	DATE	
1:250 (A3)	April 2024	
	SURVEYED JS/CD	DRAWN JS

YEOMANS survey solutions

Yeomans Survey Solutions Limited
Unit 1C Level 1 29 Karaka St Newton
PO Box 7184 Auckland
p:(09) 309 0880 f:(09) 369 9210
e: info@yeomansurvey.co.nz

FILE	Drawing	Rev.
8902/SS	3	
	of 5 Drawings	

R:\Jobs\8902-PRECINCT PROPERTIES-DOMINION AND VALLEY ROADS-MT EDEN\12D\Topo\Topo Fri Apr 12 08:36:55 2024

Site Datum
RL 52.25
Plug in Seal

Existing Building

Existing Neighbouring Building

Area in Seal

Sealed Driveway

Existing Right of way

Sealed Footpath

Edge of Seal

Kerbline

Vehicle Crossing

Lot 2
DP 31896

Dominion Road

Valley Road

100 Ø Water Main

200 Ø Water Main

225 Ø WW Line (FCR)

Concrete Footpath

Bus Stop

Area in Concrete

N

NOTES:

1) Origin of Levels M12 SO 48562 with Reduced Level 58.28 meters Auckland Vertical Datum 1946.

2) Areas and boundaries are SUBJECT TO SURVEY.

3) Spot heights are shown thus : + 55.80

4) Drainage information from Council Records.

Manhole = Sanitary Sewer
= Stormwater Drainage
= Watermain

5) Abutting property information from GRIP.

6) Abbreviations

DP - Down Pipe	FH- Fire Hydrant
GL - Ground Level	GT - Gully Trap
GUT - Gutter	PB- Power Box
PP - Power Pole	TT - Tree Trunk
WM - Water Meter	
FFL - Finished Floor Level	
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PREPARED FOR

PRECINCT PROPERTIES

SITE SURVEY
216,218 & 222 DOMINION ROAD, 113, 115 & 117 VALLEY ROAD & 17 CARRICK PLACE MOUNT EDEN

Being: Part Lot 4 & 5 DP 182, Part Lot 3 DP 1, Part Lot 1 DP 31896, Lot 1 & 2 DP 54203 and Lot 1 DP 51797.

Comprised in CFR: NA3B/311, NA262/171, NA117/69, NA5C/567, NA31B/1219, NA88C/665, NA185/140 & NA5C/568

Total Area (By Title) = 5254 m²
Total Area (By Calc) = 5276 m²

SCALE		DATE	
1:250	(A3)	April 2024	
		SURVEYED JS/CD	DRAWN JS

YEOMANS survey solutions

Yeomans Survey Solutions Limited
Unit 1C Level 1 29 Karaka St Newton
PO Box 7184 Auckland
p:(09) 309 0880 f:(09) 369 9210
e: info@yeomansurvey.co.nz

FILE	Drawing	Rev.
8902/SS	4	
	of 5 Drawings	

R:\Jobs\8902-PRECINCT PROPERTIES-DOMINION AND VALLEY ROADS-MT EDEN\12DTopo\Topo Topo Fri Apr 12 08:36:56 2024

NOTES:

1) Origin of Levels M12 SO 48562
with Reduced Level 58.28 meters
Auckland Vertical Datum 1946.

2) Areas and boundaries are
SUBJECT TO SURVEY.

3) Spot heights are shown thus : + 55.80

4) Drainage information from Council Records.

Manhole = Sanitary Sewer

= Stormwater Drainage

= Watermain

5) Abutting property information from GRIP.

6) Abbreviations

DP - Down Pipe	FH- Fire Hydrant
GL - Ground Level	GT - Gully Trap
GUT - Gutter	PB- Power Box
PP - Power Pole	TT - Tree Trunk
WM - Water Meter	
FFL - Finished Floor Level	
FCR - From Council Records	

PREPARED FOR

PRECINCT PROPERTIES

SITE SURVEY
216,218 & 222 DOMINION ROAD, 113, 115 & 117 VALLEY ROAD & 17 CARRICK PLACE MOUNT EDEN

Being: Part Lot 4 & 5 DP 182, Part Lot 3 DP 1, Part Lot 1 DP 31896, Lot 1 & 2 DP 54203 and Lot 1 DP 51797.

Comprised in CFR: NA3B/311, NA262/171, NA117/69, NA5C/567, NA31B/1219, NA88C/665, NA185/140 & NA5C/568

Total Area (By Title) = 5254 m²
Total Area (By Calc) = 5276 m²

SCALE		DATE April 2024	
1:250	(A3)	SURVEYED JS/CD	DRAWN JS

YEOMANS survey solutions

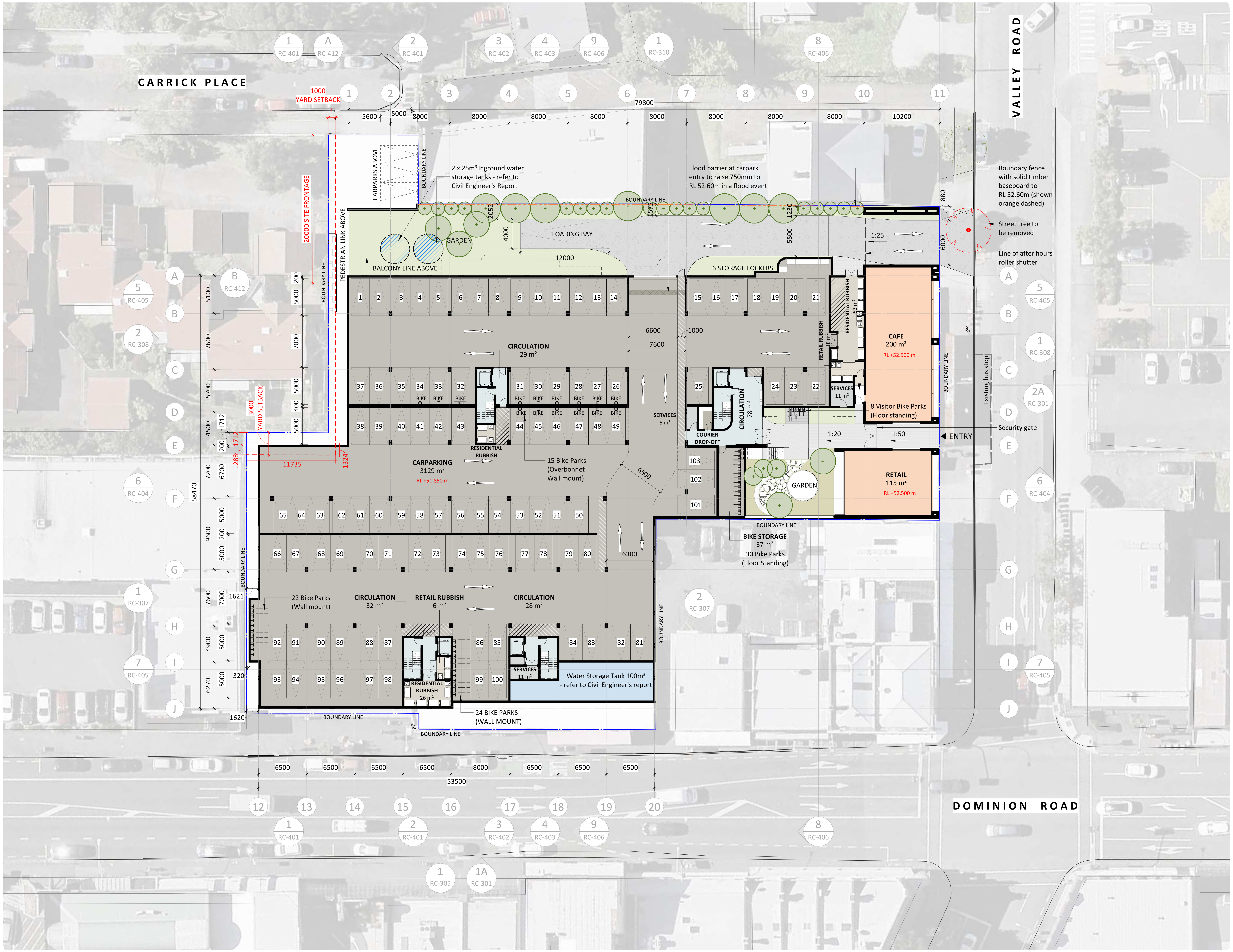
Yeomans Survey Solutions Limited
Unit 1C Level 1 29 Karaka St Newton
PO Box 7184 Auckland
p:(09) 309 0880 f:(09) 369 9210
e: info@yeomansurvey.co.nz

FILE	Drawing	Rev.
8902/SS	5	
	of 5 Drawings	

R:\Jobs\8902-PRECINCT PROPERTIES-DOMINION AND VALLEY ROADS-MT EDEN\12D\Topo\Topo Fri Apr 12 08:36:57 2024

Appendix B

Proposed Development Layout



COLOUR LEGEND

- RETAIL
- CAFE
- CARPARKING
- CIRCULATION
- COURIER DROP-OFF
- BIKE STORAGE
- RESIDENTIAL RUBBISH
- RETAIL RUBBISH
- SERVICES
- WATER STORAGE

site legend

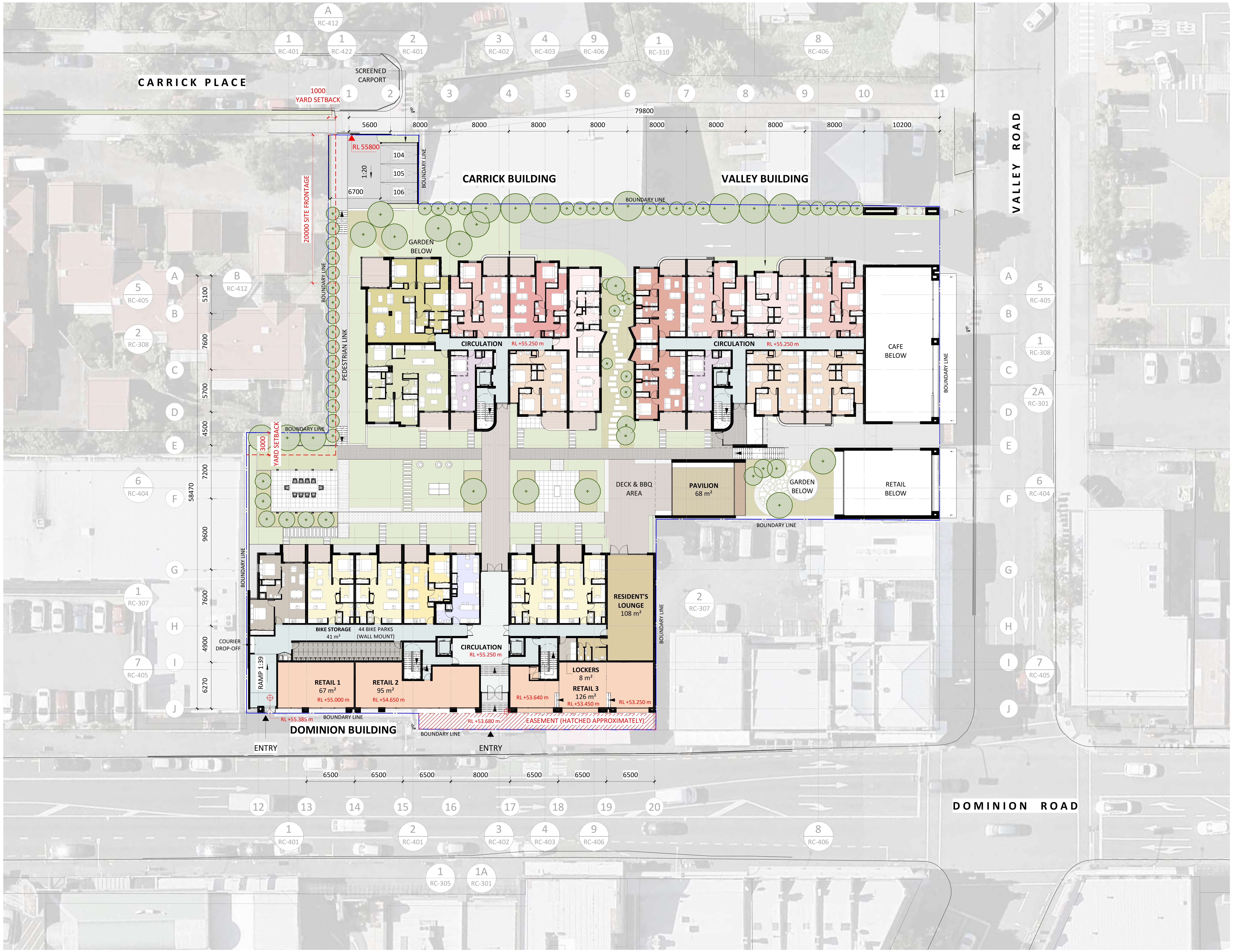
address	113-117 Valley Road, Mt Eden 198-202 Dominion Road, Mt Eden 214-222 Dominion Road, Mt Eden
legal description, record of title number	Lot 1 DP 54203, NA5C/568 Pt Lot 3 DP 1, NA185/140 Pt Lot 3 DP 1, NA88C/665 Pt Lot 3 DP 1, NA31B/1219 Lot 1 DP 51797& Pt Lot 4 DP 182, NA3B/311 Pt Lot 5 DP 182, NA262/171 Lot 2 DP 54203 & Pt Lot 1 DP 31896, NA5C/567 Pt Lot 3, Allot 8, Sec10, NA117/69
site area	5173m2
ta	Auckland Council
planning zone	Business - Local Centre Residential - Terrace Housing and Apartment Buildings (THAB)
climate zone	1
earthquake zone	1
exposure zone	C
lee zone	No
rainfall intensity	80-90
wind region	A
wind zone	Low

site information obtained from GeoMaps & BRANZMaps

Disclaimer:
Design subject to verification by Structural Engineer and other relevant consultants.

Precinct

1 : 250 PROPOSED PLAN - LEVEL 1



COLOUR LEGEND

- RETAIL
- CIRCULATION
- BIKE STORAGE
- RESIDENT'S LOUNGE
- PAVILION
- LOCKERS
- RETAIL RUBBISH
- BALCONY
- TYPE S4 - 1 BEDROOM STUDIO
- TYPE S6 - 1 BEDROOM STUDIO
- TYPE 1A - 1 BEDROOM + MULTI
- TYPE 1C - 1 BEDROOM + 1 BATHROOM
- TYPE 2A - 2 BEDROOM + 2 BATHROOM
- TYPE 2E - 2 BEDROOM + 1 BATHROOM (END)
- TYPE 2J - 2 BEDROOM + 2 BATHROOM
- TYPE 2L - 2 BEDROOM + 1 BATHROOM
- TYPE 2P - 2 BEDROOM + 1 BATHROOM
- TYPE 2X - 2 BEDROOM + 2 BATHROOM
- TYPE 2Y - 2 BEDROOM + 2 BATHROOM
- TYPE 3A - 3 BEDROOM (END)
- TYPE 3B - 3 BEDROOM (END)

site legend

address	113-117 Valley Road, Mt Eden 198-202 Dominion Road, Mt Eden 214-222 Dominion Road, Mt Eden
legal description, record of title number	Lot 1 DP 54203, NA5C/568 Pt Lot 3 DP 1, NA185/140 Pt Lot 3 DP 1, NA88C/665 Pt Lot 3 DP 1, NA31B/1219 Lot 1 DP 51797& Pt Lot 4 DP 182, NA3B/311 Pt Lot 5 DP 182, NA262/171 Lot 2 DP 54203 & Pt Lot 1 DP 31896, NA5C/567 Pt Lot 3, Allot 8, Sec10, NA117/69
site area	5173m2
ta	Auckland Council
planning zone	Business - Local Centre Residential - Terrace Housing and Apartment Buildings (THAB)
climate zone	1
earthquake zone	1
exposure zone	C
lee zone	No
rainfall intensity	80-90
wind region	A
wind zone	Low

site information obtained from GeoMaps & BRANZMaps

Disclaimer:
Design subject to verification by Structural Engineer and other relevant consultants.

ashtonmitchell
architecture delivered

RESOURCE CONSENT

project name: DOMINION & VALLEY RD APARTMENTS

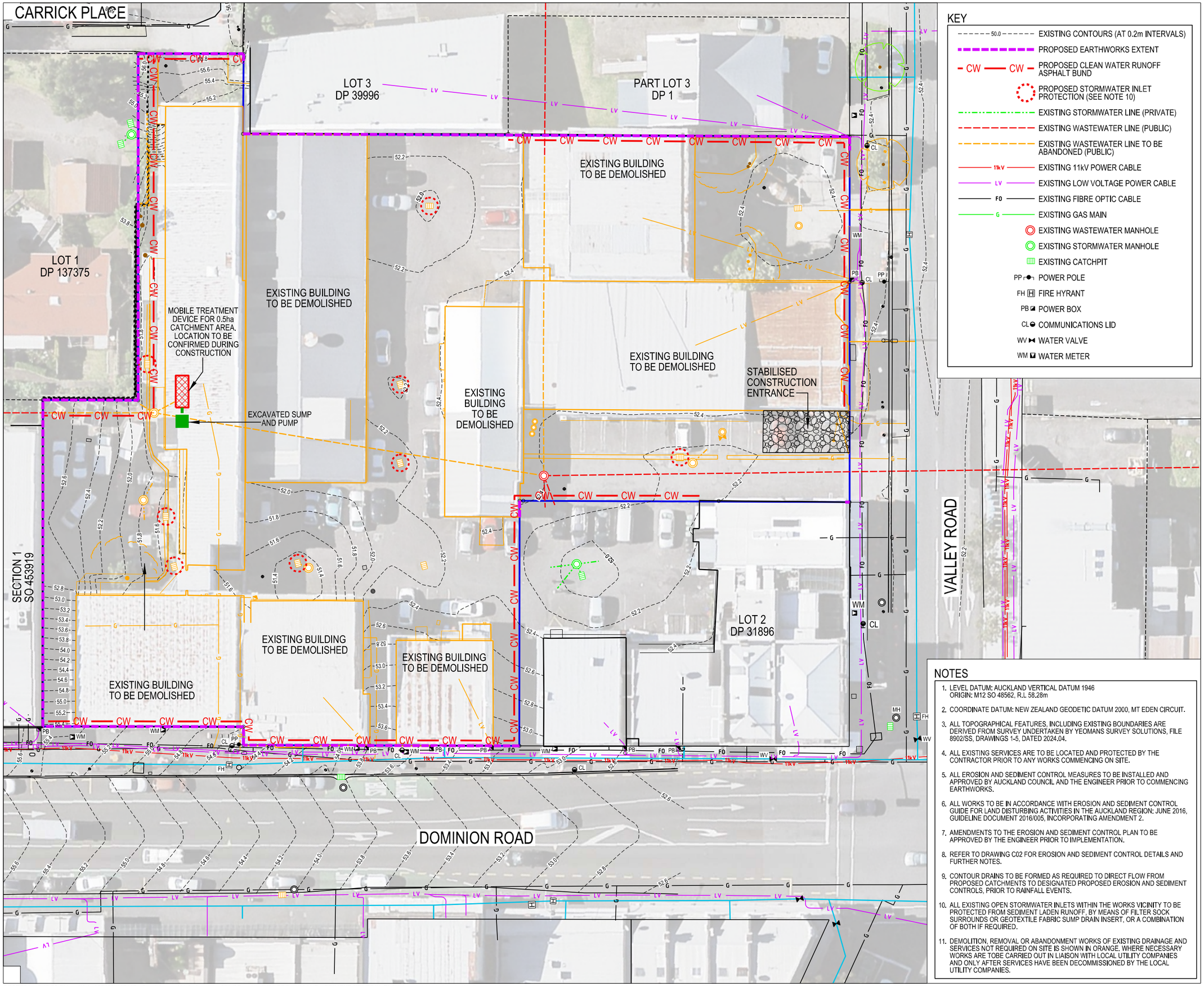
date: 30/08/2024

job: 202328

RC-102 F

Appendix C

Civil Engineering Drawings



KEY

- EXISTING CONTOURS (AT 0.2m INTERVALS)
- PROPOSED EARTHWORKS EXTENT
- PROPOSED CLEAN WATER RUNOFF ASPHALT BUND
- PROPOSED STORMWATER INLET PROTECTION (SEE NOTE 10)
- EXISTING STORMWATER LINE (PRIVATE)
- EXISTING WASTEWATER LINE (PUBLIC)
- EXISTING WASTEWATER LINE TO BE ABANDONED (PUBLIC)
- EXISTING 11kV POWER CABLE
- EXISTING LOW VOLTAGE POWER CABLE
- EXISTING FIBRE OPTIC CABLE
- EXISTING GAS MAIN
- EXISTING WASTEWATER MANHOLE
- EXISTING STORMWATER MANHOLE
- EXISTING CATCHPIT
- POWER POLE
- FIRE HYRANT
- POWER BOX
- COMMUNICATIONS LID
- WATER VALVE
- WATER METER

NOTES

1. LEVEL DATUM: AUCKLAND VERTICAL DATUM 1946
   ORIGIN: M12 SO 48562, R.L 58.28m
2. COORDINATE DATUM: NEW ZEALAND GEODETIC DATUM 2000, MT EDEN CIRCUIT.
3. ALL TOPOGRAPHICAL FEATURES, INCLUDING EXISTING BOUNDARIES ARE DERIVED FROM SURVEY UNDERTAKEN BY YEOMANS SURVEY SOLUTIONS, FILE 8902/SS, DRAWINGS 1-5, DATED 2024.04.
4. ALL EXISTING SERVICES ARE TO BE LOCATED AND PROTECTED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING ON SITE.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED AND APPROVED BY AUCKLAND COUNCIL AND THE ENGINEER PRIOR TO COMMENCING EARTHWORKS.
6. ALL WORKS TO BE IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES IN THE AUCKLAND REGION; JUNE 2016, GUIDELINE DOCUMENT 2016/005, INCORPORATING AMENDMENT 2.
7. AMENDMENTS TO THE EROSION AND SEDIMENT CONTROL PLAN TO BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.
8. REFER TO DRAWING C02 FOR EROSION AND SEDIMENT CONTROL DETAILS AND FURTHER NOTES.
9. CONTOUR DRAINS TO BE FORMED AS REQUIRED TO DIRECT FLOW FROM PROPOSED CATCHMENTS TO DESIGNATED PROPOSED EROSION AND SEDIMENT CONTROLS, PRIOR TO RAINFALL EVENTS.
10. ALL EXISTING OPEN STORMWATER INLETS WITHIN THE WORKS VICINITY TO BE PROTECTED FROM SEDIMENT LADEN RUNOFF, BY MEANS OF FILTER SOCK SURROUNDS OR GEOTEXTILE FABRIC SUMP DRAIN INSERT, OR A COMBINATION OF BOTH IF REQUIRED.
11. DEMOLITION, REMOVAL OR ABANDONMENT WORKS OF EXISTING DRAINAGE AND SERVICES NOT REQUIRED ON SITE IS SHOWN IN ORANGE. WHERE NECESSARY WORKS ARE TOBE CARRIED OUT IN LIAISON WITH LOCAL UTILITY COMPANIES AND ONLY AFTER SERVICES HAVE BEEN DECOMMISSIONED BY THE LOCAL UTILITY COMPANIES.

REV	DESCRIPTION	DATE	DRN BY	DES	APP CHK

DRAWING REVISIONS

TRUE NORTH

PROJECT NORTH

PROJECT TITLE :

DOMINION AND VALLEY APARTMENT

PRECINCT PROPERTIES RESIDENTIAL

216 - 222 DOMINION ROAD
MOUNT EDEN

Babbage
partners in excellence

DRAWING TITLE:

ERPSION AND SEDIMENT CONTROL PLAN

FOR RESOURCE CONSENT 2024.09.03

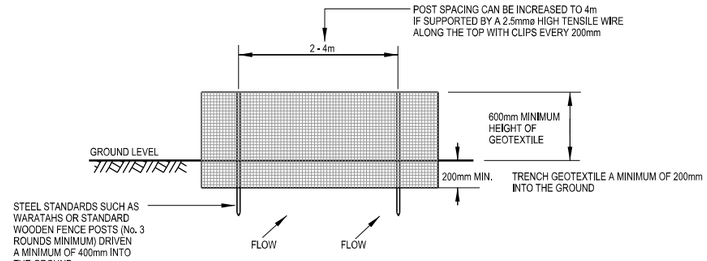
	DATE	INITIAL
DESIGNED	2024.08.30	JL
DRAWN	2024.08.30	MJD
DESIGN CHECK	2024.09.02	JC
DRAWING CHECK	2024.09.02	MJD
APPROVED	2024.09.02	MJM

SCALE:
1:200 @ A1
1:400 @ A3

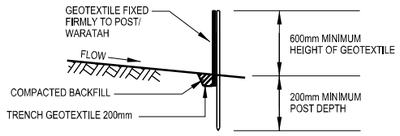
JOB NO:
67467

DWG NO: C01

REV: -



ELEVATION



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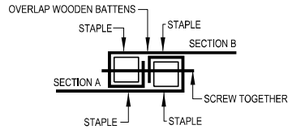
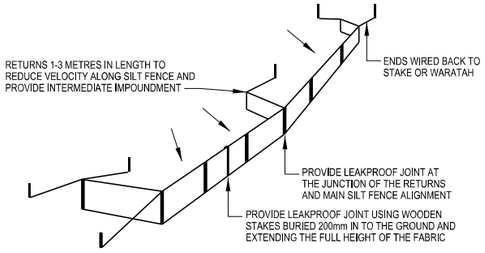


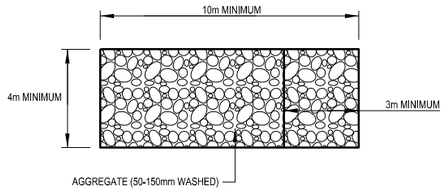
STANDARD FABRIC JOINT

SECTION



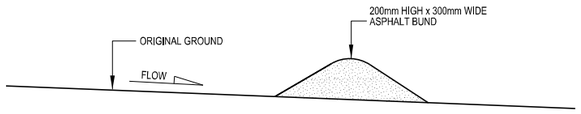
PERSPECTIVE VIEW

SILT FENCE DETAIL



PLAN

STABILISED CONSTRUCTION ENTRANCE



CLEAN WATER RUNOFF ASPHALT BUND
CROSS SECTION

NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE OPERATIONAL PRIOR TO ANY OTHER WORKS COMMENCING ON SITE. THE CONTRACTOR SHALL ARRANGE AND ATTEND A PRELIMINARY SEDIMENT CONTROL MEETING WITH THE COUNCIL, AS REQUIRED BY THE RELEVANT RESOURCE CONSENT.
2. A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE AVAILABLE ON SITE DURING WORK HOURS AND ALL PERSONNEL INVOLVED IN THE EARTHWORKS ACTIVITIES ON SITE (INCLUSIVE OF SUB-CONTRACTORS) SHALL BE FAMILIAR WITH THE CONSENT AND PLAN REQUIREMENTS AS THEY RELATE TO EROSION AND SEDIMENT CONTROL.
3. ALL "CLEAN WATER" RUNOFF FROM THE STABILISED SURFACES, INCLUDING CATCHMENT AREAS ABOVE THE SITE, SHALL BE DIVERTED AWAY FROM THE EARTHWORKS AREAS.
4. ALL EROSION AND SEDIMENT CONTROLS SHALL COMPLY WITH "EROSION AND SEDIMENT CONTROL GUIDE FOR LAND DISTURBING ACTIVITIES: JUNE 2016, GUIDELINE DOCUMENT 2016/005, AUCKLAND COUNCIL. DIVERSION OF "CLEAN WATER" FROM THE UPSTREAM CATCHMENTS AROUND THE EARTHWORKS AREA SHALL BE BY MEANS OF DIVERSION DRAINS AND / OR OTHER APPROVED METHODS.
5. FURTHER SEDIMENT CONTROL WORKS MAY BE REQUIRED BY THE ENGINEER AS THE PROJECT ADVANCES. THESE WILL BE INSTALLED AS AND WHERE REQUIRED BY THE ENGINEER. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE SITE HAS EFFECTIVE EROSION AND SEDIMENT CONTROL MEASURES OPERATING AT ALL TIMES.

REV	DESCRIPTION	DATE	DRN BY	DES CHK	APP
DRAWING REVISIONS					

PROJECT TITLE :

DOMINION AND VALLEY APARTMENT

PRECINCT PROPERTIES RESIDENTIAL

216 - 222 DOMINION ROAD
MOUNT EDEN

Babbage
partners in excellence

DRAWING TITLE:

EROSION AND SEDIMENT CONTROL DETAIL

FOR RESOURCE CONSENT 2024.09.03

	DATE	INITIAL
DESIGNED	2024.08.30	JL
DRAWN	2024.08.30	MJD
DESIGN CHECK	2024.09.02	JC
DRAWING CHECK	2024.09.02	MJD
APPROVED	2024.09.02	MJM

SCALE:

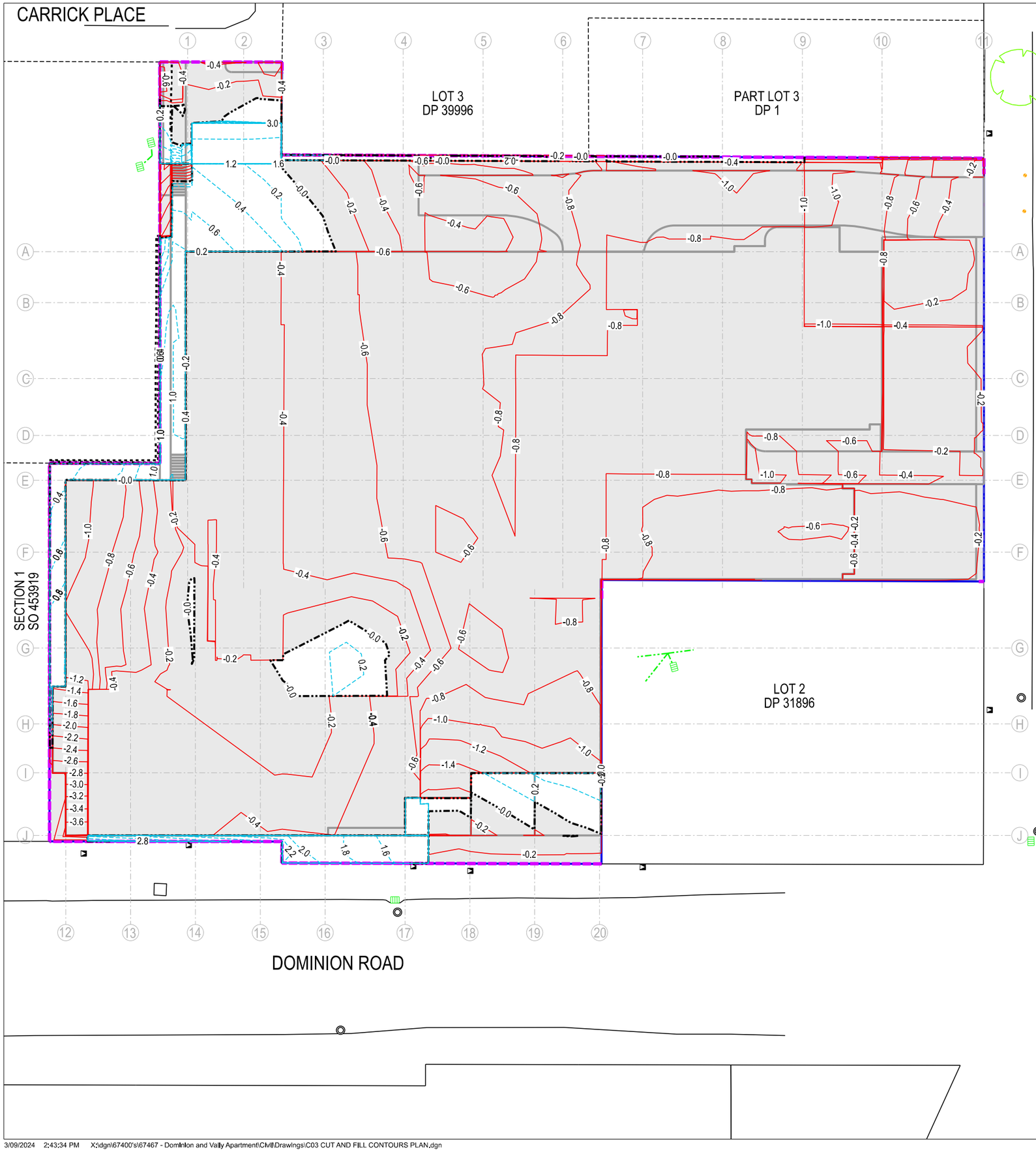
NOT TO SCALE

JOB NO:

67467

DWG NO: C02

REV: -



KEY

- EARTHWORKS BOUNDARY
- 0.2 FILL CONTOURS (AT 0.1m INTERVALS)
- -0.2 CUT CONTOURS (AT 0.1m INTERVALS)
- 0.0 ZERO CUT/FILL LINE
- CUT REGIONS

NOTES

1. COORDINATE DATUM: NEW ZEALAND GEODETIC DATUM 2000, MT EDEN CIRCUIT.
2. ALL TOPOGRAPHICAL FEATURES, INCLUDING EXISTING BOUNDARIES ARE DERIVED FROM SURVEY UNDERTAKEN BY YEOMANS SURVEY SOLUTION, DRAWING No. 8902/SS 1-5; DATED 2024.04.
3. CUT AND FILL CONTOURS ARE SHOWN AT 0.2m INTERVALS.
4. CUT AND FILL CONTOURS ARE BETWEEN THE EXISTING SURFACE AND PROPOSED SUBGRADE (ASSUMED 300mm BELOW FINISHED SURFACE LEVEL).
5. FILL SUBGRADES TO BE INSPECTED BY GEOTECHNICAL ENGINEER PRIOR TO START OF FILL PLACEMENT.
6. ALL CUT MATERIAL TO BE INSPECTED AND TESTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT AS FILL TO ENSURE COMPLIANCE WITH SPECIFICATION.
7. FINISHED CUT SURFACES TO BE INSPECTED BY GEOTECHNICAL ENGINEER TO CONFIRM ANY UNDER CUTTING REQUIREMENTS.
8. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND APPROVED BY THE ENGINEER PRIOR TO ANY WORKS COMMENCING ON SITE. SEE DRAWINGS C01 AND C02 FOR EROSION SEDIMENT CONTROL MEASURES AND DETAILS.

ESTIMATED BULK EARTHWORKS AREA/VOLUME SCHEDULE

ACTIVITY	AMOUNT
EARTHWORKS AREA	5,275m²
CUT TO FILL	600m³
FILL VOLUME (SOLID MEASURE)	2,500m³

ASSUMED SUBGRADE BELOW DESIGN FINISHED GROUND SURFACE IS 300mm
NO COMPACTION FACTOR HAS BEEN ADDED.

REV	DESCRIPTION	DATE	DRN BY	DES CHK	APP

DRAWING REVISIONS

TRUE NORTH

PROJECT NORTH

PROJECT TITLE :

DOMINION AND VALLEY APARTMENT

PRECINCT PROPERTIES RESIDENTIAL

216 - 222 DOMINION ROAD
MOUNT EDEN

Babbage
partners in excellence

DRAWING TITLE:

CUT AND FILL CONTOURS PLAN

FOR RESOURCE CONSENT 2024.09.03

	DATE	INITIAL
DESIGNED	2024.08.30	JL
DRAWN	2024.08.30	MJD
DESIGN CHECK	2024.09.02	JC
DRAWING CHECK	2024.09.02	MJD
APPROVED	2024.09.02	MJM

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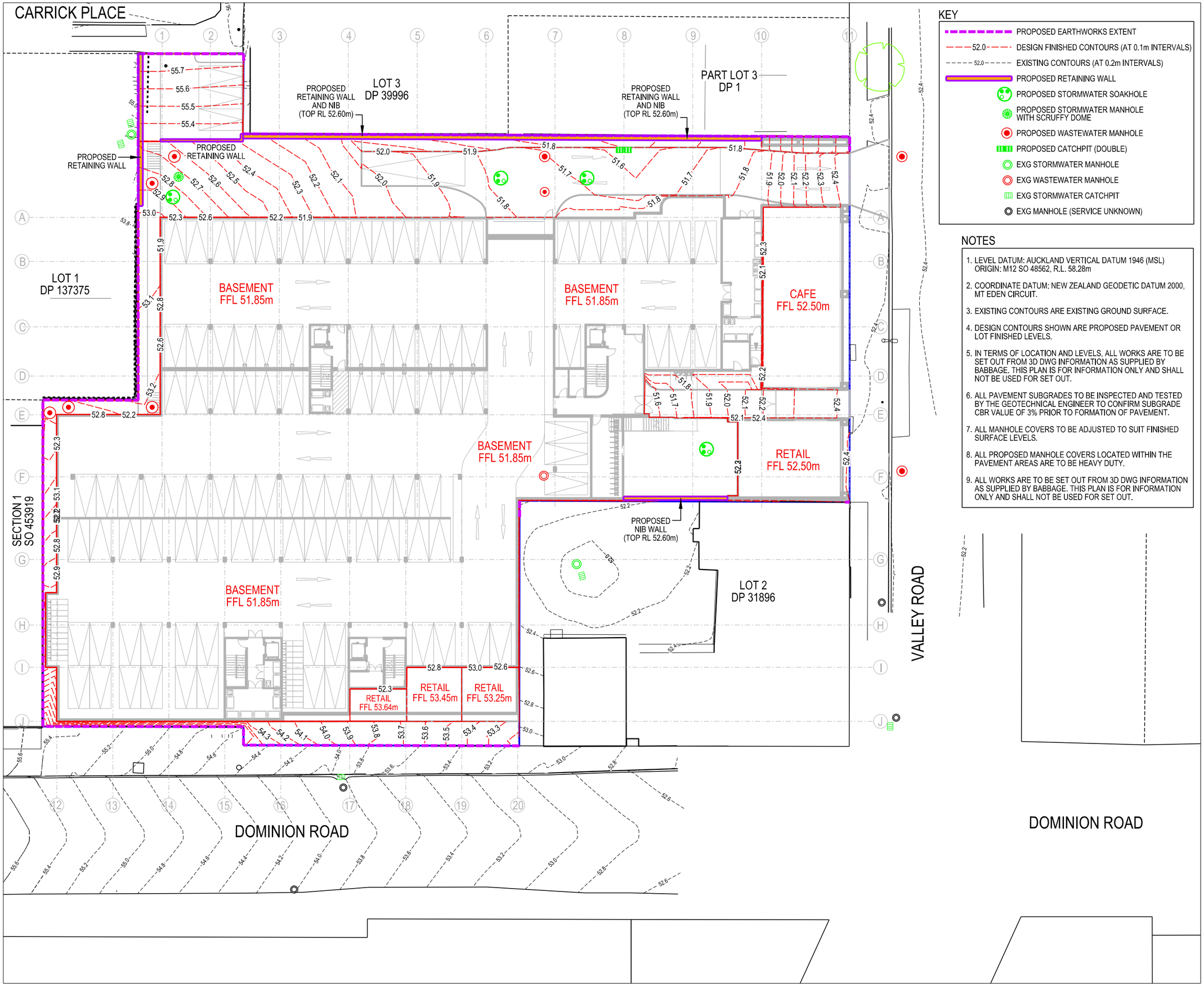
1:400 @ A3

JOB NO:
67467

DWG NO: C03

REV: -



KEY

- PROPOSED EARTHWORKS EXTENT
- 52.0 DESIGN FINISHED CONTOURS (AT 0.1m INTERVALS)
- 52.0 EXISTING CONTOURS (AT 0.2m INTERVALS)
- PROPOSED RETAINING WALL
- PROPOSED STORMWATER SOAKHOLE
- PROPOSED STORMWATER MANHOLE WITH SCRUFFY DOME
- PROPOSED WASTEWATER MANHOLE
- PROPOSED CATCHPIT (DOUBLE)
- EXG STORMWATER MANHOLE
- EXG WASTEWATER MANHOLE
- EXG STORMWATER CATCHPIT
- EXG MANHOLE (SERVICE UNKNOWN)

NOTES

1. LEVEL DATUM: AUCKLAND VERTICAL DATUM 1946 (MSL) ORIGIN: M12 SO 48562, R.L. 58.28m
2. COORDINATE DATUM: NEW ZEALAND GEODETIC DATUM 2000, MT EDEN CIRCUIT.
3. EXISTING CONTOURS ARE EXISTING GROUND SURFACE.
4. DESIGN CONTOURS SHOWN ARE PROPOSED PAVEMENT OR LOT FINISHED LEVELS.
5. IN TERMS OF LOCATION AND LEVELS, ALL WORKS ARE TO BE SET OUT FROM 3D DWG INFORMATION AS SUPPLIED BY BABBAGE. THIS PLAN IS FOR INFORMATION ONLY AND SHALL NOT BE USED FOR SET OUT.
6. ALL PAVEMENT SUBGRADES TO BE INSPECTED AND TESTED BY THE GEOTECHNICAL ENGINEER TO CONFIRM SUBGRADE CBR VALUE OF 3% PRIOR TO FORMATION OF PAVEMENT.
7. ALL MANHOLE COVERS TO BE ADJUSTED TO SUIT FINISHED SURFACE LEVELS.
8. ALL PROPOSED MANHOLE COVERS LOCATED WITHIN THE PAVEMENT AREAS ARE TO BE HEAVY DUTY.
9. ALL WORKS ARE TO BE SET OUT FROM 3D DWG INFORMATION AS SUPPLIED BY BABBAGE. THIS PLAN IS FOR INFORMATION ONLY AND SHALL NOT BE USED FOR SET OUT.

REV	DESCRIPTION	DATE	DRN BY	DES CHK	APP

DRAWING REVISIONS

TRUE NORTH

PROJECT NORTH

PROJECT TITLE :

DOMINION AND VALLEY APARTMENT

PRECINCT PROPERTIES RESIDENTIAL

216 - 222 DOMINION ROAD
MOUNT EDEN

Babbage
partners in excellence

DRAWING TITLE:

PROPOSED FINISHED LEVELS PLAN

FOR RESOURCE CONSENT 2024.09.03

	DATE	INITIAL
DESIGNED	2024.08.30	JL
DRAWN	2024.08.30	MJD
DESIGN CHECK	2024.09.02	JC
DRAWING CHECK	2024.09.02	MJD
APPROVED	2024.09.02	MJM

SCALE:
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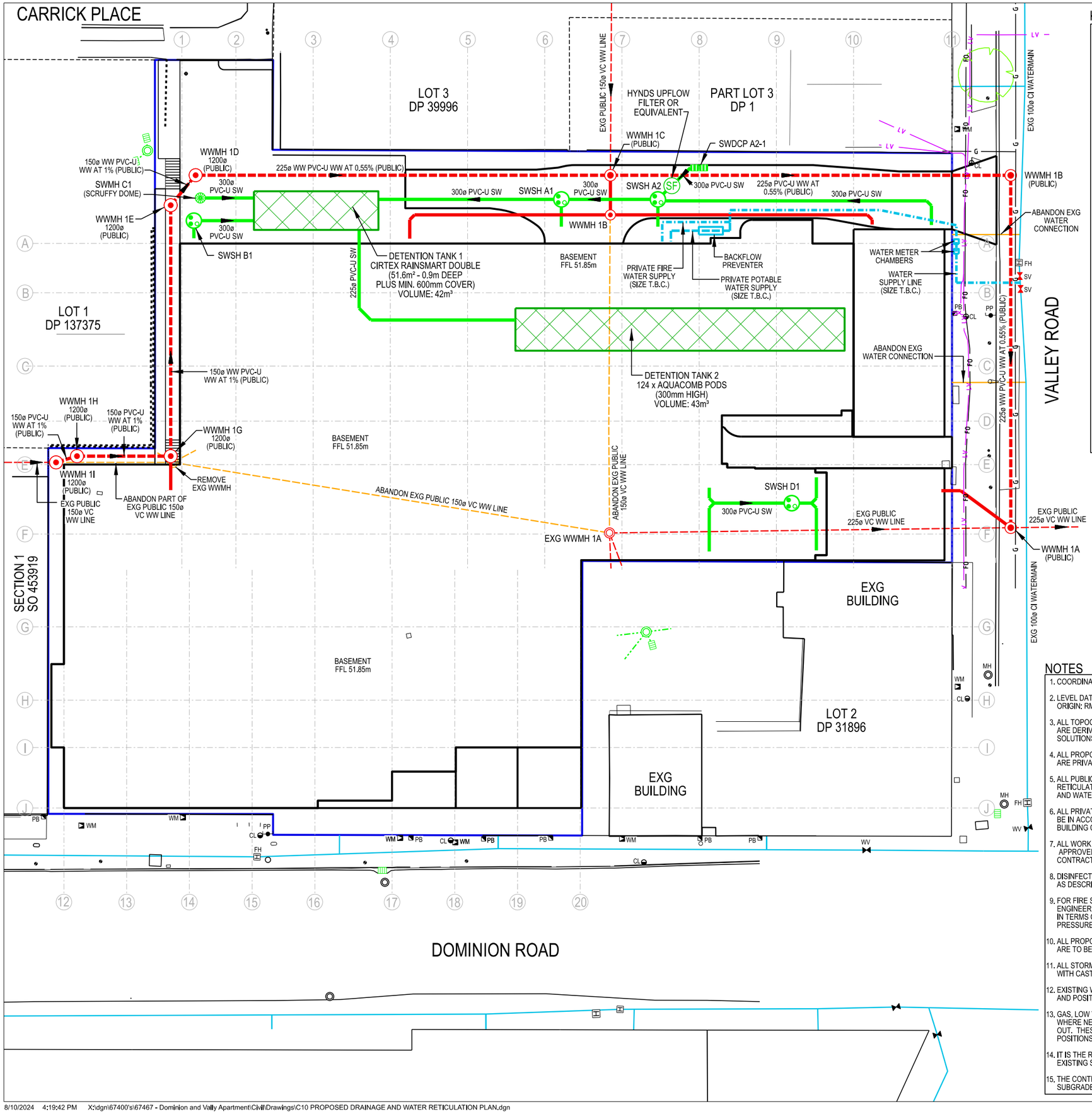
1:400 @ A3

JOB NO:
67467

DWG NO: C04

REV: -



KEY

- PROPOSED WASTEWATER LINE (PUBLIC)
- PROPOSED WASTEWATER LINE (PRIVATE)
- PROPOSED STORMWATER LINE (PRIVATE)
- PROPOSED WATER SUPPLY
- PROPOSED FIRE WATER SUPPLY
- EXG WASTEWATER LINE (PUBLIC)
- EXG WASTEWATER LINE TO BE ABANDONED (PUBLIC)
- EXG WATERMAIN
- LV EXG LOW VOLTAGE CABLE
- FO EXG FIBRE OPTIC CABLE
- G EXG GAS MAIN
- PROPOSED STORMWATER SOAKHOLE
- PROPOSED STORMWATER MANHOLE WITH SCRUFFY DOME
- PROPOSED WASTEWATER MANHOLE
- PROPOSED CATCHPIT (DOUBLE)
- SV PROPOSED SLUICE VALVE
- EXG STORMWATER MANHOLE
- EXG WASTEWATER MANHOLE
- EXG STORMWATER CATCHPIT
- FH EXG FIRE HYDRANT
- PP EXG POWER POLE
- PB EXG POWER BOX
- CL EXG COMMUNICATIONS LID
- WV EXG WATER VALVE
- WM EXG WATER METER
- EXG MANHOLE (SERVICE UNKNOWN)

COMPENSATORY FLOOD STORAGE

COMPENSATORY FLOOD STORAGE:
TOTAL 600m³ REQUIRED:
(1) 240m³ TO SOAKAGE MANHOLE
(2) 85m³ TO UNDERGROUND STORAGE TANKS
(3) 275m³ SURFACE WATER STORAGE ON DRIVEWAY TO RL 52.45m

NOTES

1. COORDINATE DATUM: NEW ZEALAND GEODETIC DATUM 2000, MT EDEN CIRCUIT.
2. LEVEL DATUM: AUCKLAND VERTICAL DATUM 1946 (MSL)
   ORIGIN: RM 7957 SO 53228 (BV7K) RL 22.40m
3. ALL TOPOGRAPHICAL FEATURES, INCLUDING EXISTING BOUNDARIES ARE DERIVED FROM SURVEY UNDERTAKEN BY YEOMANS SURVEY SOLUTIONS, FILE 8902/SS, DRAWINGS 1-5, DATED 2024.04.
4. ALL PROPOSED AND EXISTING DRAINAGE LINES, MANHOLES AND CATCHPITS ARE PRIVATE UNLESS SHOWN OTHERWISE.
5. ALL PUBLIC STORMWATER AND WASTEWATER DRAINAGE AND WATER RETICULATION WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL AND WATERCARE'S DESIGN STANDARDS.
6. ALL PRIVATE STORMWATER AND WASTEWATER DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND THE NZ BUILDING CODE.
7. ALL WORK ON PUBLIC DRAINAGE TO BE CARRIED OUT BY AN AUCKLAND COUNCIL APPROVED CONTRACTOR (STORMWATER) OR A WATERCARE APPROVED CONTRACTOR (WASTEWATER & WATER SUPPLY).
8. DISINFECTION AND PRESSURE TESTING OF WATER MAINS IS TO BE CARRIED OUT AS DESCRIBED IN WATERCARE'S CODE OF PRACTICE.
9. FOR FIRE SPRINKLER CONNECTION, THE CONTRACTOR SHALL LIAISE WITH THE FIRE ENGINEER TO CONFIRM STRAINER REQUIREMENTS (INCLUDING DESIGN FLOW RATE) IN TERMS OF NZS4541:2013 AUTOMATIC FIRE SPRINKLER SYSTEMS. NOTE THAT A PRESSURE GAUGE MUST BE FITTED IMMEDIATELY UPSTREAM OF THE STRAINER.
10. ALL PROPOSED MANHOLE COVERS LOCATED WITHIN THE PAVEMENT AREAS ARE TO BE HEAVY DUTY.
11. ALL STORMWATER CATCHPITS TO BE STANDARD 675 x 450 PRECAST UNITS WITH CAST IRON FRAME AND GRILL, UNLESS SHOWN OTHERWISE.
12. EXISTING WATER LINES HAVE BEEN PLOTTED FROM COUNCIL RECORDS AND POSITIONS AND ALIGNMENTS SHOULD BE REGARDED AS INDICATIVE ONLY.
13. GAS, LOW VOLTAGE CABLES AND FIBRE OPTIC LINES ARE ONLY SHOWN IN AREAS WHERE NEW WATER RETICULATION AND DRAINAGE WORKS ARE TO BE CARRIED OUT. THESE SERVICES HAVE BEEN PLOTTED FROM LOCAL UTILITY RECORDS AND POSITIONS AND ALIGNMENTS SHOULD BE REGARDED AS INDICATIVE ONLY
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO ANY EXCAVATION.
15. THE CONTRACTOR IS TO PROTECT ALL NEW INSTALLED PIPELINES, UNDER ROAD SUBGRADES FROM DAMAGE DURING CONSTRUCTION.

REV	DESCRIPTION	DATE	DRN BY	DES CHK	APP
A	RETENTION TANK 2 RELOCATED BETWEEN GRID LINES 5 AND 10. HYNDS UPFLOW FILTER ADDED	2024.10.08	JL	JC	MJM

DRAWING REVISIONS

TRUE NORTH

PROJECT NORTH

PROJECT TITLE :

DOMINION AND VALLEY APARTMENT

PRECINCT PROPERTIES RESIDENTIAL

216 - 222 DOMINION ROAD
MOUNT EDEN

Babbage
partners in excellence

DRAWING TITLE:

PROPOSED DRAINAGE AND WATER RETICULATION PLAN

FOR RESOURCE CONSENT 2024.08.10

	DATE	INITIAL
DESIGNED	2024.08.30	JL
DRAWN	2024.08.30	MJD
DESIGN CHECK	2024.09.02	JC
DRAWING CHECK	2024.09.02	MJD
APPROVED	2024.09.02	MJM

SCALE:
1:200 @ A1
1:400 @ A3

JOB NO:
67467

DWG NO: C10

REV: A

Appendix D

Stormwater Calculations

JOB NAME:	Domion & Valley Road	**DATE:**	15/08/2024
JOB NO:	67467#C	**DES BY:**	MJM
SUBJECT:	SW runoff calculations	**CHKD BY:**	

Babbage partners in excellence

TP108 RUNOFF CALCULATIONS

(green)	◄◄◄	INPUT VALUES
(yellow)	◄◄◄	OUTPUT VALUES

1. PRE-DEVELOPMENT CATCHMENT (ASSUMED FULLY PERVIOUS):

Impervious Area	ha	0.5249
Pervious Area	ha	0.0025
Hydrological Soil Group		Group_A
SCS Curve Number (CN)		39
total area	ha	0.5274
% Impervious		100%

Catchment Slope (S_c)	m/m	0.01
Catchment Length (l)	m	100
Channelisation Factor (C)		0.6
Weighted Curve Number		97.7
Initial Abstraction (Ia) weighted	mm	0.024
t_c (For q* - TP108 Fig. 5.1)	hours	0.17
t_p (SCS Lag for HEC-HMS)	hours	0.11
Storage (S) Total	mm	5.9

Table 3.3 - Curve numbers for typical Auckland conditions			
Land use	**Group A Soil (volcanic granular loam)**	**Group B Soil (alluvial)**	**Group C Soil (mudstone/sandstone)**
Bush, humid-climate, not-grazed	30	55	70
Pasture, lightly grazed, good grass cover	39	61	74
Urban lawns	39	61	74
Crops, straight rows, minimal vegetative cover	72	81	88
Sealed roads, roofs	98	98	98

Apply Climate Change to Pre-development Scenario? Yes — Select Yes or No

Select appropriate design storm →		**90th**	**2 yr ARI**	**10 yr ARI**	**100 yr ARI****	
24-Hour Rainfall Depth (P_{24})	mm	25	74.4	112	172	← ***NIWA HIRDS***
24-hour rainfall depths with climate change allowances (P_{24})	mm	25	86	131	228	← ***Refer Stormwater Code of Practice - Table 1***
c*=(P24-2Ia)/(P24-2Ia+2S)		0.678	0.878	0.917	0.951	
q* (from Fig. 5.1)		0.149	0.160	0.161	0.164	***SWCoP - Changes to normalised rainfall profile:***
Peak Flowrate (q_p)	l/s	19.6	81.0	119.3	218.8	***(Increased $q_{p:}$ 12% (2yr), 7% (10 yr), 11% (100yr))***
24 hour rainfall depth (Q_{24})	mm	20.19	80.07	125.35	222.44	
24 hour runoff volume (V24)	m^3	106.467	481.403	694.135	1184.906	***(Increased V24: 14% (2yr), 5% (10 yr), 1% (100yr))***

2. POST-DEVELOPMENT CATCHMENT:

Impervious Area	ha	0.4274
Pervious Area	ha	0.1000
Hydrological Soil Group		Group_A
SCS Curve Number (CN)		39
total area	ha	0.5274
% Impervious		81%

Roof	Imperv	0.3258	ha
Pavement	Imperv	0.1016	ha
Landscape	Pervious	0.1	ha
		0.5274	ha

Auckland Council - Stormwater Code of Practice V4 - Climate Change

Table 1: Percentage Increase in 24-hour Design Rainfall Depth

AEP	50%	20%	10%	5%	2%	1%	
ARI	2 yr	5 yr	10 yr	20 yr	50 yr	100 yr	
% Increase *	15.1%	16.4%	17.0%	17.2%	17.6%	32.7%	**

* in 24-Hour Design Rainfall Depth Due to Future Climate Change assuming 2.1°C increase in temperature

** SWCoP V4 requires 3.8°C Climate Change allowance for 1% AEP event

Catchment Slope (S_c)	m/m	0.02
Catchment Length (l)	m	100
Channelisation Factor (C)		0.6
Weighted Curve Number		86.8
Initial Abstraction (Ia) weighted	mm	0.948
t_c (For q* - TP108 Fig. 5.1)	hours	0.17
t_p (SCS Lag for HEC-HMS)	hours	0.11
Storage (S) Total	mm	38.6

Select appropriate design storm →		**90th**	**2 yr ARI**	**10 yr ARI**	**100 yr ARI****	
24-Hour Rainfall Depth (P_{24})	mm	25	74.4	112	172	← ***NIWA HIRDS***
24-hour rainfall depths with climate change allowances (P_{24})	mm	25	86	131	228	← ***Refer Stormwater Code of Practice - Table 1***
c*=(P24-2Ia)/(P24-2Ia+2S)		0.230	0.520	0.626	0.746	
q* (from Fig. 5.1)		0.067	0.127	0.143	0.152	***SWCoP - Changes to normalised rainfall profile:***
Peak Flowrate (q_p)	l/s	8.9	64.4	105.4	202.6	***(Increased $q_{p:}$ 12% (2yr), 7% (10 yr), 11% (100yr))***
24 hour rainfall depth (Q_{24})	mm	9.24	58.18	100.33	194.31	
24 hour runoff volume (V24)	m^3	48.711	349.798	555.623	1035.050	***(Increased V24: 14% (2yr), 5% (10 yr), 1% (100yr))***

Note: Calculation based on homogeneous catchment (impervious and pervious areas discharge to same network or flowpath)
using weighted curve number (CN) and combined 24 hour rainfall depth and volume (refer ARC TP108, Sections 3.2 and 4.2)

Appendix E

Soakage Testing

Tonkin+Taylor

Job No: 30717
4 November 2016

Panuku Development Auckland
c/- Beca
PO Box 6345
Wellesley Street
Auckland 1141

Attention: Anne Maree O'Connor

Dear Anne Maree

216-222 Dominion Road & 113-117 Valley Road, Mt Eden
Soakage Investigation

1 Introduction

Tonkin & Taylor Ltd (T+T) was engaged by Panuku Development Auckland to provide geotechnical advice and undertake soakage testing of rock bore soakholes on the subject site at 216-222 Dominion Road and 113-117 Valley Road, Mt Eden, Auckland. The work was undertaken as an extension to our existing contract, with an approval to proceed on 25 October 2016 from the project manager, Beca[1].

This letter summarises the soakage investigation drilling work and the results of the soakage flowrate testing within the boreholes. We understand that this information will be used in support of a response to a Section 92 request from Auckland Council for Resource Consent for the proposed development at the subject site. Stormwater from the proposed apartment building development is to be disposed using soakholes in the basalt rock.

2 Soakage Investigation

We understand that as part of the consenting process, Auckland Council has queried the soakage borehole capacity of 50 L/s initially proposed by Beca civil engineers, and have requested that specific test results be provided to justify the assumed soakage capacity.

T+T have therefore undertaken soakage borehole drilling in two locations across the subject site in order to confirm the available soakage flow rates. Boreholes were drilled inclined from vertical (approx. 10°) in order to increase the likelihood of the holes intersecting vertical cooling joints that are characteristic of the basalt rock. Increased soakage capacity is usually available in jointed basalt compared to massive rock.

[1] Beca, 2016, Email correspondence from Anne Maree O'Connor "RE: Soakage Investigation – Dominion/Valley Road", dated 25/10/2016, 10.50am.

Tonkin & Taylor Ltd | 105 Carlton Gore Rd, Newmarket, Auckland 1023, New Zealand
PO Box 5271, Wellesley St, Auckland 1141 P +64-9-355 6000 F +64-9-307 0265 E akl@tonkintaylor.co.nz

The two boreholes were drilled by Intorock Drilling Ltd on 1 November 2016 using percussion and down-hole hammer drilling methods. The upper 3m of each borehole was supported by a 90mm diameter PVC casing. Soakage testing (constant head test) was subsequently carried out in accordance with Auckland Council requirements[2]. Borehole 1 was drilled to a total inclined depth of 23.5m and soakage testing yielded a maximum soakage rate of 34.7 L/s over 10 minutes. Borehole 2 was drilled to a total inclined depth of 25.6m and soakage testing yielded a maximum soakage rate of 35.3 L/s over 10 minutes. The boreholes were pre-soaked prior to flow testing.

On the basis of the soakage testing, a typical flow rate of up to 35 L/s is considered appropriate for preliminary design of soakage for the proposed development. The adjusted flow rate allowing for a scaling factor of 1.3, is 26.9 L/s in accordance with the Auckland Council constant-head test worksheet.

The borehole locations are shown on the site plan attached in Appendix A. Drilling logs and flowrate testing results are presented in Appendix B. The constant-head test worksheet is presented in Appendix C.

3 Permanent Soakhole Design

The results of the soakage flow rate testing provide a reasonable basis for preliminary soakage design and consenting purposes. Given the significant thickness of basalt underlying the subject site, and the extensive use of soakage boreholes on other sites in the immediate vicinity of the project. It is expected that similar soakage rates will be available across the site. However, we note that basalt is typically variable in terms of porosity/voids and the orientation of joints or fractures in the rock that influence available soakage. It is therefore possible for soakage conditions to differ considerably over a short distance.

Therefore, we recommend that the permanent 'production' soakage boreholes be also drilled at a 10° incline (off vertical) to increase the likelihood of intersecting vertical rock fractures. We also recommend that flow rate testing be undertaken on those production soakage boreholes at time of installation, to prove their capacity exceeds the minimum flow rate required by the design. Should the production soakholes not achieve the required capacity, then other soakhole locations will need to be considered.

For further information and characterisation of site subsurface conditions, refer to the T+T geotechnical investigation report for the proposed development[3].

4 Summary

On the basis of the soakage testing that has been carried out, we summarise the conclusions as follows:

- Soakage testing performed in boreholes 1 and 2 confirmed a soakage capacity of 34.7 L/s and 35.3 L/s respectively, each over a 10 minute duration.
- On the basis of the soakage testing, a typical capacity of up to 35 L/s is considered appropriate for preliminary design of soakage for the proposed development. The adjusted capacity for each soakhole, allowing for a factor of 1.3, is 26.9 L/s in accordance with the Auckland Council constant-head test worksheet.
- The permanent 'production' soakage boreholes should be drilled at a 10° incline to vertical to increase the likelihood of the boreholes intersecting vertical rock fractures.

[2] Auckland Council, 2013, *Stormwater Disposal via Soakage in the Auckland Region*. Technical Report 2013/040, dated October 2013.
[3] T+T, 2016, Geotechnical consultancy services: Valley Road Apartments – Mt Eden. Ref 30717.001v2, dated May 2016.

- Flow rate testing should be undertaken on the production soakage boreholes at the time of installation, to prove their capacity exceeds the minimum flow rate required by design. If the design capacity cannot be demonstrated, replacement or supplementary soakholes may be required.

5 Applicability

This report has been prepared for the exclusive use of our client Panuku Development Auckland, and Auckland Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

.....

Joshua Teal

Geotechnical Engineer

Authorised for Tonkin & Taylor Ltd by:

.....

Robert Hillier

Project Director

JXMT
p:\30717\issueddocuments\soakage\30717 soakage investigation letter.docx

Appendix F

Water and Wastewater Calculations

JOB NAME:	Dominion & Valley Road Apartments	**DATE:**	30/08/2024
JOB NO:	67467#C	**DES BY:**	MM
SUBJECT:	**Wastewater Flows**	**CHKD BY:**	JL

Residential Wastewater Flows

Catchment ID	No. of Dwellings	Bedrooms	Occupancy	Design Wastewater Flow Allowance	Daily Discharge	Peak Dry Weather Flow (PDWF)		Peak Wet Weather Flow (PWWF)	
						Peaking Factor	**PDWF**	Peaking Factor	**PWWF**
				L/p/day	L/day		L/s		L/s
1 Bed Apartments	43	1	2.0	180	15480	3.0	0.54	5.0	0.90
2 Bed Apartments	81	2-4	3.0	180	43740	3.0	1.52	5.0	2.53
3 Bed Apartments	11	2-4	3.0	180	5940	3.0	0.21	5.0	0.34
Totals	**135**				**65160**		**2.26**		**3.77**

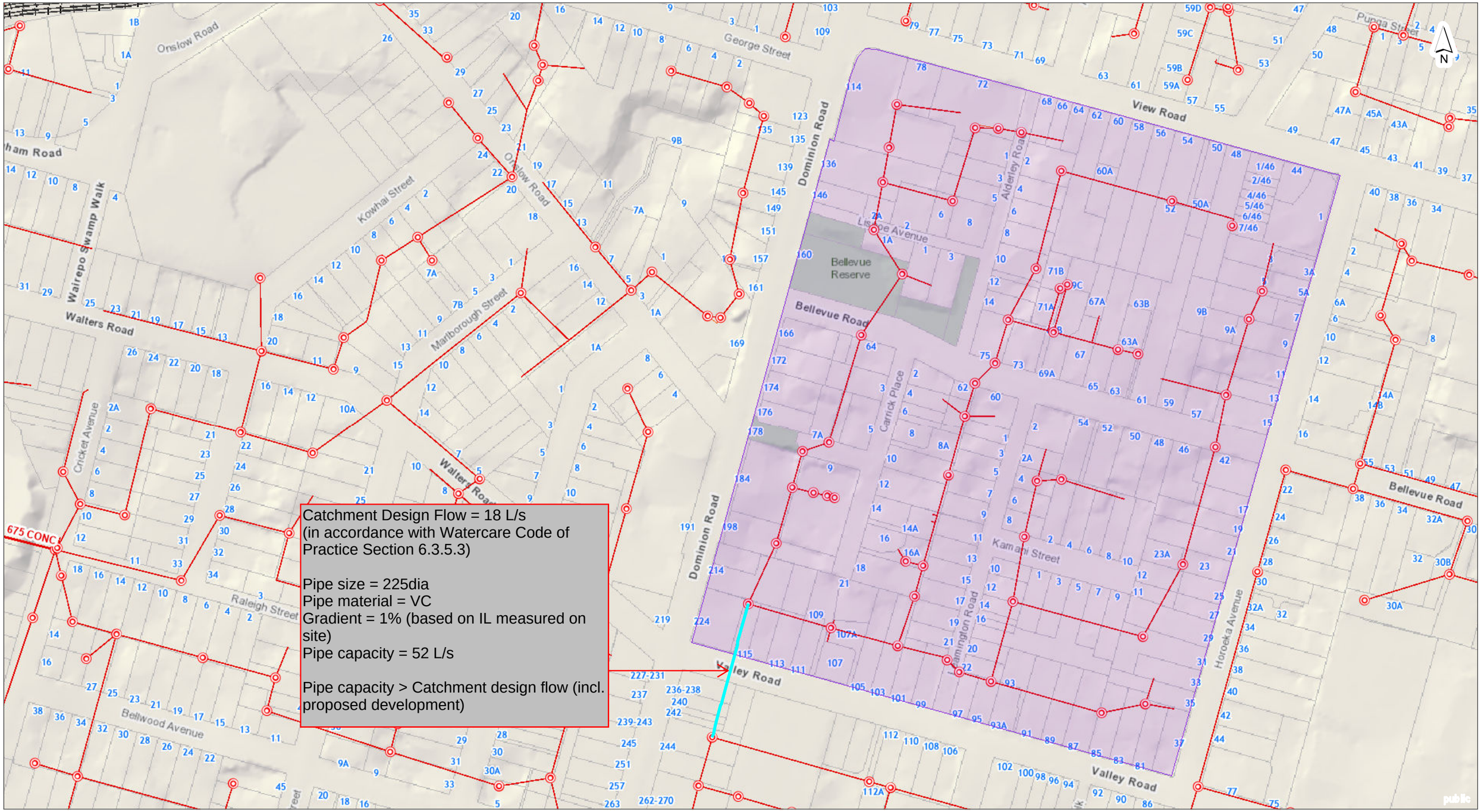
Residential wastewater design flows have been calculated according to Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 5, Section 5.3.5.1.1

Commercial Wastewater Flows

Catchment ID	Area	Occupancy	Design Wastewater Flow Allowance	Design Wastewater Flow Allowance	Daily Discharge	Peak Dry Weather Flow (PDWF)		Peak Wet Weather Flow (PWWF)	
						Peaking Factor	**PDWF**	Peaking Factor	**PWWF**
	m^2	1 person/m^2	L/day/m^2	L/p/day	L/day		L/s		L/s
Wet retail (café)	200	50	N/A	65	260	2.0	0.01	5.0	0.02
Dry retail	115	N/A	15	N/A	1725	2.0	0.04	6.7	0.13
Totals	**315**				**1985**		**0.05**		**0.15**

Commercial wastewater design flows have been calculated according to Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 5, Section 5.3.5.1.1

	Daily Discharge	**PDWF**	**PWWF**
	L/day	L/s	L/s
Totals	**67145**	**2.31**	**3.92**



Dominion and Valley - WW Assessment

0 25 50 75
Meters

Scale @ A3
= 1:2,500

Date Printed:
3/09/2024

Auckland Council
Te Kaunihera o Tāmaki Makaurau

JOB NAME:	Dominion & Valley Road Apartment	**DATE:**	3/09/2024
JOB NO:	67467#C	**DES BY:**	WD
SUBJECT:	**Potable Water Supply Demand**	**CHKD BY:**	MJM

Residential Water Demand

Catchment ID	No. of Dwellings	Bedrooms	Occupancy	Design Water Flow Allowance	Average Daily Demand	Peak Daily Demand (PDD)		Peak Hourly Demand (PHD)	
						Peaking Factor	**PDD**	Peaking Factor	**PHD**
	m2			L/p/day	L/day		**L/day**		**L/s**
1 Bed Apartments	43	1	2.0	200	17200	2.0	**34400**	2.5	**1.00**
2 Bed Apartments	81	2-4	3.0	200	48600	2.0	**97200**	2.5	**2.81**
3 Bed Apartments	11	2-4	3.0	200	6600	2.0	**13200**	2.5	**0.38**
Total	**135**				**72400**		**144800**		**4.19**

from Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 6, Table 6.1.a

Commercial Water Demand

Catchment ID	Area	No. of People	Design Water Flow Allowance	Design Water Flow Allowance	Average Daily Demand	Peak Daily Demand (PDD)		Peak Hourly Demand (PHD)	
						Peaking Factor	**PDD**	Peaking Factor	**PHD**
	m2		L/m2/day	L/p/day	L/day		**L/day**		**L/s**
Wet retail (café)	200	N/A	15	N/A	3000	2.0	**6000**	2.5	**0.17**
Dry retail	115	2.3	N/A	65	150	2.0	**299**	2.5	**0.01**
Total	**315**				**3150**		**6299**		**0.18**

from Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 6, Table 6.1.c

	Average Daily Demand	**PDD**	**PHD**
	L/day	L/day	L/s
Totals	**75550**	**151099**	**4.37**