



CLC
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Flood Risk Assessment

Prepared for Ngāti Whātua Ōrākei Whai Rawa Ltd and
Generus Living Group Ltd

The Point, 217 Kupe Street,
Mission Bay

Job No. 22064
17th November 2025

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On behalf of		CLC Consulting Group Ltd	

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1. Introduction

1.1 Purpose of Report

CLC Consulting Group Limited (CLC) has been engaged by Generus Living Group to prepare a Flood Hazard Risk Assessment for the proposed retirement village development referred to as 'The Point Mission Bay' (TPMB).

This purpose of this report is to assess the proposed development against the 1% AEP stormwater flood event in support of a resource consent application sought under the Fast Track Consenting Act 2024.

The Authors of this report are qualified Civil Engineers with wide ranging experience in flood modelling and land development projects.

"We confirm that, in our capacity as authors of this report, we have read and abide by the Environment Court Practice Note 2023 (Code of Conduct for Expert Witnesses)".

2. Background

2.1 Site details

The site has an overall site area of approximately 2.43Ha.

The site is generally bounded by Kupe Street to the west, Takaparawhau / Michael Joseph Savage Memorial Park to the north and east, and residential properties to the south.

Access to the site is afforded from Kupe Street, Te Arawa Street, Rukutai Street and Aotea Street.

The western portion of the site is developed with an existing 2-3 storey aged care facility, which includes administration, reception areas, kitchen and dining facilities and other communal areas. The eastern portion of the site is developed with two existing multi-storey retirement living apartment complexes (to be demolished).

A site location plan is shown in **Figure 1** below, with further details provided in **Table 1**.



Figure 1: Site Location Plan (GeoMaps, October 2024)

Address	Legal Description	Title	Area (m2)
217 Kupe Street	SEC 3 SO 63269, Lot 1 DP 92924, Lot 2 DP 92924, Lot 3 DP 92925	NA99C/194, NA99C/193, NA99C/195, 557119	22,469
95 Aotea Street	Lot 366A DP 47488	NA43A/1137	660
106 Rukutai Street	Lot 264 DP 37687	NA22C/1052	913
Rukutai Street Recreation Reserve	Lot 6 DP 92924	1211845	120
Aotea Street Recreation Reserve	Lot 7 DP 92925	1212543	179
			Total: 24,341

Table 1: Site details

2.1 Site Survey

A topographical survey of the site was completed by Woods Surveyors in January 2020 and more recently portions of the site have been surveyed by Yeomans Survey Solutions Ltd in 2025. The topographical survey shows the existing buildings (at that time) and a moderate slope from the northwest falling towards the southeast.

A review of aerial images on Auckland Council's Geographical Information System (GeoMaps) shows that demolition of buildings and earthworks have subsequently been carried out within the proposed development area.

An extract from the topographical survey shown in Figure 2 below, and a copy of the site topographical survey plans are enclosed in Appendix A of this report.

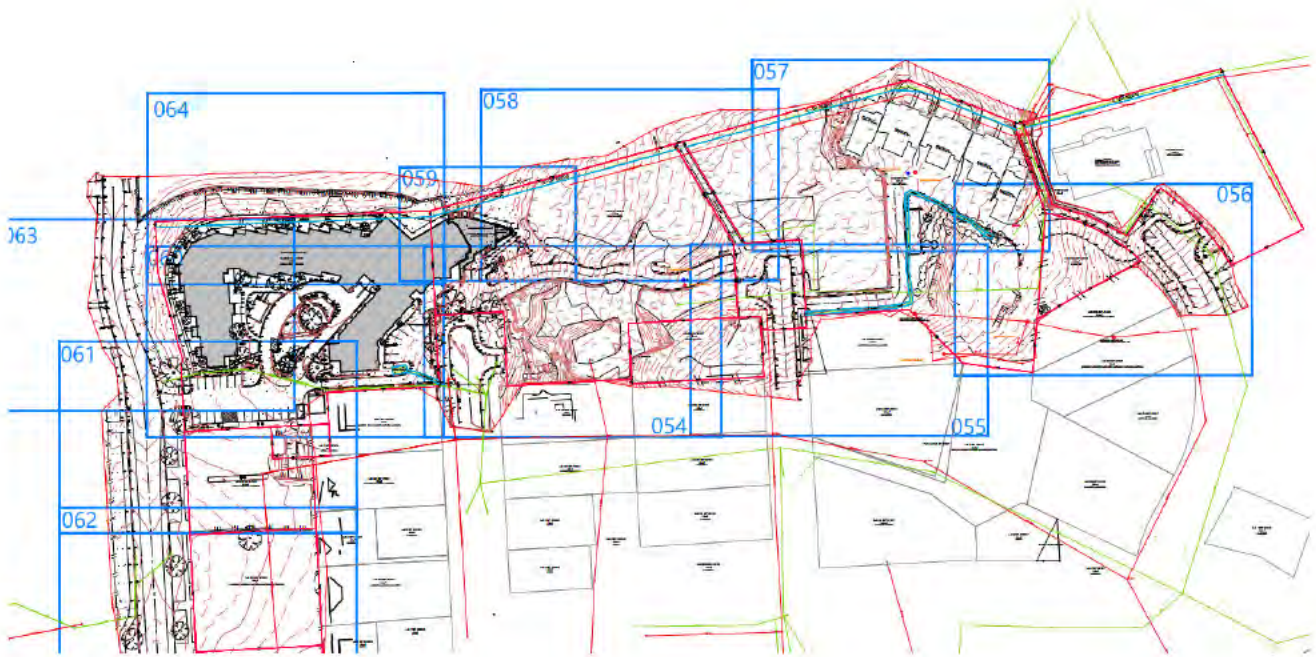


Figure 2: Extract of Topographical Survey (Woods Surveyors, 2020)

2.2 Proposed Development

The proposed development consists of circa 260 new retirement living units across five new apartment blocks (ranging 5-8 storeys high) with associated amenities

The development includes the formation of new internal accessways, carparks and footpaths to service the development. Overland flow is proposed to be diverted through the Site around the new buildings and / or conveyed along (and within) the new internal accessways through the Site.

An extract of the proposed site masterplan prepared by Warren & Mahoney Architects is shown in Figure 3 below and a copy of the Architectural Drawings is enclosed in **Appendix B** of this report.

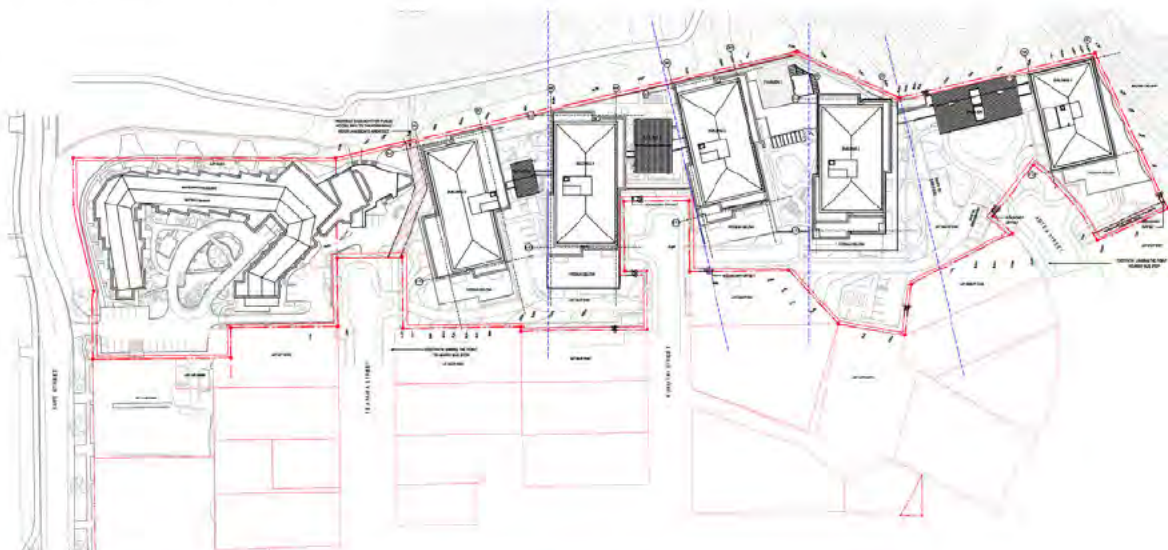


Figure 3: Extract of Podium Level General Arrangement Plan (Warren & Mahoney Architects, 2025)

3. Existing Flood Hazard Mapping

The Annual Exceedance Probability (AEP) is the probability of exceeding a given threshold within a period of one year. It can be applied to any type of risk. For example, in relation to flooding, a one per cent AEP flood plain is the area that would be inundated in a storm event of a scale that has a one per cent or greater probability of occurring in one year.

Auckland Councils Geographical Information System (GeoMaps) holds publicly available information showing the modelled overland flowpaths, flood plains and flood prone areas for the Auckland Region. These maps are indicative only, but in general, provide a suitable guideline in determining the types of flooding individual sites are subject to. An extract from Councils GIS for the site is shown below.

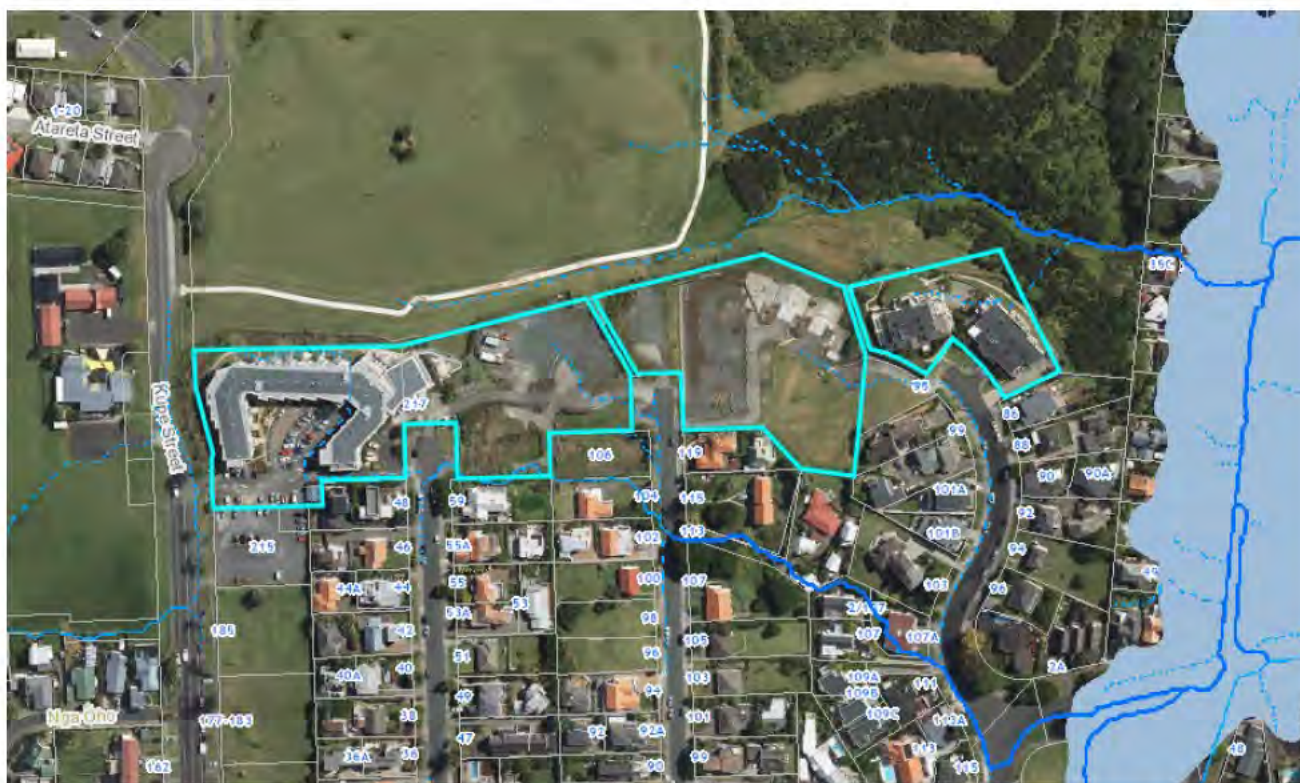


Figure 4: Extract of council GIS flooding information (GeoMaps)

As noted in the extract shown in **Figure 3**, the site is shown to be subject to several overland flowpaths – a low point in the terrain (excluding permanent streams) where surface water will flow during rainfall events. In general, overland flowpaths are not well defined and typically surface water runoff will be in the form of sheet flow – flows that are typically spread over a wide area and are shallow in nature.

4. Auckland Unitary Plan

4.1 Unitary Plan (Operative)

The operative Unitary Plan provisions do not identify the Site as being subject to floodplains / flood hazards. With reference to overland flow paths identified as traversing the Site, the scope of the Project does not affect their entry / exit points, and their downstream flow regime remains unaffected.

Correspondingly, with reference to the operative Unitary Plan provisions concerning natural hazards and flooding (Chapter E36 of the Unitary Plan), there are no resource consent thresholds triggered that require assessment.

4.2 Unitary Plan Change 120 (PC120)

Auckland Council has introduced changes to the way flood hazards are managed across the region. Through Plan Change 120 (PC120) the Natural Hazards and Flooding (Section E36) chapter of the Auckland Unitary Plan is proposed to be amended. The revised provisions, which have immediate legal effect upon notification and are therefore now move away from a purely "hazard presence" approach and adopt a risk-based framework that recognises the different levels of exposure, vulnerability and consequence of flood hazards.

Under the now proposed section E36 (PC120 version), flood risk is determined by combining the characteristics of the hazard with the sensitivity of the activity.

Flood hazard areas are now proposed to be defined as including all floodplains, flood prone areas and overland flow paths, and the proposed provisions now distinguishes four flood hazard classifications for all flood hazards, being Very High Risk, High Risk, Medium Risk and Low Risk. Details of how these classifications are given are identified in Chapter J of the Unitary Plan. For flood plains and overland flowpaths, these are as follows:

Very High Flood Hazard

For floodplains and overland flow paths, where floodwaters have a depth equal or greater than 1200mm or depth x velocity product greater than or equal to 0.8m²/s in a 1% AEP event.

High Flood Hazard

For floodplains and overland flow paths, where floodwaters have a depth between 500mm and 1200mm or depth x velocity product between 0.4m²/s and 0.8m²/s in a 1% AEP event.

Medium Flood Hazard

For floodplains and overland flow paths, where floodwaters have a depth between 500mm and 300mm or depth x velocity product between 0.4m²/s and 0.24m²/s in a 1% AEP event

Low Flood Hazard

For floodplains and overland flow paths, where floodwaters have depth equal to or less than 300mm or depth x velocity product less than or equal to 0.24m²/s in a 1% AEP event.

Proposed activities within flood hazards are grouped according to how sensitive they are to flooding:

- Activities sensitive to natural hazards (such as residential dwellings (including retirement villages), maraes, hospitals and care facilities),
- Activities potentially sensitive to natural hazards (for example retail, offices, schools and community facilities), and
- Activities less sensitive to natural hazards (such as open space, carparks, public amenities and most rural activities).

By cross-referencing activity sensitivity with the hazard classification, the proposed provisions identify three corresponding risk outcomes: significant, potentially tolerable, and acceptable. Development that presents

significant risk is generally to be avoided, while activities that fall into the potentially tolerable range must demonstrate that risk can be reduced to or maintained, at an acceptable level through design and mitigation measures.

4.3 Hazard Assessment of the Proposed Development

The proposed development relates to a residential retirement village, which is classified as an activity that is sensitive to natural hazards. Based on the flood modelling completed for the site (that is detailed in the following sections), the site is considered to be in a Low Flood Hazard where surface water (associated with overland flow) does not exceed 300mm in depth, and peak flows and velocities are generally low.

4.4 Overland Flowpaths

Consistent with the operative provisions, Plan Change 120 requires development to maintain the function of overland flow paths to convey stormwater runoff safely from a site to the receiving environment by ensuring that any modifications do not result in a reduction in the capacity of the overland flow path, and do not cause nuisance or damage to property or the environment. Furthermore fences, earth bunds and walls located within an overland flow path must not obstruct the overland flow path or exacerbate the depth, velocity or extent of flow of surface water beyond the subject site.

5. Site Specific Flood Modelling

5.1 Pre-Development Flood Model

An assessment of the existing flood regime was undertaken through two-dimensional hydraulic modelling of the existing catchment. The hydraulic model was generated using a combination of HEC-HMS and hydraulic modelling software TuFlow, with the interface being 12D (a civil engineering 3d modelling package).

The HEC-HMS software package, developed by the US Army Corps of Engineers, is designed to simulate the hydrologic processes of watershed within specified catchments. TuFlow is an advanced numerical engine used for simulating free-surface water flow for urban waterways, rivers, flood plains, estuaries and coastlines.

The TuFlow package of 12D requires a three-dimensional surface to be used to create a grid, on which surface water will flow. Further inputs include providing manning's values for the various surface types i.e. grassed and paved areas, setting the cell size on which the model is to be run, indicating any gully or ridge lines that are to be included in the model, and setting the various boundary conditions specific to the model.

A three-dimensional surface of the existing catchment was generated using a combination of site topographical survey and LiDAR data that was obtained from Land Information New Zealand (LINZ) – which is generally the same information that is used for generating the surface contours within GeoMaps.

Further inputs for the model included:

Run Time	Cell Size	Manning's Values	Downstream Boundary Conditions
24 Hours	2 m grid	Paved = 0.013 Grassed = 0.03 Permeable Paving = 0.02	Slope = 0.02 m/m

Table 2: TuFlow Input Values

The HEC-HMS software package was used to model the catchments of each overland flowpath. Each catchment was modelled to determine the run-off characteristics for the 100 Year Rainfall Event. The 100 Year 24 hour rainfall depths were determined from Figure A.6 of Technical Publication 108 – Guidelines for Stormwater Run-off Modelling in the Auckland Region (TP108). In accordance with Table 4.1 of Auckland Councils Stormwater Code of Practice, an allowance for an increase in the 24 hour design rainfall depth has been allowed for in each modelled rainfall event to allow for future climate change. These allowances are shown in the Table below:

Rainfall Event	Current 24 Hour Rainfall Depth (mm)	Climate Change Increase (%)	Future 24 Hour Rainfall Depth (mm)
100 Year	210mm	32.7%	278.7mm

Table 3: Climate Change Allowances & Rainfall Depths

A catchment assessment was undertaken to confirm the contributing catchments for the four flowpaths located within the site and also the flowpath within Takaparawhau (Michael Joseph Savage Memorial Park) located to the north east of the site.

A map identifying the locations of these flow paths through the site and the flow paths outside the boundaries of the Site is shown in Figure 4 below.

Flowpath 4 was separated into two separate catchments, to accommodate the modelling of the flowpath through the site (upstream catchment) and then again downstream of Te Arawa Street (downstream catchment). A copy of the catchment plans are included in Appendix C of this report.



Figure 5: Flowpath Locations

The time of concentration for each contributing catchment was estimated in accordance with Technical Publication 108 – Guidelines for Stormwater Run-off Modelling in the Auckland Region (TP108).

The pre-development catchment was assumed to have a maximum probable development of 70% impermeable area and 30% permeable for areas identified as Terraced Housing and Apartment Buildings (THAB), and 100% permeable for areas identified as Open Space in accordance with the Unitary Plan Zoning Rules.

Details of the catchment for each flowpath are identified in the Table below.

Flowpath ID	Catchment Area	Impermeable Lag Time (2/3 tc)	Permeable Lag Time (2/3 tc)	Peak Flow
SA01	3,110 m ²	6.7 mins	6.7 mins	0.137 m ³ /s
SA02	7,155 m ²	6.7 mins	6.7 mins	0.316 m ³ /s
SA03	9,219 m ²	6.7 mins	6.7 mins	0.408 m ³ /s
SA04a	8,544 m ²	6.7 mins	6.7 mins	0.378 m ³ /s
SA04b	4,647 m ²	6.7 mins	6.7 mins	0.205 m ³ /s
SA06	37,806 m ²	6.7 mins	6.7 mins	1.469 m ³ /s

Table 4: Catchment Characteristics

Graphical representation of the hydrographs for each overland catchment are shown in the Figures below.

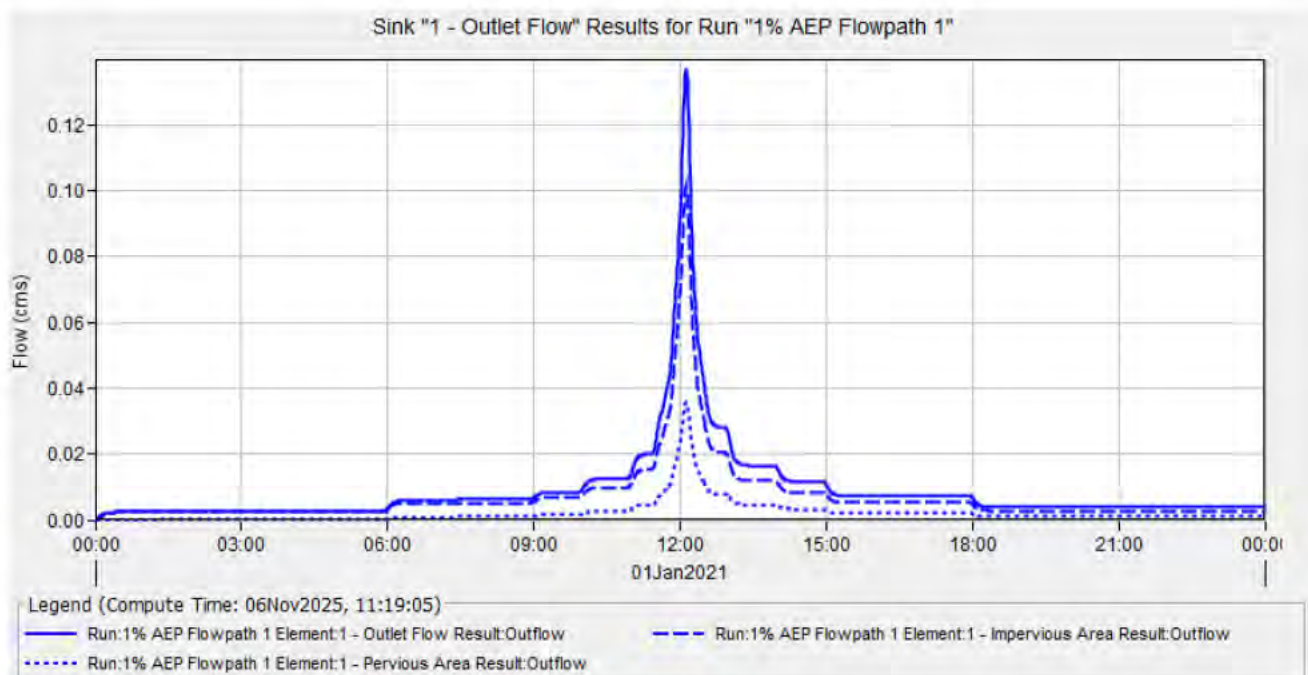


Figure 6: Flowpath SA01 – Pre-Development 100 Year Catchment Hydrograph

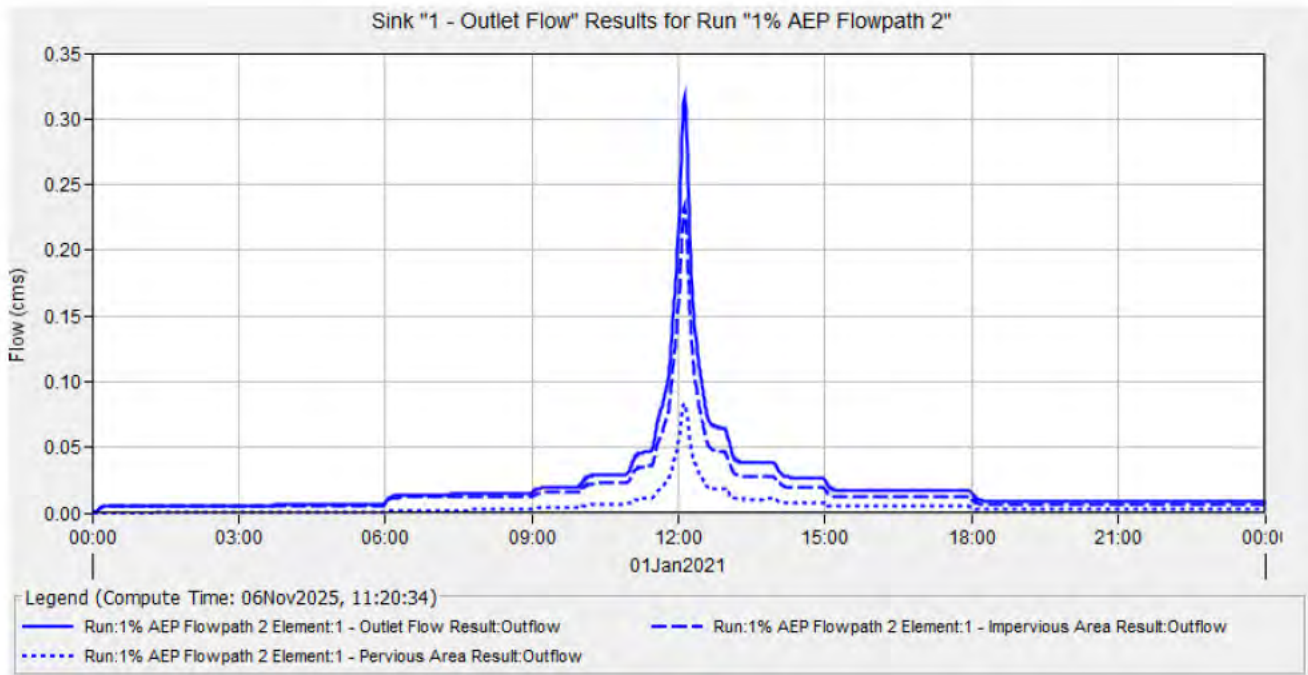


Figure 7: Flowpath SA02 - Pre-Development 100 Year Catchment Hydrograph

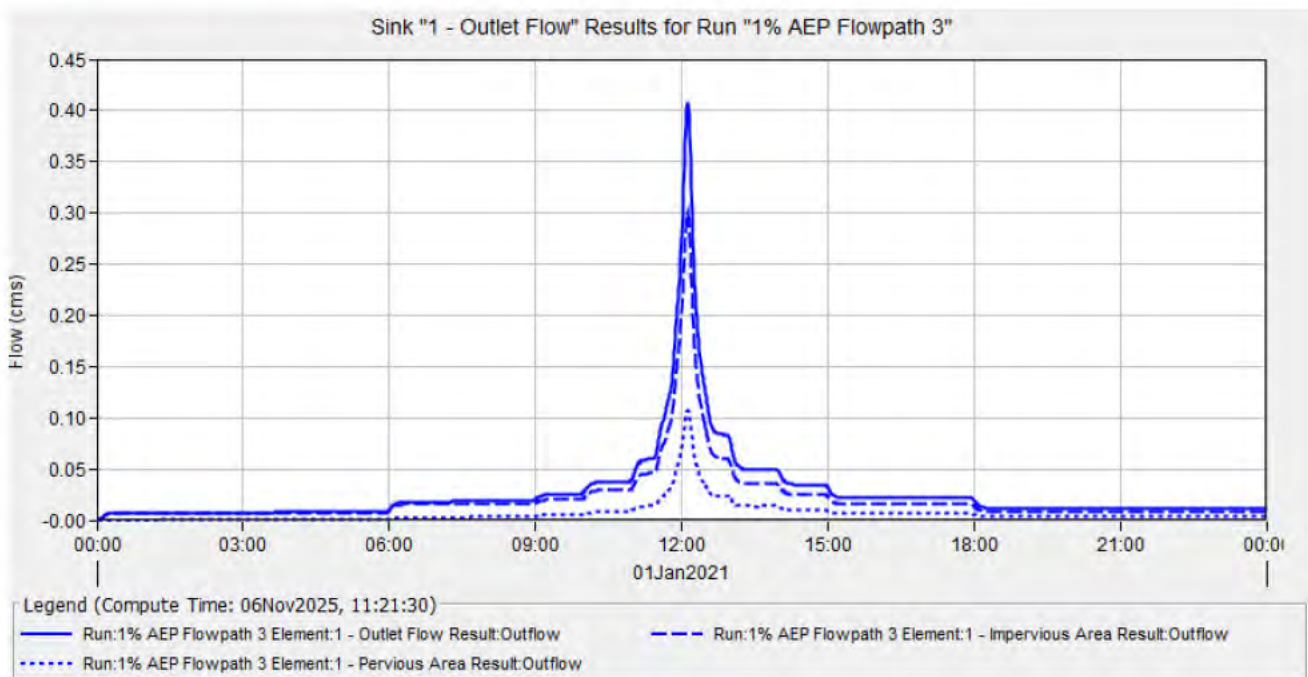


Figure 8: Flowpath SA03 - Pre-Development 100 Year Catchment Hydrograph

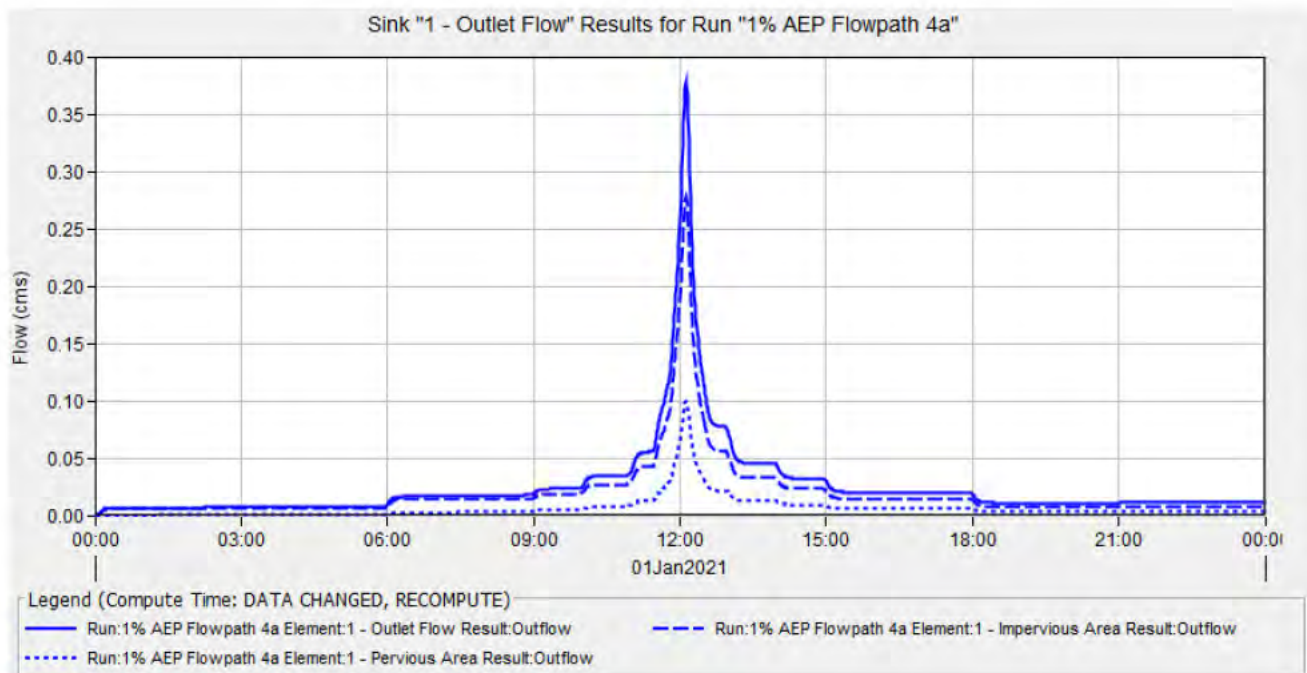


Figure 9: Flowpath SA04a - Pre-Development 100 Year Catchment Hydrograph

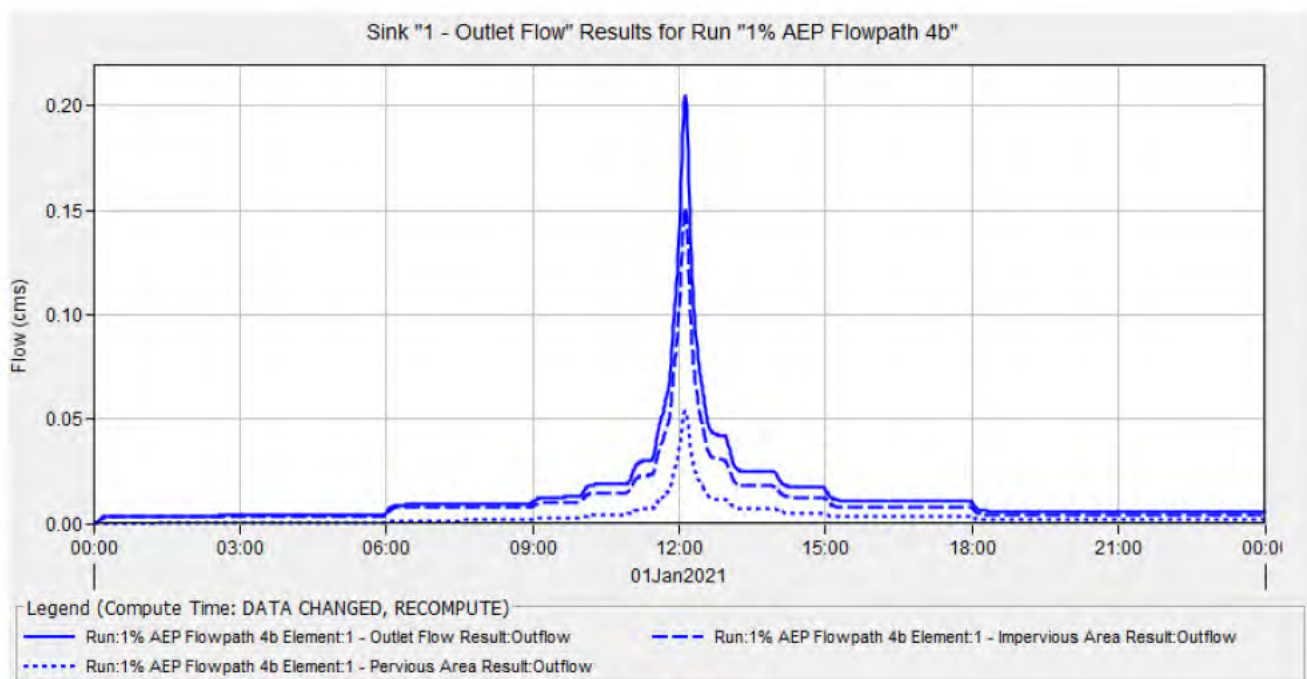


Figure 10: Flowpath SA04b - Pre-Development 100 Year Catchment Hydrograph

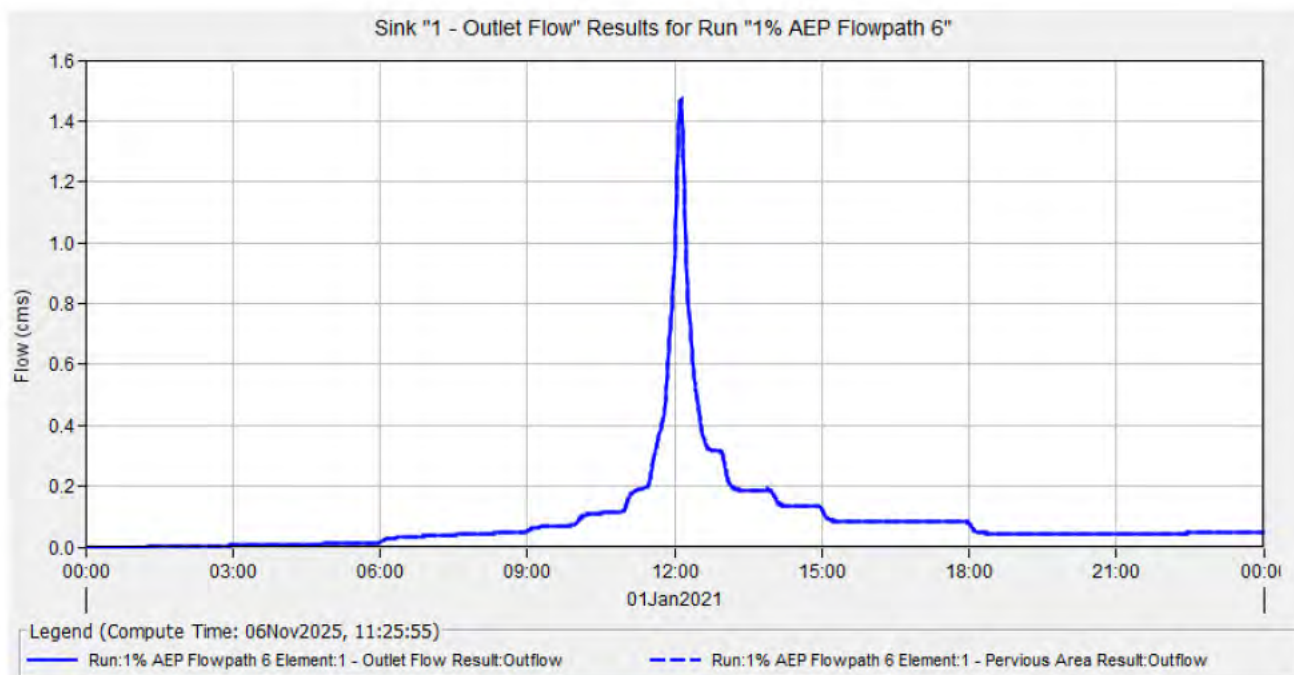


Figure 11: Flowpath SA06 - Pre-Development 100 Year Catchment Hydrograph

These hydrographs were then entered into the TuFlow model as Source Areas (SA) – digitised areas where flows enter the 2d domain (ground surface).

The model was run for a simulation time of 24.0 hours for the 1% AEP rainfall event, which is the time as specified in the unit hydrograph identified in TP108, and is more than sufficient to allow the storm hydrograph to pass throughout the model. Various output points were put at critical locations within the model, with the output results indicating the maximum water levels, flood depths, velocities and flows at these points.



Figure 12: Pre-Development 1% AEP Flood Extents Plan

5.2 Post-Development Flood Model

As the site is located at the upper extent of the local catchment system, where several overland flow paths originate, given the scale and extent of the proposed development, the existing on-site catchments have been modified from their pre-development condition. As a result, a post development catchment analysis was undertaken in HECHMS based on the modified catchment areas and permeable and impervious areas associated with the development, which has a conservatively estimated impervious area of approximately 80%. A comparison of each flowpath based on the pre development and post development catchments is shown in in Tables 5 and 6 below, with a copy of the catchment plans for the pre and post development scenarios included in Appendix C of this report.

Flowpath ID	Catchment Area (m ²)		Peak Flow (m ³ /s)	
	Pre-Development	Post- Development	Pre-Development	Post- Development
SA01	3,110 m ²	1,519 m ²	0.137 m ³ /s	0.068 m ³ /s
SA02	7,155 m ²	7,795 m ²	0.316 m ³ /s	0.355 m ³ /s
SA03	9,219 m ²	10,382 m ²	0.408 m ³ /s	0.467 m ³ /s
SA04a	8,544 m ²	9,612 m ²	0.378 m ³ /s	0.422 m ³ /s
SA04b	4,647 m ²	4,633 m ²	0.205 m ³ /s	0.208 m ³ /s
SA06	37,806 m ²	37,806 m ²	1.469 m ³ /s	1.469 m ³ /s

Table 5: Comparison of Pre Development and Post Development Flowpath Catchments

Diversion of the catchments include the Flowpath SA03 surface water being directed to Flowpath SA06 to the north, while the flows from SA01, which also flow to Flowpath SA06, are reduced. The remaining catchments generally remain similar in area, but have an increased peak discharge given the increase in impervious area. The combination of the flowpaths, i.e. where they join downstream are indicated as Nodes A, B and C as indicated on the catchment plans. A summary of the changes at the nodes are indicated below.

Node ID	Adjoining Flowpaths		Catchment Area (m ²)		Peak Flow (m ³ /s)	
	Pre-Development	Post-Development	Pre-Development	Post-Development	Pre-Development	Post-Development
Node A	SA04a, SA04b, SA03	SA04a, SA04b	22,410 m ²	14,245 m ²	0.991 m ³ /s	0.630 m ³ /s
Node B	SA02	SA02	7,155 m ²	7,795 m ²	0.316 m ³ /s	0.355 m ³ /s
Node C	SA01, SA06	SA01, SA03, SA06	40,916 m ²	49,707 m ²	1.606 m ³ /s	2.004 m ³ /s

Table 6: Comparison of Pre Development and Post Development Flowpath at the physical nodes

As noted above, peak flows through Node A (flowpath located to the south of the site) are significantly reduced post development. Peak flows though Node B (flowpath in Aotea Street) generally remain the same, although there is a slight increase, while peak flows through Node C (flowpath to north) are increased.

Hydrograph results of the HECHMS analysis for each of the modified catchment are shown below, and were input into the post development model as Source Areas.

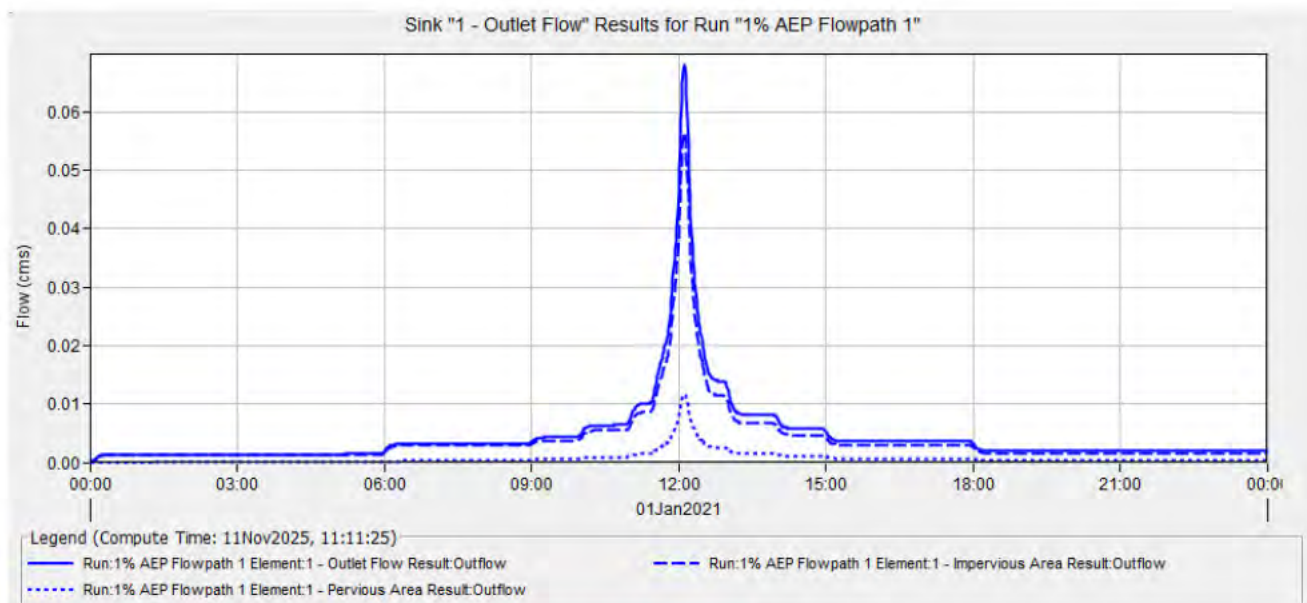


Figure 13: Flowpath SA01 - Post-Development 100 Year Catchment Hydrograph

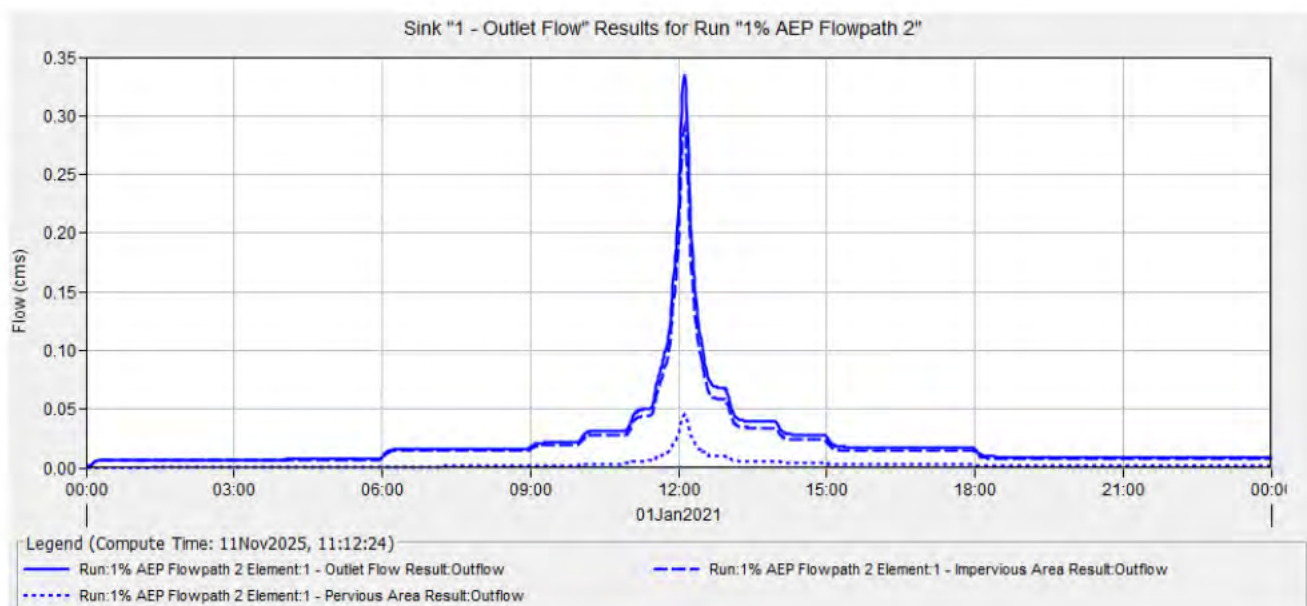


Figure 14: Flowpath SA02 - Post-Development 100 Year Catchment Hydrograph

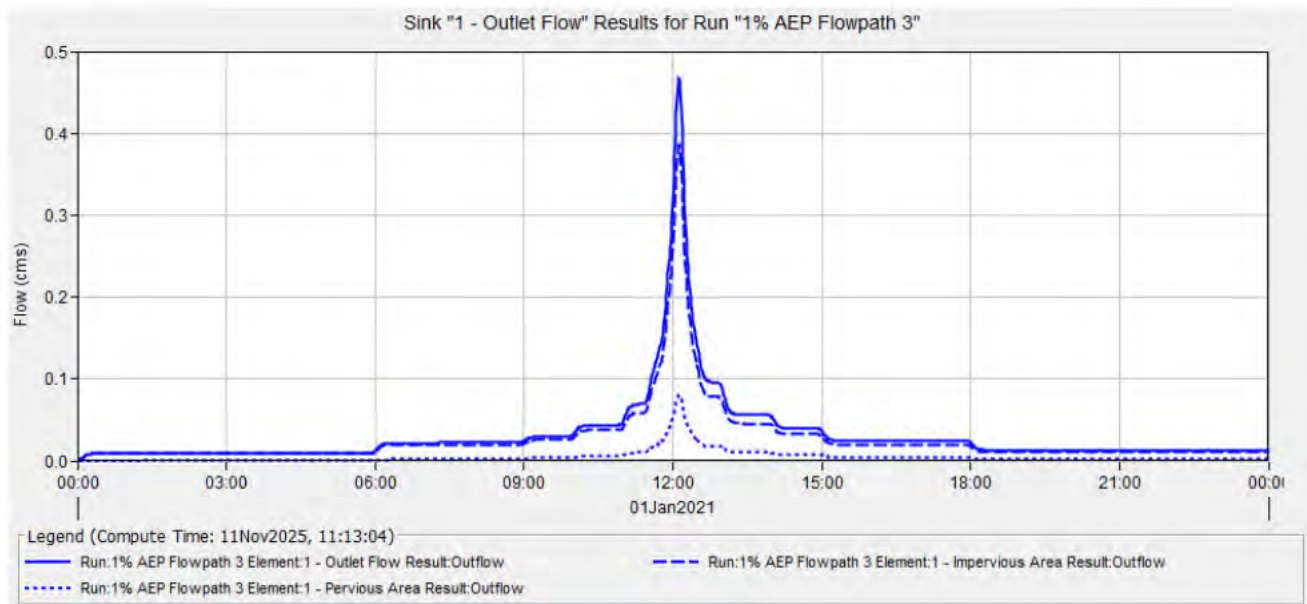


Figure 15: Flowpath SA03 - Post-Development 100 Year Catchment Hydrograph

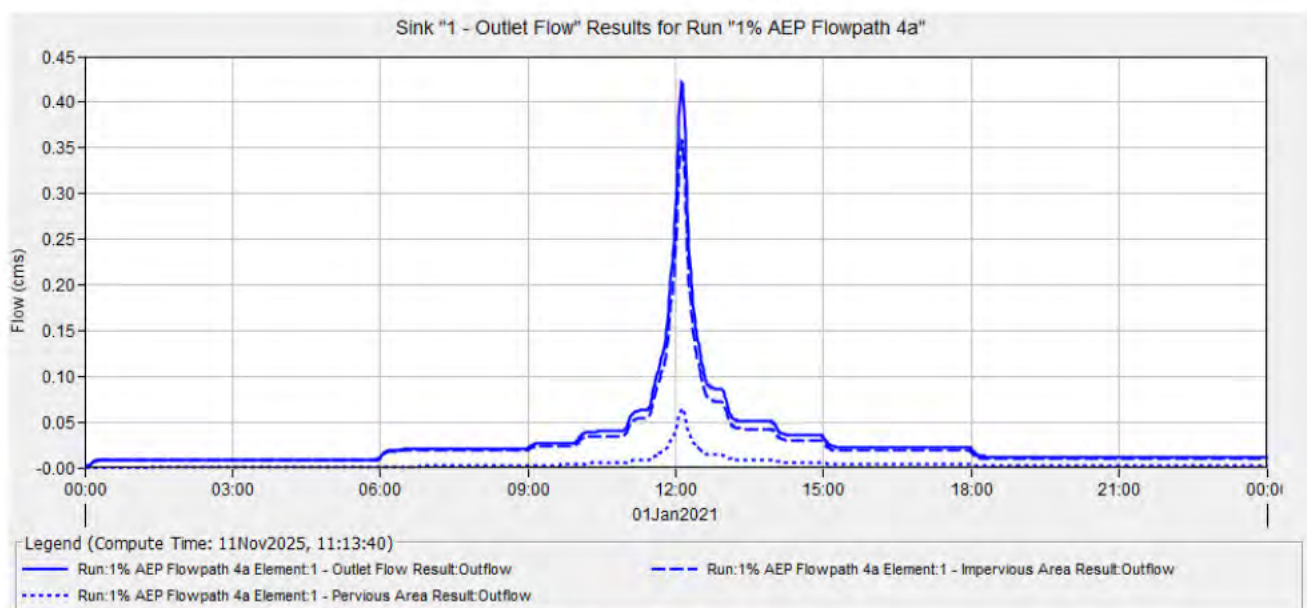


Figure 16: Flowpath SA04a - Post-Development 100 Year Catchment Hydrograph

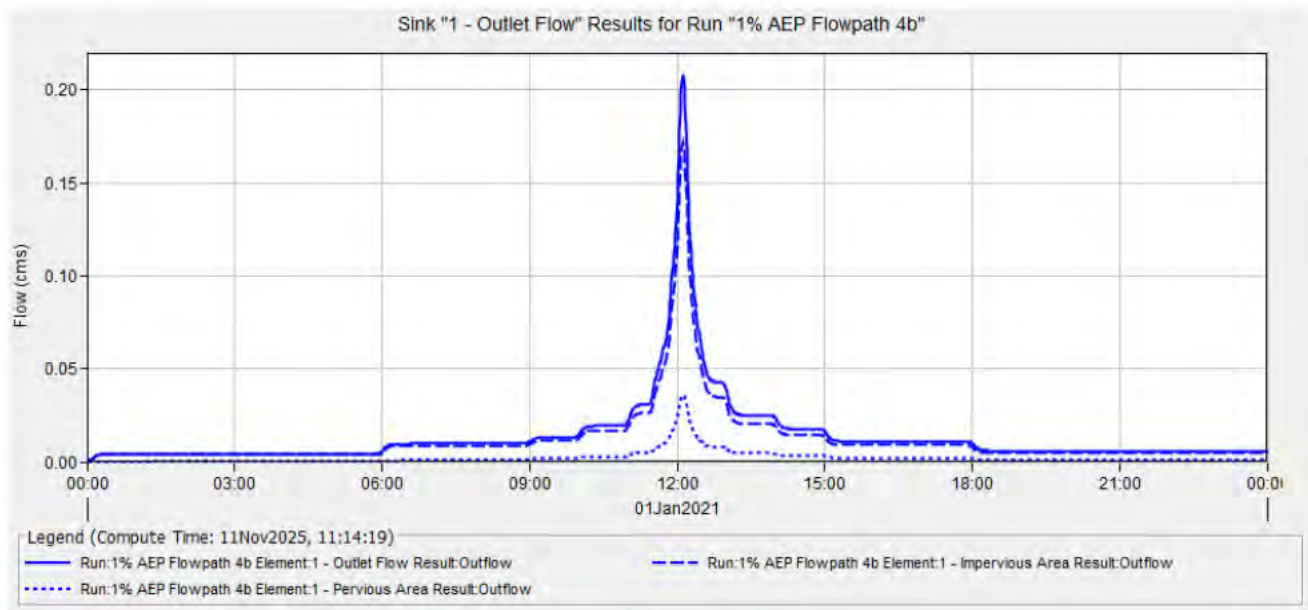


Figure 17: Flowpath SA04b - Post-Development 100 Year Catchment Hydrograph

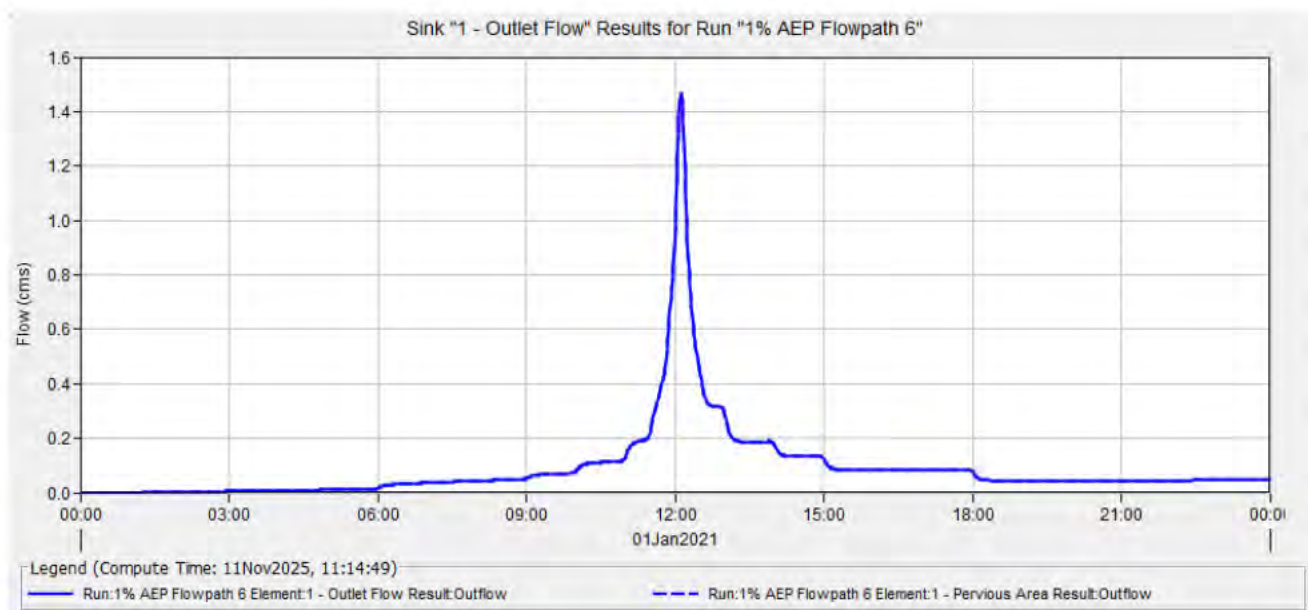


Figure 18: Flowpath SA06 - Post-Development 100 Year Catchment Hydrograph

The same modelling parameters, including boundary conditions, Manning's roughness values, and cell size etc, were applied to the post-development flood model as those used in the pre-development model. The post-development terrain incorporated the proposed site works, and the origins of the overland flow paths were adjusted to reflect the redefined catchment boundaries and surface grading changes associated with the development. The model was run for the same duration, and a summary of the results are indicated in 5.3 below.

A copy of the Post-Development 1% AEP Flood Extents Plan is enclosed in Appendix D, however an extract of this plan is shown in Figure 5 below.



Figure 19: Post-Development 1% AEP Flood Extents Plan

5.3 Summary of Results

Results of the post-development flood model were compared to the results of the pre-development flood model. As noted in the comparison of pre development vs post development results table above (Table 7), it is shown that the proposed development has a negligible effect on downstream properties.

A large portion of the catchment is diverted to the flowpath to the north of the site (Node C), increasing peak water levels by approximately 8-10mm at 35 Atkin Avenue. However, this catchment diversion reduces the peak flows through the flowpath to the south of the site (Node A), which affects approximately 8 properties, lowering the estimated water levels through these properties by approximately 20mm.

Due to the increase in runoff generated by the development, the flowpath that runs down Aotea Street (Node B), generally increases in depth by up to 10mm.

These minor fluctuations in flood depths are considered negligible as they don't increase the flood risk category to any properties, as detailed in the following chapter of this report (5.4 Flood Risk Analysis).

Node ID	Peak Water Level (m)			Peak Depth (m)			Peak Velocity (m/s)			Depth x Velocity
	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff	Post
P01a	3.737	3.742	+0.004	0.047	0.052	+0.004	0.303	0.344	+0.041	0.018
P01b	3.138	3.151	+0.014	0.125	0.139	+0.014	0.530	0.564	+0.034	0.074
P02	4.456	4.464	+0.008	0.364	0.372	+0.008	1.334	1.364	+0.030	0.507
P03	5.652	5.709	+0.057	0.361	0.418	+0.057	2.514	2.537	+0.023	0.908
P04	10.957	10.888	-0.068	0.287	0.218	-0.068	2.663	2.274	-0.389	0.496
P05	-	26.056	+0.026	-	0.027	+0.026	0.109	1.004	+0.895	0.027
P06	11.658	10.648	-1.010	0.027	0.009	-0.018	0.781	0.254	- 0.527	0.002
P07	16.684	13.421	-3.263	0.020	0.002	-0.019	0.786	0.090	- 0.696	-
P08	15.308	15.317	+0.009	0.013	0.022	+0.009	0.878	1.227	+0.349	0.027

P09	20.072	20.089	+0.016	0.013	0.019	+0.006	1.097	1.621	+0.523	0.031
P10	13.305	13.288	-0.018	0.062	0.044	-0.018	1.399	1.120	-0.279	0.049
P11	19.322	19.299	-0.022	0.063	0.041	-0.022	1.884	1.442	-0.442	0.059
P12	26.527	26.554	+0.026	0.072	0.098	+0.026	1.498	1.668	+0.170	0.163
P13a	-	34.738	+2.884	-	0.028	+0.028	0.028	1.428	+1.400	0.040
P13b	31.363	31.473	+0.110	0.078	0.053	-0.025	2.213	1.228	-0.985	0.065
P14	41.786	41.610	-0.176	0.044	0.304	-0.014	1.257	2.044	+0.787	0.621
P15	42.689	42.690	0.000	0.024	0.024	0.000	1.771	1.778	+0.008	0.043
P16	43.782	43.783	+0.001	0.084	0.085	+0.001	0.496	0.509	+0.013	0.043

Table 7: Comparison of pre vs post development results

As noted at modelled points P13a to P16, the site is considered to be in a Low Flood Hazard where surface water does not exceed 300mm in depth, and the maximum depth to velocity ratio is $0.151 \text{ m}^2/\text{s}$ (below the $0.24 \text{ m}^2/\text{s}$ threshold identified in the definitions of Plan Change 120).

5.4 Flood Risk Analysis

In the context of floodplain management, a flood hazard is considered to be the result of a flood event that has the potential to cause damage or harm to the community, relative to the probability of its occurrence. Typically, the main drivers in determining the flood hazard for a particular area or event are the flow depth and flow velocity. In addition, the assessment of the flood hazard needs to consider a range of other social, economic and environmental factors, though these are often more difficult to quantify.

As part of the 2d modelling, an analysis was undertaken to establish a "real-time" scenario of flooding experienced for the 1% AEP Rainfall Event and to provide Flood Hazard Mapping for the proposed works. There are several guidelines for determining flood risk including the NSW Floodplain Management Manual and the FRA Guidance for New Developments - FD2320/TR2, however, more recently Auckland Council has adopted the combined flood hazard curves from Australian Rainfall & Runoff – Book 6 (AR&R), which is also outlined by the Australian Emergency Management Institute in 2014. **Figure 11** below shows the combined flood hazard curves and **Figure 12**, indicates the vulnerability thresholds based on the hazard classification.

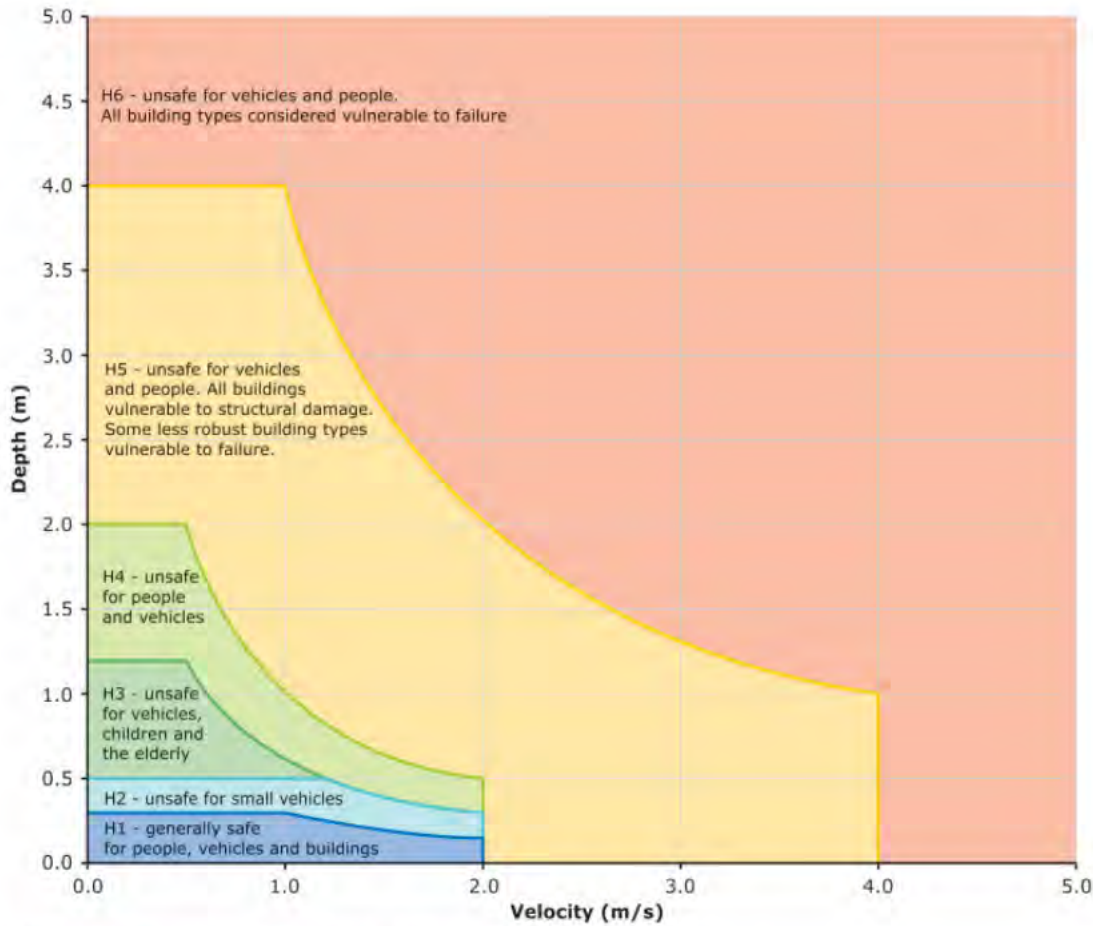


Figure 20: Flood Hazard Curves (AR&R - Book 6)

Hazard Vulnerability Classification	Description
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles, children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Figure 21: Vulnerability Thresholds (AR&R - Book 6)

The flood mapping produced for this report has been produced in accordance with the AR&R guidelines, which adopts a six-stage hazard matrix, based on the Hazard Vulnerability Classification (H1 – H6) shown in Figure 12 above. The various hazard levels were categorised based on the maximum resultant at any stage during flood inundation, with a classification limit of depth x velocity, limiting still water depth and limiting velocity, where the following parameters were adopted;

Hazard Vulnerability Classification	Classification Limit (D and V in combination)	Limiting Still Water Depth (D)	Limiting Velocity (V)
H1	$D \cdot V \leq 0.3$	0.3	2.0
H2	$D \cdot V \leq 0.6$	0.5	2.0
H3	$D \cdot V \leq 0.6$	1.2	2.0
H4	$D \cdot V \leq 1.0$	2.0	2.0
H5	$D \cdot V \leq 4.0$	4.0	4.0
H6	$D \cdot V > 4.0$	-	-

Table 8: Flood inundation risk matrix

Based on these parameters, Flood Hazard Mapping was produced to show the maximum flood hazard during the 1% AEP Rainfall Event. A copy of these plans are included in Appendix D.

The results of the flood hazard analysis indicate that during a 1% AEP Rainfall Event, the site is subject to a varying degree of flood hazard classifications. Generally the site has a classification of H1, which is safe for people, vehicles, and buildings, however given some of the steeper gradients within the site, there are pockets where the estimated peak velocities increase the classification to H4 and H5, the classification of which means that such locations are unsafe for vehicles and people, and some buildings would be vulnerable to structural damage, and some less robust buildings subject to failure. These classifications are triggered when peak velocities exceed 2.0 m/s, regardless of depth. The areas that have been classified as H4/H5 within the site, have a maximum flooding depth of less than 80mm, and are confined as being located in areas which are not accessible by people and vehicles (i.e. steep vegetated slopes). The modelling also confirms that the proposed development does not increase flood risk to neighbouring properties.

None of the proposed buildings are located in these locations/ higher classification areas.

Pre- and post-development flood hazard maps are provided in Appendix D.

For completeness, the Project has been considered with reference to the relevant Restricted Discretionary Activity assessment matters (and criteria) proposed by PC120 for activities where natural hazard risk is Potentially Tolerable in Low Hazard Areas (E36.8.1(10A) and E36.8.2(10A).

The above assessment confirms that the effects that the relevant provisions referenced above are concerned with are addressed by the inherent design, layout and location of the form of development proposed.

6. Conclusions and Recommendations

The site is shown to be in an area of flood hazard (overland flow paths), as identified on Auckland Councils GIS. Site specific modelling of these overland flowpaths was undertaken using a combination of modelling programmes HEC-HMS, 12D and TufLOW, which has identified that these overland flowpaths are not well defined or concentrated flows and typically, the surface water runoff is conveyed in the form of sheet overland flow.

The site is located at the upper extent of the local catchment system, from where several overland flow paths originate. The on-site sub-catchments are modified by the Project, and a post-development analysis was undertaken in HEC-HMS based on these revised catchment boundaries.

In summary, runoff directed to the flowpath which is located to the south of the site is reduced, ultimately decreasing the flood risk to approximately 8 residential properties that were affected by this flowpath (Node A). Runoff to the flowpath which is located to the north of the site (Node C) have slightly increased, and it is estimated the 1% AEP Flood Level will increase by a negligible height difference of up to 10mm. The flowpath that runs down Aotea Street (Node B), generally remains the same, with only a small increase in flood depth of 10mm. These remain within acceptable tolerances and do not create or exacerbate flood risk on any adjoining properties.

Based on the results of the modelling, it has been determined that the development itself is in a Low Flood Zone Hazard Area, as the depth of flooding within the overland flowpaths is less than 300mm and the resultant depth vs velocity ratio is less than the $0.24 \text{ m}^2/\text{s}$ threshold (peak within the site approximately $0.151 \text{ m}^2/\text{s}$).

As the proposed development is a residential retirement village, it is an Activity that is classified as being Sensitive to Natural Hazards. Developments that are sensitive to natural hazards within a Low Flood Zone are considered a Potentially Tolerable Activity and are therefore considered a Restricted Discretionary Activity under Rule A79 of Chapter E36 of Plan Change 120. None of the proposed buildings are located within an overland flowpath.

The assessment of the matters of discretion (and associated assessment criteria) relating to Rule A79 have been considered in respect of the Project, relative to the type, frequency and scale of the natural hazard, and the risk has been determined to be maintained to a tolerable level.

The surface parking areas are provided for under the Unitary Plan provisions as a permitted activity, noting the underground basement parking is also not subject to a Flood Hazard.

The fence proposed along the boundary of the site with 59 Te Arawa Street and 104 Rukutai Street, where the overland flowpath sheet flows across the boundary will be set 50-100mm above ground level for the purposes of maintaining the current sheet flow regime and the flow path entry and exit points.

Flood hazard mapping for the site has been prepared in accordance with the Australian Rainfall and Runoff (ARR) flood hazard classification curves. Overall, the modelling confirms that the site is safe for people, vehicles, and buildings.

In summary, based on the results of the hydrologic and hydraulic modelling undertaken for the site, it is concluded that the proposed development is suitable from a flood risk (overland flow) perspective. The development is located within an area of Low Flood Hazard, where flood depths and velocities are below the thresholds that present risk to people, property, or access. The post-development changes to catchment hydrology have been fully assessed and are shown to have no adverse downstream impact, with minor reductions in flow to the south and only marginal increases ($\leq 10 \text{ mm}$) to the north. These hydrological changes remain within acceptable tolerances and do not create or exacerbate flood risk on any other properties.

The proposed development is considered to be hydraulically suitable and acceptable from a flood risk perspective.

7. Limitations

This assessment has been prepared for our clients Ngāti Whātua Ōrākei Whai Rawa Ltd and Generus Living Group Ltd in relation to the proposed development at The Point, 217 Kupe Street, Mission Bay and specifically to support a fast-track resource consent application under the Fast-track Approvals Act 2024.

Appendix A – Topographical Survey Plan

NOTES

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS "SM 4415 SO 53199" (GD CODE CBG6), SOURCED FROM LINZ DATABASE. ~ 802876.480mN 405586.952mE
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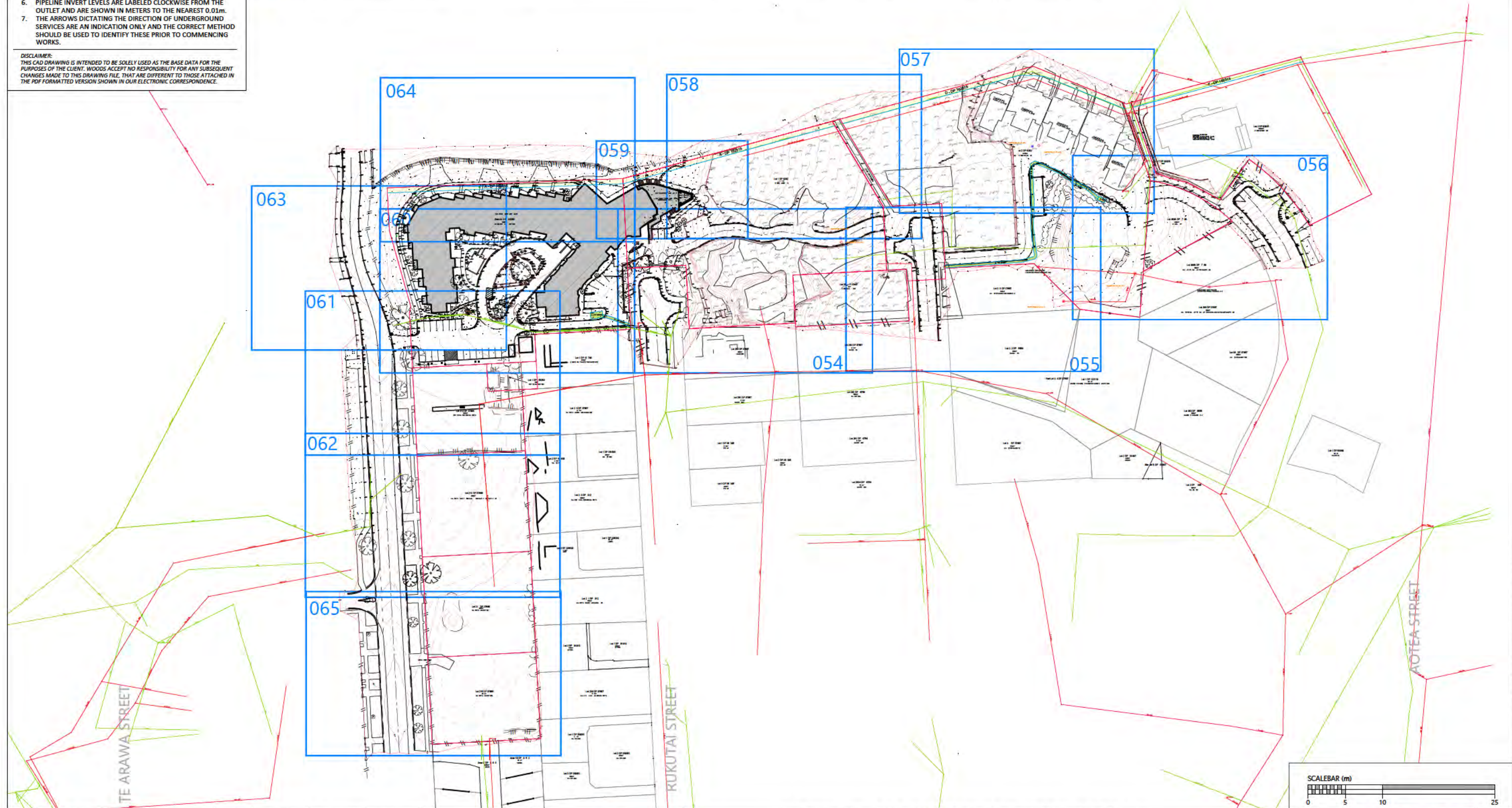
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MAJOR CONTOURS	XML BOUNDARY
POWER BOX	MINOR CONTOURS
BALCONY	UNKNOWN MANHOLE
GATE	LIGHT POST
FENCE	CESSPIT
TOP OF BANK	EDGE OF CONCRETE
TOP OF WALL	BOTTOM OF BANK
KERB/CHANNEL	BOTTOM OF WALL
SIGN	EDGE OF BUSH
WASTEWATER MH	BOLLARD
STORMWATER MH	FIRE HYDRANT

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RIGHT TO TRANSMIT AN ELECTRIC CURRENT	A & B DP 206587	SEC 3 DO 63269	VECTOR LIMITED	D597272.1	557119
GAS RIGHT	B DP 162515	LOT 1 DP 92924	UNITED NETWORKS LIMITED	D320989.1	NA99C/193
ELECTRICITY SUPPLY	A DP 344206	LOT 2 DP 92924	VECTOR LIMITED	T7170273.1	51399
CABLE ACCESS	B DP 344206	LOT 2 DP 92924	VECTOR LIMITED	T7170273.1	51399
GAS RIGHT	D DP 162515	LOT 2 DP 92924	UNITED NETWORKS LIMITED	D320989.1	NA99C/194
GAS RIGHT	F DP 162515	LOT 3 DP 92925	UNITED NETWORKS LIMITED	D320989.1	NA99C/195



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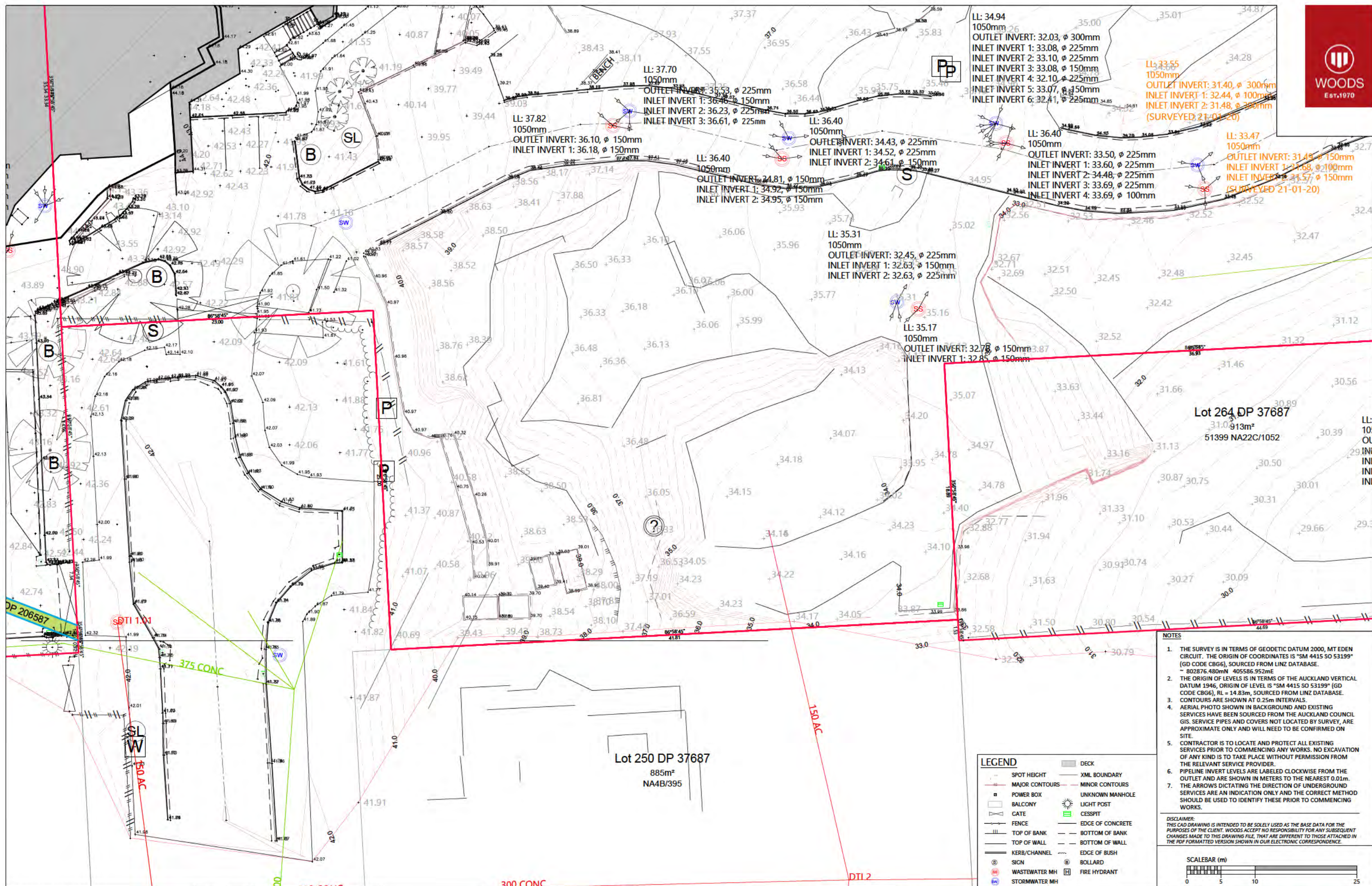


EASTCLIFFE RETIREMENT VILLAGE, ORAKEI

LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



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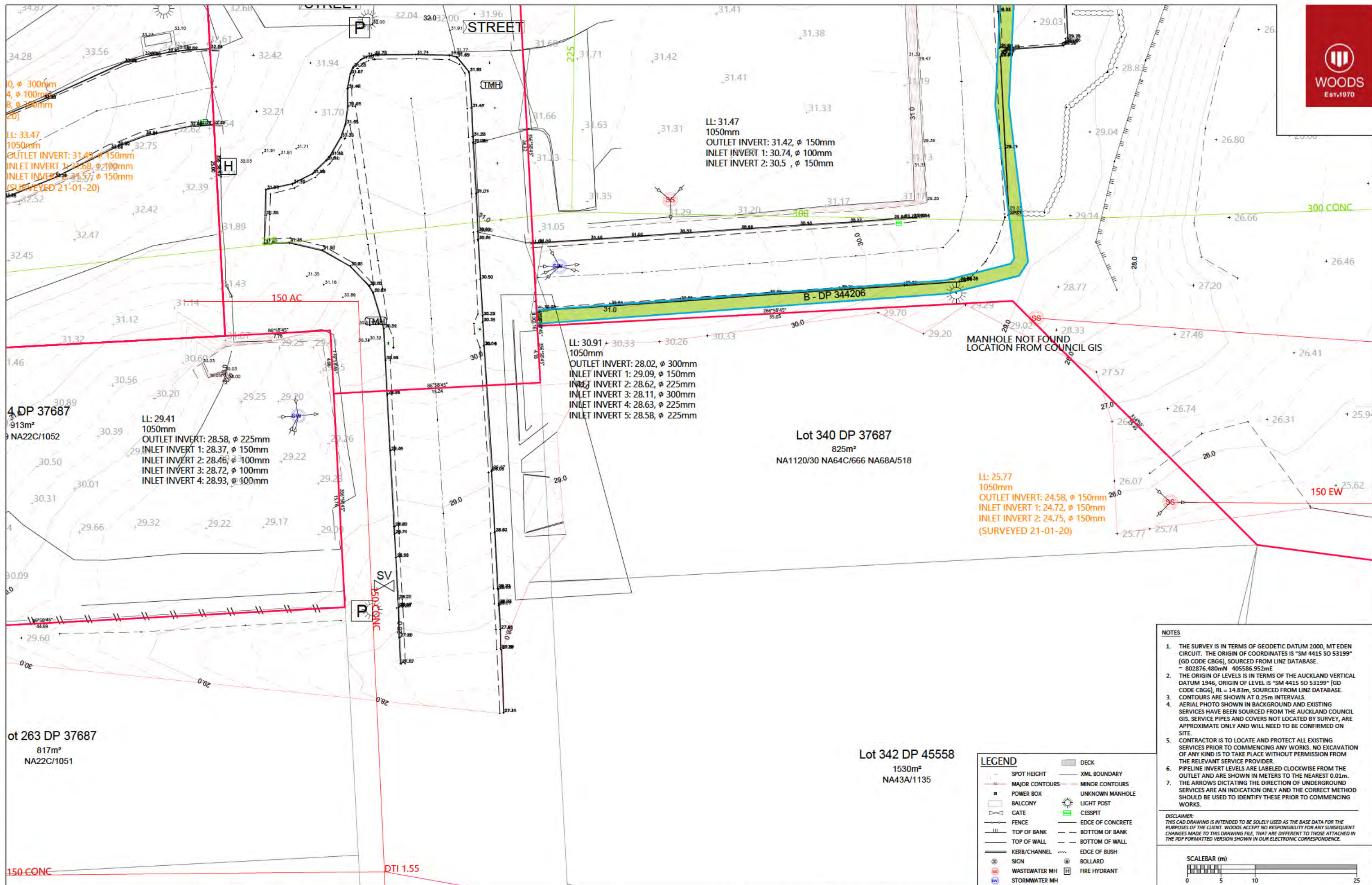


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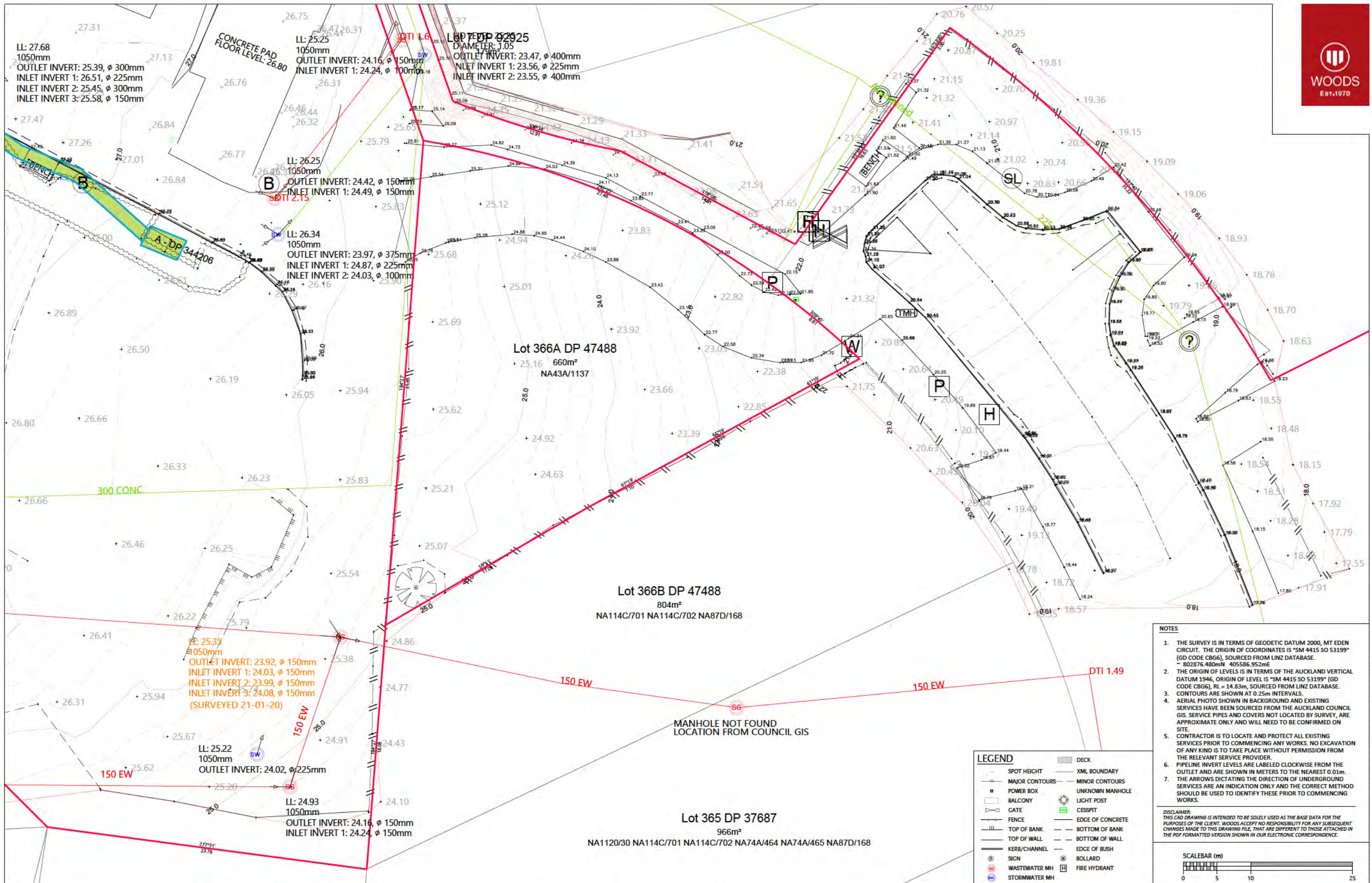


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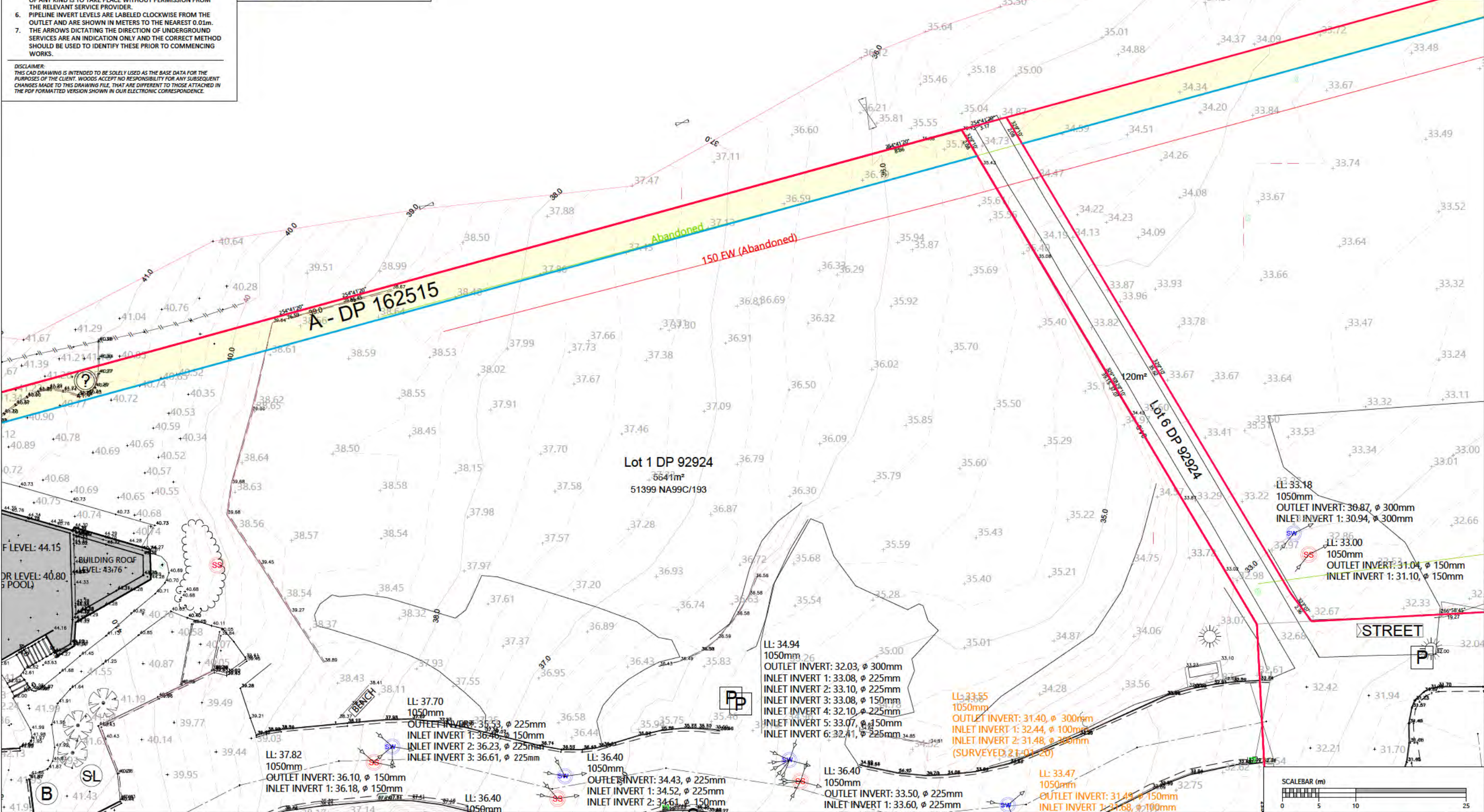
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LEGEND	
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	MINOR CONTOURS
	POWER BOX
	BALCONY
	GATE
	FENCE
	TOP OF BANK
	TOP OF WALL
	KERB/CHANNEL
	SIGN
	WASTEWATER MH
	STORMWATER MH
	DECK
	XML BOUNDARY
	UNKNOWN MANHOLE
	LIGHT POST
	CESSPIT
	EDGE OF CONCRETE
	BOTTOM OF BANK
	BOTTOM OF WALL
	EDGE OF BUSH
	BOLLARD
	FIRE HYDRANT



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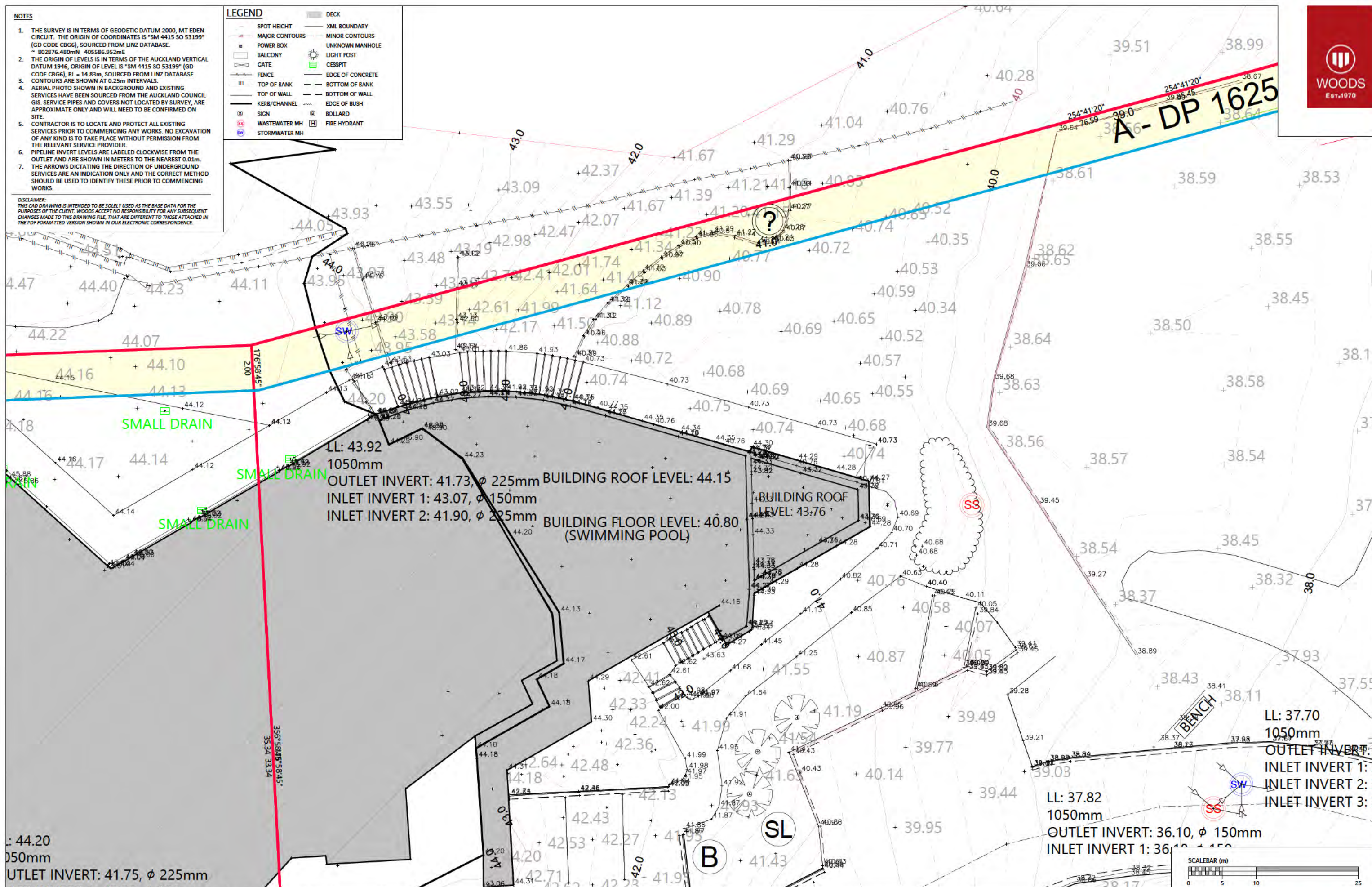
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LEGEND

- | | |
|----------------|------------------|
| SPOT HEIGHT | DECK |
| MAJOR CONTOURS | XML BOUNDARY |
| MINOR CONTOURS | UNKNOWN MANHOLE |
| POWER BOX | LIGHT POST |
| BALCONY | CESSPIT |
| GATE | EDGE OF CONCRETE |
| FENCE | TOP OF BANK |
| TOP OF BANK | BOTTOM OF BANK |
| TOP OF WALL | BOTTOM OF WALL |
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| SIGN | BOLLARD |
| WASTEWATER MH | FIRE HYDRANT |
| STORMWATER MH | |



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| TOP OF BANK | BOTTOM OF BANK |
| TOP OF WALL | BOTTOM OF WALL |
| KERB/CHANNEL | EDGE OF BUSH |
| SIGN | BOLLARD |
| WASTEWATER MH | FIRE HYDRANT |
| STORMWATER MH | |

INVERT 43.01, ϕ 150mm
VERT 1: 43.38, ϕ 100mm
VERT 2: 43.30, ϕ 100mm
VERT 3: 43.29, ϕ 100mm

INLET INVERT 3: 43.42, ϕ 100mm

BUILDING FLOOR LEVEL: 44.25

Section 3 SO 63269

5895m²

441696 557119 NA133C/590

LL: 1050mm
OUTLET INVERT: 43.11, ϕ 150mm
INLET INVERT 1: 43.37, ϕ 100mm
INLET INVERT 2: 43.26, ϕ 100mm
INLET INVERT 3: 43.11, ϕ 100mm

LL: 44.20
1050mm
OUTLET INVERT: 41.75, ϕ 225mm
INLET INVERT 1: 42.93, ϕ 100mm
INLET INVERT 2: 42.87, ϕ 100mm
INLET INVERT 3: 42.81, ϕ 100mm
INLET INVERT 4: 42.22, ϕ 150mm

LL: 44.12
1050mm
OUTLET INVERT: 42.74, ϕ 150mm
INLET INVERT 1: 42.80, ϕ 150mm

LL: 44.02
1050mm
OUTLET INVERT: 42.61, ϕ 150mm
INLET INVERT 1: 42.74, ϕ 150mm

LL: 43.88
1050mm
OUTLET INVERT: 42.48, ϕ 150mm
INLET INVERT 1: 42.61, ϕ 150mm

LL: 43.60
1050mm
OUTLET INVERT: 41.89, ϕ 150mm
INLET INVERT 1: 41.92, ϕ 150mm
INLET INVERT 2: 42.04, ϕ 150mm

LL: 44.65
1050mm
OUTLET INVERT: 43.68, ϕ 225mm
INLET INVERT 1: 43.86, ϕ 225mm
INLET INVERT 2: 43.79, ϕ 225mm
INLET INVERT 3: 43.75, ϕ 225mm

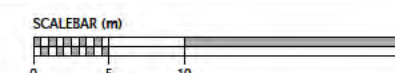
LL: 43.54
1050mm
OUTLET INVERT: 41.52, ϕ 300mm
INLET INVERT 1: 41.57, ϕ 300mm

LL: 43.42
1050mm
OUTLET INVERT: 41.14, ϕ 300mm
INLET INVERT 1: 41.19, ϕ 300mm
INLET INVERT 2: 41.26, ϕ 300mm

Lot 1 DP 104790

876m²

161063 519917 NA57D/769 NA82D/978



REVISION DETAILS	INT	DATE	SURVEYED	CJ	
1 ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	N/A	217 KUPE STREET ORAKEI AUCKLAND, 1071
2 ADDITIONAL TOPO INFORMATION ADDED	CJ	09/03/2018	DRAWN	CJ	
6 ADDITIONAL TOPO INFORMATION ADDED	CJ	15/03/2019	CHECKED	WC	
7 ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	WC	WOODS.CO.NZ



EASTCLIFFE RETIREMENT VILLAGE, ORAKEI

LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:250 @ A3	6
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P17-245-00-060-SU	

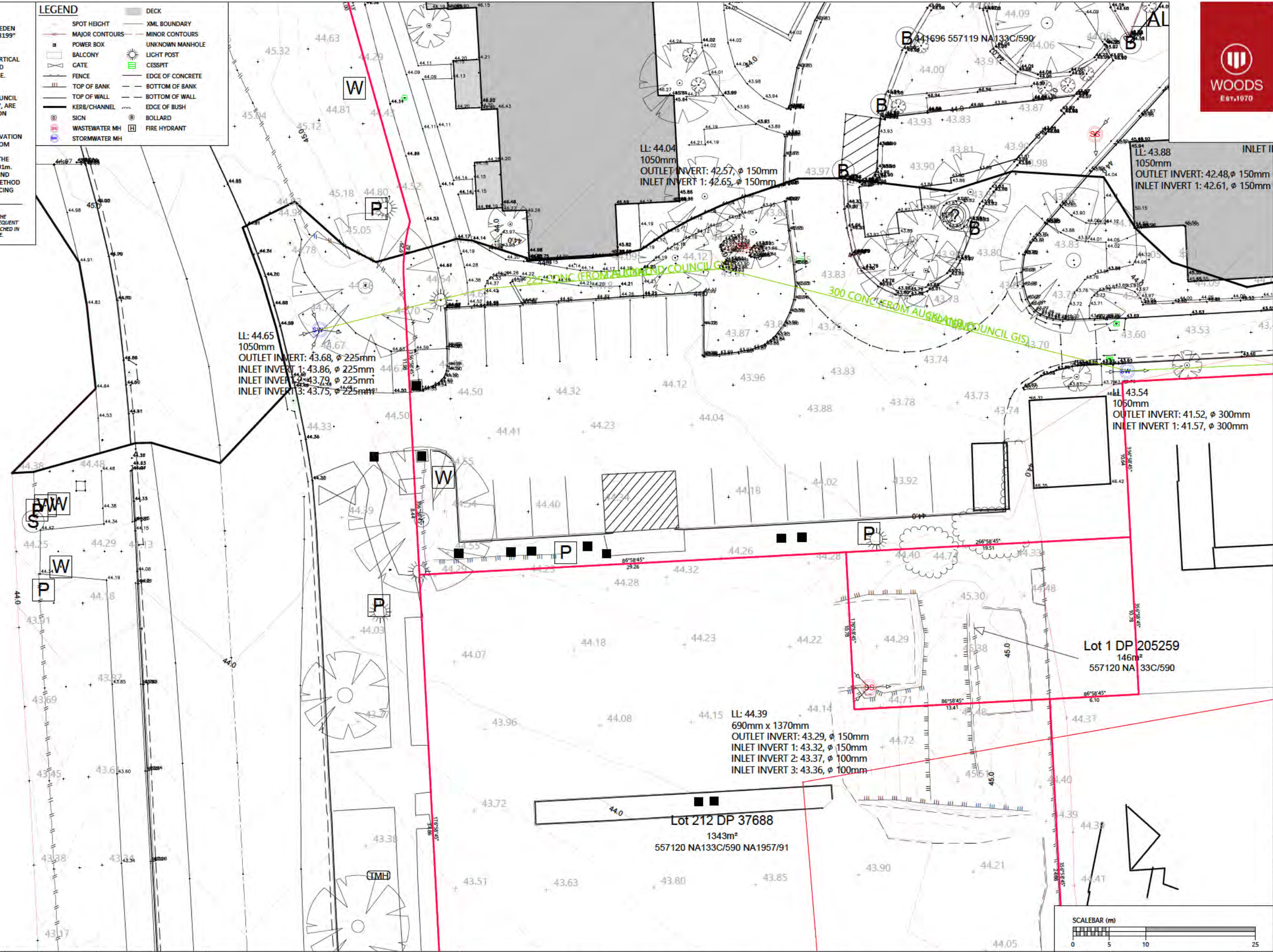
NOTES

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS "SM 4415 SO 53199" (GD CODE CBG6), SOURCED FROM LINZ DATABASE. ~ 802876.480mN 405586.952mE
2. THE ORIGIN OF LEVELS IS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946, ORIGIN OF LEVEL IS "SM 4415 SO 53199" (GD CODE CBG6), RL = 14.83m, SOURCED FROM LINZ DATABASE. CONTOURS ARE SHOWN AT 0.25m INTERVALS.
3. AERIAL PHOTO SHOWN IN BACKGROUND AND EXISTING SERVICES HAVE BEEN SOURCED FROM THE AUCKLAND COUNCIL GIS. SERVICE PIPES AND COVERS NOT LOCATED BY SURVEY, ARE APPROXIMATE ONLY AND WILL NEED TO BE CONFIRMED ON SITE.
4. CONTRACTOR IS TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO COMMENCING ANY WORKS. NO EXCAVATION OF ANY KIND IS TO TAKE PLACE WITHOUT PERMISSION FROM THE RELEVANT SERVICE PROVIDER.
5. PIPELINE INVERT LEVELS ARE LABELED CLOCKWISE FROM THE OUTLET AND ARE SHOWN IN METERS TO THE NEAREST 0.01m.
6. THE ARROWS DICTATING THE DIRECTION OF UNDERGROUND SERVICES ARE AN INDICATION ONLY AND THE CORRECT METHOD SHOULD BE USED TO IDENTIFY THESE PRIOR TO COMMENCING WORKS.

DISCLAIMER:
THIS CAD DRAWING IS INTENDED TO BE SOLELY USED AS THE BASE DATA FOR THE PURPOSES OF THE CLIENT. WOODS ACCEPT NO RESPONSIBILITY FOR ANY SUBSEQUENT CHANGES MADE TO THIS DRAWING FILE, THAT ARE DIFFERENT TO THOSE ATTACHED IN THE PDF FORMATTED VERSION SHOWN IN OUR ELECTRONIC CORRESPONDENCE.

LEGEND

SPOT HEIGHT	DECK
MAJOR CONTOURS	XML BOUNDARY
MINOR CONTOURS	UNKNOWN MANHOLE
POWER BOX	LIGHT POST
BALCONY	CESSPIT
GATE	EDGE OF CONCRETE
FENCE	TOP OF BANK
TOP OF BANK	BOTTOM OF BANK
TOP OF WALL	BOTTOM OF WALL
KERB/CHANNEL	EDGE OF BUSH
SIGN	BOLLARD
WASTEWATER MH	FIRE HYDRANT
STORMWATER MH	



REVISION DETAILS					217 KUPE STREET ORAKEI AUCKLAND, 1071 WOODS.CO.NZ
1	ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	
2	ADDITIONAL TOPO INFORMATION ADDED	CJ	09/03/2018	DRAWN	
6	ADDITIONAL TOPO INFORMATION ADDED	CJ	15/03/2019	CHECKED	
7	ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	



EASTCLIFFE RETIREMENT VILLAGE, ORAKEI

LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:250 @ A3	6
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P17-245-00-061-SU	





REVISION DETAILS	INT	DATE	SURVEYED	CJ	
1 ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	N/A	217 KUPE STREET ORAKEI AUCKLAND, 1071
2 ADDITIONAL TOPO INFORMATION ADDED	CJ	09/03/2018	DRAWN	CJ	
6 ADDITIONAL TOPO INFORMATION ADDED	CJ	15/03/2019	CHECKED	WC	
7 ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	WC	WOODS.CO.NZ



EASTCLIFFE RETIREMENT VILLAGE, ORAKEI
LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:250 @ A3	6
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P17-245-00-062-SU	

ALP125

441696 557

441696 557

441696 557

441696 557

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441696 557

441696 557

441696 557

441696 557

441696 557



NOTES

1. THE SURVEY IS IN TERMS OF GEODETIC DATUM 2000, MT EDEN CIRCUIT. THE ORIGIN OF COORDINATES IS "SM 4415 SO 53199" (GD CODE CBG6), SOURCED FROM LINZ DATABASE. ~ 802876.480mN 405586.952mE
2. THE ORIGIN OF LEVELS IS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946, ORIGIN OF LEVEL IS "SM 4415 SO 53199" (GD CODE CBG6), RL = 14.83m, SOURCED FROM LINZ DATABASE. CONTOURS ARE SHOWN AT 0.25m INTERVALS.
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5. PIPELINE INVERT LEVELS ARE LABELED CLOCKWISE FROM THE OUTLET AND ARE SHOWN IN METERS TO THE NEAREST 0.01m.
6. THE ARROWS DICTATING THE DIRECTION OF UNDERGROUND SERVICES ARE AN INDICATION ONLY AND THE CORRECT METHOD SHOULD BE USED TO IDENTIFY THESE PRIOR TO COMMENCING WORKS.

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LEGEND		DECK
SPOT HEIGHT	XML BOUNDARY	
MAJOR CONTOURS	MINOR CONTOURS	
POWER BOX	UNKNOWN MANHOLE	
BALCONY	LIGHT POST	
GATE	CESSPIT	
FENCE	EDGE OF CONCRETE	
TOP OF BANK	BOTTOM OF BANK	
TOP OF WALL	BOTTOM OF WALL	
KERB/CHANNEL	EDGE OF BUSH	
SIGN	BOLLARD	
WASTEWATER MH	FIRE HYDRANT	
STORMWATER MH		

REVISION DETAILS					217 KUPE STREET ORAKEI AUCKLAND, 1071 WOODS.CO.NZ
1	ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	
2	ADDITIONAL TOPO INFORMATION ADDED	CJ	09/03/2018	DRAWN	
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7	ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	

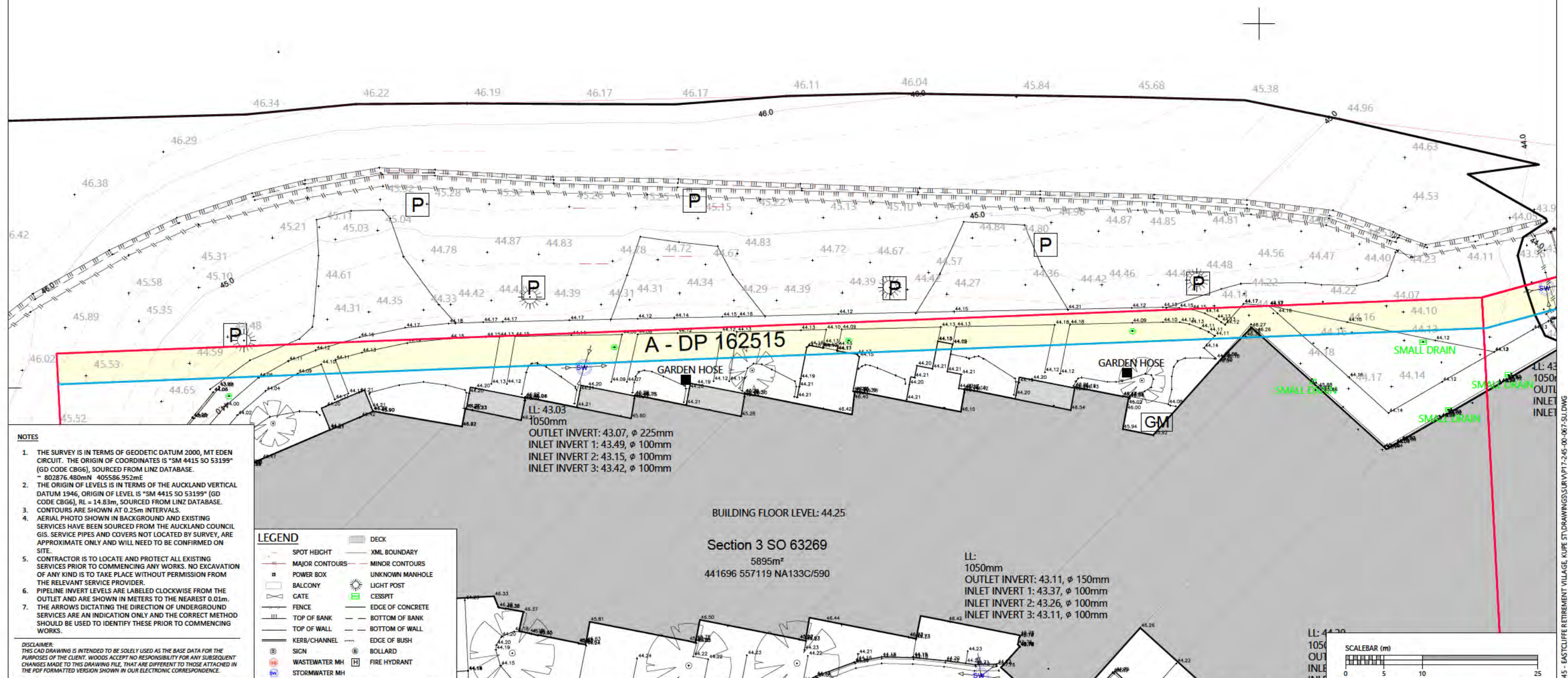


EASTCLIFFE RETIREMENT VILLAGE, ORAKEI

LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



STATUS	ISSUED FOR INFORMATION	REV	4
SCALE	1:250 @ A3		
COUNCIL	AUCKLAND COUNCIL		
DWG NO	P17-245-00-063-SU		



REVISION DETAILS		INT	DATE	SURVEYED	CJ
1	ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	N/A
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6	ADDITIONAL TOPO INFORMATION ADDED	CJ	15/03/2019	CHECKED	WC
7	ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	WC

217 KUPE STREET ORAKEI AUCKLAND, 1071
WOODS.CO.NZ



EASTCLIFFE RETIREMENT VILLAGE, ORAKEI

LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



REVISION DETAILS		INT	DATE	SURVEYED	CJ
1	ISSUED FOR INFORMATION	CJ	22/02/2018	DESIGNED	N/A
2	ADDITIONAL TOPO INFORMATION ADDED	CJ	09/08/2018	DRAWN	CJ
6	ADDITIONAL TOPO INFORMATION ADDED	CJ	15/03/2019	CHECKED	WC
7	ADDITIONAL TOPO INFORMATION ADDED	SK	22/01/2020	APPROVED	WC

217 KUPE STREET ORAKEI AUCKLAND, 1071
WOODS.CO.NZ

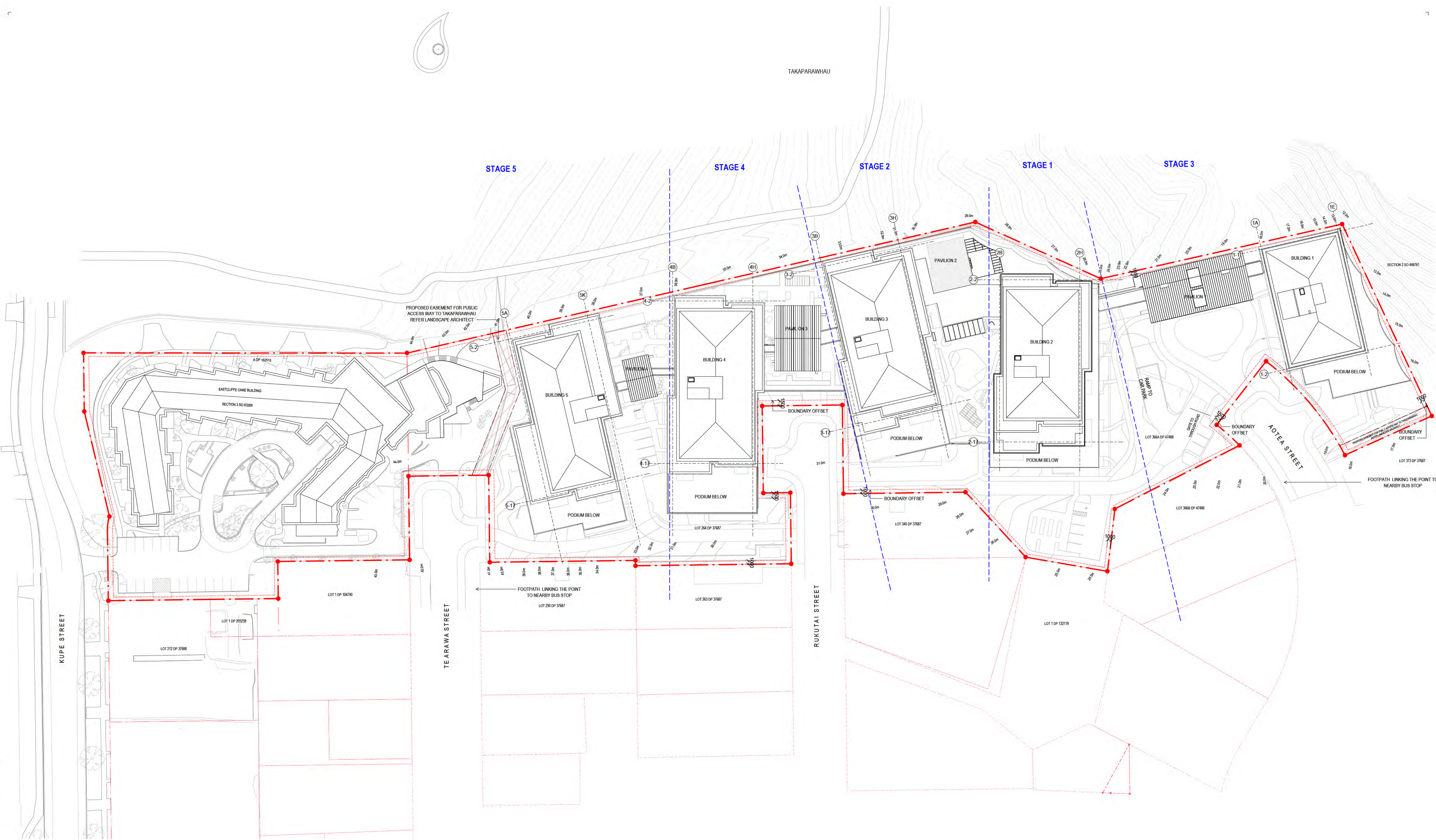


EASTCLIFFE RETIREMENT VILLAGE, ORAKEI
LOTS 1 & 2 DP 92924
TOPOGRAPHICAL SURVEY PLAN



STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:250 @ A3	6
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P17-245-00-065-SU	

Appendix B – Architectural & Landscape Drawings



RC PROPOSED SITE PLAN

1 : 500

Warren and Mahoney Architects
New Zealand Ltd

Ground Floor, Mason Bros.
139 Pakenham Street West
Wynyard Quarter
Auckland 1010
New Zealand
Phone + 64 9 309 4894

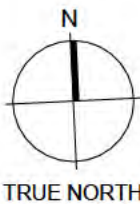
Registered Architects and Designers
www.warrenandmahoney.com
WARREN AND MAHONEY

Revisions

A 09.2025 RESOURCE
CONSENT

Key Plan

Notes



Consultants

HOLMES STRUCTURES
Structural Engineer
MESH CONSULTING
Mechanical Engineer
HOLMES FIRE
Fire Engineer
MESH CONSULTING
Electrical Engineer

Client

GENERUS LIVING GROUP

Project Title

THE POINT, MISSION
BAY
Orakei
Auckland 1071

All dimension to be verified on site before producing
shop drawings or commencing any work.
Do not scale. The copyright of this drawing remains
with Warren and Mahoney Architects New Zealand Ltd.

Drawing Title

PROPOSED SITE
PLAN

Drawing Status

WORK IN PROGRESS

Drawing Details

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Date 22/08/2025 3:44:33 pm
Job No 10476
Drawn WAM
Checked WAM

Drawing No

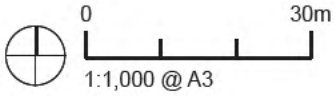
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Revision

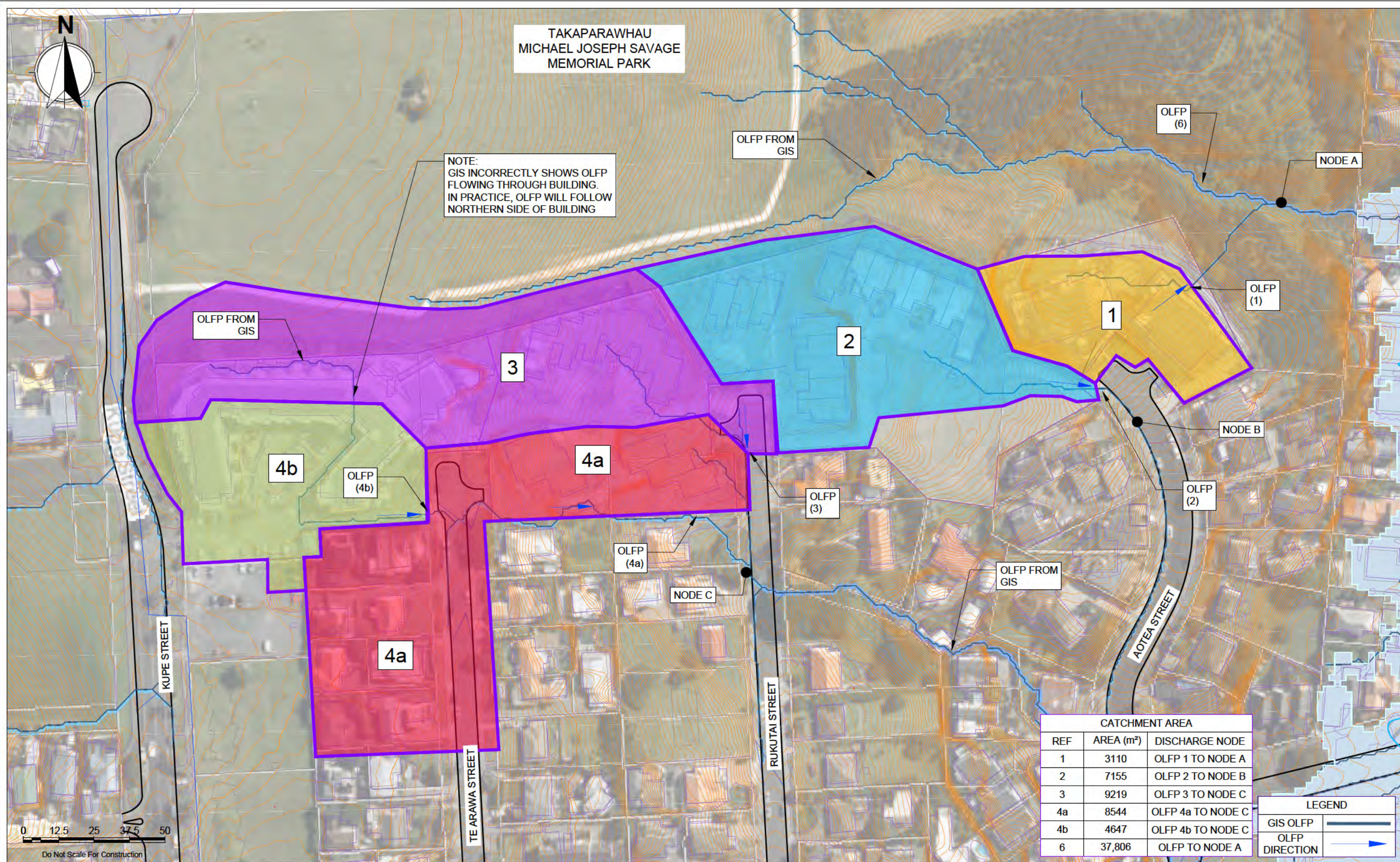
LANDSCAPE CONCEPT PLAN



KEY			
1	ARRIVAL PORTE COCHÈRE	5	SENSORY & WELLNESS GARDENS - NORTH
2	NGAHERE WALK	6	SENSORY & WELLNESS GARDENS - SOUTH
3	HEART OF THE VILLAGE - SOUTH	7	THE GARDENS - NORTH
4	HEART OF THE VILLAGE - NORTH	8	THE GARDENS - SOUTH
		9	WESTERN ENTRANCE
		10	PRIVATE PEDESTRIAN / CART PATHWAY
		11	SOUTHERN DRIVE AND PEDESTRIAN PATH
		12	PRODUCTIVE GARDENS
		13	EASTERN SERVICE ACCESS - LOADING BAY
		14	EASTERN PUBLIC WALKWAY (NOT INCLUDED IN THIS APPLICATION)
		15	WESTERN PUBLIC WALKWAY (NOT INCLUDED IN THIS APPLICATION)



Appendix C – Catchment Plans



Revision History:

Rev	Description	Drawn	Designed	Approved	Date
A	FOR RESOURCE CONSENT	VK	DH	KA	12-11-2025

Client:

GENERUS LIVING GROUP

Project:

**THE POINT, 217 KUPE STREET
MISSION BAY, AUCKLAND**

Drawing Title:

**PRE-DEVELOPMENT
1% AEP CATCHMENT PLAN**

Issue:

RESOURCE CONSENT

Scale @ A3:

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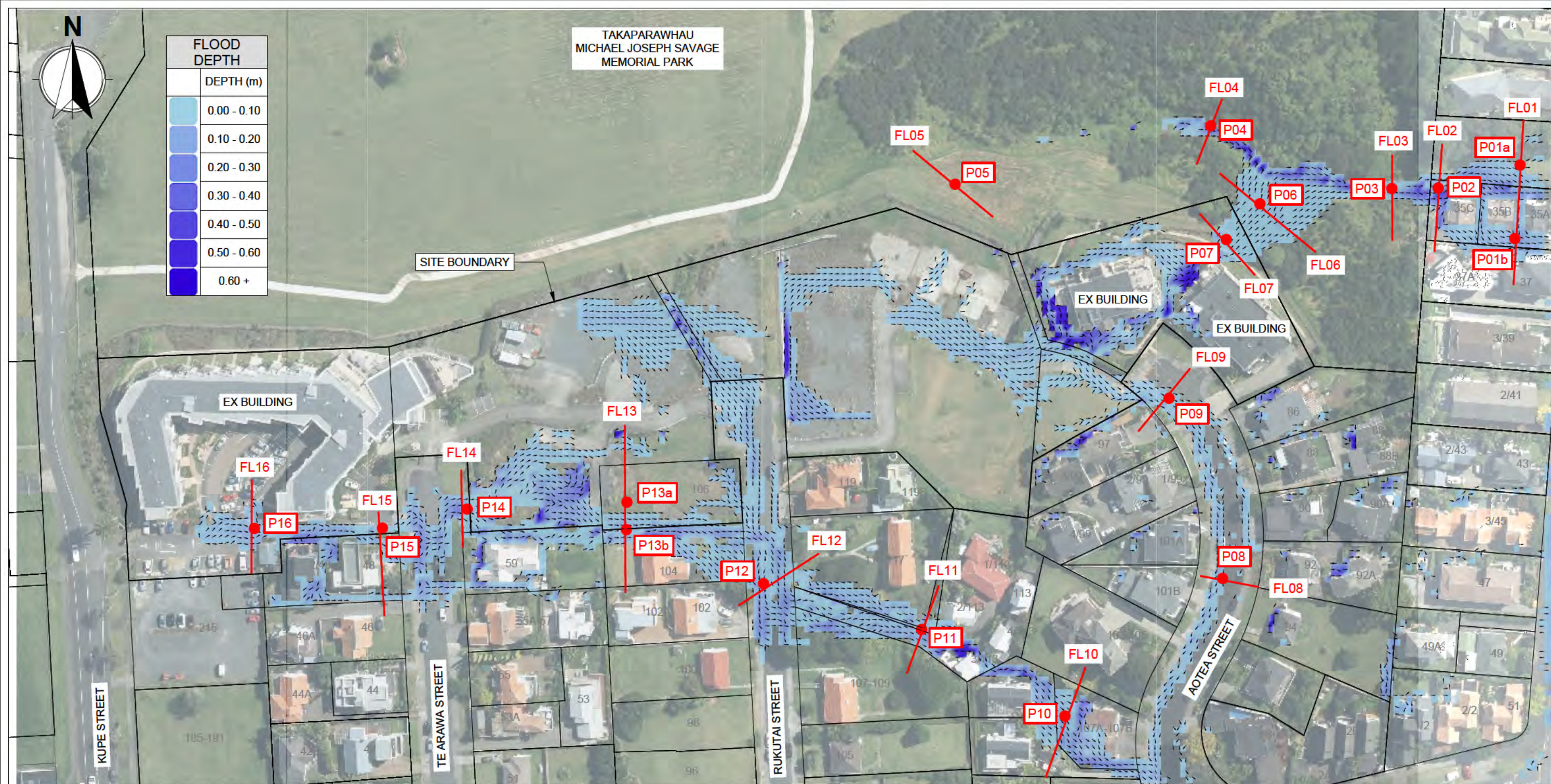
Dwg No:

22064-C915

Rev:

A

Appendix D – Flood Maps



MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F01	1.7776
F02	1.8473
F03	1.8610
F04	1.8041

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F05	0.0120
F06	0.6857
F07	0.3162
F08	0.1161

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F09	0.1300
F10	0.8440
F11	0.9170
F12	0.9340

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F13	0.8594
F14	0.5182
F15	0.1957
F16	0.2042

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P01a	3.737	0.303	0.047
P01b	3.138	0.530	0.125
P02	4.456	1.334	0.364
P03	5.652	2.514	0.361
P04	10.957	2.663	0.287

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P05	26.030	0.109	0.000
P06	11.658	0.781	0.027
P07	16.684	0.786	0.020
P08	15.308	0.878	0.013
P09	20.072	1.097	0.013

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P10	13.305	1.399	0.062
P11	19.322	1.884	0.630
P12	26.527	1.498	0.072
P13a	31.775	0.028	0.000
P13b	31.363	2.213	0.078

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P14	41.786	1.257	0.044
P15	42.689	1.771	0.024
P16	43.782	0.496	0.084

Revision History:

Rev	Description
A	FOR RESOURCE CONSENT

Drawn	Designed	Approved	Date
VK	DH	KA	12-11-2025

Client:

GENERUS LIVING GROUP

Project:

THE POINT, 217 KUPE STREET
MISSION BAY, AUCKLAND

Drawing Title:

PRE-DEVELOPMENT
1% AEP FLOOD MAP

Issue:

RESOURCE CONSENT

Scale @ A3:

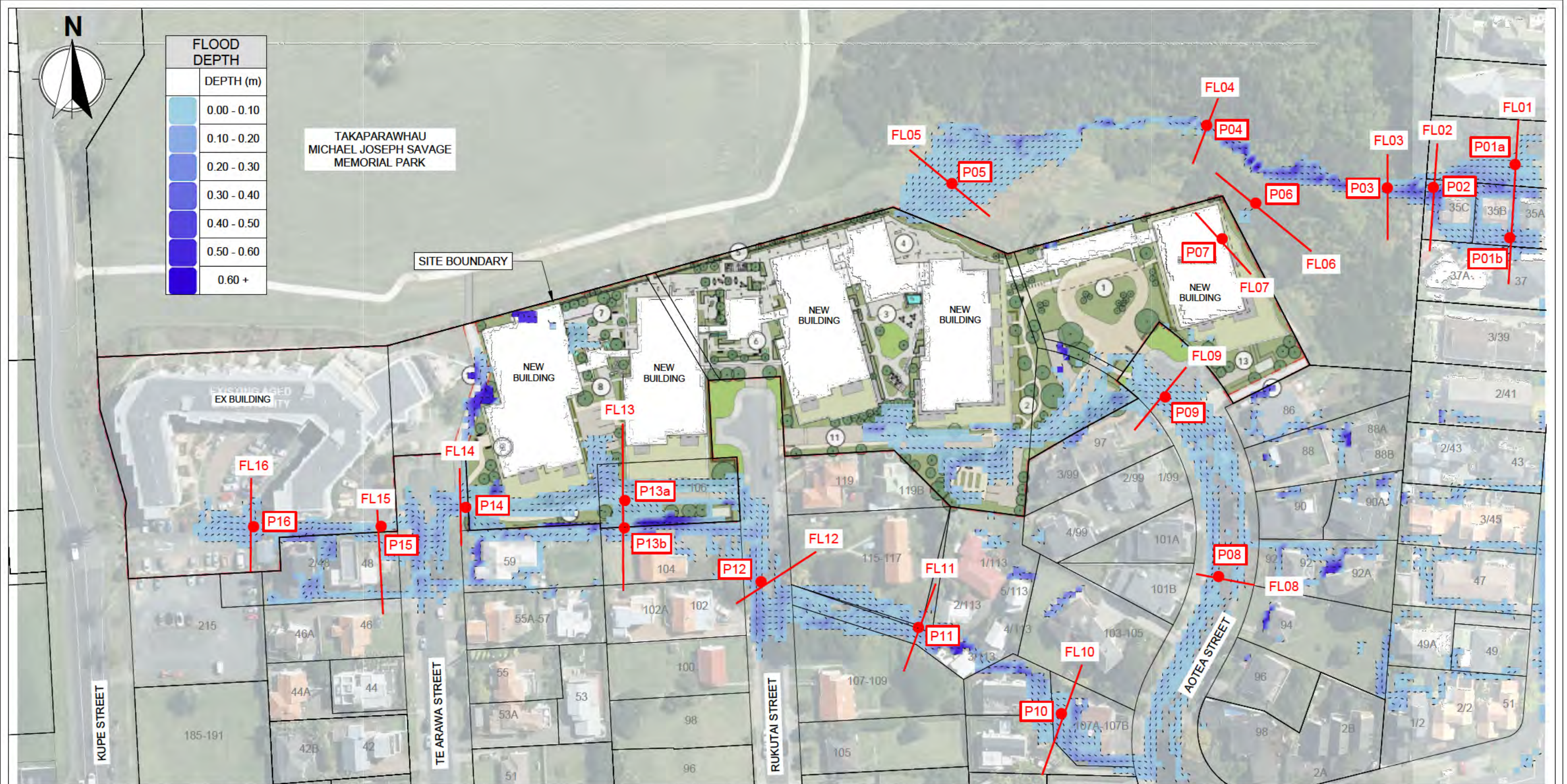
1:1250

Dwg No:

22064-C990

Rev:

A



MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F01	2.0795
F02	2.3263
F03	2.3547
F04	2.0131

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F05	0.4611
F06	0.0682
F07	0.0000
F08	0.2530

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F09	0.3083
F10	0.5300
F11	0.5150
F12	0.5500

MODELLED FLOOD DATA	
NODE I.D.	PEAK FLOW (m³/s)
F13	0.8890
F14	0.6100
F15	0.1991
F16	0.2123

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P01a	3.742	0.344	0.052
P01b	3.151	0.564	0.139
P02	4.464	1.364	0.372
P03	5.709	2.537	0.418
P04	10.888	2.274	0.218

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P05	26.056	1.004	0.027
P06	10.648	0.254	0.009
P07	13.421	0.090	0.002
P08	15.317	1.227	0.022
P09	20.089	1.621	0.019

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P10	13.288	1.120	0.044
P11	19.299	1.442	0.041
P12	26.554	1.668	0.098
P13a	34.738	1.428	0.028
P13b	31.473	1.228	0.053

MODELLED FLOOD DATA			
NODE I.D.	WATER LEVEL (RL)	VELOCITY (m/s)	DEPTH (m)
P14	41.610	2.044	0.304
P15	42.690	1.778	0.024
P16	43.783	0.509	0.085

Revision History:

Rev	Description
A	FOR RESOURCE CONSENT

Drawn	Designed	Approved	Date
VK	DH	KA	12-11-2025

Client:

GENERUS LIVING GROUP

Project:

THE POINT, 217 KUPE STREET
MISSION BAY, AUCKLAND

Drawing Title:

POST-DEVELOPMENT
1% AEP FLOOD MAP

Issue:

RESOURCE CONSENT

Scale @ A3:

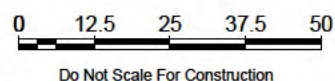
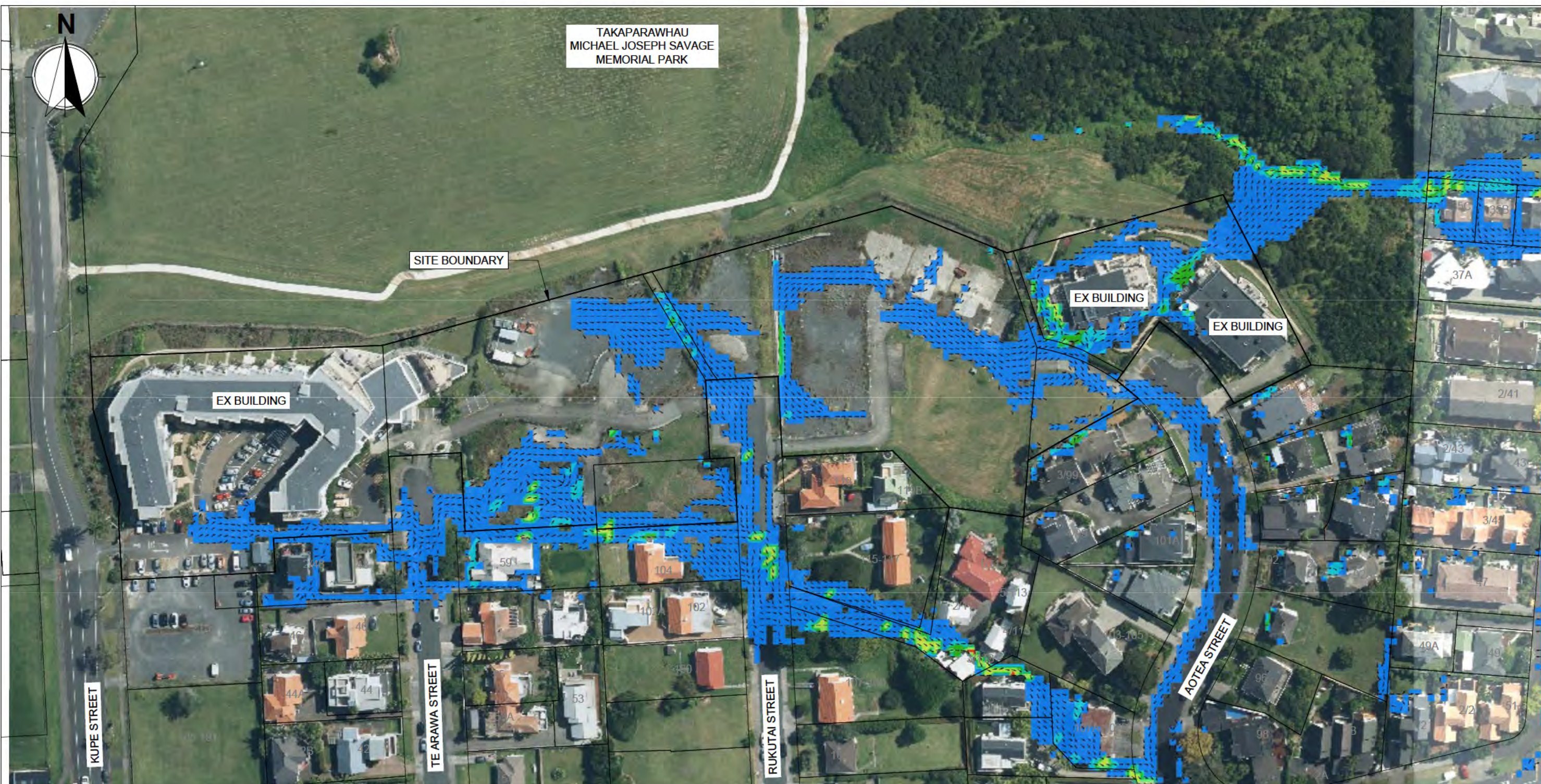
1:1250

Dwg No:

22064-C991

Rev:

A



FLOOD HAZARD	
H6	UNSAFE FOR VEHICLES AND PEOPLE. ALL BUILDING TYPES CONSIDERED VULNERABLE TO FAILURE

FLOOD HAZARD	
H5	UNSAFE FOR VEHICLES AND PEOPLE. ALL BUILDINGS VULNERABLE TO STRUCTURAL DAMAGE. SOME LESS ROBUST BUILDING TYPES VULNERABLE TO FAILURE

FLOOD HAZARD	
H4	UNSAFE FOR VEHICLES AND PEOPLE
H3	UNSAFE FOR VEHICLES, CHILDREN AND ELDERLY

FLOOD HAZARD	
H2	UNSAFE FOR SMALL VEHICLES
H1	GENERALLY SAFE FOR VEHICLES, PEOPLE AND BUILDINGS



Revision History:					
Rev	Description	Drawn	Designed	Approved	Date
A	FOR RESOURCE CONSENT	VK	DH	KA	12-11-2025



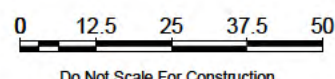
Client:
GENERUS LIVING GROUP

Project:
**THE POINT, 217 KUPE STREET
MISSION BAY, AUCKLAND**

Drawing Title:

**PRE-DEVELOPMENT
FLOOD HAZARD MAP**

Issue:	
RESOURCE CONSENT	
Scale @ A3:	
1:1250	
Dwg No:	Rev:
22064-C992	A



FLOOD HAZARD		FLOOD HAZARD		FLOOD HAZARD		FLOOD HAZARD	
H6	UNSAFE FOR VEHICLES AND PEOPLE. ALL BUILDING TYPES CONSIDERED VULNERABLE TO FAILURE	H5	UNSAFE FOR VEHICLES AND PEOPLE. ALL BUILDINGS VULNERABLE TO STRUCTURAL DAMAGE. SOME LESS ROBUST BUILDING TYPES VULNERABLE TO FAILURE	H4	UNSAFE FOR VEHICLES AND PEOPLE	H2	UNSAFE FOR SMALL VEHICLES
				H3	UNSAFE FOR VEHICLES, CHILDREN AND ELDERLY	H1	GENERALLY SAFE FOR VEHICLES, PEOPLE AND BUILDINGS



Revision History:		Drawn	Designed	Approved	Date
Rev	Description				
A	FOR RESOURCE CONSENT	VK	DH	KA	12-11-2025



Client:	GENERUS LIVING GROUP
Project:	THE POINT, 217 KUPE STREET MISSION BAY, AUCKLAND

Drawing Title:	POST-DEVELOPMENT FLOOD HAZARD MAP
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Issue:	RESOURCE CONSENT
Scale @ A3:	1:1250
Dwg No:	22064-C993
Rev:	A