

**INFRASTRUCTURE REPORT FOR FAST TRACK PROJECT
REFERRAL**

174 – 176 BROOKVALE ROAD

HAVELOCK NORTH

HAWKES BAY

FOR

VERMONT STREET PARTNERS NO. 4 LIMITED

 MAVEN ASSOCIATES	Job Number 135041		Rev B
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1.0 INTRODUCTION

1.1 PROJECT AND PURPOSE

Vermont Street Partners has engaged Maven Associates to provide Civil Engineering services for the master planning, consenting and design of Brookvale Green. The site is located at 174 & 176 Brookvale Road approximately 3.5km to the west of Havelock North's village centre in the Hawkes Bay. It comprises of a total area of 22.26 hectares on the eastern edge of Havelock North's urban residential boundary. Brookvale Green provides a unique opportunity to deliver a comprehensive residential community comprising of 189 – 215 new homes within a well-connected, high-quality and distinctive living environment.

The proposal is designed to create a defined rural/urban boundary while enhancing the site's natural ecological features. A defining characteristic of the site is the two stream corridors, one meandering through the centre and the other forming the northern boundary. These features are central to the design approach, providing a strong landscape framework that has shaped the layout of streets, lots, and open spaces. The streams contribute significantly to the site's visual amenity, support ecological values, and provide opportunities for walking, cycling, and passive recreation. Their integration into the development ensures a strong connection to the site's natural character, while the northern stream establishes a soft green edge that reinforces the relationship with the wider rural landscape.

The residential community of Brookvale Green is guided by a series of design principles focused on delivering a liveable, connected and green environment, with enhanced public spaces and diverse housing options. The development is structured around a central loop road that extends from Brookvale Road and runs through the heart of the site. This loop is supported by local streets and pedestrian and cycle connections to enable a legible grid structure. A variety of housing typologies and densities are proposed to meet the evolving and growing needs of the housing market, ensuring choice and flexibility for future residents. Together, these elements will support the creation of a diverse, visually interesting neighbourhood with a strong sense of place.

The report provides a high-level summary of civil infrastructure associated with the Fast Track referral application.

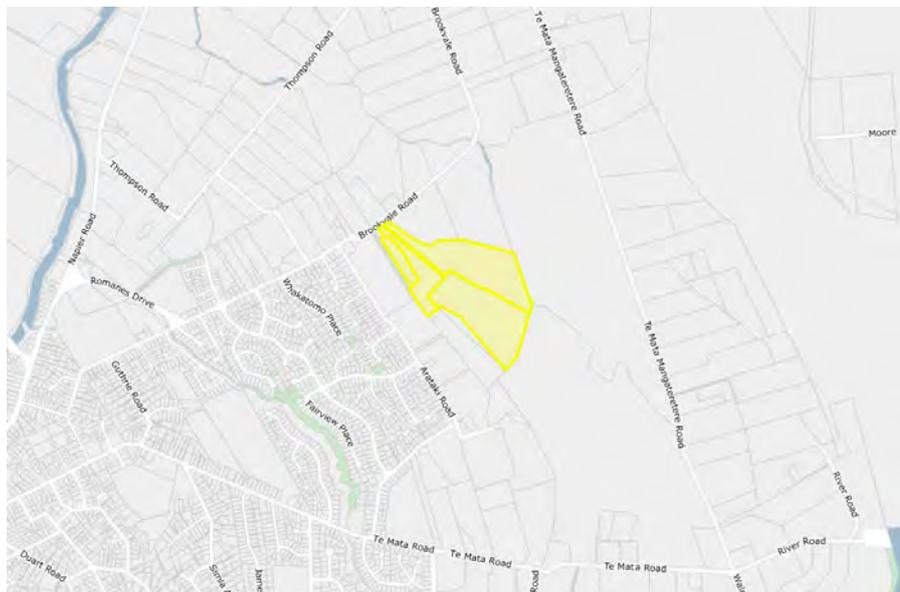


Figure 1.1 Locality Plan (Source: GRIP).

For further details regarding any information not contained within this report, and not related to infrastructure, refer to the Application for Fast Track Approval by Barker & Associates Limited.

The information in this report was prepared in accordance with the proposed masterplan prepared by Vermont Street Partners No. 4 Limited (VSP). The Masterplan currently delivers a yield of circa

189 lots; however, this is subject to change through further design involvement and consultation with Council and other CCOs. Given that the design is not yet finalised, an allowance for additional yield (up to 215 lots) has been incorporated into the water and wastewater demand calculations appended.

Consultation and confirmation of capacity form key parts of any substantive Fast Track application. The infrastructure capacity discussed in this report has been co-ordinated with Hastings District Council and Hawkes Bay Regional Council. Correspondence with both councils and information supplied by other consultants confirm that this site is suitable for development.

It is acknowledged that further consultation with councils and external consultants may be required to formulate a substantive application in the future.

1.2 LEGAL DESCRIPTION

Address	174-176 Brookvale Road, Havelock North, Hawkes Bay 1430
Legal Description	Lot 2 DP 529421, Lot 2 DP 7771, and Lots 1 & 2 DP 16311
CT Number	858136, HBJ1/56, HBJ1/57
Property Area	22.26ha

1.3 SITE DESCRIPTION

The site is located on the southern side of Brookvale Road, to the east of Arataki Road. The site adjoins the CDL land to the west which has been listed on the Fast Track list of projects.

The site currently houses buildings, sheds, packhouse, warehouse and carparking areas associated with the current businesses located onsite.

Legal access is gained to the site via a sealed accessway from Brookvale Road. Several gravelled roads provide access throughout the site.

The site topography falls inwards from the western and southern boundaries towards the northern boundary of the site.



Figure 1.2 Site coverage and extent information (Aerial overview GIS)

2.0 EARTHWORKS

2.1 GENERAL

The area of proposed earthworks is approximately 21.5 Ha. The goal of earthworks on this site is to create a landform which will allow rainwater runoff in a controlled manner to the downstream discharge location. Earthworks will include the construction of stormwater management devices, improvement of overland flow channels and filling to create suitable building platforms. The earthwork design also allows for the conveyance of concentrated sheet flows around the development area, within the eastern stream alignment. This ensures the developable areas are removed from any overland flow or flooding.

2.2 ESTIMATED VOLUME

The estimated volume of earthworks is 100,000m³ cut to fill. The volume of earthworks required will be balanced as much as possible to minimise the import of material to site and the export of material from site. The volume of earthworks required will be finalised during the detailed design process.

2.3 SEDIMENT CONTROL

The potential effects of earthworks on the surrounding environment will be mitigated in accordance with the Hawkes Bay Regional Council adopted Part 2 of NZS4404:2010. Section 2.3.7 provides guidance on erosion, sediment, and dust control. Refer to Plan C230 for indicative sediment controls to be constructed before any earthworks commences.

2.4 RETAINING WALLS

A retaining wall 2m – 2.5m in height is proposed near the western boundary of the site to provide acceptable road grades. No boundary retaining walls are proposed as batter slopes are preferred. The geotechnical report confirms that both batter slopes and retaining walls will be acceptable on the site. Refer to Plan C220 to C222 for information on the general proposed topography and proposed retaining wall adjacent to proposed Road 4.

2.5 GEOTECHNICAL MATTERS

A site investigation was undertaken by Hawkes Bay Geotech – Geotechnical Assessment Report (25030 Rev 0 7 June 2025). The conclusion was that the ground conditions on this site are geotechnically suitable for residential land use. The general findings of the report are summarised below. The report recommends additional investigation and analysis during detailed design and construction phases, however, it is noted that the geotechnical risks can be adequately defined and mitigated.

Slope stability:

Existing relatively steep cut and fill slopes were identified on site. Adequate measures have been proposed in the earthworks plans to lower the height of banks, add fill to toe slopes and to consider the retaining wall as shown in the plans.

Retaining walls:

Retaining wall design is part of the detailed design phase and further information can be provided after structural design is undertaken. The soils on the site are suitable for the construction of retaining walls. Location specific geotechnical analysis will be undertaken as part of future retaining wall design.

Ground water:

Groundwater levels varied between 2m and 6m deep (increasing in depth from north to south) below ground level during the investigation. The ground water levels within the overland flow channel base are between 1m and 2m deep. Groundwater level will have seasonal variation.

Liquefaction:

The groundwater levels were modelled together with soil testing data to discover the liquefaction susceptibility of material at the site, during a seismic event. Analysis indicated that under Serviceability Limit State, the material is unlikely to liquefy. Under Ultimate Limit State conditions (500-year return period) only thin lenses of material may be liquefiable. It is noted that ejecta is unlikely, vertical settlement are likely to be only minor, and differential settlement is not expected to exceed 1 in 500. It is acknowledged that a portion of the site may have silty sands and sandy silts which will need further investigation to confirm the risk associated with those areas in terms of liquefaction of material. To date, the site has been evaluated to be within the typical limits of engineering mitigation measures for residential foundations.

Settlement:

Low risk of settlement and differential settlement. The south-central area of the site and old stream channel could have settlement in theory, if liquefaction occurred. It is unlikely that any future dwellings or roads will be in those areas and as previously noted, further investigation will be undertaken with a developed design to ensure adequate mitigation of risks during construction.

Consolidation settlement due to soil loading (fill placed during earthworks) is unlikely to exceed 35mm in the worst-case scenario, and more than 90% of settlement is expected to occur within 6 – 8 months. This is considered a low risk. Settlement monitoring is recommended.

Stream Bank Stability:

Aerial photography post Cyclone Gabrielle was reviewed, and some areas of possibly minor bank instability was identified. The stream bank is currently vegetated with grass and some plants. The overall risk of bank instability is considered low. Stream bank scouring and stream bank erosion can be mitigated by using shallow slope angles (1v:3h or less) where stream / channel works are undertaken. Erosion protection materials and planting details to enhance stream bank stability can be finalised during detailed design.

Bearing Capacity:

The natural soils at the site typically comprise of very stiff to hard sandy silt and silty clay with very dense gravels underlying. A geotechnical ultimate bearing capacity of at least 300kPa can be expected.

Refer to Appendix C for the full report and details of the soil test results.

3.0 ROADING

A traffic count was undertaken by East Cape Consulting Limited (memo 7 August 2025) to determine the traffic design requirements for development of the site.

It is envisaged that Brookvale Road will be upgraded to resemble a Collector Road layout with kerb and channel, front and back berm with footpath and services in the southern berm. The developer of this site will be responsible for co-ordination of the required infrastructure and upgrade of the road frontage adjacent to the site.

There is an existing Hastings District Council (HDC) owned lot on the western boundary of the site (Lot 1 DP 529421). The site owner currently has an access easement over that lot as agreed with HDC. It is proposed to construct a new local road and services within that lot and vest the infrastructure to council as a public road with footpath and infrastructure. This proposal was discussed with HDC and to date it is believed that this proposal will provide benefit in terms of access and use of vacant land without interfering with any other intended purpose.

Refer to Plan C301 for the proposed road layout. The location of access to the site and the internal intersections have been engineered to suit the level of traffic required for this development. Refer to the transportation engineer's memo which concluded that there are no known transport related constraints.

Details of the final road widths, cross sectional shape of the proposed roads and allowance for street furniture will be part of engineering plan approval in the future.

4.0 STORMWATER

Stormwater drainage will be designed in accordance with the requirements in Section 2 NZS 4404:2010 Stormwater design and construction standards of the Hastings District Council Engineering Code of Practice 2020, which requires all land development projects to be provided with a means of stormwater disposal.

4.1 STORMWATER RETICULATION

The HDC IntraMaps identifies that the site is currently not connected to a public stormwater network. Open channels across the site discharge into two large channels on site, which then flow north through culverts under Brookvale Road.

The subject site is proposed to be serviced by a new stormwater network. The primary drainage network will be designed to contain up to a 1 in 5-year ARI rain event within the pipes.

The layout of drainage corridors will follow the proposed road alignments and will discharge into the two streams/channels as to ensure base flows are retained as per the initial ecology advice received.

4.2 STORMWATER CAPACITY

There are no known downstream constraints for the discharge of stormwater. There is a 1.4m x 1.1m box culvert under Brookvale Road at the head of the eastern channel (Stream 1).

There is a 400mm and 800mm culvert at the head of the western channel (stream 2) which also discharges to the other side of Brookvale Road. The roadside drains and large conveyance channel upstream have capacity to detain stormwater runoff should the culvert under Brookvale Road have limited capacity.

Attenuation is generally encouraged (and is provided for within the appended Maven engineering design and plans) by the development code. No work is proposed on the existing culverts under Brookvale Road.

4.3 STORMWATER ATTENUATION

The Hawkes Bay Regional Council Plan Change 9 contains rules for the diversion and discharge of stormwater into water, or onto land where it may enter water. Hastings District Council ECOP 2020 Section 4 provides guidance on the mitigation of stormwater discharges.

The Brookvale Structure Plan - Stormwater Management Plan December 2020 and HBRC Karamu Catchment Management Plan provides outcomes for attenuation within the catchment plan area. Whilst this site is not within the Brookvale Structure Plan area, the attenuation the same requirements from the structure plan catchment have been included in the design as to ensure consistent attenuation requirements are applied to this proposal. The attenuation requirements are for the post development discharge to be no greater than the pre-development flow in the 2 and 10-yr ARI event and up to 80% of the predevelopment flow in a 100yr event is required.

In accordance with a best practice solution using the Hastings District Council Engineering Code of Practice 2020 as a guideline, the stormwater attenuation will be combined with stormwater treatment via a wetland and extended detention within the same structure.

Four areas have been identified as suitable locations for wetlands to accommodate the treatment and attenuation requirements of the stormwater network. The four basins have been modelled to determine that the required volume and area will be available for adequate stormwater management.

Stormwater soakage within the Havelock North area does not meet the Hastings Engineering Code of Practice. The wetland design is subject to the engineering plan approval process.



Figure 4.1 Proposed Road Layout with approximate location of indicative wetlands. Plan C400

4.4 STORMWATER QUALITY

The rainwater runoff from the new public roads will be directed to the stormwater wetland/s before it is discharged to the stream. The design principles for treatment within wetlands which are set out in the Hawkes Bay Regional Council Waterway Water Design Guidelines 2009. This document suggests a low impact design approach and lists five principles in section 4.2. Water quality improvement with the use of a wetland provides treatment as close as possible to the source and relies on the natural soil and plant processes within the wetland device at the same time as providing attenuation of rainwater runoff, thereby achieving multiple objectives.

4.5 OVERLAND FLOW

The proposed topography of the site and the roading corridors will be shaped to allow for overland flow to be controlled through the site to the discharge point without affecting new building floor levels. Flow depth and velocity will be minimised to provide safe passage for pedestrians and vehicles.

The Brookvale SMP states that the 1 in 50 yr ARI rainfall event must be considered for overland flow.

It is proposed to retain and enhance the open stormwater channels near the centre and north-eastern boundaries of the site. The two open water channels are shown indicatively below in Image 4.2. Refer to the Ecological Mitigation report by Wild Ecology for more information on the streams.

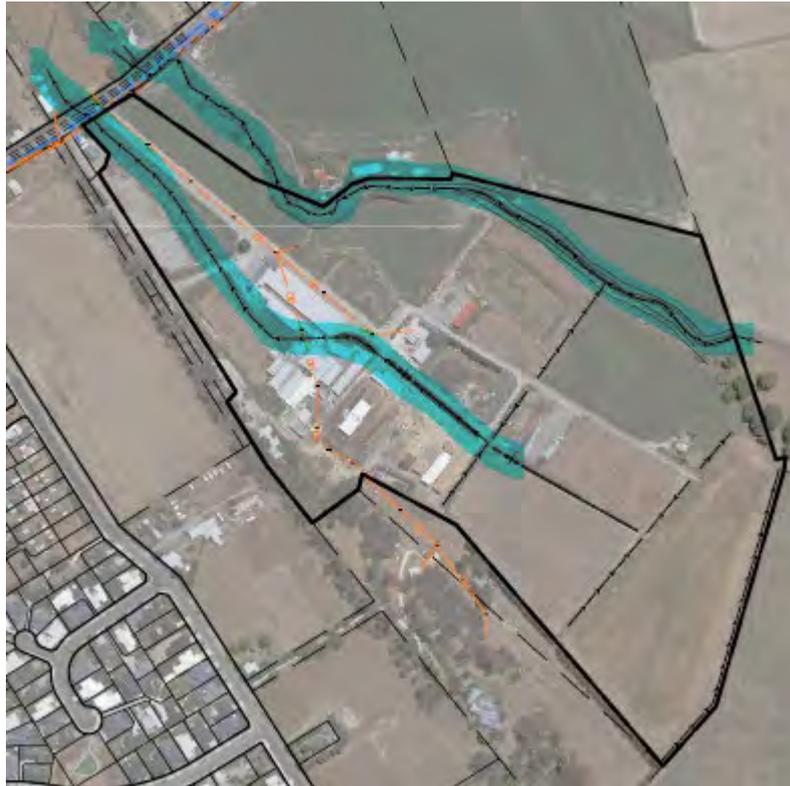


Figure 4.2 GIS Aerial with Topo survey overlay. Existing OLFP

There is a large catchment upstream of the site. The site is at the head of the Karamu Stream catchment which is 3,560 Ha in size. The watercourse within the site (dry at the time of inspection) near the northern boundary of the site will act as a major overland flow path during the 100yr ARI storm event. The flow in this channel will bypass the site and continue under Brookvale Road to an open watercourse / reserve from which flow continues towards the west in open drain and a culvert under Davidson Road into the Crombie Drainage Reserve, and again under Romanes Drive to the Karituwhenua Stream and then discharges to the Karamu Stream.

This conveyance channel has sufficient capacity to direct the 100yr ARI storm event flow past the site. Refer to Table 1 below and Figure 4.1 and 4.2. Overland flow from within the site currently flow to this channel. It is proposed that all post development overland flow will be directed to discharge to either of the two open watercourses on site. The channels will be adapted as necessary, enhanced with landscaping for amenity and ecological purposes. Primary drainage discharge will flow to treatment and attenuation basins before discharging to the open channels.

A section of the stormwater channel on the northern side of the site is proposed to be re-aligned closer to the northern boundary of the site. The re-alignment of this channel in that location is for the purpose of creating a more practical site layout whilst incorporating the proposed enhancement of the channel by shaping and planting. Refer to the Engineering Plan C063 in Appendix A.

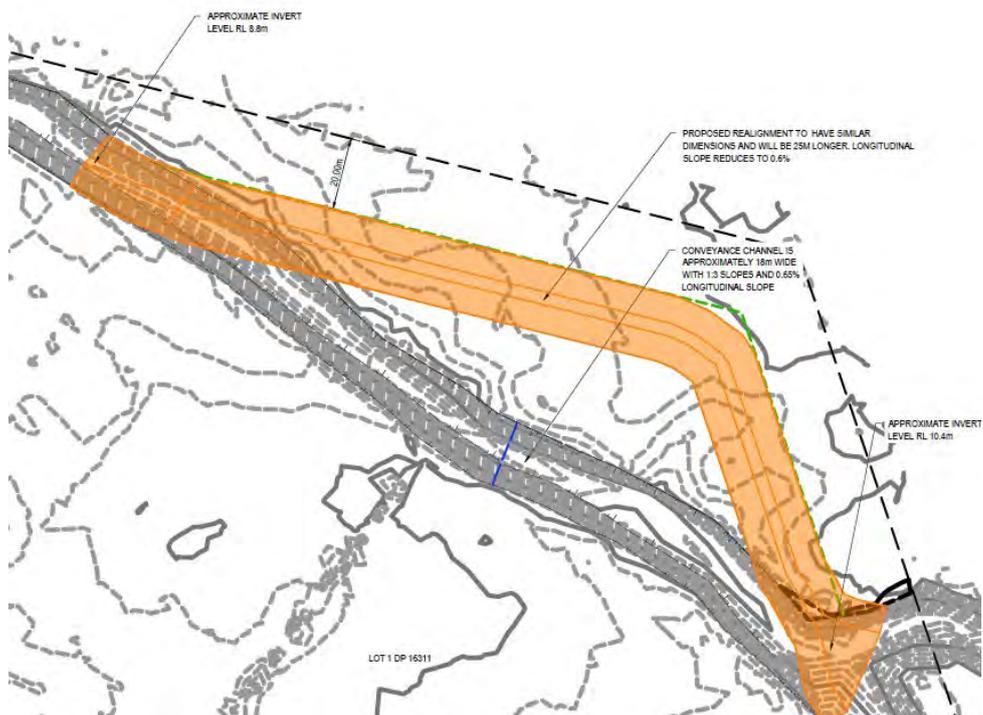


Figure 4.3 Proposed overland flow path re-direction



Figure 4.4 GIS OLFP Catchment Plans for Stream 1 and 2

4.6 FLOODING

The site is not located in a known flood risk area. The council Flood Risk Map (see Figure 3.3) shows that a portion of the site is not within a flood risk study area, whilst the rest of the site is within an area of low risk. Given the flat topography of the site, it is expected that any earthworks required to lift the site will not cause flooding effects.

Aerial photography taken shortly after Cyclone Gabrielle (2023) did not show any long-term ponding or effects from high velocity flow on the site or within the open channels.

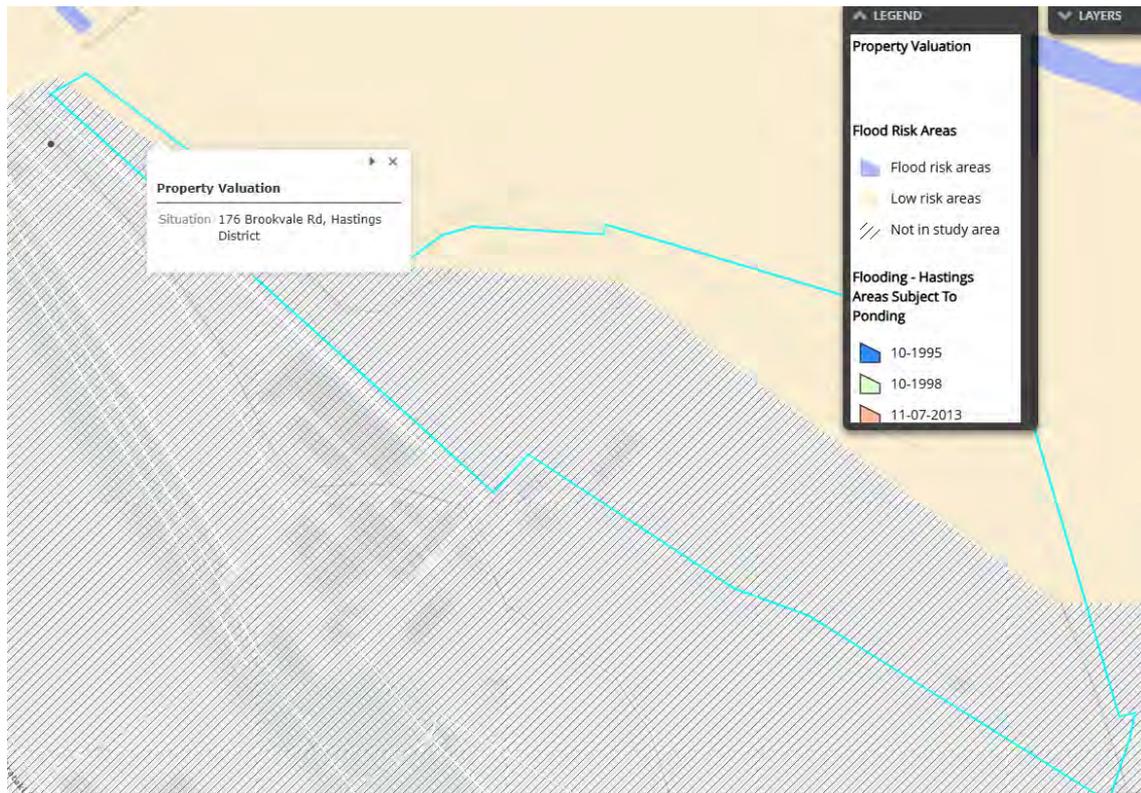


Figure 4.6 Flood Risk (Source: Council IntraMaps)

The site is within the Plains Production Zone under the Hastings District Council Operative District Plan. The site is not within the Brookvale Structure Plan area, however, the design outcomes for mitigation of stormwater discharge from the site to prevent flooding upstream and downstream are considered relevant in terms of the Brookvale Structure Plan – Stormwater Management Plan.

Due to the size of the upstream catchment as shown in figures 4.4 and 4.5 above, a predictive stormwater model has been developed by Maven Associates. The stormwater model focuses on the likely overland flow which may occur on the site because of severe inclement weather. A 100yr ARI event including climate change factor was considered with a maximum probable development in the upstream catchment.

The engineering design (as indicated within the provided Maven drawings and masterplan) provides for the required civil engineering solution, of which is summarised below:

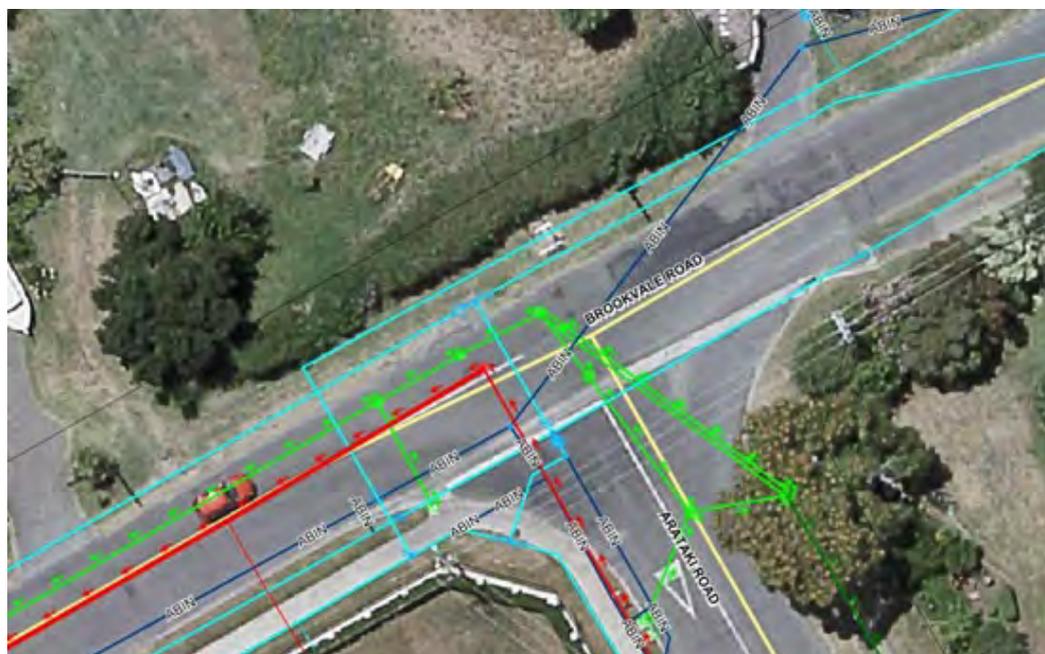
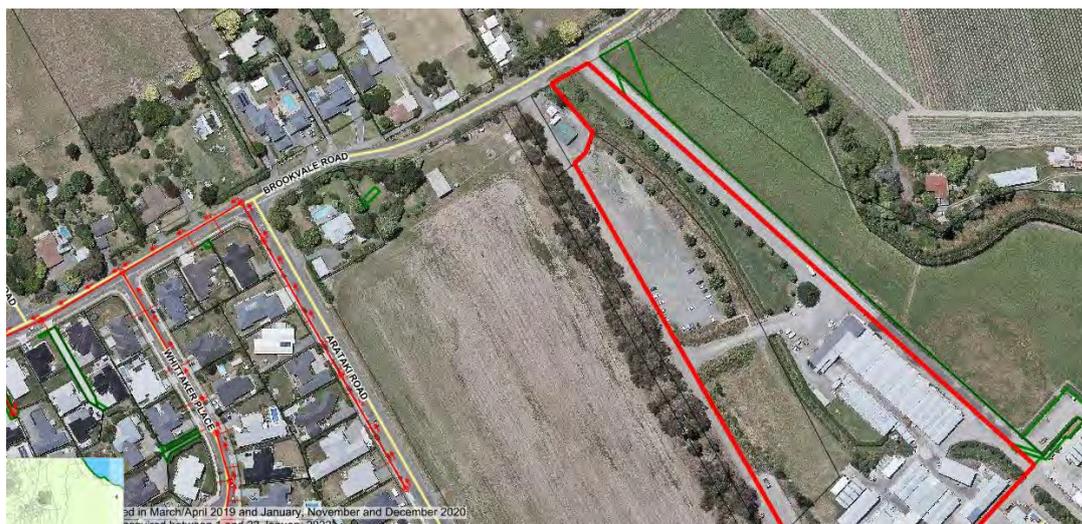
- Avoid blocking of overland flow paths.
- Provide a finished topography of the site to allow for a complying stormwater network to act as primary drainage.
- Provide a cut-off drain (along south-eastern boundary), which intercepts sheet flows and directs this into the eastern stream/channel which will convey flows around the development area.
- Provide adequate overland flow channels to convey stormwater runoff from the upstream catchment and sufficient capacity within the roading network to convey rainwater runoff from the site as secondary drainage.
- Ensure the design of flood flows mimics that of the pre-existing conditions as it tops over Brookvale Road.
- Ensure that there are no effects on any downstream properties which are currently impacted by flooding, of which would be demonstrated as part of the detailed Maven Associates flood modelling which would be provided in support of any substantive application.
- Freeboard above the 100yr design flood level to future floor levels will be as per the building code requirements.

5.0 WASTEWATER

The Council ECOP 2020 (Section 5: Wastewater) sets out the design principles for wastewater and requires any development project to be provided with a means of wastewater disposal.

5.1 WASTEWATER RETICULATION

Hastings Council IntraMaps identifies the subject site is not currently serviced by a public wastewater connection.



The subject site is proposed to be serviced by a new wastewater gravity network, which will be pumped from the site via a new public line and connect into the exiting public wastewater infrastructure. A new rising main will be installed and connected to a new stilling manhole to be located near the intersection of Brookvale Road/Arataki Road. The proposed wastewater drainage layout is subject to design and will follow road corridors to service each new dwelling. An indicative drainage layout is shown in Plan C501 for reference.

An existing public 375mm gravity trunk main is located to the west of the subject site and terminates in a manhole at the Brookvale Road and Arataki Road intersection. The existing wastewater line has an invert depth of 2.38m.

Downstream of the 375mm WW pipe the size increases to 600mm at Romane Drive and increases again to a 1200mm diameter pipe at Richmond Road to reach the treatment plant at 45 Grey Street.

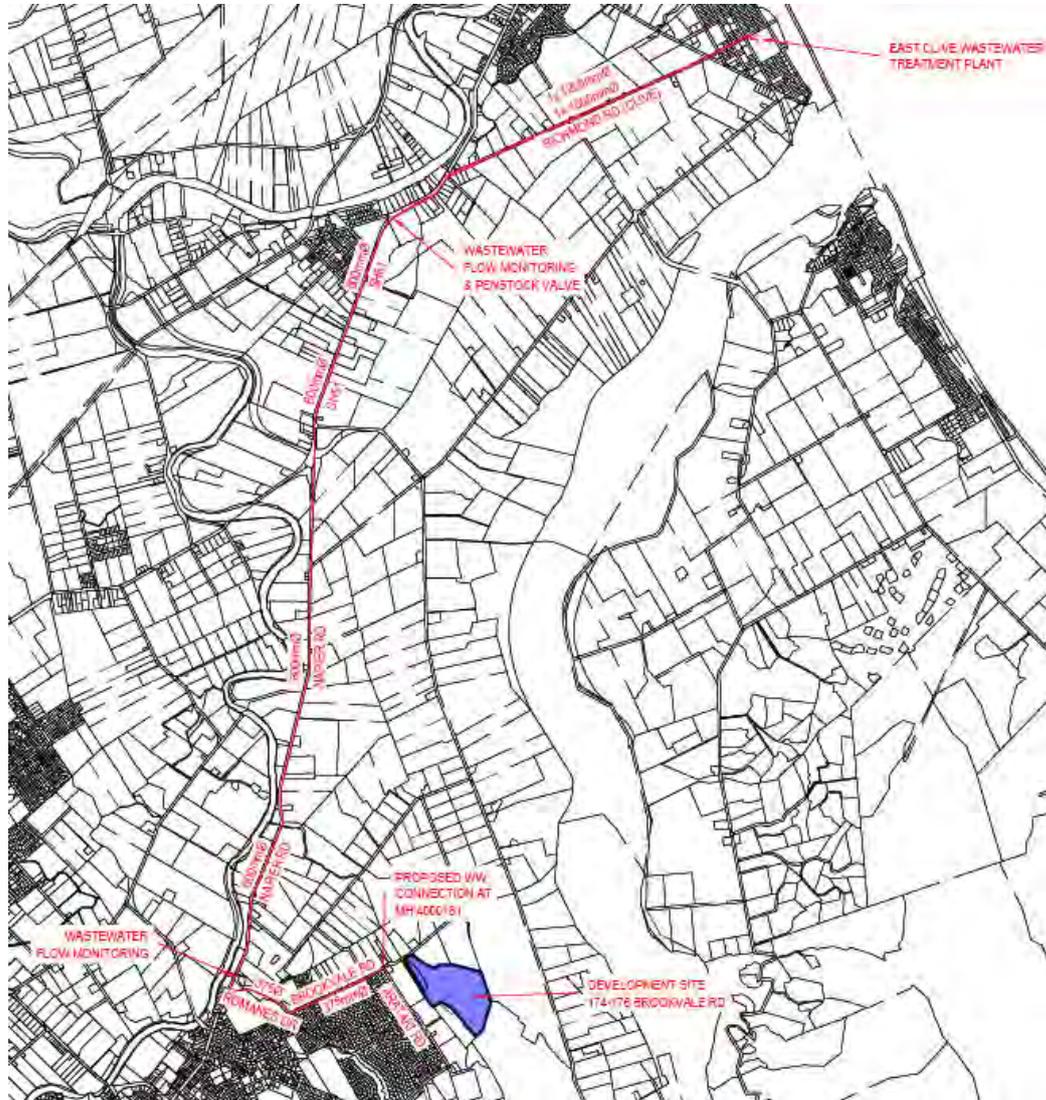


Figure 5.3 Maven Plan C501 – Public Wastewater Treatment Plant, 11.4km from the site

5.2 WASTEWATER CAPACITY

The proposed wastewater network will be designed to have sufficient capacity to cater for the design wet weather flow generated from the proposed development and will be subject to Engineering Plan Approval.

Calculations in accordance with the Hastings District Council Engineering Code of Practice show that a 215 - lot subdivision would create peak wet weather flow of 8.2 L/s (Peak Wet Weather Flow of 700m³/day). The concept and number of lots proposed may change, however it is expected that a relatively low demand will not put the downstream network over its available capacity. It is noted that the trigger value for the wastewater treatment plant was reported as 16,000 m³/day under capacity in 2022.

The pipe sizes within this network are suitably sized for the maximum probable development scenario and is considered to have sufficient capacity for wastewater conveyance.

The 9-year review report documented no capacity issues at the wastewater treatment plant up to December 2022. Correspondence with HDC regarding the modelled wastewater flow to the treatment plant and including the theoretical discharge from this site indicated only minor considerations from an operational point of view.

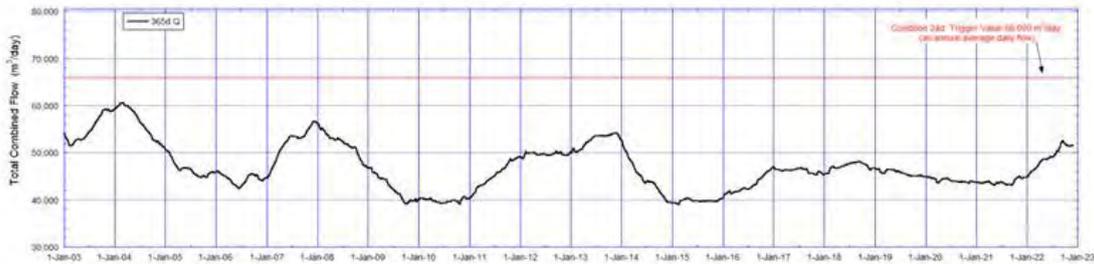


Figure 2 Moving 365-day Average Daily Flow (m³/day) calculated from flow measurements captured between January 2003 and December 2022

5.3 WASTEWATER CAPACITY CONSULTATION

A meeting was held with Hastings District Council (HDC) to discuss wastewater capacity and the ability for this site to be serviced in the future. Demand calculations and the general concept of the site development were provided. HDC has confirmed that there are no capacity issues in the Wastewater Network.

6.0 WATER SUPPLY

The Hasting District Council Engineering Code of Practice (ECOP) 2020, for development and subdivision, sets out the design principles for water supply and requires assessment against Section 6, Water Supply NZS 4404:2010. SNZPAS 4509:2008 NZ Fire Service Fire Fighting Water Supply Code of Practice.

6.1 WATER RETICULATION

The Hastings District Council IntraMaps indicate existing 300mm and 375mm public water pipes run to the north-west of the subject site in the road reserve of Brookvale Road, as indicated in Figure 6.1. It is proposed to connect to the existing water main network and extend a public water main into the site. A 180mm water main is to be constructed within the main road and 125mm mains in all local roads with fire hydrants, and rider mains on the opposite side of each road.



Figure 6.1 Council IntraMaps – Public Water Supply Networks

6.2 POTABLE WATER AND FIRE FIGHTING SUPPLY

The potable water demand has been calculated in accordance with the Hastings Code of Practice. For a 215 - dwelling subdivision, a peak water demand of 6 L/s will be required.

The minimum firefighting water supply classification for development in urban areas is FW2. Therefore, any future residential development must meet the following water supply requirements:

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

From correspondence with HDC it is expected that the above demand can be supplied by connecting to the west of the water supply pump station on Brookvale Road. A new water main can be extended to the intersection of Brookvale Road and the entry to the site. HDC have indicated that a capacity check can be done by their contractor and no constraints within the network is expected. Refer to Plan C600 which shows the proposed connection of the new 180mm main to the existing 300mm PVC water main.

6.3 WATER SUPPLY CAPACITY CONSULTATION

A meeting was held with Hastings District Council (HDC) to discuss water supply capacity and the ability for this site to be serviced in the future. Demand calculations and the general concept of the site development were provided. HDC has confirmed that there are no capacity issues in the Water Supply Network.

7.0 OTHER SERVICES

Telecommunications in the area are managed by Chorus. Details of any network extension or alteration will be agreed with this Private Utility Operator.

Power supply in the area is managed by Unison Networks Limited. Details of any network extension or alteration will be agreed with this Private Utility Operator.

Gas supply in the areas is managed by Powerco. Details of any network extension or alteration will be agreed with this Private Utility Operator.

8.0 RESPONSE TO COUNCIL FEEDBACK

8.1 HASTINGS DISTRICT COUNCIL (HDC)

The following section provides an initial response from Maven to the feedback received by HDC. We note that this is an interim response, which will be further discussed with HDC before lodgement of the future substantive application, and the detail required will be included within the substantive application itself.

8.1.1 Access

The concept plan is based on a primary access from Brookvale Road, as indicated within appended engineering plans. Maven notes that a possible connection through the CDL land has been enabled in the design, subject to further consultation and agreement. We also note that there could be emergency access provided to and from the site, via the JOAL and existing ROW to the west of the booster pump, subject to HDC agreement.

8.1.2 Water

It is confirmed that no water restrictions exist to enable the development of the site.

8.1.3 Wastewater

No further comments required, no restrictions on wastewater discharge. The design of the pumpstation concrete maintenance access and trafficable manhole lids will form part of the detailed design process during the substantive application. It is best practice to provide a surface around access lids which directs surface water flows away from those lids. The pump station will have a minimum of 150mm freeboard to the top water level of the nearest ponding to ensure this critical asset maintains functionality during a 100 yr ARI event.

To ensure access during storm events, the road levels will be designed to be trafficable before, during and after the 100yr ARI event. Although ponding is expected in the roads, it is envisaged that the depth and velocity of the flow in the roads will be suitable for traffic.

8.1.4 Stormwater

Detention targets are outlined within Section 4.3 of this Report. The attenuation requirements are for the post development discharge to be no greater than the pre-development flow in the 2 and 10-yr ARI event and up to 80% of the predevelopment flow in a 100yr event is required. Therefore, the target is to provide sufficient detention in the wetland basins to store the difference between the pre-development and post-development runoff volume of the 2 and 10 yr ARI events. Details of outlet controls and the assessment of effects to downstream culverts will form part of Maven's assessment and reporting for the substantive application.

8.1.5 Flooding

A preliminary flood model has been built by Maven Associates which has informed the design of the masterplan and associated high-level engineering response. Please refer to the summary of the design response under the flooding section (Section 4.6).

- Provide a cut-off drain (along south-eastern boundary), which intercepts sheet flows and directs this into the eastern stream/channel which will convey flows around the development area.
- Provide adequate overland flow channels to convey stormwater runoff from the upstream catchment and sufficient capacity within the roading network to convey rainwater runoff from the site as secondary drainage.
- Ensure the design of flood flows mimics that of the pre-existing conditions as it tops over Brookvale Road.
- Ensure that there are no effects on any downstream properties which are currently impacted by flooding, of which would be demonstrated as part of the detailed Maven Associates flood modelling which would be provided in support of any substantive application.
- Freeboard above the 100yr design flood level to future floor levels will be as per the building code requirements.

The specific details of the design are subject to further modelling, calibration and civil design, and will be detailed as part of the future substantive application.

8.1.6 Detention Ponds

The proximity of the wetland to the watercourse, the design of the slopes, and the final size of the devices are subject to detailed design as part of part of the future substantive application. Minor adjustment to the location of the devices is expected during the detailed design and after slope stability analysis by the Geotechnical Engineer. The overall size for the stormwater management devices allowed for, represent 4 - 6% of the total site size, this is considered best practice (it is conservative) for water quality treatment and attenuation purposes during the preliminary design phase as it allows for adequate amendment of the structures during the detailed design phase without significantly affecting the proposed development.

8.1.7 Earthworks

The Wetland basin slopes will comply with the Hawkes Bay Regional Council guidelines. This includes shallow 1 in 5 slopes, safety benches and a maximum upper slope of 1 in 3. The watercourse side slopes will be maximum 1 in 3 slope, with the aim to provide 1 in 5 slopes for areas which may require frequent access to be mowed, and footpaths will have cross fall and longitudinal fall of 1 in 200 and 1 in 8 maximum.

8.2 HAWKES BAY REGIONAL COUNCIL

8.2.1 Water Quality:

The construction of the wetlands will include a suitable size for the upstream catchment being treated. The HBRC guidelines will inform the detailed design of these structures and engineering approval will be required before construction, which will be the subject of conditions included within the substantive application. Excavation and formation of the wetland shape and pond batters will include slope stability assessment by the Geotechnical Engineer. It is likely that the base of the wetlands will include an impermeable barrier such as a clay liner to prevent soakage and to maintain the stability of the pond wall between the device and the conveyance channel. The wetland attenuation devices will also feature control structures to attenuate flow, and emergency spillways to allow for overtopping in desired locations only. Sediment and erosion control details will be included. Suitable access to the wetland devices for maintenance will be provided. The stormwater reserves will be vested in council as public assets.

8.2.2 Protection of source water

The stormwater design is not intended to discharge any stormwater to ground, as there is no soakage or recharge pits provided. The wetland basins will be lined, and all stormwater from the site will be discharged to the existing streams within the site, as to minimise any groundwater effects. On this basis, we don't see that there would be any impact, however, we acknowledge that any future geo-hydrological review of the site can be done to inform the substantive application.

9.0 CONCLUSIONS

The report outlines the high-level civil servicing strategy for the intended Fast Track development. The concept plans demonstrate that the development will deliver circa 189 residential lots to Havelock North.

Earthworks will be required in support of any future proposal to allow for the construction of building platforms, accessways and services. The final design will be subject to further geotechnical input. Specific details relative to sediment and erosion control will be provided in support of any future resource consent application(s).

The development has suitable legal access from Brookvale Road. The road network will be formed to provide safe access to all areas, and any future developed design will comply with best practice and development standards.

A new stormwater network will need to be constructed, and this will provide a means of stormwater disposal for the public roads and all future lots and houses. The network will be designed in Section 2 NZS 4404:2010 Stormwater design and construction standards of the Hastings Council ECOP 2020.

The site is not located in a mapped flood plain. Maven Associates have built a flood model for the catchment, and this has been used in development of the overall masterplan and civil engineering response to the site. The civil design will allow for sheet flows from the upstream catchment, before directing this flow around the eastern channel and away from the development areas. Any future substantive application would be supported by a full flood model and assessment, of which will demonstrate no upstream and/or downstream effects being created by the development.

All units will be provided with freeboard in accordance with the NZBC and developable areas are removed from these hazards. The need to provide attenuation in support of the development has

been worked through with HDC, and attenuation for the 2, 10 and 100-yr design rainfall events will be provided via way of the wetlands indicated on the appended plans.

Suitable wastewater disposal can be provided for the development. The new gravity wastewater network on site can drain to a pumpstation. The new pumpstation can pump to a public manhole within Brookvale Road via a rising main. There are no known network capacity issues.

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

The development has suitable legal access from Brookvale Road. The road network will be formed to provide safe access to all areas, and any future developed design will comply with best practice and development standards. There are no known transport related issues in this area.

Water supply for the development will be provided by way of a new watermain network within the site, connected to the public supply within Brookvale Road. There are no known network capacity issues.

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

APPENDIX A – ENGINEERING PLANS



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY CIRCUIT 2000.
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
 4. ORIGIN OF LEVELS = IT IV S01837 SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.
 6. LEGAL DESCRIPTION : LOT 1 & 2 DP 16311 , LOT 2 DP 7771, LOT 2 DP 529421

- LEGEND
- EX BDY
 - EX EASEMENT
 - EX TITLE BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - EX WASTEWATER
 - EX STORMWATER
 - EX WATER MAIN
 - EX GAS
 - EX POWER
 - EX OVERHEAD POWER
 - EX TELECOM
 - EX TOP OF BANK
 - EX FENCE
 - EX BUILDING
 - EX OPEN DRAIN

A	DRAFT RC	RLK	02/2025
Rev	Description	By	Date
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	RLK		12/02/25
Checked	BB JS		02/2025



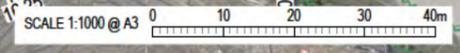
Project
**174 & 176 BROOKVALE
 HAVELOCK NORTH
 FOR VERMONT STREET
 PARTNERS LTD No. 4**

Title
**TOPOGRAPHICAL
 SURVEY
 PLAN**

Project no.	135041
Scale	1:1000 @ A3
Cad file	135041-C050-TOPO.DWG
Drawing no.	C052
Rev	A



DRAFT FOR REVIEW



DATE: 21/02/25 FILE: P:\174_176_BROOKVALE\PROJECTS\174_176_BROOKVALE\EDWG\050-TOPO.DWG



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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX GAS
	EX POWER
	EX OVERHEAD POWER
	EX TELECOM
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX OPEN DRAIN

A	DRAFT RC	RLK	02/2025
Rev	Description	By	Date
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	RLK		12/02/25
Checked	BB JS		02/2025

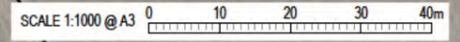
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Project
**174 & 176 BROOKVALE
 HAVELOCK NORTH
 FOR VERMONT STREET
 PARTNERS LTD No. 4**

Title
**TOPOGRAPHICAL
 SURVEY
 PLAN**

Project no.	135041
Scale	1:1000 @ A3
Cad file	135041-C050-TOPO.DWG
Drawing no.	C053
Rev	A

DRAFT FOR REVIEW



DATE: 21/02/25 FILE: P:\Maven\Projects\174&176 Brookvale\DWG\105-TOPO.DWG



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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX GAS
	EX POWER
	EX OVERHEAD POWER
	EX TELECOM
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX OPEN DRAIN

A	DRAFT RC	RLK	02/2025
Rev	Description	By	Date
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	RLK		12/02/25
Checked	BB JS		02/2025

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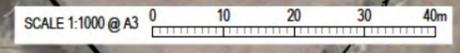
Project
**174 & 176 BROOKVALE
 HAVELOCK NORTH
 FOR VERMONT STREET
 PARTNERS LTD No. 4**

Title
**TOPOGRAPHICAL
 SURVEY
 PLAN**

Project no.	135041
Scale	1:1000 @ A3
Cad file	135041-C050-TOPO.DWG
Drawing no.	C054
Rev	A



DRAFT FOR REVIEW



DATE: 21/02/25 FILE: P:\Maven\PROJECTS\174&176 BROOKVALE\DWG\1000-TOPO.DWG



- NOTES
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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX GAS
	EX POWER
	EX OVERHEAD POWER
	EX TELECOM
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX OPEN DRAIN

A	DRAFT RC	RLK	02/2025
Rev	Description	By	Date
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	RLK		12/02/25
Checked	BB JS		02/2025

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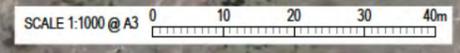
Project
**174 & 176 BROOKVALE
 HAVELOCK NORTH
 FOR VERMONT STREET
 PARTNERS LTD No. 4**

Title
**TOPOGRAPHICAL
 SURVEY
 PLAN**

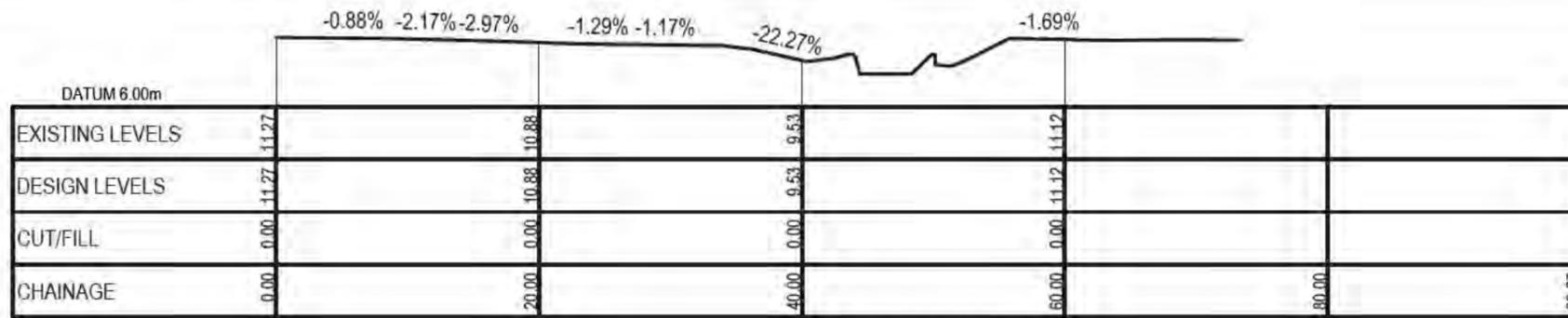
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Cad file	135041-C050-TOPO.DWG
Drawing no.	C055
Rev	A



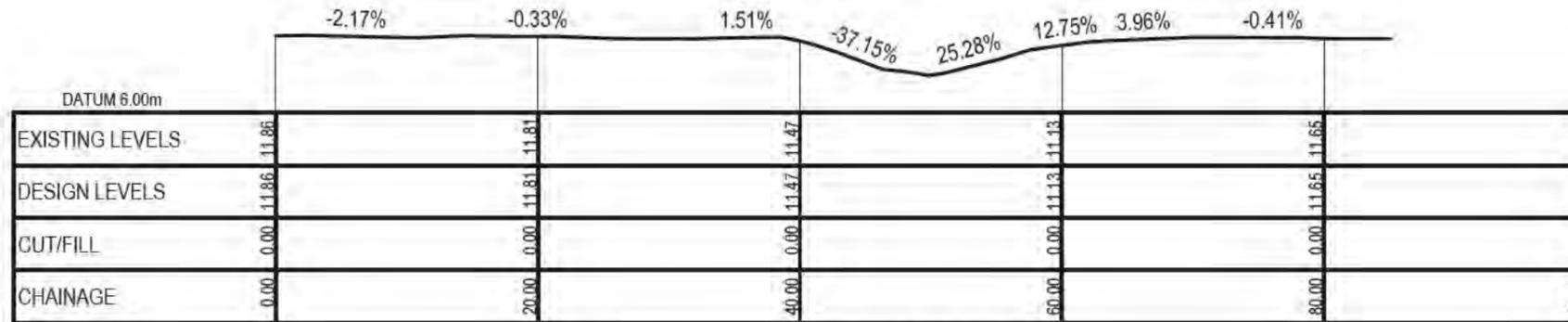
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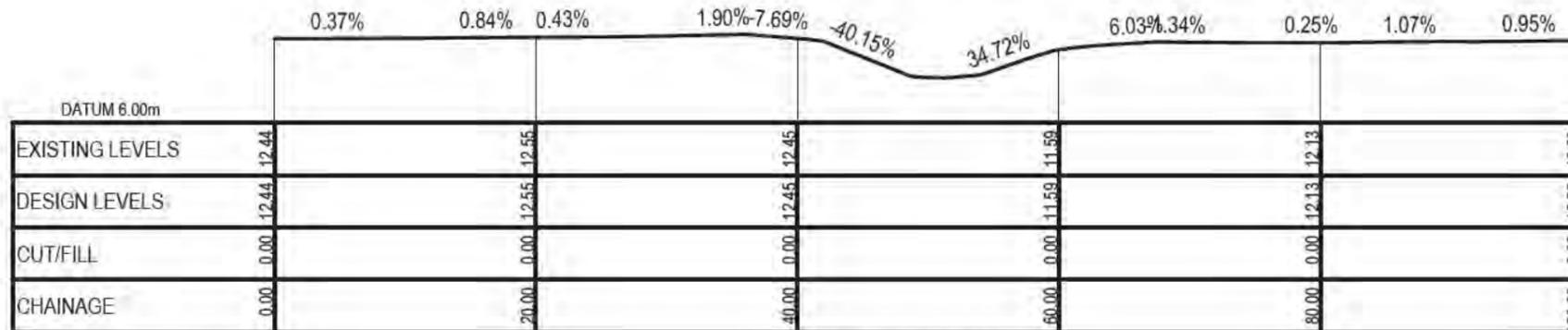
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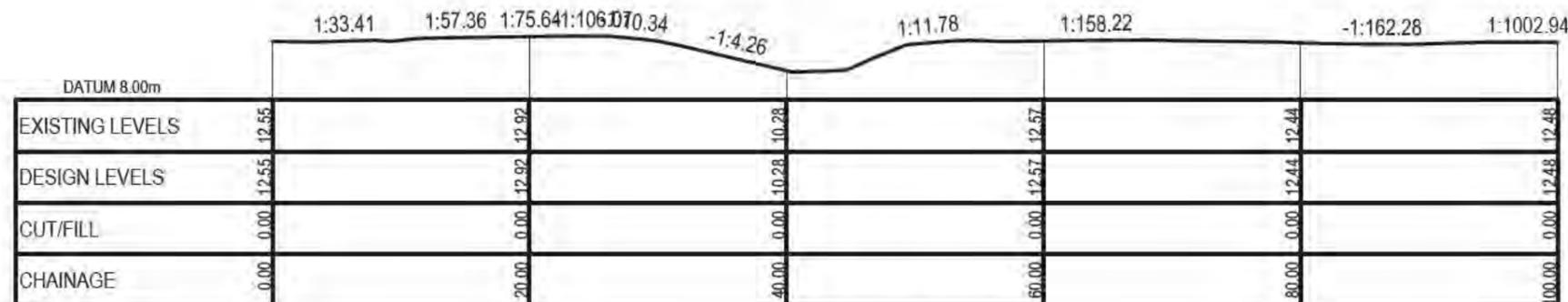
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SCALE: HORI 1:1000 VERT 1:1000



CROSS SECTION 2
SCALE: HORI 1:1000 VERT 1:1000



CROSS SECTION 3
SCALE: HORI 1:1000 VERT 1:1000



CROSS SECTION 4
SCALE: HORI 1:1000 VERT 1:1000

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Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025



Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No. 4**

Title
**EXISTING STREAM
CROSS SECTION
PLAN**

Project no.	135041
Scale	1:2500 @ A3
Cad file	135041-C060-STREAM SEC.DWG
Drawing no.	C061
Rev	A

FOR INFORMATION



LEGAL LOT BOUNDARY

LOT 21 DP 3449

5.76m

20.00m

APPROXIMATE INVERT LEVEL RL 8.8m

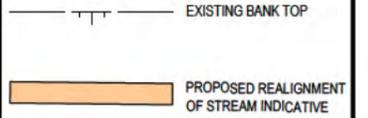
PROPOSED REALIGNMENT TO HAVE SIMILAR DIMENSIONS AND WILL BE 25M LONGER. LONGITUDINAL SLOPE REDUCES TO 0.6%

CONVEYANCE CHANNEL IS APPROXIMATELY 18m WIDE WITH 1:3 SLOPES AND 0.65% LONGITUDINAL SLOPE

LOT 1 DP 16311

APPROXIMATE INVERT LEVEL RL 10.4m

- NOTES
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A	FOR FAST TRACK REFERRAL	BB	08/2025
Rev	Description	By	Date
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	RLK		02/2025
Checked	BB JS		02/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**CHANNEL REALIGNMENT
 OVERVIEW
 PLAN**

Project no.	135041
Scale	1:2500 @ A3
Cad file	135041-C061-IR_BB.DWG
Drawing no.	C063
Rev	A

FOR INFORMATION

DATE: 01/25 FILE: P:\Maven\Projects\135041 Brookvale Epsom\135041-IR_BB.DWG



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
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LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR RETAINING WALL
	PR DETENTION BASIN
	PR DIVERSION CHANNEL

Rev	Description	By	Date
A	FOR FAST TRACK APPROVAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No.4**

Title
**PROPOSED
 STREAM / CHANNEL
 PLAN**

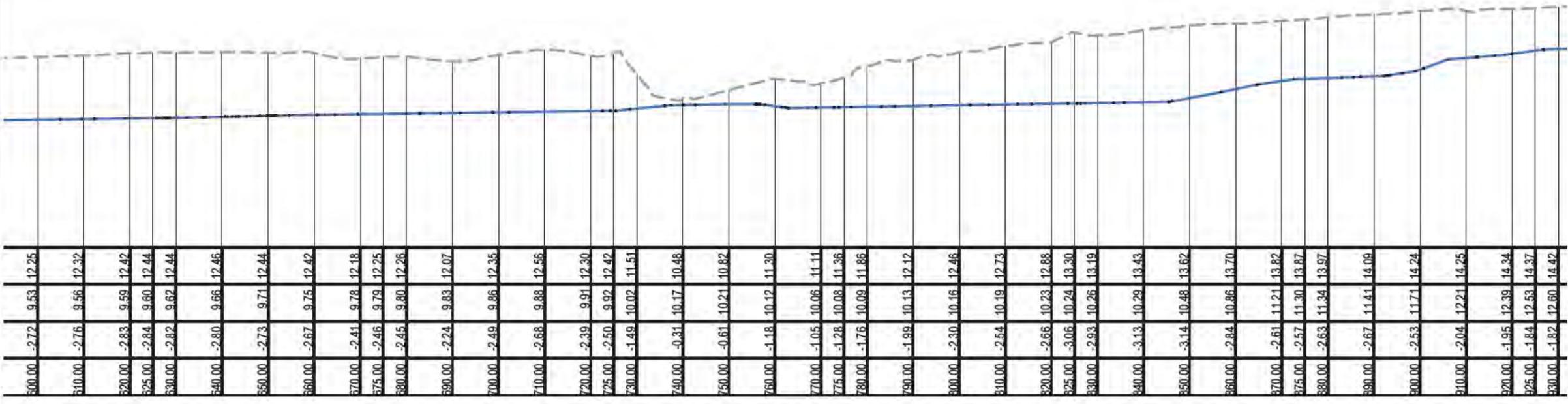
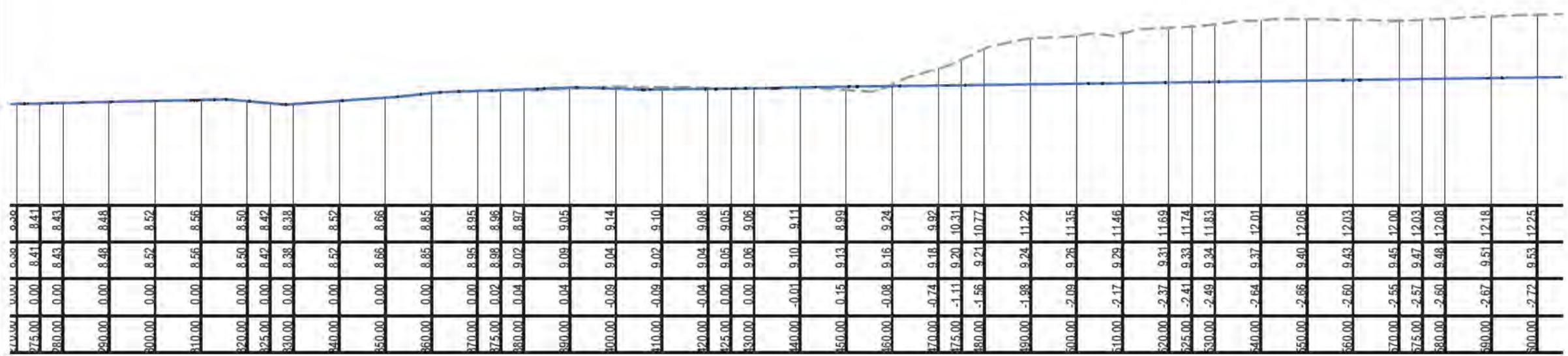
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Cad file	135041-C070 PROPOSED OLP CHANNELS.DWG
Drawing no.	C070
Rev	A

FOR INFORMATION

- NOTES
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DATUM 4.00m

EXISTING LEVELS	0.00	10.00	20.00	25.00	30.00	40.00	50.00	60.00	70.00	75.00	80.00	90.00	100.00	110.00	120.00	125.00	130.00	140.00	150.00	160.00	170.00	175.00	180.00	190.00	200.00	210.00	220.00	225.00	230.00	240.00	250.00	260.00	270.00	275.00	280.00	290.00		
DESIGN LEVELS	8.15	7.87	7.95	8.05	8.15	7.98	7.82	7.80	7.90	7.90	7.90	7.90	7.90	7.94	8.02	8.08	8.16	8.14	8.09	8.09	8.02	8.06	8.11	8.11	7.94	8.17	8.40	8.11	8.08	8.85	8.07	8.08	8.21	8.32	8.38	8.41	8.43	8.48
CUT/FILL	0.00	0.00	0.00	0.00	0.00	-0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.32	-0.85	-1.13	-1.32	-0.50	-1.18	-1.47	-0.84	-0.76	-0.77	-1.07	-1.32	-0.38	0.00	0.00	0.00	0.00	
CHAINAGE	0.00	10.00	20.00	25.00	30.00	40.00	50.00	60.00	70.00	75.00	80.00	90.00	100.00	110.00	120.00	125.00	130.00	140.00	150.00	160.00	170.00	175.00	180.00	190.00	200.00	210.00	220.00	225.00	230.00	240.00	250.00	260.00	270.00	275.00	280.00	290.00		



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Rev	Description	By	Date
A	FOR FAST TRACK APPROVAL	BB	08/2025
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Design	BB		03/2025
Drawn	SS		06/2025
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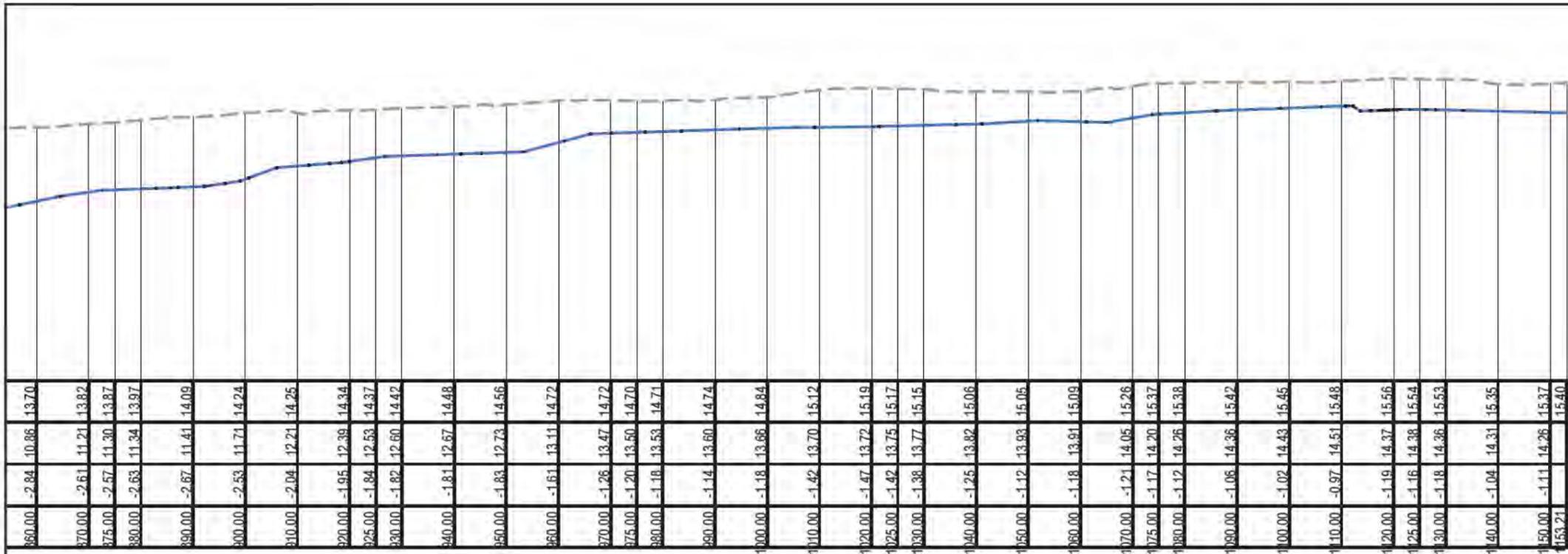
Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No.4**

Title
**PROPOSED
 CHANNEL LONG
 SECTIONS PLAN**

Project no.	135041
Scale	##### @ A3
Cad file	135041-C070 PROPOSED OUPP CHANNELS.DWG
Drawing no.	C071
Rev	A

FOR INFORMATION

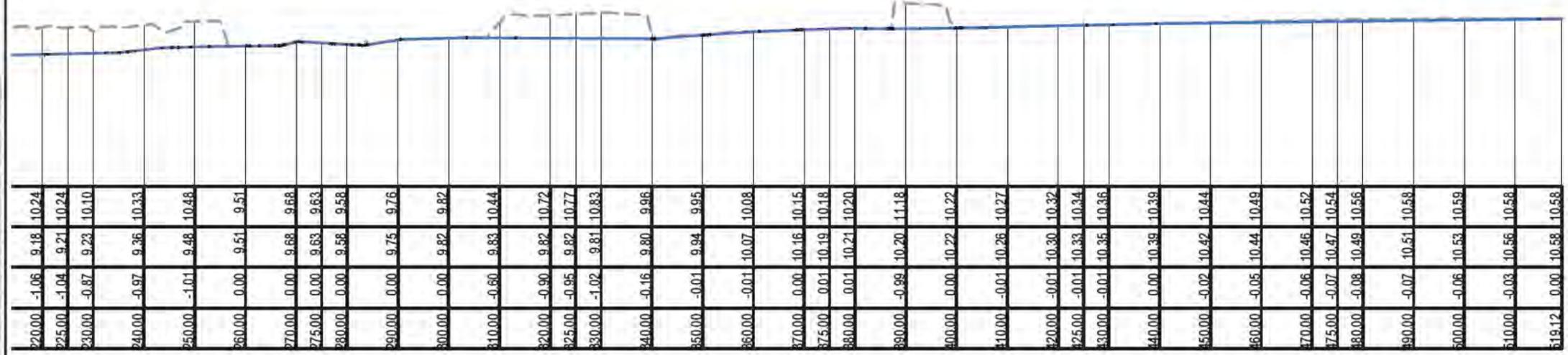
EASTERN CHANNEL
 SCALE 1:1000h 1:200v



EASTERN CHANNEL
SCALE 1:1000h 1:200v

DATUM 4.00m	
EXISTING LEVELS	9.27
DESIGN LEVELS	8.44
CUT/FILL	0.00
CHAINAGE	0.00
	10.00
	20.00
	25.00
	30.00
	40.00
	50.00
	60.00
	70.00
	75.00
	80.00
	90.00
	100.00
	110.00
	120.00
	125.00
	130.00
	140.00
	150.00
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	210.00
	220.00
	225.00
	230.00
	240.00
	250.00
	260.00
	270.00
	275.00
	280.00
	290.00

WESTERN CHANNEL
SCALE 1:1000h 1:200v



WESTERN CHANNEL
SCALE 1:1000h 1:200v

- NOTES
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--- EGL
— PGL

Rev	Description	By	Date
A	FOR FAST TRACK APPROVAL	BB	08/2025

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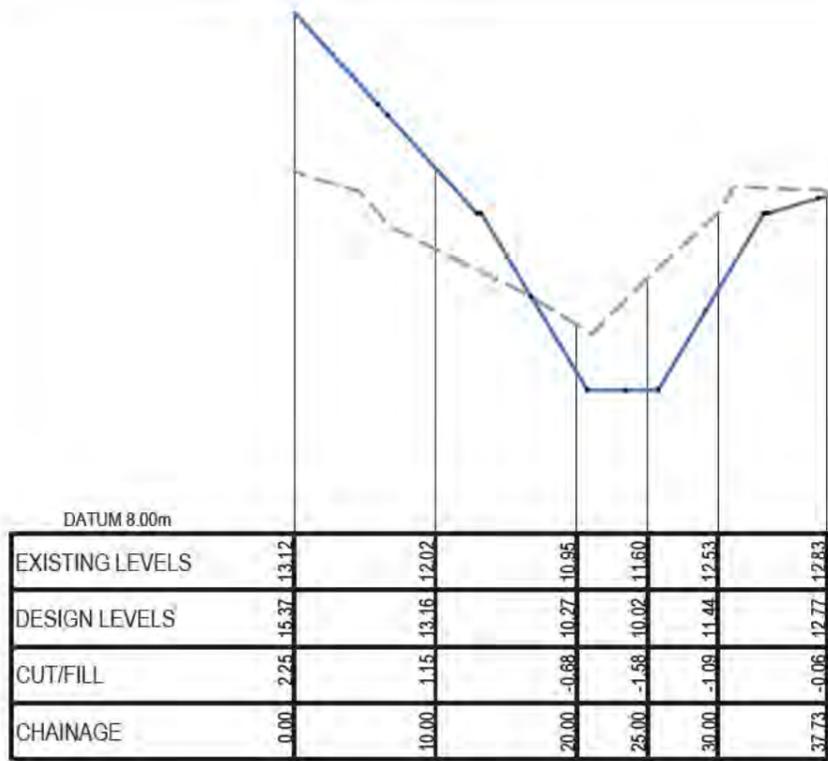
Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No.4**

Title
**PROPOSED
CHANNEL LONG
SECTIONS PLAN**

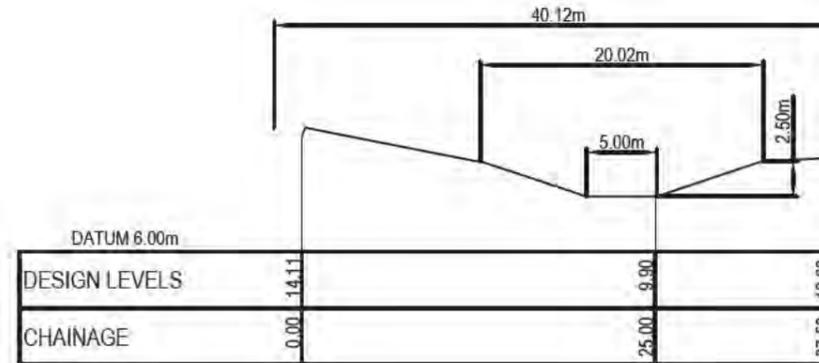
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Drawing no.	C072
Rev	A

FOR INFORMATION

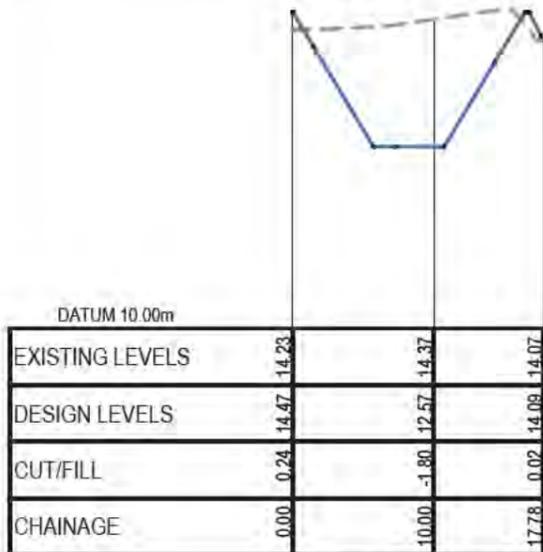
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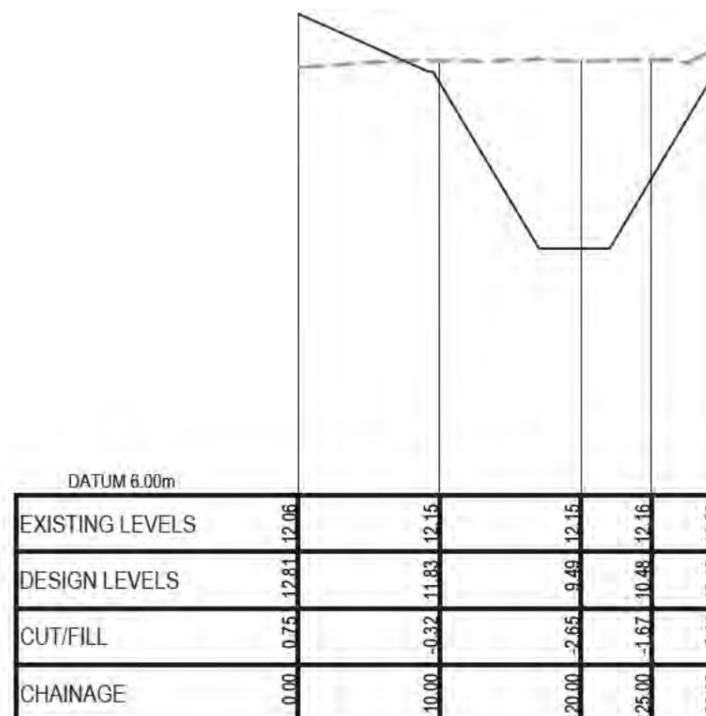
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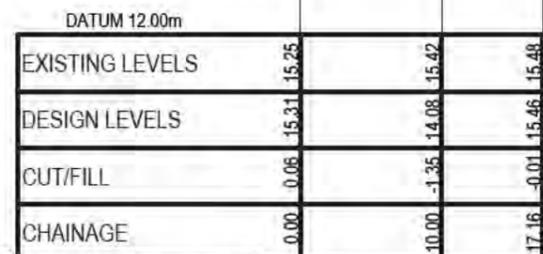
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EASTERN CHANNEL CROSS SECTION 2



EASTERN CHANNEL CROSS SECTION 4 scale 1:500h vs 1:100v



EASTERN CHANNEL CROSS SECTION 1

FOR INFORMATION

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
 4. ORIGIN OF LEVELS - IT IV S01837 SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.
 6. LEGAL DESCRIPTION - LOT 1 & 2 DP 16311, LOT 2 DP 7771, LOT 2 DP 529421

--- EGL
 --- PGL

Rev	Description	By	Date
A	FOR FAST TRACK APPROVAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No.4**

Title
**PROPOSED
 CHANNEL CROSS
 SECTIONS PLAN**

Project no.	135041
Scale	#### @ A3
Card file	135041-C070 PROPOSED ODFP CHANNELS.DWG
Drawing no.	C073
Rev	A



STORMWATER RESERVE
TO VEST = 1,075m²

STORMWATER RESERVE
TO VEST = 8,297m²

ROADS TO VEST = 57,455m²

STORMWATER RESERVE
TO VEST = 35,696m²

DRAINAGE RESERVE
WASTEWATER TO VEST =
526m²

STORMWATER RESERVE
TO VEST = 8,169m²

EXISTING ROAD ACCESS
LOT = 3,409m²

PEDESTRIAN ACCESS
RESERVE TO VEST = 401m²

STORMWATER RESERVE
TO VEST = 2,550m²

STORMWATER RESERVE
TO VEST = 4,165m²

STORMWATER RESERVE
TO VEST = 1,016m²

A	DRAFT	XX	2025
Rev	Description	By	Date
Survey	BY		MM/YYYY
Design	BY		MM/YYYY
Drawn	BY		MM/YYYY
Checked	BY		DATE

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Project
BROOKVALE GREEN
174 & 176 BROOKVALE
ROAD
FOR
VERMONT STREET

Title
PARTNERS NO. 4 LTD
LAND VESTING
PLAN

Project no.	135041
Scale	CUSTOM @ A3
Cad file	135041-C150.DWG
Drawing no.	C100-1
Rev	A

DRAFT FOR REVIEW

DATE: 15/05/2024 11:58:10 AM FILE: I:\PROJECTS\135041\135041-C150.DWG



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
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 6. LEGAL DESCRIPTION - LOT 1 & 2 DP 16311, LOT 2 DP 7771, LOT 2 DP 529421

LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR RETAINING WALL
	PR DETENTION BASIN
	PR DIVERSION CHANNEL

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

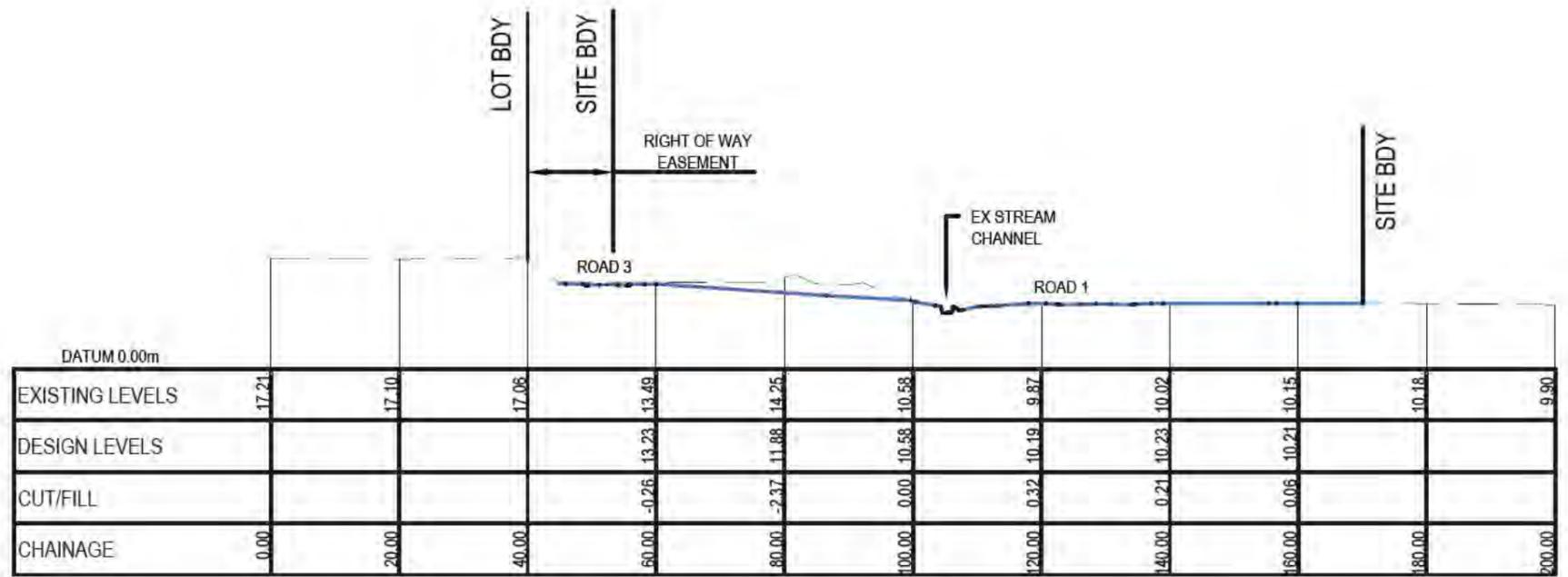
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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No.4**

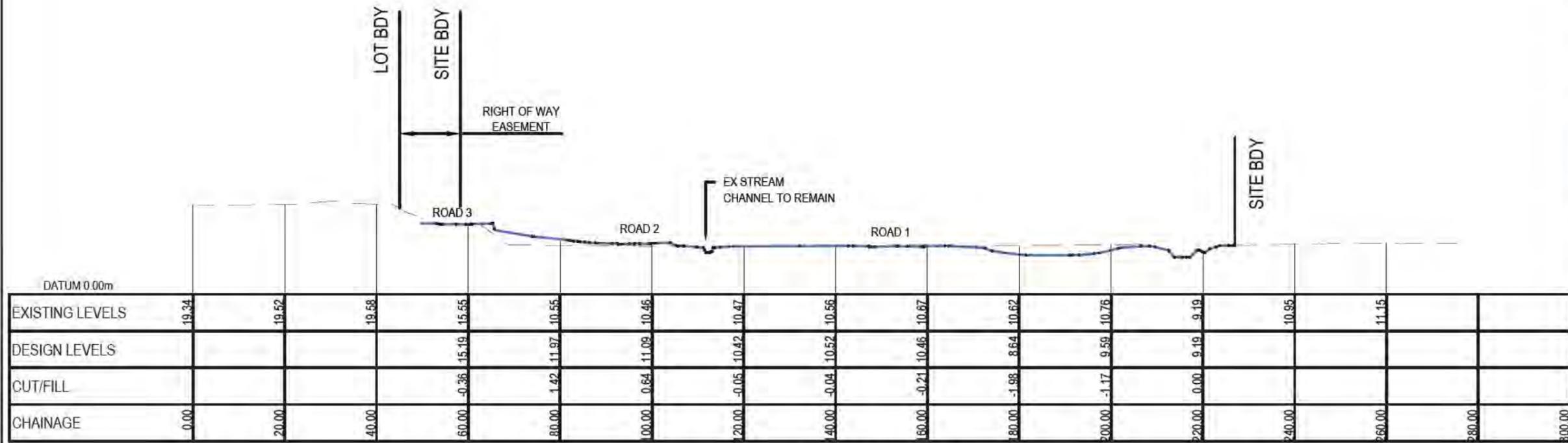
Title
**PROPOSED CONTOURS
 AND SECTIONS
 PLAN**

Project no.	135041
Scale	##### @ A3
Cad file	135041-C200.DWG
Drawing no.	C200
Rev	A

FOR INFORMATION



CROSS SECTION - 1
SCALE: HORI 1:2000 VERT 1:2000



CROSS SECTION - 2
SCALE: HORI 1:2000 VERT 1:2000

FOR INFORMATION

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
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 6. LEGAL DESCRIPTION - LOT 1 & 2 DP 16311, LOT 2 DP 7771, LOT 2 DP 529421

--- EGL
--- PGL

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

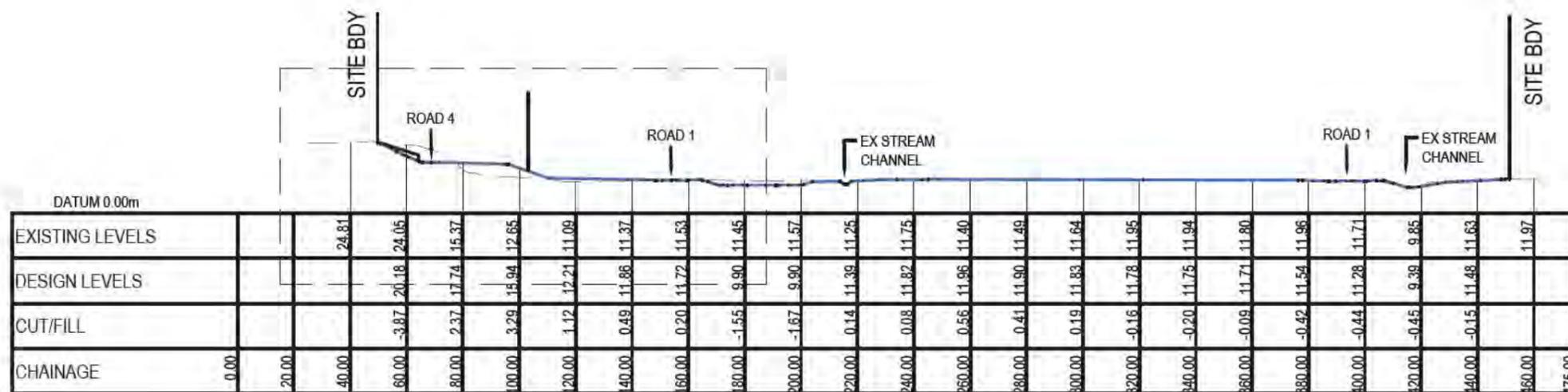
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Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No.4**

Title
**PROPOSED
SITE CROSS SECTIONS**

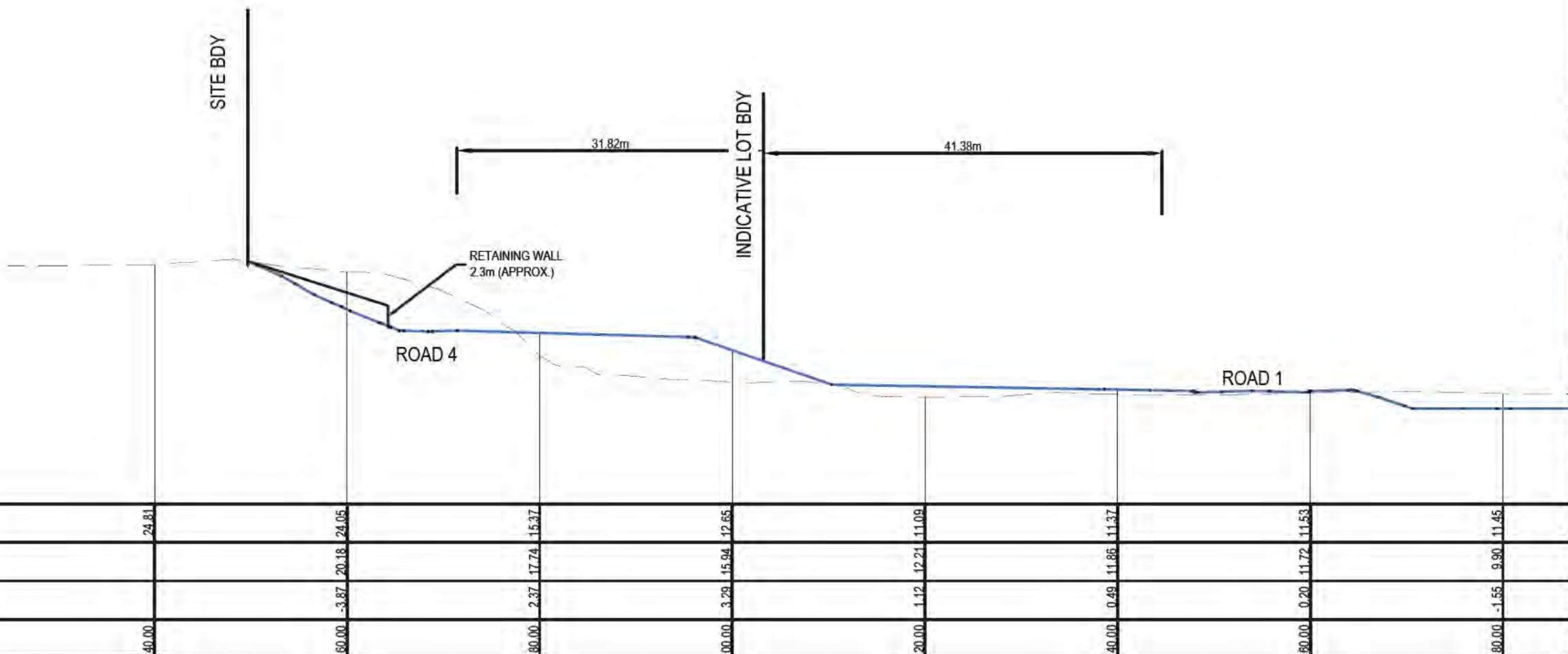
Project no.	135041
Scale	#### @ A3
Cad file	135041-C200.DWG
Drawing no.	C221
Rev	A

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
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 6. LEGAL DESCRIPTION - LOT 1 & 2 DP 16311, LOT 2 DP 7771, LOT 2 DP 529421



CROSS SECTION - 3
SCALE: HORI 1:2000 VERT 1:2000

--- EGL
— PGL



Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No.4**

Title
**PROPOSED
SITE CROSS SECTIONS**

Project no.	135041
Scale	#### @ A3
Cad file	135041-C200.DWG
Drawing no.	C222
Rev	A

FOR INFORMATION



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

LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		03/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No.4**

Title
**PROPOSED
 EARTHWORKS
 ESCP PLAN**

Project no.	135041
Scale	#### @ A3
Cad file	135041-C200.DWG
Drawing no.	C230
Rev	A

DRAFT FOR REVIEW



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
 4. ORIGIN OF LEVELS = IT IV S01837 SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.
 6. LEGAL DESCRIPTION : LOT 1 & 2 DP 16311 , LOT 2 DP 7771, LOT 2 DP 529421

LEGEND

	PR BDY
	EX BDY
	REFERENCE TITLE
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	TOP OF BATTER
	BOTTOM OF BATTER
	PR DETENTION BASIN
	PR RETAINING WALL
	LANDSCAPE BUFFER

Rev	Description	By	Date
A	FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		06/2025
Drawn	SS		06/2025
Checked	BB		06/2025

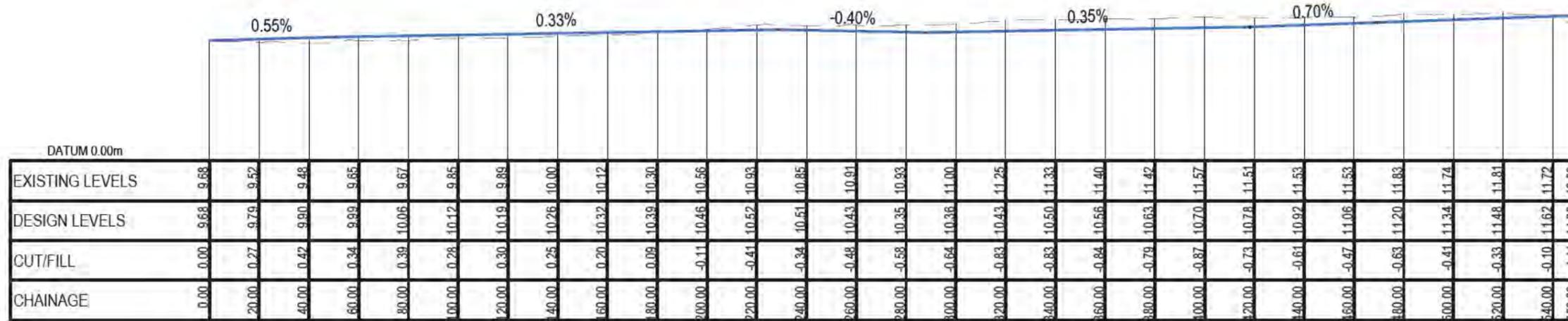
M Maven Associates
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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

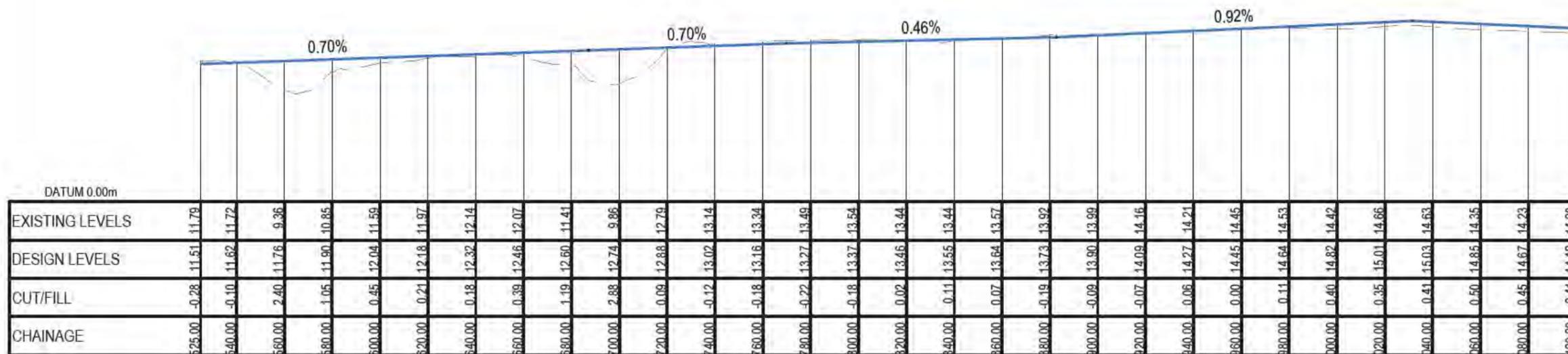
Title
**PROPOSED
 ROADING
 PLAN**

Project no.	135041
Scale	#### @ A3
Cad file	135041-C300.DWG
Drawing no.	C300
Rev	A

FOR INFORMATION



PROPOSED ROAD 1, 21m WIDE ROAD RESERVE
SCALE: HORI 1:1000 VERT 1:200



PROPOSED ROAD 1 - CONTINUED, 21m WIDE ROAD RESERVE
SCALE: HORI 1:1000 VERT 1:200



PROPOSED ROAD 1 - CONTINUED, 21m WIDE ROAD RESERVE
SCALE: HORI 1:1000 VERT 1:200

--- EGL
— PGL

Rev	Description	By	Date
A	FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		06/2025
Drawn	SS		06/2025
Checked	BB		06/2025

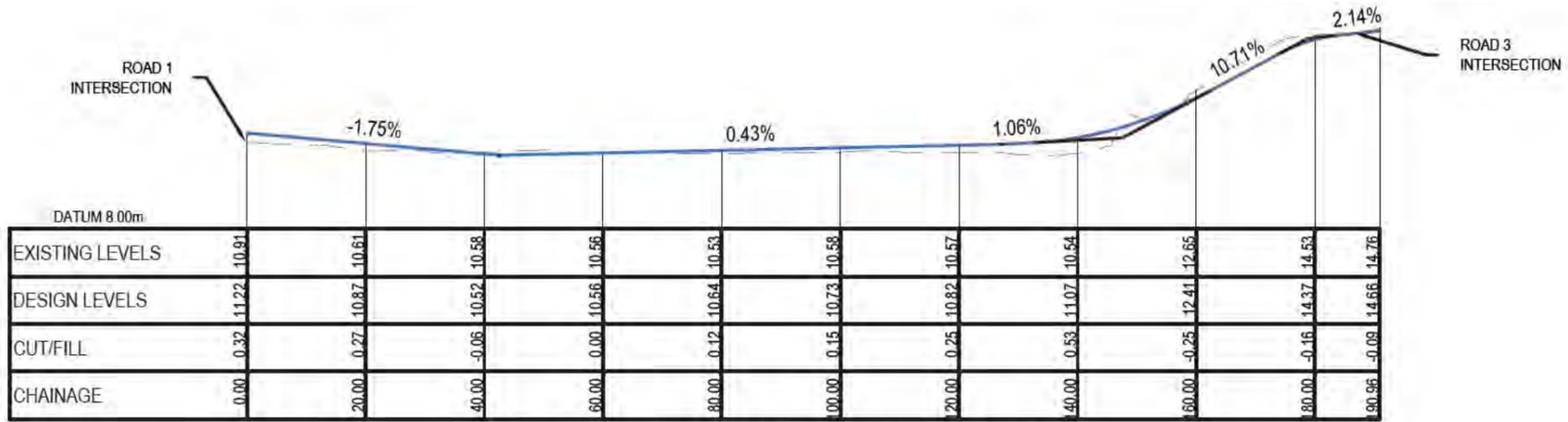


Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No. 4**

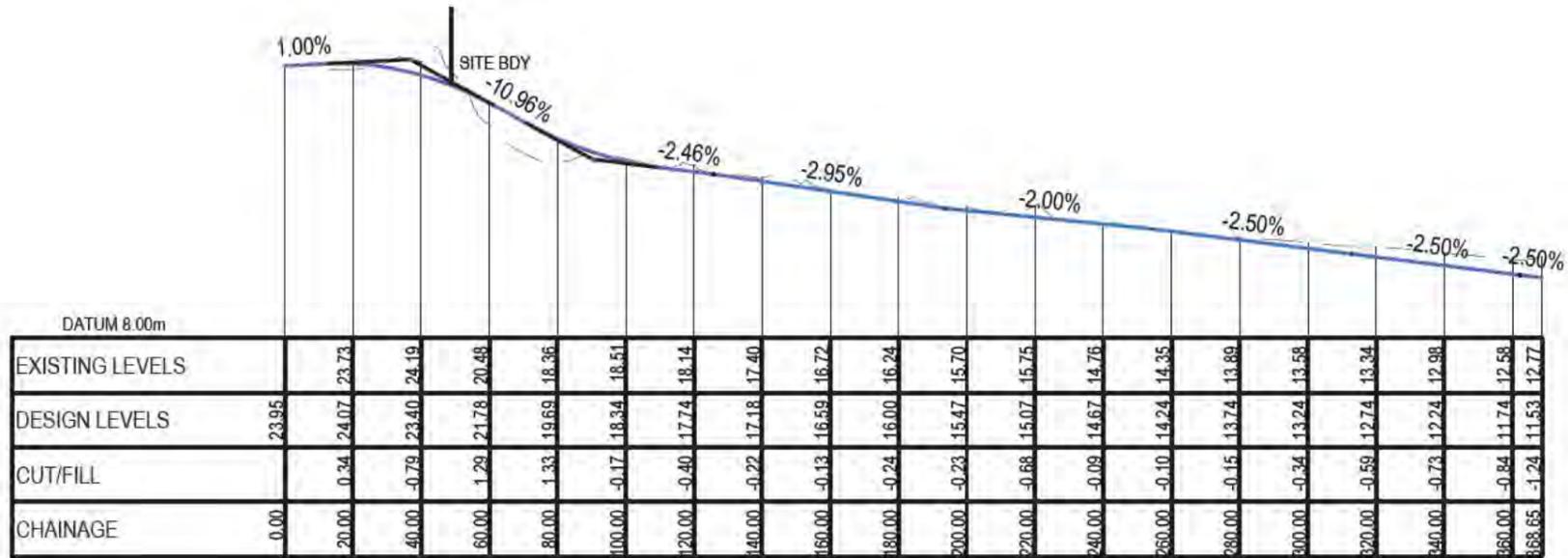
Title
**PROPOSED
ROADING
LONGSECTION**

Project no.	135041
Scale	1:2000 @ A3
Cad file	135041-C300.DWG
Drawing no.	C320
Rev	A

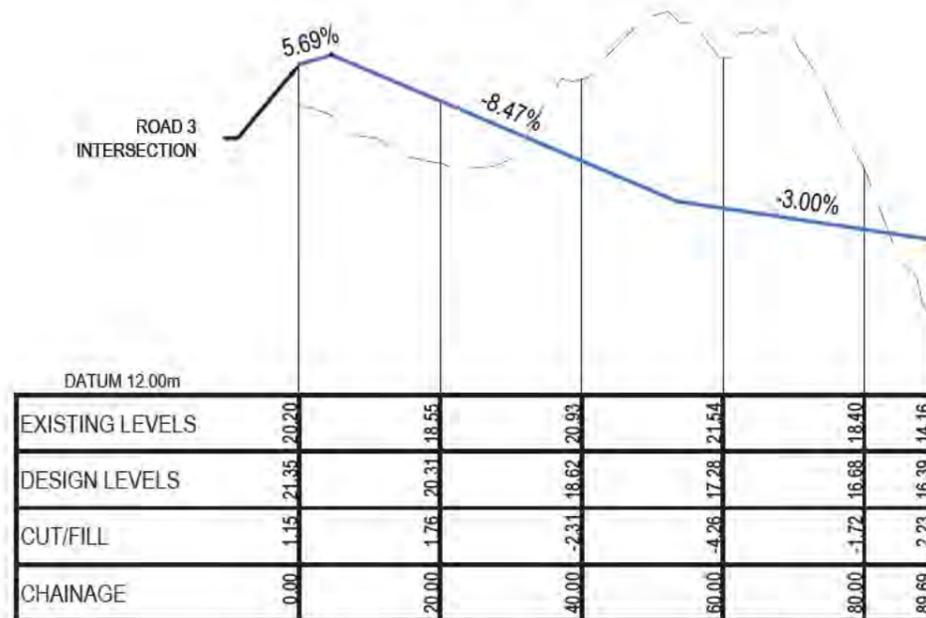
FOR INFORMATION



PROPOSED ROAD 2, 15m WIDE ROAD RESERVE
SCALE: HORI 1:1000 VERT 1:200



PROPOSED ROAD 3, 15m WIDE ROAD RESERVE
SCALE: HORI 1:1000 VERT 1:200



PROPOSED ROAD 4, 6m WIDE ACCESS
SCALE: HORI 1:1000 VERT 1:200

--- EGL
— PGL

Rev	Description	By	Date
A	FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		06/2025
Drawn	SS		06/2025
Checked	BB		06/2025



Project
**BROOKVALE GREEN
HAVELOCK NORTH
FOR
VERMONT STREET
PARTNERS LTD No. 4**

Title
**PROPOSED
ROADING
LONGSECTION**

Project no.	135041
Scale	##### @ A3
Cad file	135041-C300.DWG
Drawing no.	C321
Rev	A

FOR INFORMATION



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
 4. ORIGIN OF LEVELS = IT V SO1837 SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.
 6. LEGAL DESCRIPTION: LOT 1 & 2 DP 16311, LOT 2 DP 7771, LOT 2 DP 529421

LEGEND

	PR BDY
	EX BDY
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR PUBLIC SW
	PERMANENT STREAMS
	PR WW RISING MAIN
	PR DETENTION BASIN

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 STORMWATER DRAINAGE
 CONCEPT PLAN**

Project no.	135041		
Scale	CUSTOM @ A3		
Cad file	135041-C400.DWG		
Drawing no.	C400	Rev	A

FOR INFORMATION



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016
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LEGEND

	PR BDY
	EX BDY
	PR PUBLIC SW
	PERMANENT STREAMS
	PR WW RISING MAIN
	PR DETENTION BASIN

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 STORMWATER DRAINAGE
 CATCHMENT PLAN**

Project no.	135041
Scale	CUSTOM @ A3
Cad file	135041-C400.DWG
Drawing no.	C401
Rev	A

FOR INFORMATION

DATE: 01/25 FILEPATH: F:\Maven\Projects\135041 Brookvale Green\Drawings\DWG



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM HAWKES BAY 2000
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LEGEND

	PR BDY
	EX BDY
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PR PUBLIC SW
	SECONDARY OLFP
	PR DETENTION BASIN

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 STORMWATER DRAINAGE
 100YR CATCHMENT PLAN**

Project no.	135041
Scale	CUSTOM @ A3
Cad file	135041-C400.DWG
Drawing no.	C402
Rev	A

FOR INFORMATION



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
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LEGEND

	PR BDY
	EX BDY
	EX PUBLIC WW
	PR PUBLIC WW
	PR PRIVATE WW
	PR WW RISING MAIN
	PR PUBLIC SW
	PR DETENTION BASIN
	PR WW PUMP STATION

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
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 PARTNERS LTD No. 4**

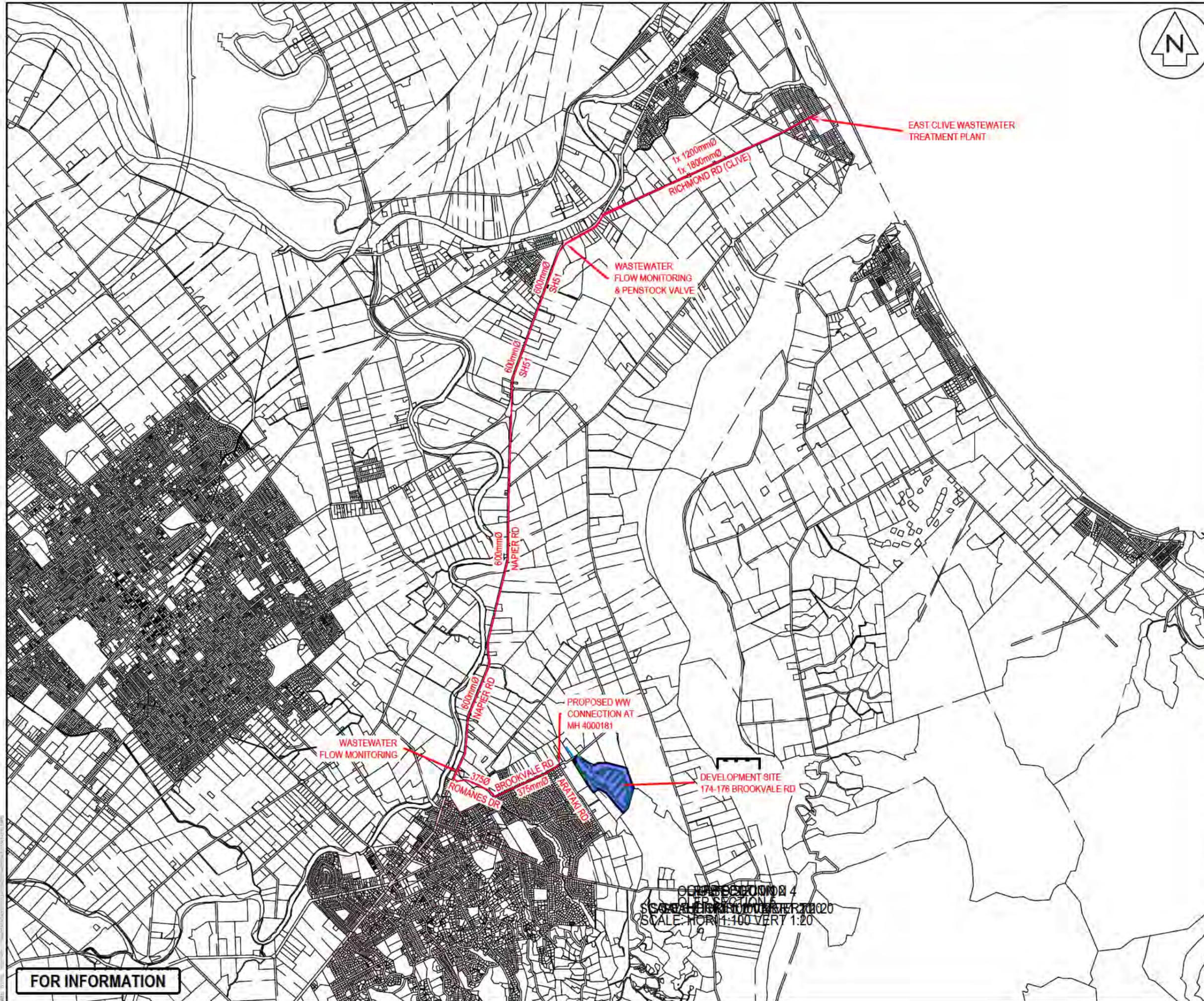
Title
**PROPOSED
 WASTEWATER
 DRAINAGE PLAN**

Project no.	135041
Scale	CUSTOM @ A3
Cad file	135041-C500.DWG
Drawing no.	C500
Rev	A

PR WW RISING MAIN
 TO EXISTING PUBLIC NETWORK
 AT ARATAKI ROAD

FOR INFORMATION

DATE: 07/2025 FILE: E:\Maven\Projects\Brookvale Green\Brookvale Green\DWG\010001.dwg



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS COUNCIL STANDARDS.
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LEGEND

	PR BOY
	EX BOY
	RT
	RT
	REFERENCE TITLE
	EX PUBLIC WW

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 WASTEWATER
 OVERVIEW PLAN**

Project no.	135041
Scale	CUSTOM @ A3
Cad file	135041-C500.DWG
Drawing no.	C501
Rev	A

FOR INFORMATION

SECTION 4
 SCALE: HORV 1:100 VERT 1:20



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS DISTRICT COUNCIL STANDARDS.
 2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF WORKS.
 3. MINIMUM COVER SHALL BE:
CARRIAGEWAY 800MM
BERMS 600MM
 4. WATERMANS LAID ACROSS ROADS SHALL BE BACKFILLED WITH HARDFILL COMPACTED IN 200MM LAYERS ABOVE THE EMBEDMENT MATERIAL.
 5. ALL UPVC PIPE SHALL BE PN12 MINIMUM PRESSURE RATED WITH SPIGOT AND SOCKET RUBBER RING JOINTS.
 6. ALL PE PIPE SHALL BE PN12.5 MINIMUM PRESSURE RATED WITH BUTT-WELDED. WELD BEADS SHALL BE REMOVED TO PROVIDE A SMOOTH BORE.
 7. ALL NON-METALIC PIPES ARE TO HAVE TRACER WIRE FITTED TO COUNCIL STANDARDS.
 8. PIPES SHALL BE BEDDED AND SURROUNDED TO 150MM ABOVE THE PIPE SOFFIT WITH SAND OR AP20.
 9. METAL DETECTOR TAPE PRINTED WITH 'WATER PIPE BELOW' SHALL BE LAID 150MM ABOVE ALL WATERMANS.
 10. A YELLOW ISOSCELES TRIANGLE WITH CATS EYE POINTING TO FH SHALL BE PAINTED IN THE CENTRE OF ALL SEALED ROADS.
 11. ALL VALVES TO BE MARKED WITH SAWCUT KERB AND BLUE PAINT.
 12. ALL FLANGE JOINTS TO BE PROTECTED WITH DENSO TAPE OR SIMILAR APPROVED BY THE ENGINEER.

LEGEND

	EX BDY
	PROP BDY
	EX WATERMAIN
	PROP WATERMAIN
	PR WATER PRIVATE

Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

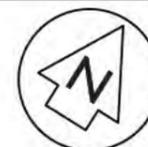
M Maven Associates
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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 WATER SUPPLY
 PLAN**

Project no.	135041
Scale	1:2500 @ A3
Cad file	135041-C600.DWG
Drawing no.	C600
Rev	A

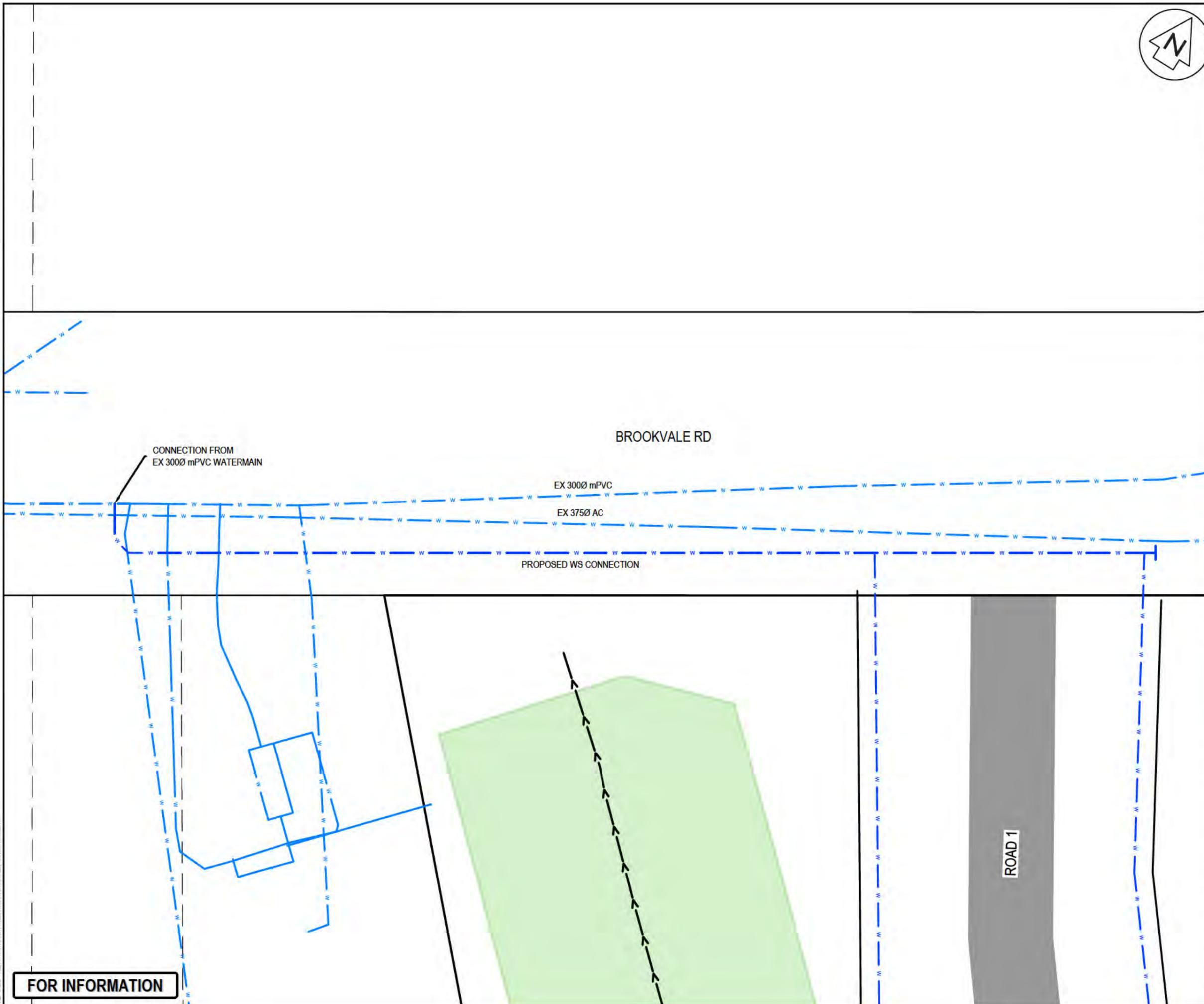
FOR INFORMATION



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HASTINGS DISTRICT COUNCIL STANDARDS.
 2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ANY UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF WORKS.
 3. MINIMUM COVER SHALL BE:

CARRIAGEWAY	800MM
BERMS	600MM
 4. WATERMANS LAID ACROSS ROADS SHALL BE BACKFILLED WITH HARDFILL COMPACTED IN 200MM LAYERS ABOVE THE EMBEDMENT MATERIAL.
 5. ALL UPVC PIPE SHALL BE PN12 MINIMUM PRESSURE RATED WITH SPIGNOT AND SOCKET RUBBER RING JOINTS.
 6. ALL PE PIPE SHALL BE PN12.5 MINIMUM PRESSURE RATED WITH BUTT-WELDED. WELD BEADS SHALL BE REMOVED TO PROVIDE A SMOOTH BORE.
 7. ALL NON-METALIC PIPES ARE TO HAVE TRACER WIRE FITTED TO COUNCIL STANDARDS.
 8. PIPES SHALL BE BEDDED AND SURROUNDED TO 150MM ABOVE THE PIPE SOFFIT WITH SAND OR AP20.
 9. METAL DETECTOR TAPE PRINTED WITH WATER PIPE BELOW SHALL BE LAID 150MM ABOVE ALL WATERMANS.
 10. A YELLOW ISOSCELES TRIANGLE WITH CATS EYE POINTING TO FH SHALL BE PAINTED IN THE CENTRE OF ALL SEALED ROADS.
 11. ALL VALVES TO BE MARKED WITH SAWCUT KERB AND BLUE PAINT.
 12. ALL FLANGE JOINTS TO BE PROTECTED WITH DENSOTAPE OR SIMILAR APPROVED BY THE ENGINEER.

- LEGEND
- EX BDY
 - PROP BDY
 - EX WATERMAIN
 - PROP WATERMAIN
 - PR WATER PRIVATE



Rev	Description	By	Date
A	FOR FAST TRACK REFERRAL	BB	08/2025
Survey	TECH SP		02/2025
Design	BB		02/2025
Drawn	SS		06/2025
Checked	BB		06/2025

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Project
**BROOKVALE GREEN
 HAVELOCK NORTH
 FOR
 VERMONT STREET
 PARTNERS LTD No. 4**

Title
**PROPOSED
 WATER SUPPLY
 CONNECTION**

Project no.	135041
Scale	1:250 @ A3
Cad file	135041-C600.DWG
Drawing no.	C601
Rev	A

FOR INFORMATION

DATE: 07/08 FILE PATH: P:\MASH\PROJECTS\BROOKVALE\DWG\135041-01.DWG

APPENDIX B – ENGINEERING CALCULATIONS



Maven Associates

Job Number
135041

Sheet
1

Rev
A

Job Title 174-176 Brookvale Road, Havelock North
Calc Title Wastewater Discharge

Author
SS

Date
8-Apr

Checked
BB

As per HDC Engineering Code of Practice 2020 & NZS4404:

Discharge Rates

Average dry weather flow = 250 litres/person/day
Peak dry weather diurnal flow (2.5x) = 625 litres/person/day
Peak wet weather flow (1.5x) = 938 litres/person/day

POPULATION

No. of Dwelling	People	Occupancy
195	3.5	682.5

Discharges

	Persons	Rate l/p/day	Flow l/s
ADWF	682.5	250	1.975
PDWDF	682.5	625	4.937
PWWF	682.5	938	7.406



MAVEN ASSOCIATES

Job Number
135041

Sheet
1

Rev
A

Job Title 174-176 Brookvale Road, Havelock North
Calc Title Site Water Demand

Author
SS

Date
8-Apr

Checked
BB

As per HDC Engineering Code of Practice 2020 & NZS4404:

Demand = 3 people per dwelling
400 l/person/day

Demand Rates

Average Demand = 400 litres/person/day
Peak Demand (2x) = 800 litres/person/day

Population

Proposed Dwellings

Dwellings	People	Occupancy
195	3	585

Demand

AD Water
PD Water

Persons	Rate l/p/day	Flow l/s
585	400	2.71
585	800	5.42

Peak Demand

PD Water

Persons	Rate l/p/day	Flow l/s
585	800	5.42

APPENDIX C – GEOTECHNICAL REPORT