



Planning Report

13 Multiple Dwellings
12 Jubilee Avenue, Brighton

For Creative Homes Hobart
December 2024



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VERSION CONTROL					
Version	Description	Author		Reviewer	
1.0	Draft Planning report	PC	11.11.2024	MC	11 11 2024
2.0	Planning report for issue	PC	02.12.2024	MC	02.12.2024





Summary

Use:	Residential (multiple dwellings)
Development:	13 Multiple Dwellings, accessway, and associated services
Location:	12 Jubilee Avenue, Brighton (6,688m ²), and 10 Jubilee Avenue, (for stormwater services only).
Certificate of Title:	Volume 34441 Folio 2 and Volume 113475 Folio 5
Property ID:	7430740 and 1558276
Planning Authority:	Brighton Council
Planning Policy:	Tasmanian Planning Scheme - Brighton Local Provisions
GM/Crown Consent:	Yes - Council consent for works within the road reserve
Applicant:	Creative Homes Hobart
Date of Assessment:	December 2024
Assessor:	Peter Coney

The development application relies on the performance criteria of the following provisions of the *Tasmanian Planning Scheme - Brighton*:

- 8.4.6 Privacy for all dwellings (P2) and (P3)
- C2.5.3 Motorcycle parking (P1)
- C2.6.5 Pedestrian access (P1) and
- C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction (P1).

Whilst relying on the Performance Criteria of these clauses, the development meets the objectives and purpose of the General Residential Zone and complies with the *Tasmanian Planning Scheme - Brighton*.





Introduction

MC Planners have been engaged by Creative Homes Hobart to prepare a planning report to support a development application for 13 multiple dwellings and associated works.

The report details the proposed development and provides an assessment against the provisions of the *Tasmanian Planning Scheme - Brighton* ('the Planning Scheme').

The proposal has been considered against the 'General Residential Zone' [8.0].

Development on the site is subject to several Codes which it is required to be assessed against:

- Parking and Sustainable Transport Code [C2.0];
- Road and Railway Assets Code [C3.0];
- Bushfire-Prone Areas Hazard Code [13.0] and;
- Landslip Hazard Code [15.0].

Site Location and Context

The subject site is located at 10 and 12 Jubilee Avenue (CTs 113475/5 and 34441/2), Brighton. The dwelling development is predominately at 12 Jubilee, though includes provision of stormwater infrastructure within the adjoining land at 10 Jubilee Avenue. 12 Jubilee Avenue is an internal lot, with a total area of 6,688m² though gaining access over an access strip, this strip is relatively wide at 15m.

There is currently a dwelling, outbuildings and native trees in a landscaped setting. The site adjoins residential lots to the north and south, and land managed by the Department of Natural and Environmental Resources to the east. This public land encompasses the Jordan River, and includes a walking track which links Ford Road, and Andrew Street.

The area is residential, and predominately at suburban densities, though is in proximity to a rural residential estate off River Court, to the north. The site is within 200m walking distance to the Jordan River School Farm, and 300m to Brighton Primary School with the local activity centre further to the west.

Refer to the Titles in Appendix A for full details.



Subject Site (CT 34441/2) in dark blue (source: LISTmap, Accessed 07/10/2024).



Proposed Use and Development

The proposed use of the site is Residential (multiple dwellings).

The development is for 13 multiple dwellings, inclusive of the existing dwelling. Dwellings are arranged by Types, where Type A have two bedrooms, Types B and C have 3 Bedrooms and Type D and E have four bedrooms.

The development includes a driveway, car parking, bin enclosure, common areas and gardens, and associated services. The floor area proposed totals 1,609m² when including the existing dwelling, and the car parking area is arranged to provide 26 dedicated spaces for the use of dwellings, and 5 visitor parking spaces.

The development will require the removal of a number of trees, and landscaping is proposed along the western boundary adjoining 14B Jubilee Avenue.

The proposal is more fully set out in the proposal plans at Appendix B.

Policy Assessment

The proposed removal of vegetation is exempt under clause 4.0.1, as listed in the table at 4.4.2 Landscaping and vegetation management. A 1.8m fence similarly is exempt where not within 4.5m of a frontage, as listed at 4.6.3.

The development site is located on land zoned 'General Residential' (see Figure 2).

The site is subject to Bushfire-prone area overlay over the entire property. The Landslip hazard overlay is also present on the site (See Figure 3).

The nature of the proposal and the location of the site requires that the proposal be considered against the following Scheme elements:

- General Residential Zone [8.0];
- Parking and Sustainable Transport Code [C2.0];
- Road and Railway Assets Code [C3.0];
- Bushfire-Prone Areas Hazard Code [13.0] and;
- Landslip Hazard Code [15.0]

The following section provides an assessment of the proposal against each of the above-listed Scheme elements.

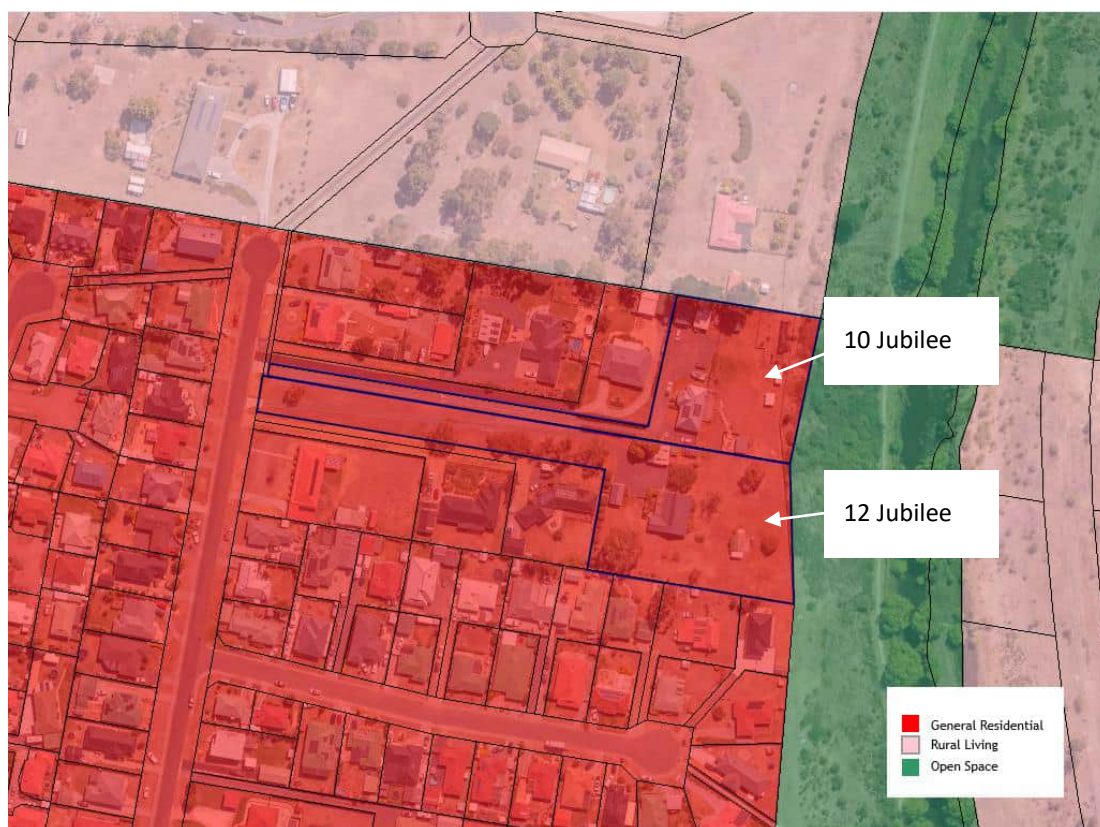


Figure 2. Land use zones (source: LIST map - accessed on 02/12/24).



Figure 3. Landslip Hazard Area Overlay (source: LIST map - accessed on 01/07/24).

General Residential Zone [8.0]

The site is zoned *General Residential* in the *Tasmanian Planning Scheme - Brighton*.

8.2 Use Table

The proposed use is residential (Multiple dwellings) which is permitted within the General Residential Zone.

8.3 Use Standards

There are no applicable use standards for a residential use.

8.4 Development Standards

8.4.1 Residential density for multiple dwellings

A1 <i>Multiple dwellings must have a site area per dwelling of not less than 325m².</i>	P1 ***
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The relevant area for the site area per dwelling calculation is 4,528m²; being the area exclusive of the access strip. For 13 multiple dwellings, the density calculation is then 348m² per dwelling, which complies with the Acceptable Solution.

As such the proposal complies with clause 8.4.1.

8.4.2 Setbacks and building envelope for all dwellings

A1 <i>Unless within a building area on a sealed plan, a dwelling, excluding garages, carports and protrusions that extend not more than 0.9m into the frontage setback, must have a setback from a frontage that is:</i>	P1 ***
(a) <i>if the frontage is a primary frontage, not less than 4.5m, or, if the setback from the primary frontage is less than 4.5m, not less than the setback, from the primary frontage, of any existing dwelling on the site;</i> (b) <i>if the frontage is not a primary frontage, not less than 3m, or, if the setback from the frontage is less than 3m, not less than the setback, from a frontage that is not a primary frontage, of any existing dwelling on the site;</i> (c) <i>if for a vacant site and there are existing dwellings on adjoining properties on the same street, not more than the greater, or less than the lesser, setback for the equivalent frontage of the dwellings on the adjoining sites on the same street; or</i>	

(d) <i>if located above a non-residential use at ground floor level, not less than the setback from the frontage of the ground floor level.</i>	
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Unit 1 has a setback of over 50m from the primary frontage (a). As such, the proposal complies with A1.

A2 <i>A garage or carport for a dwelling must have a setback from a primary frontage of not less than:</i> (a) <i>5.5m, or alternatively 1m behind the building line;</i> (b) <i>the same as the building line, if a portion of the dwelling gross floor area is located above the garage or carport; or</i> (c) <i>1m, if the existing ground level slopes up or down at a gradient steeper than 1 in 5 for a distance of 10m from the frontage.</i>	P2 ***
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The proposed dwellings do not have garages or carports. As such, A2 is not applicable.

A3 <i>A dwelling, excluding outbuildings with a building height of not more than 2.4m and protrusions that extend not more than 0.9m horizontally beyond the building envelope, must:</i> (a) <i>be contained within a building envelope (refer to Figures 8.1, 8.2 and 8.3) determined by:</i> (i) <i>a distance equal to the frontage setback or, for an internal lot, a distance of 4.5m from the rear boundary of a property with an adjoining frontage; and</i> (ii) <i>projecting a line at an angle of 45 degrees from the horizontal at a height of 3m above existing ground level at the side and rear boundaries to a building height of not more than 8.5m above existing ground level; and</i> (b) <i>only have a setback of less than 1.5m from a side or rear boundary if the dwelling:</i> (i) <i>does not extend beyond an existing building built on or within 0.2m of the boundary of the adjoining property; or\</i> (ii) <i>does not exceed a total length of 9m or one third the length of the side boundary (whichever is the lesser).</i>	P3 ***
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All the dwellings are contained within the building envelope determined by the rear boundary of 14B Jubilee Avenue, and the other site boundaries in accordance with A3 (a). The development also meets the minimum 1.5m setback from side and rear boundaries per (b), thereby in accordance with A3.

8.4.3 Site coverage and private open space

A1 <i>Dwellings must have:</i> (a) <i>a site coverage of not more than 50% (excluding eaves up to 0.6m wide); and</i> (b) <i>for multiple dwellings, a total area of private open space of not less than 60m² associated with each dwelling, unless the dwelling has a finished floor level that is entirely more than 1.8m above the finished ground level (excluding a garage, carport or entry foyer).</i>	P1 ***
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The proposal is for a site coverage of 24%. As such, the proposal complies with A1.

A2 <i>A dwelling must have private open space that:</i> (a) <i>is in one location and is not less than:</i> (i) 24m²; or (ii) 12m², if the dwelling is a multiple dwelling with a finished floor level that is entirely more than 1.8m above the finished ground level (excluding a garage, carport or entry foyer); (b) <i>has a minimum horizontal dimension of not less than:</i> (a) 4m; or (b) 2m, if the dwelling is a multiple dwelling with a finished floor level that is entirely more than 1.8m above the finished ground level (excluding a garage, carport or entry foyer); (c) <i>is located between the dwelling and the frontage only if the frontage is orientated between 30 degrees west of true north and 30 degrees east of true north; and</i> (d) <i>has a gradient not steeper than 1 in 10.</i>	P2 <i>A dwelling must have private open space that includes an area capable of serving as an extension of the dwelling for outdoor relaxation, dining, entertaining and children's play and is:</i> (a) <i>conveniently located in relation to a living area of the dwelling; and</i> (b) <i>orientated to take advantage of sunlight.</i>
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Each unit has an area of at least 24m² (a), with a horizontal length of at least 4m within each identified private open space area (b); and is not located between the frontage and a dwelling (c). As such, the proposal complies with A2.

8.4.4 Sunlight to private open space of multiple dwellings

A1 <i>A multiple dwelling, that is to the north of the private open space of another dwelling on the same site, required to satisfy A2 or P2 of clause 8.4.3, must satisfy (a) or (b), unless excluded by (c):</i> (a) <i>the multiple dwelling is contained within a line projecting (see Figure 8.4):</i> (i) <i>at a distance of 3m from the northern edge of the private open space; and</i> (ii) <i>vertically to a height of 3m above existing ground level and then at an angle of 45 degrees from the horizontal;</i> (b) <i>the multiple dwelling does not cause 50% of the private open space to receive less than 3 hours of sunlight between 9.00am and 3.00pm on 21st June; and</i> (c) <i>this Acceptable Solution excludes that part of a multiple dwelling consisting of:</i> (i) <i>an outbuilding with a building height not more than 2.4m; or</i> (ii) <i>protrusions that extend not more than 0.9m horizontally from the multiple dwelling.</i>	P1 <i>A multiple dwelling must be designed and sited to not cause an unreasonable loss of amenity by overshadowing the private open space, of another dwelling on the same site, which is required to satisfy A2 or P2 of clause 8.4.3 of this planning scheme.</i>
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The proposed dwellings are arranged such that Unit 4 is to the north of the private open space for Unit 13, and Unit 13 is to the north of the private open space of Units 11 and 12.

The separation of these units from the respective private open space of those dwellings to the south however means that they are contained within an envelope in accordance with (b).

Though Units 6 - 10 are on a north-south Axis, the private open space is to the east of each dwelling, and so no dwelling is sited to the north of the private open space of another dwelling on the same site. In any event, no dwelling within this row would cause for the private open space of the dwelling to the south to receive less than 50% sunlight between 9am and 3pm (refer to the shadow modelling in Appendix B)

The proposal therefore complies with A1.

8.4.5 Width of openings for garages and carports for all dwellings

A1 <i>A garage or carport for a dwelling within 12m of a primary frontage, whether the garage or carport is free-standing or part of the dwelling, must have a total width of openings facing the primary frontage of not more than 6m or half the width of the frontage (whichever is the lesser).</i>	P1 ***
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As there are no proposed garages or carports, clause 8.4.5 is not applicable.

8.4.6 Privacy for all dwellings

A1 <i>A balcony, deck, roof terrace, parking space, or carport for a dwelling (whether freestanding or part of the dwelling), that has a finished surface or floor level more than 1m above existing ground level must have a permanently fixed screen to a height of not less than 1.7m above the finished surface or floor level, with a uniform transparency of not more than 25%, along the sides facing a:</i> <i>(a) side boundary, unless the balcony, deck, roof terrace, parking space, or carport has a setback of not less than 3m from the side boundary;</i> <i>(b) rear boundary, unless the balcony, deck, roof terrace, parking space, or carport has a setback of not less than 4m from the rear boundary; and</i> <i>(c) dwelling on the same site, unless the balcony, deck, roof terrace, parking space, or carport is not less than 6m:</i> <i>(i) from a window or glazed door, to a habitable room of the other dwelling on the same site; or</i> <i>(ii) from a balcony, deck, roof terrace or the private open space of the other dwelling on the same site.</i>	P1 ***
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Units 6 - 10 include landings for steps to the private open space, and these landings are both 1m above natural ground level, and within 6m of the private open space of dwellings to the south. These landings however include a screen to a height of 1.7m, and so comply with A1.

A2 <i>A window or glazed door to a habitable room of a dwelling, that has a floor level more than 1m above existing ground level, must satisfy (a), unless it satisfies (b):</i> <i>(a) the window or glazed door:</i> <i>(i) is to have a setback of not less than 3m from a side boundary;</i> <i>(ii) is to have a setback of not less than 4m from a rear boundary;</i> <i>(iii) if the dwelling is a multiple dwelling, is to be not less than 6m from a window or glazed door, to a habitable room, of another dwelling on the same site; and</i> <i>(iv) if the dwelling is a multiple dwelling, is to be not less than 6m from the private open space of another dwelling on the same site.</i> <i>(b) the window or glazed door:</i> <i>(i) is to be offset, in the horizontal plane, not less than 1.5m from the edge of a window or glazed door, to a habitable room of another dwelling;</i> <i>(ii) is to have a sill height of not less than 1.7m above the floor level or have fixed obscure glazing extending to a height of not less than 1.7m above the floor level; or</i> <i>(iii) is to have a permanently fixed external screen for the full length of the window or</i>	P2 <i>A window or glazed door to a habitable room of a dwelling that has a floor level more than 1m above existing ground level, must be screened, or otherwise located or designed, to minimise direct views to:</i> <i>(a) a window or glazed door, to a habitable room of another dwelling; and</i> <i>(b) the private open space of another dwelling.</i>
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glazed door, to a height of not less than 1.7m above floor level, with a uniform transparency of not more than 25%.

Units 6-8 have portions of their habitable rooms which exceed 1m above natural ground level. Each of these dwellings at the southern elevation includes windows with sill heights of 1.7m above floor level, thus precluding views to the south; however at the northern elevation these dwellings (all being of the same type), include full height windows. These full height windows are somewhat opposite the windows with high sill heights, and are within 6m of the private open space of those dwellings to the north. The proposal is therefore reliant on the Performance Criteria.

In designing the dwellings, a high sill height for the southern elevation albeit opposite a full height window for the northern elevation of the southern neighbour is a simple solution to preclude views between the habitable rooms of these dwellings, while still affording good access to light. With respect to proximity to the private open space, the windows at the northern elevation are set in from the west approximately 1.3m, and this puts them opposite the dwelling rather than directly overlooking private open space, thereby minimising the opportunity for direct views.

The proposal is considered to comply with the Performance Criteria (P2).

A3
A shared driveway or parking space (excluding a parking space allocated to that dwelling) must be separated from a window, or glazed door, to a habitable room of a multiple dwelling by a horizontal distance of not less than:
 (a) 2.5m; or
 (b) 1m if:
 (i) it is separated by a screen of not less than 1.7m in height; or
 (ii) the window, or glazed door, to a habitable room has a sill height of not less than 1.7m above the shared driveway or parking space, or has fixed obscure glazing extending to a height of not less than 1.7m above the floor level.

P3
A shared driveway or parking space (excluding a parking space allocated to that dwelling), must be screened, or otherwise located or designed, to minimise unreasonable impact of vehicle noise or vehicle light intrusion to a habitable room of a multiple dwelling.

The lounge windows for Units 1, 2, 3, 4 and 5 are at a minimum 2.1m, 2.3m, 2.4m, 2.1m and 1.8m from the edge of the shared driveway respectively. As no screening or obscuring of glazing is included in the dwelling design at this elevation, the proposal is therefore reliant on the performance criteria.

In considering Units 1, 2 and 3, though the lounge room windows are within 2.5m of the edge of the shared driveway, the windows are setback greater than 2.5m from the passing bay, which is expected to be the predominate location of shared usage within the driveway. The remainder which is within 2.5m of the dwelling is predominately required for turning of vehicles associated with the respective dwellings.

For Units 4 and 5, there are no passing bays within the vicinity of the dwelling and the areas of the shared driveway within 2.5m are in all likelihood only to be used by vehicles associated with those dwellings.

Further, each dwelling includes at the southern elevation a projection of wall which will reduce headlight shine from the shared driveway, and attenuate noise transfer from the driveway to those windows of the lounge.

Noting the nature of the driveway and the extent which is set within 2.5m of the habitable room windows is quite minor, it is considered the siting of dwellings as well as the inclusion

of walls as design solutions will satisfactorily minimise unreasonable vehicle noise or light intrusion.

All other windows are either obscured or set behind a 1.8m high fence.

The proposal is considered to comply with the Performance Criteria (P3).

8.4.7 Frontage fences for all dwellings

A1 <i>No Acceptable Solution.</i>	P1 <i>A fence (including a free-standing wall) for a dwelling within 4.5m of a frontage must:</i> <i>(a) provide for security and privacy while allowing for passive surveillance of the road; and</i> <i>(b) be compatible with the height and transparency of fences in the street, having regard to:</i> <i>(i) the topography of the site; and</i> <i>(ii) traffic volumes on the adjoining road.</i>
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The proposal does not include any fencing which is not otherwise exempt.

8.4.8 Waste storage for multiple dwellings

A1 <i>A multiple dwelling must have a storage area, for waste and recycling bins, that is not less than 1.5m² per dwelling and is within one of the following locations:</i> <i>(a) an area for the exclusive use of each dwelling, excluding the area in front of the dwelling; or</i> <i>(b) a common storage area with an impervious surface that:</i> <i>(i) has a setback of not less than 4.5m from a frontage;</i> <i>(ii) is not less than 5.5m from any dwelling; and</i> <i>(iii) is screened from the frontage and any dwelling by a wall to a height not less than 1.2m above the finished surface level of the storage area.</i>	P1 <i>A multiple dwelling must have storage for waste and recycling bins that is:</i> <i>(a) capable of storing the number of bins required for the site;</i> <i>(b) screened from the frontage and any dwellings; and</i> <i>(c) if the storage area is a common storage area, separated from any dwellings to minimise impacts caused by odours and noise.</i>
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The proposal includes a bin enclosure for the common storage of waste and recycling bins. The area is 30m², set back approximately 16m from the frontage, and is to be constructed of a wall at 1.3m high, including gates so as to be entirely screened when not in use.

The proposal complies with A1.

8.5 Development Standards for Non-dwellings

There is no non-dwelling development proposed.

8.6 Development Standards for Subdivision

There is no subdivision proposed.

Parking and Sustainable Transport Code [C2.0]

No use or development is exempt from assessment against this code (C2.1.1).

C2.5.1 Car Parking numbers

A1 <i>The number of on-site car parking spaces must be no less than the number specified in Table C2.1, less the number of car parking spaces that cannot be provided due to the site including container refund scheme space, excluding if: (a) the site is subject to a parking plan for the area adopted by council, in which case parking provision (spaces or cash-in-lieu) must be in accordance with that plan; (b) the site is contained within a parking precinct plan and subject to Clause C2.7; (c) the site is subject to Clause C2.5.5; or (d) it relates to an intensification of an existing use or development or a change of use where: (i) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is greater than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case no additional on-site car parking is required; or (ii) the number of on-site car parking spaces for the existing use or development specified in Table C2.1 is less than the number of car parking spaces specified in Table C2.1 for the proposed use or development, in which case on-site car parking must be calculated as follows: $N = A + (C - B)$ N = Number of on-site car parking spaces required A = Number of existing on site car parking spaces B = Number of on-site car parking spaces required for the existing use or development specified in Table C2.1 C = Number of on-site car parking spaces required for the proposed use or development specified in Table C2.1.</i>	P1.1 <i>The number of on-site car parking spaces for uses, excluding dwellings, must meet the reasonable needs of the use, having regard to:</i> <i>(a) the availability of off-street public car parking spaces within reasonable walking distance of the site;</i> <i>(b) the ability of multiple users to share spaces because of:</i> <i>(i) variations in car parking demand overtime; or</i> <i>(ii) efficiencies gained by consolidation of car parking spaces;</i> <i>(c) the availability and frequency of public transport within reasonable walking distance of the site;</i> <i>(d) the availability and frequency of other transport alternatives;</i> <i>(e) any site constraints such as existing buildings, slope, drainage, vegetation and landscaping;</i> <i>(f) the availability, accessibility and safety of on-street parking, having regard to the nature of the roads, traffic management and other uses in the vicinity;</i> <i>(g) the effect on streetscape; and</i> <i>(h) any assessment by a suitably qualified person of the actual car parking demand determined having regard to the scale and nature of the use and development.</i> P1.2 ***
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The proposal is for 13 dwellings, each with two bedrooms. Dwellings with two or more bedrooms require two car parking spaces each, to a total of 26. As multiple dwellings at an internal lot, the proposal also requires one visitor space per three dwellings, which must be rounded up to a total of 5. Which are included across two separate modules.

As such the proposal complies with the Acceptable Solution.

C2.5.2 Bicycle parking numbers

There is no requirement for bicycle parking for residential uses under table C2.1, as such this clause is not applicable.

C2.5.3 Motorcycle parking numbers

A1 **	P1 <i>Motorcycle parking spaces for all uses must be provided to meet the reasonable needs of the use, having regard to:</i> <i>(a) the nature of the proposed use and development;</i> <i>(b) the topography of the site;</i> <i>(c) the location of existing buildings on the site;</i> <i>(d) any constraints imposed by existing development; and</i> <i>(e) the availability and accessibility of motorcycle parking spaces on the street or in the surrounding area.</i>
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The proposal does not provide any motorcycle parking spaces, as such it must address the performance criteria.

The proposed residential nature of the use does not generate a high demand of motorcycle use or requirement for parking. Noting visiting motorcycles can legally park in car parking spaces, and that residents who own motorcycles will keep them within their unit parking areas, there is a limited demand for this type of parking (a);

The topography of the site is relatively flat, and does not preclude motorcycle parking (b);

The existing building on the site does not generate a requirement for any motorcycle parking (c);

There are no constraints as a result of existing development on site (d);

The use is not of itself anticipated to generate a higher motorcycle parking demand and it is considered that any such demand can be satisfactorily met by resident parking spaces (e) (P1).

The proposal is supported by a Traffic Impact Assessment (see Attachment D) which speaks to the suitability of the proposal and car parking proposed.

As such, the proposal is considered to comply with C2.5.3.

C2.5.4 Loading bays

No loading bays are proposed with this application, therefore, sub-clauses under C2.5.4 are not applicable.



C2.5.5 Number of car parking spaces within the General Residential Zone and Inner Residential Zone

The proposal is not for non-residential developments as such clause C2.5.5 is not applicable.

C2.6.1 Construction of parking areas

A1 <i>All parking, access ways, manoeuvring and circulation spaces must:</i> <i>(a) be constructed with a durable all weather pavement;</i> <i>(b) be drained to the public stormwater system, or contain stormwater on the site; and</i> <i>(c) excluding all uses in the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone, Recreation Zone and Open Space Zone, be surfaced by a spray seal, asphalt, concrete, pavers or equivalent material to restrict abrasion from traffic and minimise entry of water to the pavement.</i>	P1 - **
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All parking and accessways are proposed to be constructed of concrete (a);

Impervious surfaces are proposed to be drained into the public stormwater system by way of a new connection at 10 Jubilee Avenue (b);

The proposed accessways are to be concrete (c)(A1);

As such the proposal complies with C2.6.1.

C2.6.2 Design and layout of parking areas

A1.1 <i>Parking, access ways, manoeuvring and circulation spaces must either:</i> <i>(a) comply with the following:</i> <i>(i) have a gradient in accordance with Australian Standard AS 2890 - Parking facilities, Parts 1-6; (ii) provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces; (iii) have an access width not less than the requirements in Table C2.2; (iv) have car parking space dimensions which satisfy the requirements in Table C2.3; (v) have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where there are 3 or more car parking spaces; (vi) have a vertical clearance of not less than 2.1m above the parking surface level; and (vii) excluding a single dwelling, be delineated by line marking or other clear physical means; or</i> <i>(b) comply with Australian Standard AS 2890- Parking facilities, Parts 1-6.</i> A1.2 **	P1 **
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The proposed parking areas are to be constructed to the Australian Standard AS2890 (a) (A1.1);

No disabled parking is required or proposed as part of this application, as such A1.2 is not applicable.

The proposal is also supported by a Traffic Impact Assessment which speaks to the compliance of the proposal with this standard (see Appendix C).

C2.6.3 Number of accesses for vehicles

A1 <i>The number of accesses provided for each frontage must:</i> <i>(a) be no more than 1; or</i> <i>(b) no more than the existing number of accesses, whichever is the greater.</i>	P1 **
A2 **	P2 **

There is one access proposed within the access strip to the frontage (a)(A1).

The proposal is not within the Central Business Zone as such A2 is not applicable.

As such the proposal complies with C2.6.3.

C2.6.4 Lighting of parking areas within the General Business Zone and Central Business Zone

The subject site is not located within either the General Business Zone or the Central Business Zone, as such, clause 2.6.4 is not applicable.

C2.6.5 Pedestrian access

A1.1 <i>Uses that require 10 or more car parking spaces must:</i> <i>(a) have a 1m wide footpath that is separated from the access ways or parking aisles, excluding where crossing access ways or parking aisles, by: (i) a horizontal distance of 2.5m between the edge of the footpath and the access way or parking aisle; or (ii) protective devices such as bollards, guard rails or planters between the footpath and the access way or parking aisle; and</i> <i>(b) be signed and line marked at points where pedestrians cross access ways or parking aisles.</i> A1.2 <i>In parking areas containing accessible car parking spaces for use by persons with a disability, a footpath having a width not less than 1.5m and a gradient not steeper than 1 in 14 is required from those spaces to the main entry point to the building.</i>	P1 <i>Safe and convenient pedestrian access must be provided within parking areas, having regard to:</i> <i>(a) the characteristics of the site;</i> <i>(b) the nature of the use;</i> <i>(c) the number of parking spaces;</i> <i>(d) the frequency of vehicle movements;</i> <i>(e) the needs of persons with a disability;</i> <i>(f) the location and number of footpath crossings;</i> <i>(g) vehicle and pedestrian traffic safety;</i> <i>(h) the location of any access ways or parking aisles; and</i> <i>(i) any protective devices proposed for pedestrian safety.</i>
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The proposal requires a pedestrian path, which is provided, though does not meet the Acceptable Solution as it is not separated by 2.5m horizontal distance or protective devices. The proposal therefore is reliant on the performance criteria.

In addressing the performance criteria, the proposal is supported by a Traffic Impact Assessment (see Appendix C) which speaks to the suitability of the proposal and the pedestrian paths.

The proposal is considered to comply with the Performance Criteria P1.

C2.6.6 Loading bays

No loading bays are proposed with this application, therefore, sub-clauses under C2.5.4 are not applicable.

C2.6.7 Bicycle parking and storage facilities within the General Business Zone and Central Business Zone

The subject site is not located within either the General Business Zone or the Central Business Zone, as such, clause 2.6.4 is not applicable.

C2.6.8 Siting of parking and turning areas

As the proposal is within the general residential zone, clause 2.6.8 is not applicable.

C2.7 Parking Precinct Plan

There is no parking precinct plan on the subject site, as such, clause 2.7 and all sub-clauses are not applicable to the proposal.

Road and Railway Assets Code [C3.0]

There are no exemptions from Road and Railway Assets Code, therefore provisions under C3.0 need to be considered.

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

A1.1 <i>For a category 1 road or a limited access road, vehicular traffic to and from the site will not require: (a) a new junction; (b) a new vehicle crossing; or (c) a new level crossing.</i> A1.2 <i>For a road, excluding a category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority.</i> A1.3 <i>For the rail network, written consent for a new private level crossing to serve the use and development has been issued by the rail authority.</i> A1.4 <i>Vehicular traffic to and from the site, using an existing vehicle crossing or private level</i>	P1 <i>Vehicular traffic to and from the site must minimise any adverse effects on the safety of a junction, vehicle crossing or level crossing or safety or efficiency of the road or rail network, having regard to:</i> <i>(a) any increase in traffic caused by the use;</i> <i>(b) the nature of the traffic generated by the use; (c) the nature of the road;</i> <i>(d) the speed limit and traffic flow of the road;</i> <i>(e) any alternative access to a road;</i> <i>(f) the need for the use;</i> <i>(g) any traffic impact assessment; and</i> <i>(h) any advice received from the rail or road authority.</i>
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<i>crossing, will not increase by more than: (a) the amounts in Table C3.1; or (b) allowed by a licence issued under Part IVA of the Roads and Jetties Act 1935 in respect to a limited access road.</i> A1.5 <i>Vehicular traffic must be able to enter and leave a major road in a forward direction.</i>	
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The proposal will require an altered vehicle access, of a design which is considered to accord to the road authority requirements. The design is also supported by a Traffic Impact Assessment (see Appendix C) which speaks to the suitability of the proposal, and traffic movements generated by the proposal.

The proposal is considered to comply with the Performance Criteria (P1).

C3.6.1 Habitable buildings for sensitive uses within a road or railway attenuation area

The proposal is not within a road or railway attenuation area as such C3.6.1 is not applicable.

C3.7.1 Subdivision for sensitive uses within a road or railway attenuation area

The proposal is not for subdivision as such C3.7.1 is not applicable.

Bushfire-Prone Areas Code [13.0]

Though the site is subject to the Bushfire-Prone area overlay, there are no applicable standards within the Bushfire-Prone Areas Code.

Landslip Hazard Code [C15.0]

C15.4 Use and Development Exempt from this Code

The proposed use is not considered hazardous, vulnerable or critical (a); and the proposed development is within the low landslip hazard band, and will require authorisation under the Building Act 2016 (d). Further, no significant works are proposed within the low landslip hazard band.

As such, the proposal complies with the exemption criteria and is not required to address this code.



Conclusion

This report has been prepared in support of a Planning Application for the development of 20 multiple dwellings at 12 Jubilee Avenue, Brighton (CT34441/2), which includes 10 Jubilee Avenue (CT 113475/5) for reason of the provision of stormwater infrastructure.

The proposal has been considered against the development standards of the General Residential Zone and the proposal generates the following discretions under the *Tasmanian Planning Scheme - Brighton Local Provisions Schedule*:

- 8.4.6 Privacy for all dwellings (P2) and (P3)
- C2.5.3 Motorcycle parking (P1)
- C2.6.5 Pedestrian access (P1)
- C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction (P1)

The proposal has been assessed against all relevant scheme criteria and is found to either comply with the Acceptable Solutions or satisfy the relevant Performance Criteria.

The application is considered to be acceptable with respect to the Planning Scheme requirements and therefore ought to be supported by the Planning Authority.



APPENDIX A

Title Information



APPENDIX B

Proposal Plans





APPENDIX C

Traffic Impact Assessment





**NEW RESIDENTIAL UNITS,
12 JUBILEE AVENUE,
BRIGHTON**

**TRAFFIC
IMPACT
ASSESSMENT**

Hubble Traffic

December 2024

Disclaimer: This report has been prepared based on and in reliance upon the information provided to Hubble Traffic Consulting by the client and gathered by Hubble Traffic Consulting during the preparation of the report. Whilst all reasonable skill, care and diligence has been used in preparation of the report, Hubble Traffic Consulting take no responsibility for errors or omissions arising from misstatements by third parties.

This report has been prepared specifically for the exclusive use of the client named in the report and to the extent necessary, Hubble Traffic Consulting disclaim responsibility for any loss or damage occasioned by use of or reliance upon this report, or the data produced herein, by any third party.

Version	Date	Reason for Issue
Draft	July 2024	Draft issued for client feedback
Final	December 2024	New proposed layout

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1. Introduction

Creative Homes Hobart has engaged Hubble Traffic to prepare an independent Traffic Impact Assessment (TIA) to consider the traffic impacts from the provision of 12 additional residential units at 12 Jubilee Avenue, Brighton (development site).

A development application (DA 2024/00080) was submitted to Brighton Council (Council), who have requested a TIA to evaluate the potential impact to the surrounding road network, specifically Jubilee Avenue, Downie and Andrew Streets, and Brighton Road.

The development has been assessed against the Tasmanian Planning Scheme (planning scheme) Codes, C2 Parking and Sustainable Transport, C3 Road and Railway Assets, and Australian Standard 2890.1:2004 (The Standard).

This report has been prepared to satisfy the requirements of Austroads, Guide to Traffic Management Part 12: Traffic Impacts of Developments, 2019, and referred to the following information and resources:

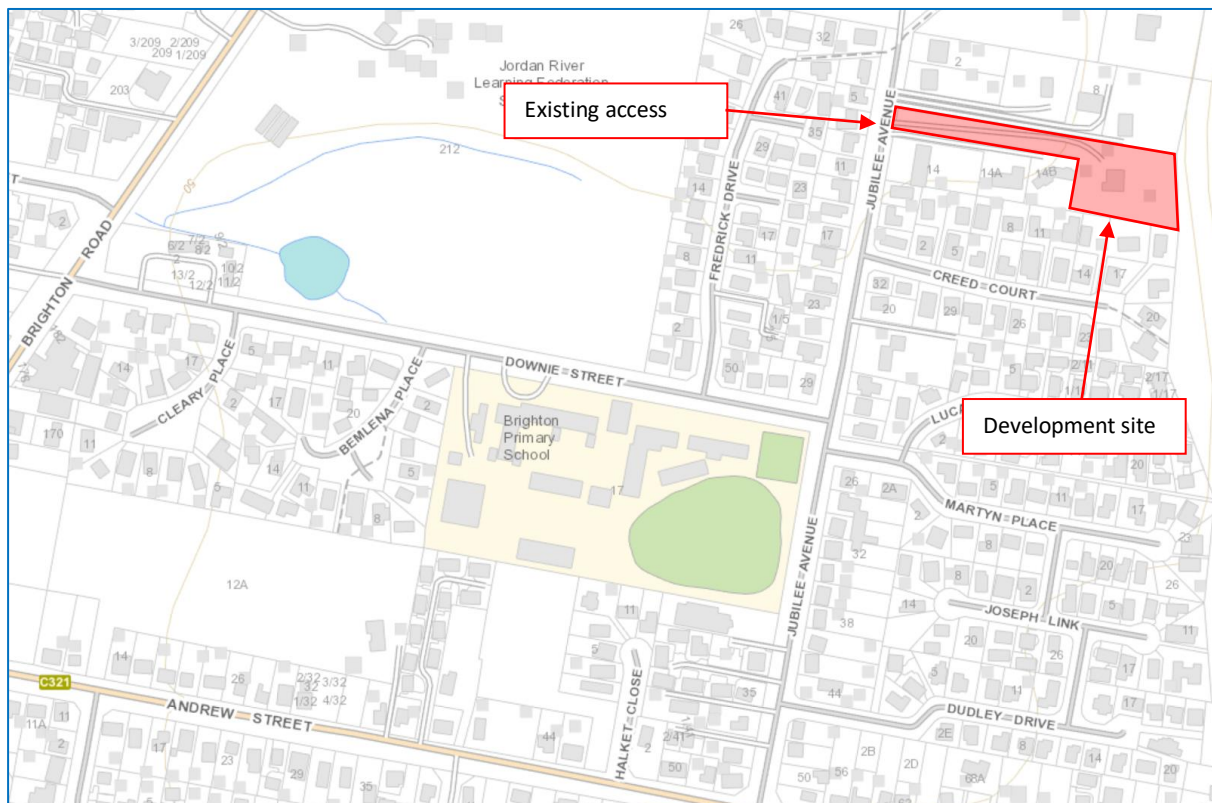
- Tasmanian Planning Scheme (Brighton Council)
- Road Traffic Authority NSW (RTA) Guide to Traffic Generating Developments
- Australian Standards AS2890 parts 1, 2 and 6
- Austroads series of Traffic Management and Road Design
 - Part 4: Intersection and crossings, General
 - Part 4a: Unsignalised and Signalised Intersections
 - Part 12: Traffic Impacts of Development
- Department of State Growth crash database
- Autoturn Online Software
- LIST – Land Information System Tasmania Database

2. Site Description

Located at 12 Jubilee Avenue, Brighton, the development site has an irregular shape, with a long narrow access strip leading to a rectangular parcel of land. With the site having a narrow road frontage, it is considered an internal lot under the planning scheme. The site is occupied by an existing residential dwelling, operating with a vehicular access onto Jubilee Avenue.

The site is situated within an established urban residential area, and within close proximity to Brighton Primary School (school), and Brighton Child Care and Early Learning Centre.

Diagram 2.0 – Extract from LIST Land Information System Tasmania Database

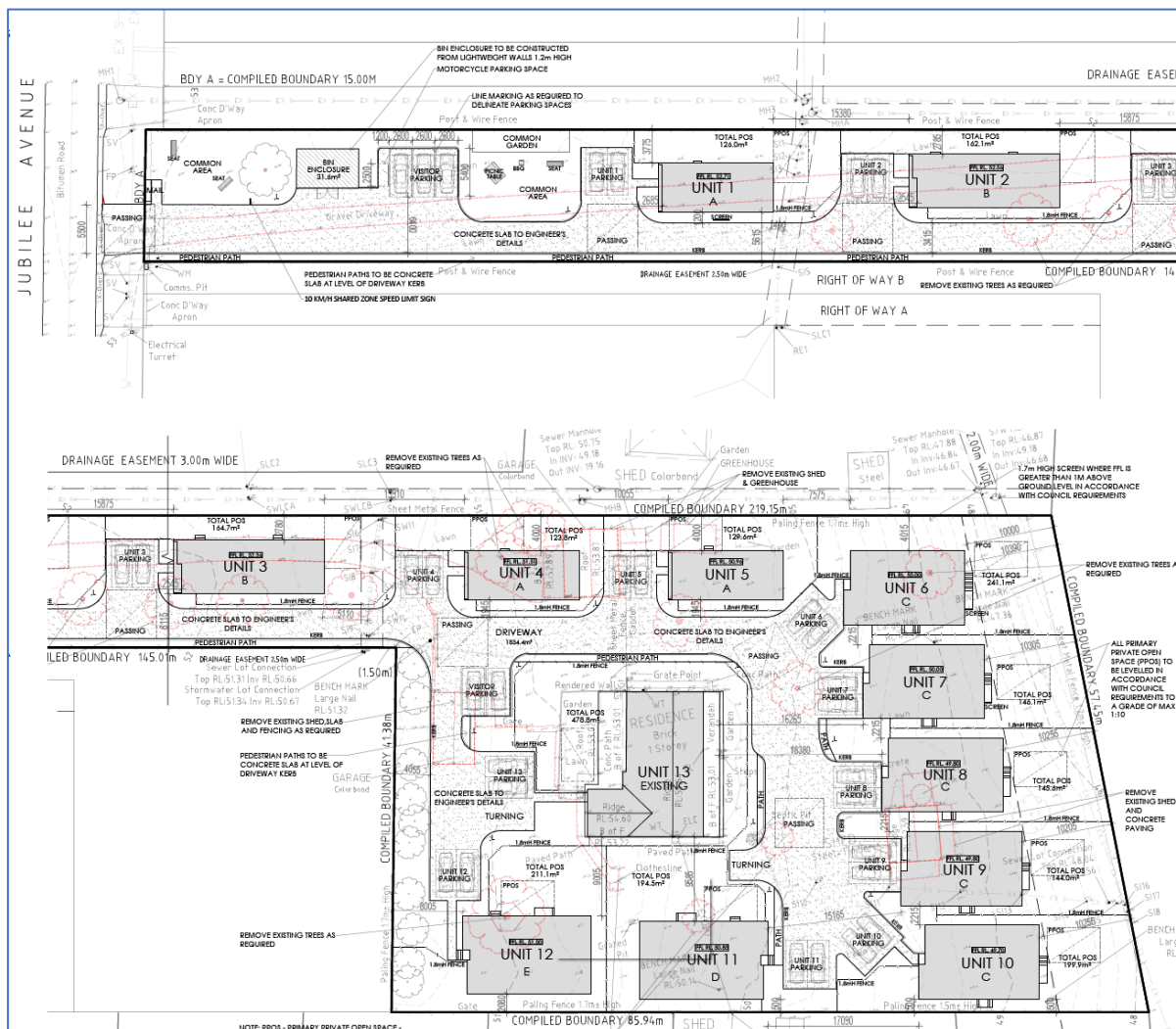


3. Development proposal

The proposal includes:

- retaining the existing dwelling,
- provision of 12 additional residential units, comprising three two-bedroom, seven three-bedroom, and two four-bedroom units.
- each unit will be supported with two dedicated parking spaces, located within close proximity to each unit,
- the existing access with Jubilee Avenue will be retained and upgraded to accommodate two-way traffic flow, and
- as the site is considered an internal lot, including the existing dwelling and the additional 12 units, five on-site visitor parking spaces will be provided, at the rate of one space per three units.

Diagram 3.0 – Development proposal



4. Trip generation by this development

A trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide to Traffic Generating Developments (RTA Guide), section 3.3 residential housing. For the purpose of this assessment the new units and existing dwelling will be referred to as units.

Table 4.0A –Requirements as per RTA section 3.3 update 4a - August 2013

Dwelling Density	Generation Rate
Low density residential dwellings in regional areas:	- Daily vehicle trips of 7.4 per dwelling, and - Weekday peak trips of 0.78 per dwelling.
Medium density residential units, smaller units (up to two bedrooms):	- Daily vehicle trips between 4 and 5 per dwelling, and - weekday peak hour trips between 0.4 and 0.5 per dwelling.
Medium density residential units, larger units (three or more bedrooms):	- Daily vehicle trips between 5 and 6.5 per unit, and - Weekday peak trips between 0.5 and 0.65 per unit.

The 12 new units are predicted to generate an additional 74 daily trips, with eight of these occurring during the peak periods, and this number of trips will be used within this assessment.

Currently the existing unit is generating seven daily trips, with one of these trips occurring in the peak hour periods.

Table 4.0B – Predicted number of trips to be generated

Dwelling Type	RTA Generation rate	Number of units/dwellings	Daily trips	Peak trips
Two-bedroom unit	5 per day 0.5 per peak	3	15	2
Three-bedroom unit	6.5 per day	7	46	5
Four-bedroom unit	0.65 per peak	2	13	1
New trips		12	74	8
Existing dwelling	7.4 per day 0.78 per peak	1	7	1
Total trips generated by the site			81	9

5. Existing traffic Conditions

Jubilee Avenue is a local residential street maintained by Council, which extends northerly from Andrew Street and terminates in a cul-de-sac. Downie Street extends between Jubilee Avenue and Brighton Road, with a primary school located on the corner of Downie Street and Jubilee Avenue.

Based on the location of the development site and surrounding local road network, motorists commuting south (Hobart direction) will have two routes to connect to Brighton Road, either along Downie Street or Andrew Street.

With the primary school generating significant activity along Downie Street during the school drop-off and pick-up periods, the majority of peak trips generated by the development are expected to use Andrew Street to access Brighton Road, instead of Downie Street.

5.1 Jubilee Avenue characteristics

Jubilee Avenue north of Downie Street

Jubilee Avenue north of Downie Street is 300 metres long and has a no-through traffic function, providing access only to the surrounding residential properties. The road has been built to a typical urban standard, with an eight metre wide bitumen surface, concrete kerb and channel, concrete footpath along the eastern side, and street lighting. The horizontal road alignment past the development site is straight and is situated on flat terrain.

Photograph 5.1A – Jubilee Avenue, north of Downie Street



Jubilee Avenue south of Downie Street

Jubilee Avenue between Downie Street and Andrew Street is 300 metres long and has been constructed to an urban standard, with a sealed bitumen surface, concrete kerb and channel, footpath along the western side, and street lighting.

Indented parking bays have been provided on the western side outside of the school, these assist with accommodating on-street parking, while maintaining two-way traffic flow. The horizontal road alignment is straight and is situated on flat terrain.

Photograph 5.1B – Jubilee Avenue, south of Downie Street



Jubilee Avenue, Downie Street, and Martyn Place intersection

Both Downie Street and Martyn Place form T-junctions with Jubilee Street, which are six metres apart, creating an offset intersection.

Each road has a straight alignment on approach to the intersection, with sufficient sight distance to ensure safe and efficient movements through the intersection, with Jubilee Avenue having traffic priority.

Speed limit along Jubilee Avenue

There is no posted speed limit, with the 50 km/h urban default speed limit applying.

5.2 Downie Street characteristics

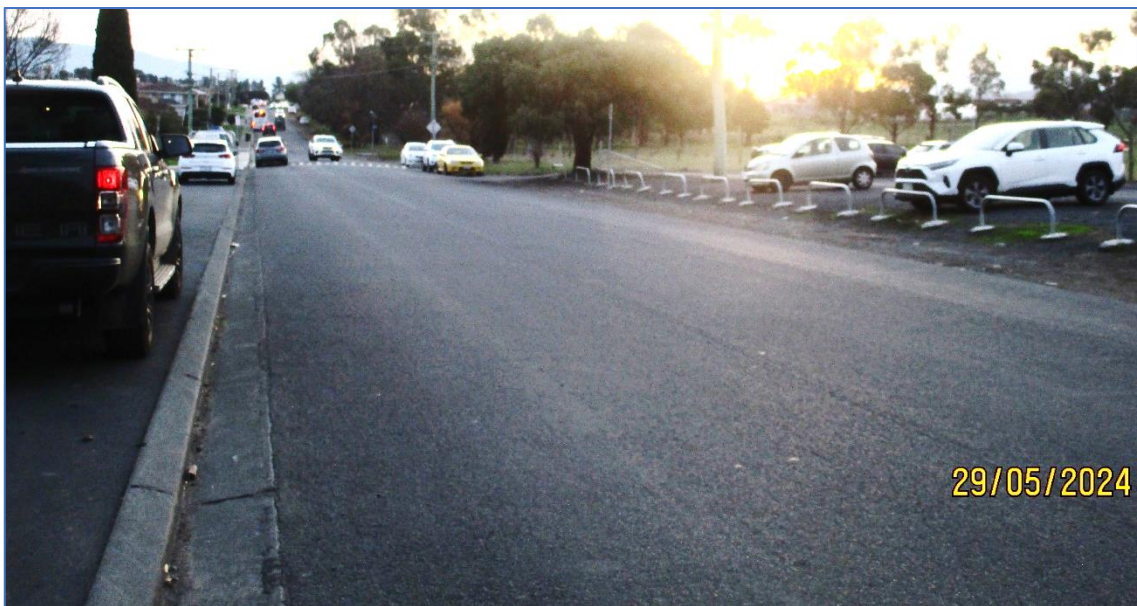
Downie Street runs in an east to west orientation, with a straight horizontal road alignment, on a reasonably flat vertical grade. The majority of the road is built to an urban standard, with a bitumen surface suitable to accommodate two-way traffic movements, on-street parking occurring on both sides, concrete kerb and channelling, concrete footpaths, and street lighting.

Adjacent to the school's main entrance are indented parking bays, and on the opposite side of the street an off-street gravel parking area.

To reduce traffic speeds around the school, raised road humps have been installed as a traffic calming measure. A 40 km/h school speed limit applies during school drop-off and pick-up periods, with the urban 50 km/h speed limit applying at all other times.

School drop-off and pick-up activities generate localised traffic congestion, reducing the level of traffic efficiency of Downie Street during these periods. Due to this congestion, non-school traffic from Jubilee Avenue, are likely to use Andrew Street to connect to Brighton Road.

Photograph 5.2 – Downie Street standard



5.3 Surrounding road junctions

The majority of traffic generated by the development are likely to use Brighton Road, which is the nearest arterial road, connecting to Midland Highway. Motorists have two options to access Brighton Road, Downie Street or Andrew Street.

Downie Street connects Jubilee Avenue directly to Brighton Road, forming a standard T-junction, with traffic priority for Brighton Road reinforced with a give way sign and painted holding line.

Jubilee Avenue forms a standard T-junction with Andrew Street, with a give way sign traffic supplemented with a holding line. There is a slight vertical downgrade on the approach for Jubilee Avenue, however this is not expected to cause any adverse impact to vehicles.

A four-legged roundabout operates where Andrew Street intersects Brighton Road, with the fourth leg providing access to the local shops and hotel. The roundabout has a suitable layout for each road function, with sufficient sight distance to provide safe and efficient traffic flow.

Photograph 5.3A – Downie Street and Brighton Road junction



Photograph 5.3B – Andrew Street and Brighton Road roundabout



5.4 Traffic Activity

In evaluating the traffic impact from the development, it is important to understand the current traffic flow on the surrounding road network. Recent manual traffic surveys were undertaken at the following locations:

- Jubilee Avenue and Downie Street junction,
- Jubilee Avenue and Andrew Street junction,
- Downie Street and Brighton Road junction, and
- Andrew Street and Brighton Road roundabout

Manual surveys were conducted during the last week of May and first week of July 2024, to coincide with school drop off and pick up. It is important to note that during the manual surveys, Andrew Street was under construction with detours in place, potentially changing the traffic patterns using the surrounding road network. As a consequence, the survey data at the Andrew Street and Jubilee Street junction includes some estimation.

From the survey data the peak hour for both the morning and evening periods has been extracted, with diagrams available in Appendix A.

Table 5.4 – Summary of traffic flows on the surrounding road network

Junction	Road	Peak hour two-way flows	
		Morning	Evening
Jubilee Avenue and Downie Street junction	Jubilee Avenue north of Downie Street	24	36
	Jubilee Avenue south of Downie Street	228	238
	Downie Street	220	244
Brighton Road and Downie Street	Downie Street	340	228
	Brighton Road south of junction	468	662
	Brighton Road north of junction	362	526
Andrew Street and Brighton Road roundabout	Brighton Road north of Andrew Street	420	689
	Brighton Road south of Andrew Street	435	657
	Andrew Street	162	207
Andrew Street and Jubilee Street	Andrew Street west of Jubilee Street	169	205
	Andrew Street east of Jubilee Street	217	188
	Jubilee Street	220	230

5.5 Traffic safety near the development site

The Department of State Growth maintains a database of reported road crashes, a check of this database for the last five years, found no crashes reported on Jubilee Street or Downie Street.

There were five crashes reported on Andrew Street, these were mainly associated with vehicles parking and unparking, a single vehicle losing control, or driver failing to give way. Three of the reported crashes resulted in minor injuries, with the other crashes resulting in property damage.

Reconstruction of Andrew Street may assist in reducing the number of incidents occurring on this road, with this crash history not considered an over-representation of crashes for a collector road.

5.6 Impact to the primary school congestion

Although the primary school creates localised congestion during student pick-up and drop-off periods, the majority of this congestion occurs on Downie Street, with low congestion activity along Jubilee Avenue. As traffic generated by the new development can commute along Jubilee Avenue and Andrew Street, bypassing Downie Street, this development is not expected to adversely impact current school congestion.

6. Impact from traffic generated by this development

As determined in section 4 of this report, the development site has the potential to generate up to 74 additional daily trips, with eight of these movements likely to occur during the morning and evening peak periods.

Level of Service (LOS) is a quantifiable assessment of the factors that contribute to the traffic performance, which includes traffic density, gaps in traffic streams, expected delays, and queues. The RTA Guide provides performance criteria for urban traffic lanes (diagram 6.3) and junctions (diagram 6.2) with five levels from A to E.

LOS A provides the highest level of traffic performance, where motorists are not expected to incur traffic delays or queues, with ample gaps in the traffic stream for vehicles to turn freely and safely without disrupting other users.

6.1 Trip assignment

It is common with residential properties, that 90 percent of the generated trips leave the site during the morning peak, with the opposite occurring in the evening peak. In assigning the new trips to the surrounding road network, the trip distributions at Jubilee Avenue and Downie Street junction have been used.

In assigning the development trips to the surrounding road network, the road standard and roadside development is an important consideration for drivers. Both Brighton Road and Andrew Street function as collector roads, while Downie and Jubilee Streets are local residential streets. Generally, collector roads have a better road standard, with less interruption from roadside developments, which provides a higher level of service for commuters.

In the morning peak, the majority of vehicles (90 percent) travelling towards Hobart are expected to use Andrew Street to access Brighton Road, instead of Downie Street due to local congestion caused by school drop off.

School pick-up will have occurred prior to the evening peak, and vehicles are expected to return to the development site using both Downie and Andrew Streets, with this assessment assuming an equal split on both streets. Table 6.1 shows how the additional trips are distributed on the surrounding streets.

Table 6.1 – Distribution of additional trips on the surrounding road network

Peak period	Direction	Number of trips	Jubilee Avenue north of Downie	Commuting between Brighton Road	
				Downie Street	Andrew Street
Morning peak hour	Leaving	7	7	1	6
	Arriving	1	1	0	1
Evening peak hour	Arriving	7	7	3	4
	Leaving	1	1	0	1

6.2 Traffic impact at the surrounding road network junctions

The simplest method to determine the traffic performance at a junction or roundabout, is to use SIDRA Intersection traffic modelling software, which uses gap acceptance theory to determine the average delay, queue lengths, and degree of saturation, which are all measures of traffic congestion and level of service.

Diagram 6.2 – RTA Level of service for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Traffic models have been developed within the SIDRA software to replicate the Jubilee Avenue; Downie Street and Martyn Place intersection; Brighton Road and Downie Street junction; Andrew Street and Brighton Road roundabout, and Andrew Street with Jubilee Street junction. Recent peak hour traffic flows and the assignment of new trips generated by the development have been used.

Traffic modelling predicts additional traffic generated from the development will not have any adverse traffic impact to the surrounding junctions, intersection or roundabout. They will continue to perform at the highest level of traffic performance, LOS A, with motorists not incurring any notable delays or traffic queues.

As the traffic flow along Brighton Road and Downie Street is expected to increase over the next ten years, the traffic modelling was adjusted to consider Brighton Road traffic flows increasing by two percent for ten years and Downie Street increasing by one percent per year. The modelling predicts the Brighton Road and Downie Street junction, will continue to operate at the highest level of traffic efficiency, with ten years of traffic growth.

Table 6.2 below summarises the traffic modelling at the junctions, intersection, and roundabout, demonstrating that the additional traffic generated by the development site will not decrease traffic efficiency.

Table 6.2 – Traffic modelling comparison at the surrounding roundabouts

Junction	Scenario	Period	Total vehicles	DOS	Worst delay	LOS	Max queue
Jubilee Ave with Downie Street	Existing	Morning peak	269	0.094	6.0 secs	A	2.3 metres
	With development		279	0.095	6.0 secs	A	2.3 metres
	Existing	Evening peak	293	0.096	5.9 secs	A	2.4 metres
	With development		303	0.099	6.1 secs	A	2.5 metres
Downie Street with Brighton Road	Existing	Morning peak	598	0.137	7.1 secs	A	3.7 metres
	With development		599	0.137	7.1 secs	A	3.8 metres
	All additional		608	0.138	7.1 secs	A	4.0 metres
	Incremental		683	0.160	7.5 secs	A	4.3 metres
	Existing	Evening peak	686	0.185	8.1 secs	A	4.5 metres
	With development		692	0.188	8.1 secs	A	4.7 metres
	Incremental		882	0.261	9.6 secs	A	6.0 metres
Andrew Street and Brighton roundabout	Existing	Morning peak	574	0.211	10 secs	A	8.4 metres
	With development		583	0.212	10 secs	A	8.4 metres
	Existing	Evening peak	899	0.324	11 secs	A	14.9 metres
	With development		908	0.330	11 sec	A	15.3 metres
Andrew Street and Jubilee Street	Existing	Morning peak	353	0.096	6.3 secs	A	2.8 metres
	With development		362	0.104	6.3 secs	A	2.8 metres
	Existing	Evening peak	343	0.075	6.2 secs	A	2.5 metres
	With development		353	0.076	6.2 secs	A	2.5 metres

Printouts of traffic modelling can be found in Appendix B.

6.3 Traffic capacity on surrounding roads

In evaluating the impact of additional vehicles on Brighton Road users, it is important to understand LOS motorists are currently receiving, which is done by comparing the peak hour traffic flow with table 6.3 from the RTA Guide.

Extract 6.3 – RTA Guide for level of service for urban roads

Urban road peak hour flows per direction		
Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Based on the directional traffic flows obtained from the manual surveys, the RTA Guide indicates that Brighton Road is operating at LOS B during the peak periods. This means that the traffic flow is stable, motorists have freedom to select their own operating speed, and there should be sufficient gaps in the traffic stream to enable vehicles to enter and leave, without causing adverse impacts.

The additional trips have been assigned to the surrounding road network, with table 6.3 indicating that the development will slightly intensify the directional traffic flows, with no change in the level of service. This means the development is not expected to cause adverse traffic impact to the surrounding road network.

Table 6.3 – Comparison of traffic performance on surrounding roads

Brighton Road	Existing flows				With development			
	Morning		Afternoon		Morning		Afternoon	
	NB	SB	NB	SB	NB	SB	NB	SB
Directional flows	232	236	368	294	233	243	375	295
Level of Service	B	B	B	B	B	B	B	B

6.4 Residential amenity impact

A new development in urban areas can be concerning to local residents, and it can be difficult to argue that a traffic increase is reasonable. The RTA Guide has considered this matter and provided an environmental performance standard, which can be used to evaluate the likely impact on residential amenity. Extract 6.4 is from the RTA Guide and relates to urban environments, providing maximum peak hour goals.

To quantify the impact on Jubilee Avenue (south) and Downie Street, manual survey data was compared with the predicted two way traffic flow, as shown in Table 6.4. The new two-way traffic flows will be less than 300 vehicles per hour, which is within the acceptable maximum goal for a local residential street. This demonstrates that the development will not cause any adverse traffic impact to the amenity of existing residential properties, along Jubilee Avenue (south) and Downie Street.

The new two-way traffic flows along Jubilee Avenue (north) are predicted to be less than 50 vehicles per hour, which is below the environmental goal of 200 vehicles for a local residential street.

Table 6.4 – Expected vehicle movements generated by this development

Road	Existing two-way traffic flow		Predicted two-way traffic flow	
	Morning peak period	Evening peak period	Morning peak period	Evening peak period
Jubilee Avenue (north of Downie)	24	36	32	44
Jubilee Avenue (south of Downie)	228	238	235	243
Downie Street	220	244	222	247

Extract 6.4 – RTA Guide performance standards for residential streets

Environmental capacity performance standards on residential streets			
Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

7. Development layout and internal road arrangements

7.1 Existing vehicular access

The existing 3.8 metre wide vehicular access with Jubilee Avenue will be retained and widened to a minimum of 5.5 metres wide, to provide sufficient width to accommodate two-way traffic flow.

Photograph 7.1 – Existing vehicular access with Jubilee Avenue



7.2 Sight distance at the existing access with Jubilee Avenue

SISD (Safe Intersection Sight Distance) is based on the operating speed of approaching vehicles to the access and the gradient of the approach, with the approach speed normally taken as the posted speed limit. It is important to recognise that SISD is the highest sight distance parameter, suitable for public road intersections, where there are significant traffic movements, with an expectation that many of the users would be unfamiliar with the intersection.

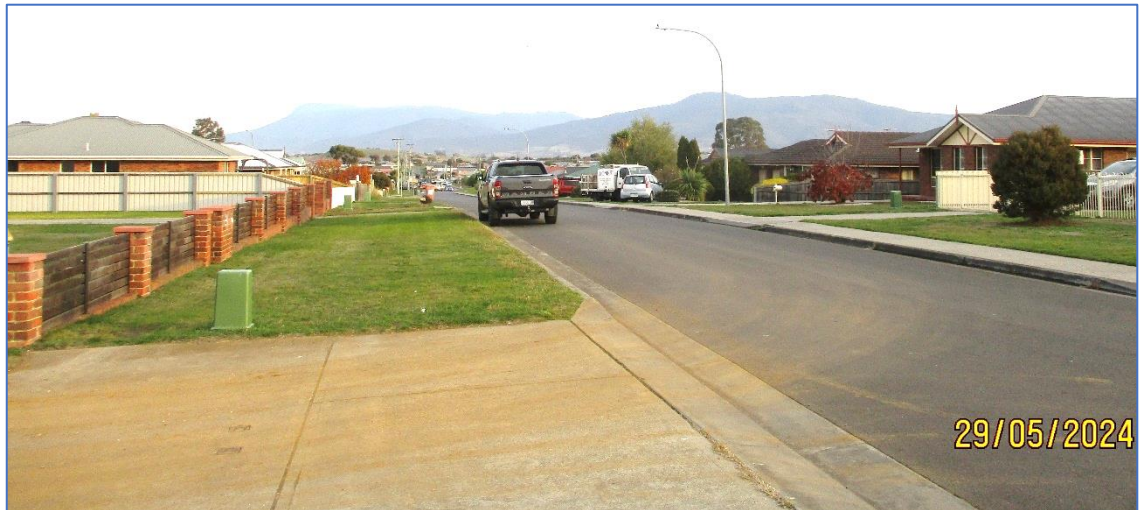
The sight distance requirement for a residential driveway is less than the SISD requirement, as the number of daily traffic movements are estimated to be significantly lower, with the users being familiar with the configuration of the access. For these reasons, the Australian Standards 2890.1:2004 (the Standard) allows for a lower sight distance requirement to be used at residential driveways, indicating minimum gap sight distance is applicable.

Minimum gap sight distance is specified in the Standard, section 3.2.4, which indicates that for a residential driveway access with vehicles travelling in a 50 km/h speed environment, the minimum sight distance should be 45 metres, with a desirable sight distance of 69 metres.

On-site measurements of the available sight distance were taken at the existing vehicular access, based on the driver leaving the access being 1.05 metres above the access surface, and an approaching vehicle being 1.2 metres high. For a driver leaving the access, the available sight distance to the left exceeds 100 metres and 70 metres to the right.

With the available sight distance exceeding 70 metres, motorists will be able to enter and leave the development site in a safe manner, without impacting other motorists.

Photograph 7.2A – Available sight distance to the left



Photograph 7.2B - Available sight distance to the right



7.3 Number of parking spaces

All units will be provided with two dedicated parking spaces located within close proximity to each unit, plus five on-site visitor parking spaces. In total the development site will provide 31 on-site parking spaces to meet the reasonable demand, minimising overflow parking.

7.4 Dimensions of parking spaces

The parking spaces within the development site have been designed to comply with both the dimensions specified in the planning scheme table C2.3 and the Standard, as user class 1A, suitable for residential or domestic use.

Uncovered parking spaces associated with each unit, will be designed as User Class 1A under the Standard, suitable for residential and domestic users. The ninety degree parking spaces will be a minimum 2.4 metres wide, 5.4 metres long, and supported with a minimum parking aisle width of 5.8 metres.

Where a parking space is located adjacent to a vertical obstruction higher than 150 millimetres, an additional 0.3 metres of width will be provided between the space and the obstruction. If there is a vertical obstruction on both sides, 0.3 metres will be provided on both sides of the space.

Three visitor spaces located adjacent to the common area will be a minimum of 2.6 metres wide, 5.4 metres long, with a minimum 6.4 metres of manoeuvring area. Due to constraints along the main driveway, two visitor parking spaces opposite unit 4 will be provided with additional width. These parking spaces will be 2.8 metres wide, 5.4 metres long, with a minimum 5.8 metre manoeuvring area, complying with the dimensions in the planning scheme table C2.3.

Where multiple parking spaces are provided together, they will be delineated with pavement markings. Where practical, the spaces will be supported with wheel stops.

7.5 Car parking manoeuvrability

The parking layout provides sufficient manoeuvring area behind all car parking spaces to allow for vehicles to enter and leave in an efficient manner, complying with either the Standard for user class 1A, suitable for residential and domestic users, or planning scheme table C2.3.

The Standard acknowledge that a residential development generates a low turnover, with users generally prepared to accept some inconvenience when entering and leaving the parking spaces, and where necessary it is acceptable for vehicles to undertake a three point turn.

Vehicle swept path software has been used to demonstrate the swept path of a B85 vehicle entering and leaving a selection of the parking spaces, including the visitor parking spaces, with the swept paths available in Appendix C.

7.6 Gradient of parking spaces

The parking spaces will have grades that comply with Section 2.4.6 of the Standard and shall not exceed five percent.

7.7 Other parking requirements

As the development is providing 31 on-site car parking spaces, one dedicated motorcycle parking space will be provided, complying with planning scheme table C2.4.

Bicycle and accessible parking spaces are not a requirement for residential units.

7.8 Internal driveway layout

The design incorporates a main internal driveway extending from Jubilee Avenue to the rear of the property, terminating adjacent to units 10 and 11. Due to the narrow access strip of the land, only the initial section of the driveway will provide for two-way traffic flow, with minimum 5.5 metres width. This two-way section will extend past the communal waste collection area, and three visitor parking spaces. Beyond this point, the width of the main internal driveway will reduce to a single lane driveway, supported with passing bays.

The design of the driveway has been assessed under clause C2.6.2 A1.1(b), allowing the design to comply with Australian Standards AS 2890, Parking Facilities Parts 1 to 6. The width of the driveway will be a minimum of three metres wide, complying with section 2.5.2 (a)(i) of the Standard.

The Standard section 3.2.2 specifies that 30 or more movements in a peak hour (in and out combined) would usually require provision for two vehicles to pass on the driveway (i.e., a minimum of 5.5 metres), and on a long driveway, passing opportunities should be provided at least every 30 metres.

With nine two-way vehicle movements expected in the morning and evening peak hours, which is significantly less than the 30 vehicle movements requiring a two-way driveway, the single-lane driveway is expected to provide an appropriate level of service for users. It is noteworthy that during the peak hour periods, the majority of vehicle movements will be directional, leaving in the morning and arriving in the evening.

The single lane driveway meets the Standard, complying with the planning scheme acceptable solution A1.1(b).

Units 12 and 13 will be served by a short three metre wide single lane spur driveway, with a turning bay, to allow vehicles to turn around and leave in a forward-driving direction.

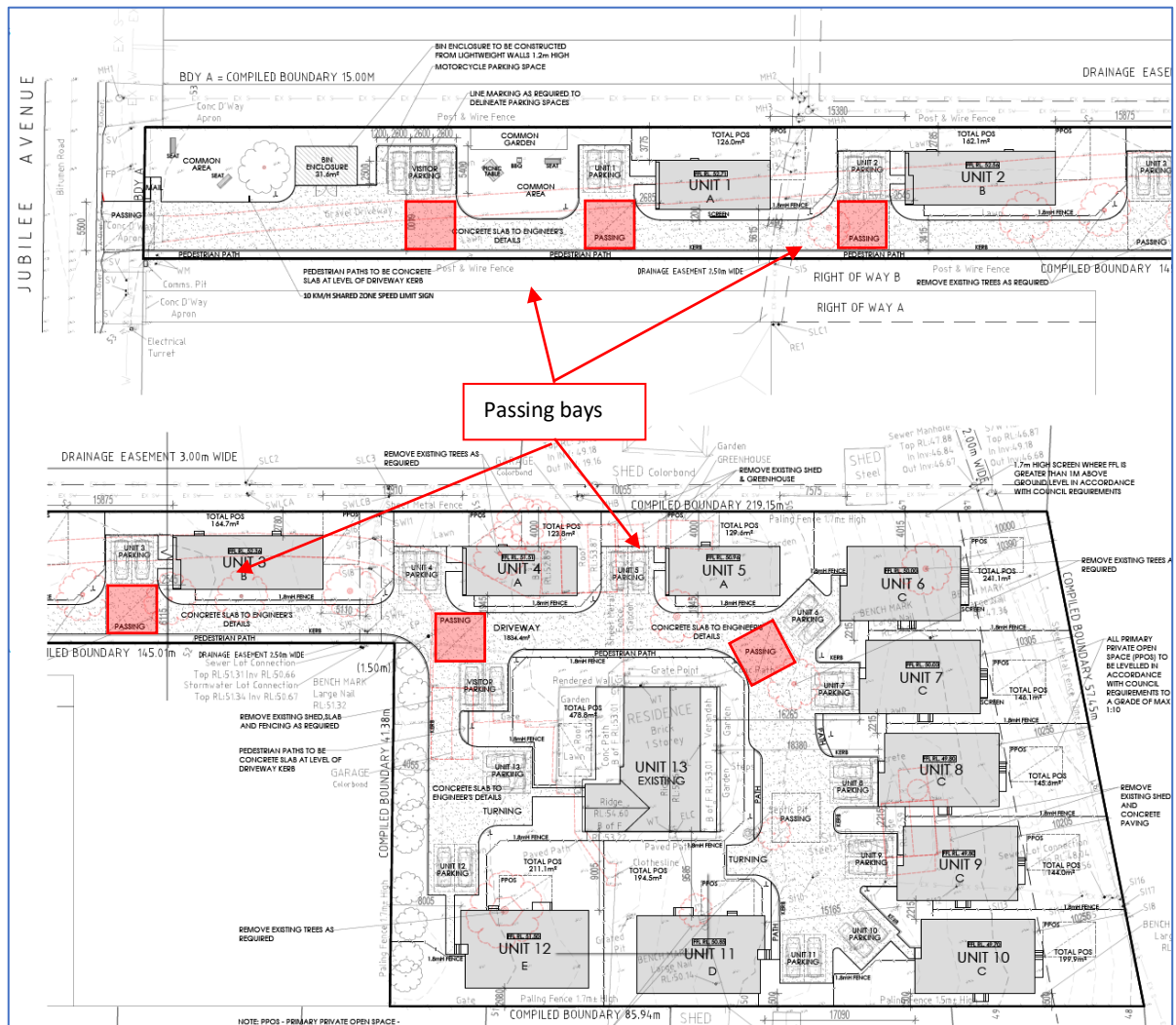
The spur driveway to serve units 7 to 11 will operate as two-way, with a minimum driveway width of 5.5 metres wide, and a turning bay.

The driveways will be constructed with a hard wearing concrete surface, with a one-way camber to direct surface water to kerbing, feeding into an approved stormwater drainage system.

7.9 Passing bays

The driveway incorporates six passing bays at regular intervals, located within 30 metres of each other, with the passing bays to be a minimum of 5.5 metres wide and 5 metres long. The first passing bay will be located where the driveway reduces to a single lane, and locations where the driveway changes direction, complying with the planning scheme table C2.2.

Diagram 7.9 – Location of passing bays



7.10 Vehicle turning bays

At the end of the driveways dedicated turning bays have been allocated, to ensure all vehicles can move around the development in forward-driving direction. The following two diagrams demonstrate a B99 vehicle turning at each turning bay.

Diagram 7.10A – B99 vehicle turning around opposite unit 9

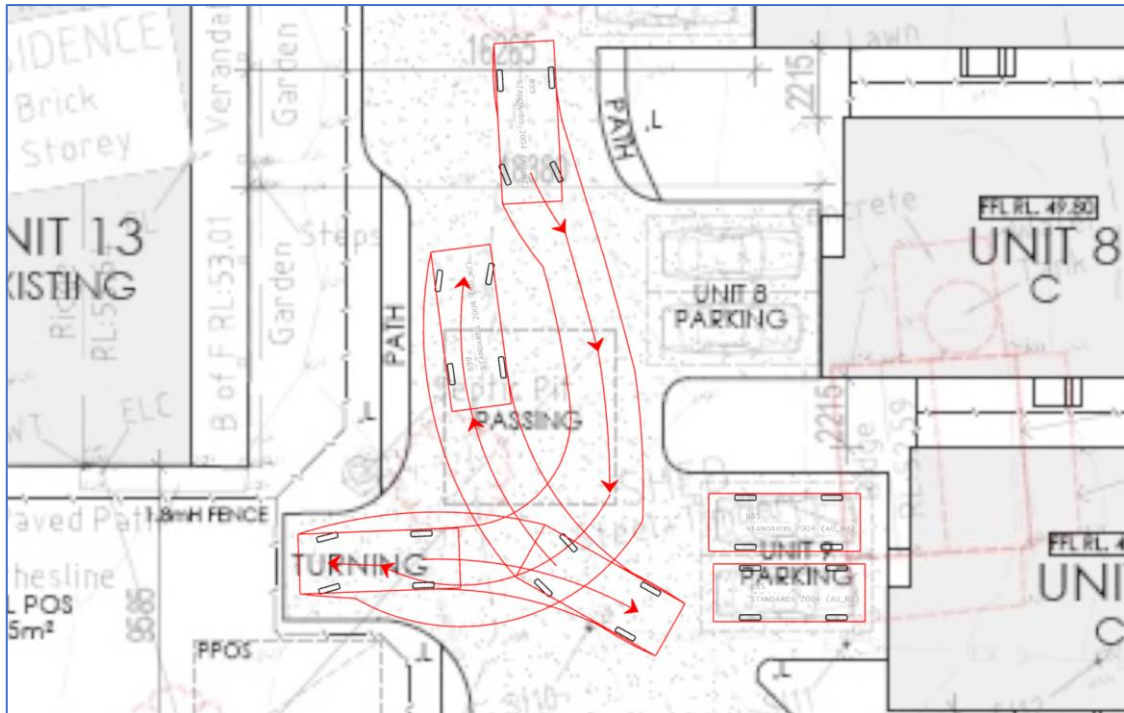
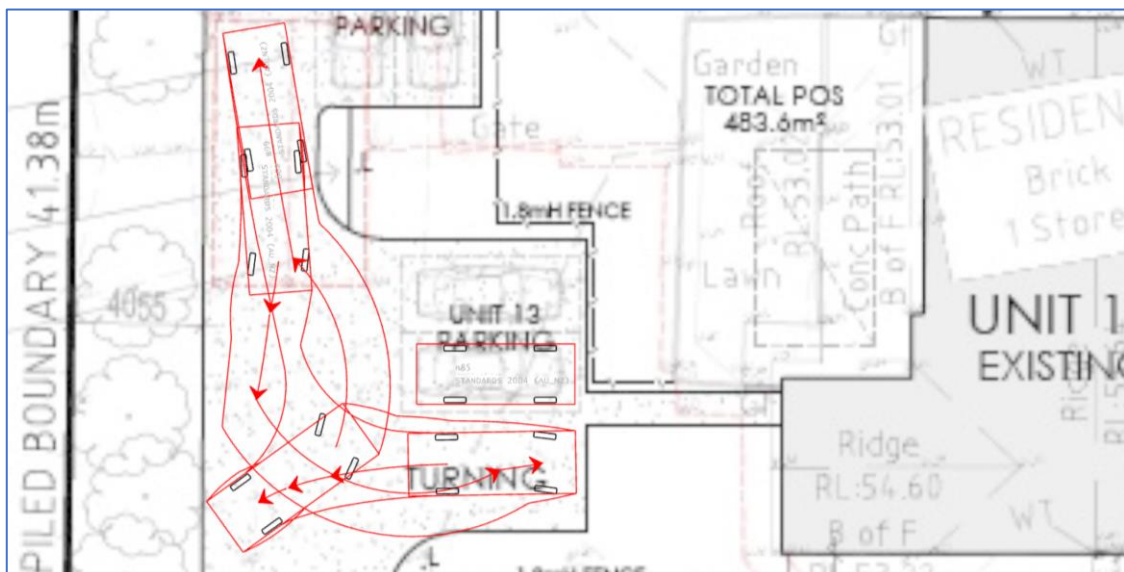


Diagram 7.10B – B99 vehicle turning around adjacent unit 13



7.11 Internal gradients

Although the designer has not provided any civil plans, with the site located on flat terrain, vertical gradients of the internal driveway are not expected to cause any adverse impact to vehicles.

7.12 Pedestrian access

Internal pathways will be provided throughout the site, will be a minimum one metre wide hard-wearing concrete surface, connecting the units to the visitor parking spaces and Jubilee Avenue. Where possible the pathways will be separated from the driveways by kerbing, and where the pathway crosses the internal road, it will be delineated with road markings, defining the pathway and pedestrian crossing areas.

To enhance pedestrian safety, a 10 km/h shared zone speed limit sign will be posted at the beginning of the development. Under the Australian Road Rules 2019, a shared zone speed limit sign, is covered by road rule 24, which specifies where a shared zone sign is used, drivers must give way to any pedestrian within the zone.

The proposed safety measures are expected to ensure pedestrians can move around the development site in a safe and convenient manner, meeting the objective of the planning scheme.

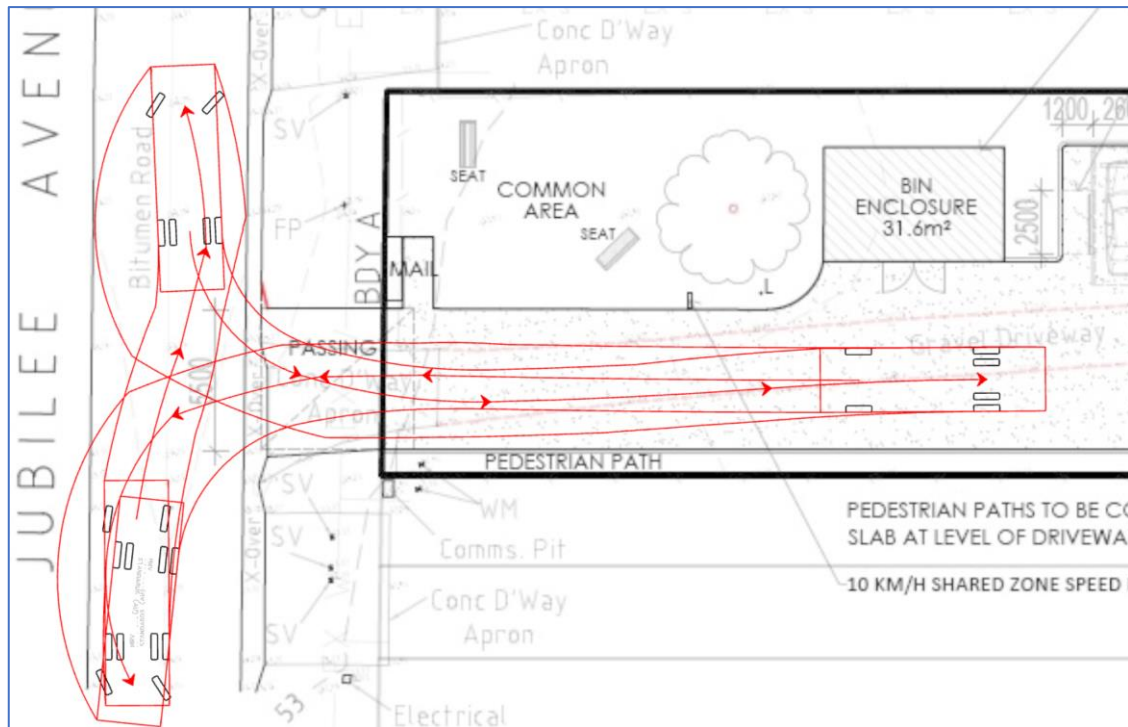
7.13 Waste collection

A communal waste collection area will be provided at the beginning of the internal driveway, where the driveway width allows for two-way traffic flow. The location will require the waste collection vehicle to reverse a short distance into the driveway to collect the waste and then leave in a forward-driving direction. The vehicle can park adjacent to the communal waste area, allowing other vehicles access to the driveway.

This reversing manoeuvre is not expected to cause any adverse traffic or safety impacts. The waste collection drivers are professional operators who have the aid of reversing cameras, and the reversing movement is infrequent, estimated to occur once per week. When the vehicle arrives at the site, the driver will check for pedestrians and cyclists, and only reverse when there are no other users in the area. This infrequent manoeuvre can be done safely without adversely impacting other users.

Vehicle swept path software has been used to demonstrate the swept path of a medium rigid vehicle, which is similar in size to a waste collection vehicle. The diagram demonstrates that the vehicle can reverse into the site and leave in a forward-driving direction.

Diagram 7.13 – Swept path of medium rigid vehicle



7.14 Access for emergency vehicles

It is important that all units are accessible to fire emergency vehicles. According to the Tasmania Fire Service, their heaviest pump vehicle has similar dimensions to a medium rigid vehicle, at 8.8 metres in length. There will be sufficient driveway width for the fire service to enter and drive around the development site to reach all the units. It is noted that the vehicle will need to reverse out of the driveways, which is acceptable given the low likelihood of this movement.

8. Planning scheme

8.1 C2.0 Parking and Sustainable Transport Code

C2.5.1 Car parking numbers

The development site is providing a total of 31 on-site car parking spaces, meeting the reasonable demand, and minimising the risk of overflow parking. The number of on-site car parking spaces complies with the planning scheme acceptable solution.

C2.5.2 Bicycle parking numbers

Table C2.1 of the planning scheme prescribes that a residential use does not require bicycle parking spaces.

C2.5.3 Motorcycle parking numbers

Table C2.4 of the planning scheme prescribes that this use requires one motorcycle parking space, and with the development providing one dedicated motorcycle parking space it complies with the acceptable solution.

C2.5.4 Loading bays

Not applicable for a residential development.

C2.6. Development standards

C2.6.1 Construction of parking areas.	The parking areas and internal driveways will be a concrete surface, with the driveways operating with a one-way camber to direct surface water to kerbing, feeding into an approved stormwater drainage system. The design complies with the acceptable solution A1.
C2.6.2 Design and layout of parking areas.	The internal layout and parking areas have been designed to comply with the Australian Standard 2890.1:2004 User Class 1, suitable for a residential property. All parking spaces will have suitable width and manoeuvring area, to enter and leave parking spaces in an efficient manner. There is dedicated turning bays to allow for vehicles to enter, circulate and leave in a forward-driving direction. All parking spaces will be located on gradient less than five percent. The internal driveway and one spur driveway have been designed to operate as a single lane, supported with adequate passing bays to provide opposing vehicles to pass efficiently. The open parking spaces will be supported with wheel stops and delineated with road marking where appropriate.

	Overall, the design complies with the acceptable solution A1.1(a) and (b).
C2.6.3 Number of accesses for vehicles.	The development will retain the existing access onto Jubilee Avenue, operate with a single access, complying with the acceptable solution A1 (a) and (b).
C2.6.4 Lighting of parking areas within the general business zone and central business zone	Sufficient lighting will be provided to light the parking spaces, driveway, and pedestrian pathways.
C2.6.5 Pedestrian access.	Assessed under the performance criteria below.
C2.6.6 Loading bays.	Not required for a residential development.
C2.6.7 Bicycle parking and storage facilities	Bicycle parking spaces are not required for a residential development.
C2.6.8 Siting of parking and turning areas.	Not applicable for a residential development.

C2.6.5 Pedestrian access

The acceptable solution specifies where a development provides for more than ten parking spaces, pedestrian pathways should be installed, separated from the driveway by a horizontal distance of 2.5 metres, or bollards, or planter boxes. These requirements are difficult to achieve in a residential unit development, barrier kerbing adjacent to the driveway will be used where possible to provide the separation, similar to urban streets. As kerbing is not within the acceptable devices, this assessment must be assessed against the performance criteria P1.

Performance criteria	Assessment
Safe and convenient pedestrian access must be provided within parking areas, having regard to:	
a) The characteristics of the site;	The site is an irregular shape, long narrow access strip leading to a rectangular parcel of land, and provide for no through traffic.
b) The nature of the use;	The development is for residential units, with pedestrians likely to be occupants of the units or visiting guests.
c) The number of parking spaces;	The development is providing 31 on-site car parking spaces and one dedicated motorcycle parking spaces.
d) The frequency of vehicle movements;	The development is estimated to generate a total of 81 daily vehicle movements, with nine of these movements likely to occur during the peak periods, representing on average less than one vehicle movement every five minutes, indicating a low risk for conflict between pedestrians and vehicles.
e) The needs of a person with a disability;	The development site is located on flat terrain, with gradients expected to meet the DDA Code and not adversely affect persons with a disability. This is a residential development, with all units provided with two parking spaces as near as practical to each unit.

f) The location and number of footpath crossings;	The development will require pedestrians to cross the driveway at certain locations, at each location suitable sight lines will be available.
g) Vehicle and pedestrian traffic safety;	Where possible barrier kerb will be used to separate the pathway from the driveway, similar to urban streets, where this treatment is considered appropriate. Number of vehicle and pedestrian movements within the development is expected to be low, generating a low conflict risk.
h) The location of any access ways or parking aisles; and	A pedestrian pathway is located along the length of the narrow access strip connecting with Jubilee Avenue, adjacent to an internal driveway.
i) Any protective devices proposed for pedestrian safety.	The pathways will be separated from the access ways or parking aisles by kerbing where possible. A 10 km/h shared speed limit will be installed at the beginning of the site, to moderate the operating speed of vehicles.

8.2 C3.0 Road and Railway Assets Code

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction

The development will increase the use of the existing access by more than 20 percent and 40 vehicle movements per day, and as such will need to be assessed against the performance criteria P1, ensuring that it can operate in a safe and efficient manner.

Performance criteria	Assessment
To ensure that the safety and efficiency of roads is not reduced by the creation of a new access and junctions.	
a) Any increase in the traffic caused by the use;	The 12 residential units are estimated to generate an additional 74 daily vehicular trips, with eight of these trips likely to occur during the morning and evening peak periods. The existing residential unit is already generating on average seven daily vehicle trips, with one of these occurring during the peak periods.
b) The nature and frequency of the traffic generated by the use;	The residential units are expected to generate light vehicles less than 5.5 metres in length. These types of vehicles are associated with urban residential living, have good manoeuvrability, and are compatible with the existing vehicles using the surrounding road network.
c) The nature of the road;	Jubilee Avenue is a local residential road, built to an urban standard, has sufficient width to accommodate two-way traffic movements, and can support on-street parking. The surrounding road network is of a suitable standard to accommodate the low increase in traffic flow. There is sufficient sight distance at the existing vehicular access to enable vehicles to enter and leave the development site in a safe and efficient manner.

d) The speed limit and traffic flow of the road;	The urban default 50 km/h speed limit applies along Jubilee Avenue, and other surrounding streets. Recent manual traffic surveys found the road is lightly trafficked, with 24 two-way traffic flow in the morning peak and 36 in the evening peak. Traffic analysis of the surrounding road network, including traffic modelling conducted at the surrounding junctions and roundabout, indicates there is sufficient spare traffic capacity to absorb the increase in traffic, without causing adverse traffic impact, or reduction in traffic flow, or residential amenity. Development traffic is expected to commute along Jubilee Avenue connecting with Andrew Street, without impacting the current primary school drop-off, or pick-up congestion occurring along Downie Street.
e) Any alternative access;	None.
f) The need for the access or junction;	Urban infill in established urban areas is an excellent method to increase the supply of housing, while optimising the current infrastructure and community facilities.
g) Any traffic impact assessment; and	An independent traffic assessment found no reason for this development not to proceed.
h) Any written advice received from the road authority.	A letter dated 29 th of April 2024, requesting an independent Traffic Impact Assessment.

9. Conclusion

From a traffic engineering and road safety perspective, additional traffic generated from this development site is not expected to create any adverse safety, amenity, or traffic efficiency problems, as:

- the amount of traffic generated by the development is considered to be low and there is sufficient capacity within the surrounding road network to absorb these movements without impacting other users, or the current traffic congestion along Downie Street generated by the primary school,
- traffic modelling of the surrounding road junctions and roundabout, predicts that there will be no deterioration in the level of traffic efficiency,
- the existing vehicular access with Jubilee Avenue will be widened to accommodate two-way traffic movements, with sufficient sight distance to enable vehicles to enter and leave the development site in a safe and efficient manner,
- there will be a sufficient number of on-site car parking spaces to meet the reasonable demand, minimising parking overflow,
- the width and layout of the internal driveway will provide safe and efficient vehicular access, ensuring vehicles can enter, circulate and leave in a forward-driving direction,
- a standard waste collection vehicle can reverse into the site and leave in a forward-driving direction, and
- emergency vehicles will be able to enter the site and reach all units.

This Traffic Impact Assessment found no reason for this development not to proceed.

10. Appendix A – Manual Surveys

Jubilee Avenue, Downie Street and Martyn Place intersection

Diagram 10.1A – Morning peak hour traffic movements

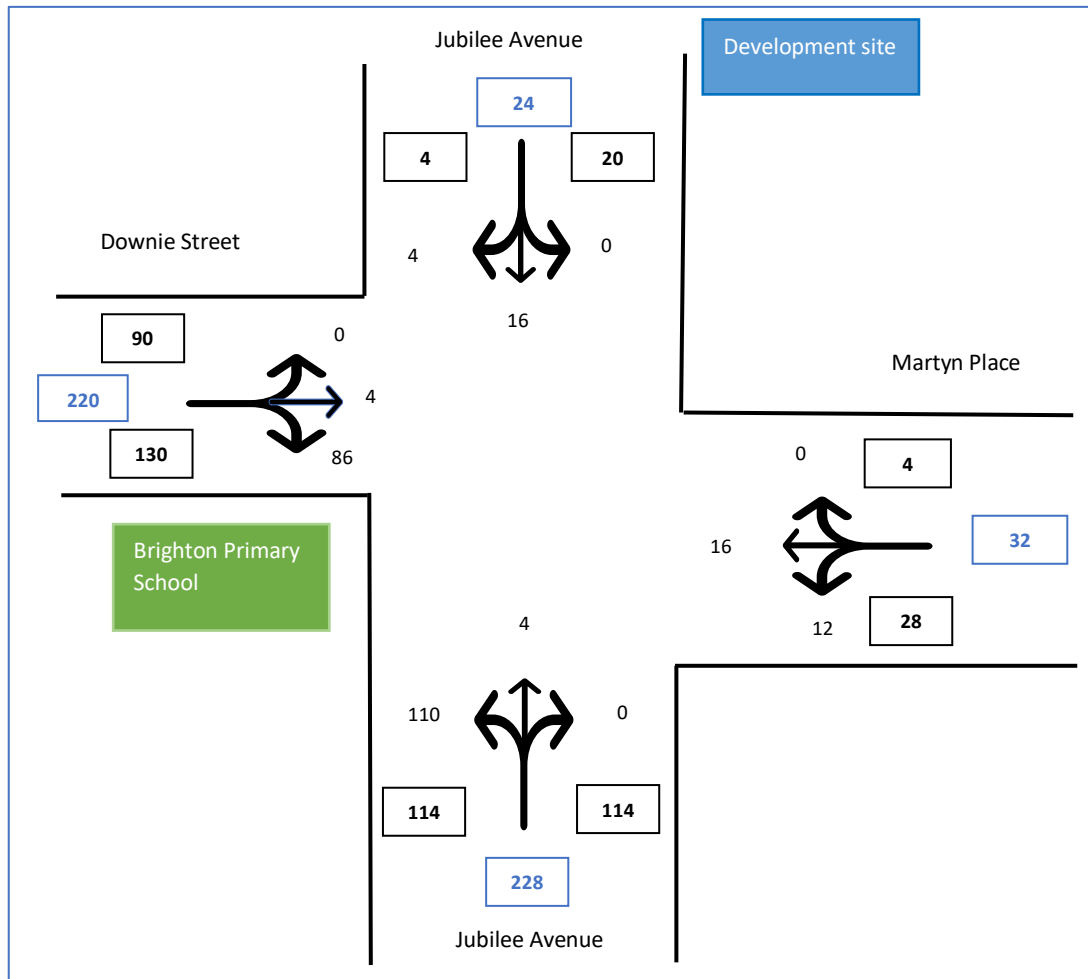
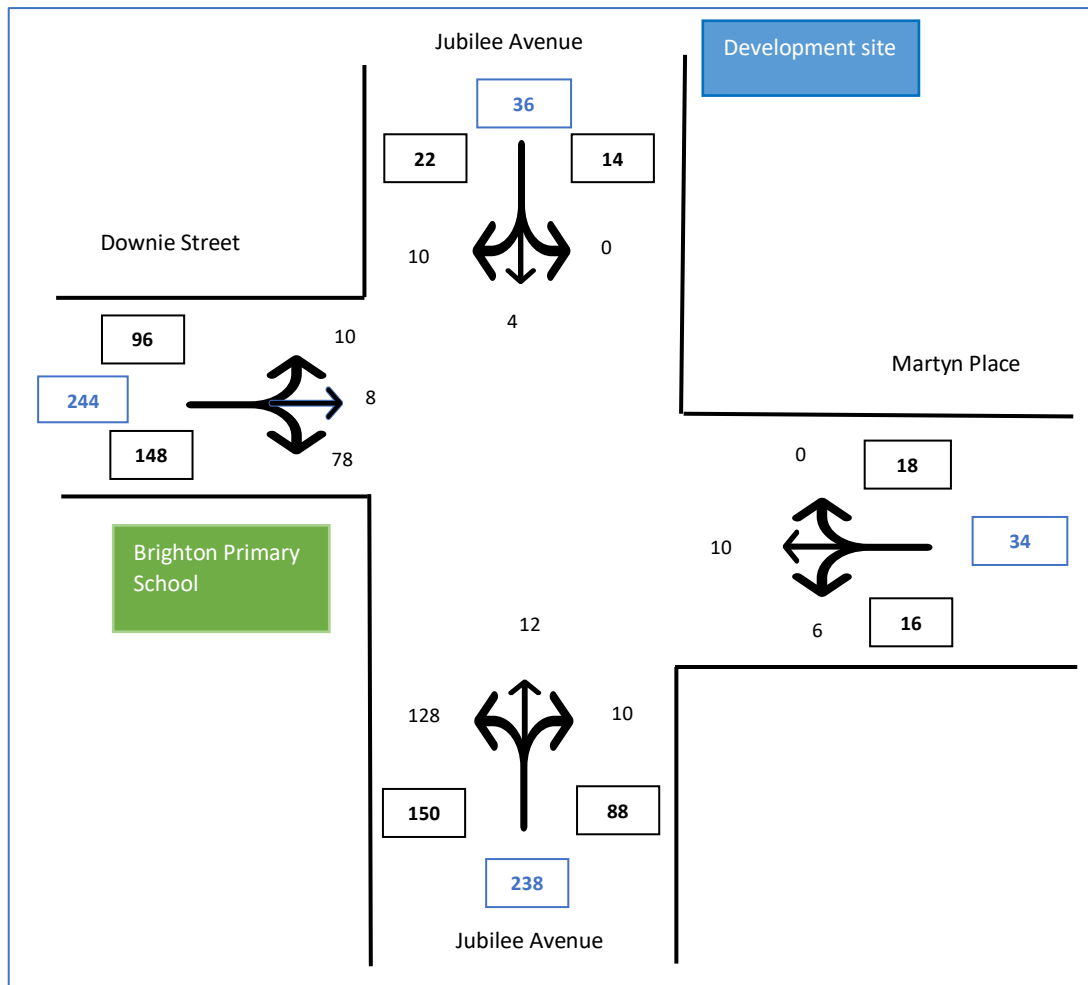


Diagram 10.1B – Evening peak hour traffic movements



Downie Street and Brighton Road junction

Diagram 10.1A – Morning peak hour traffic movements

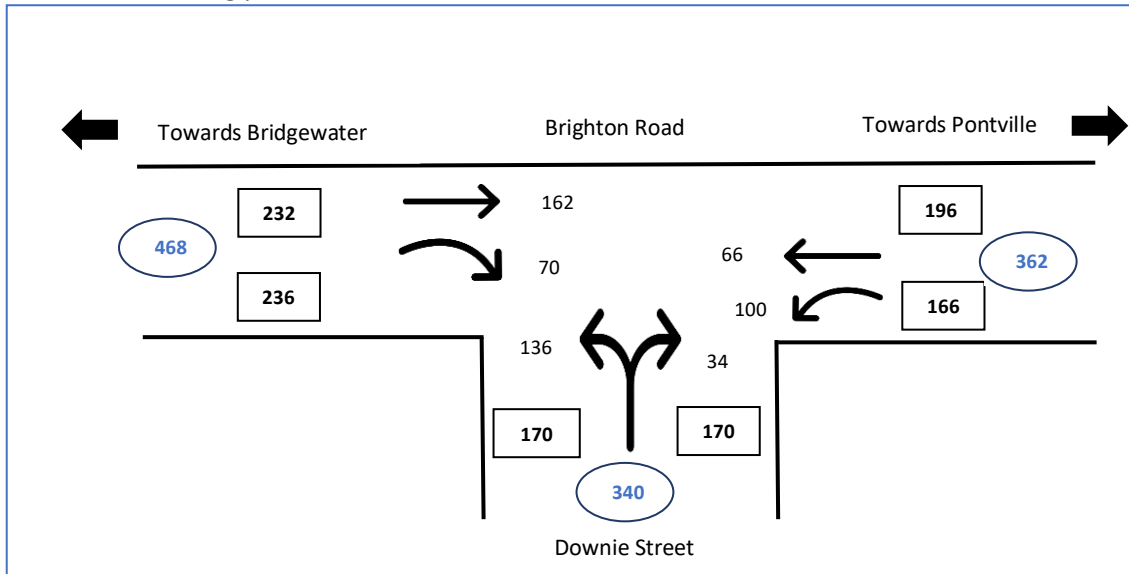
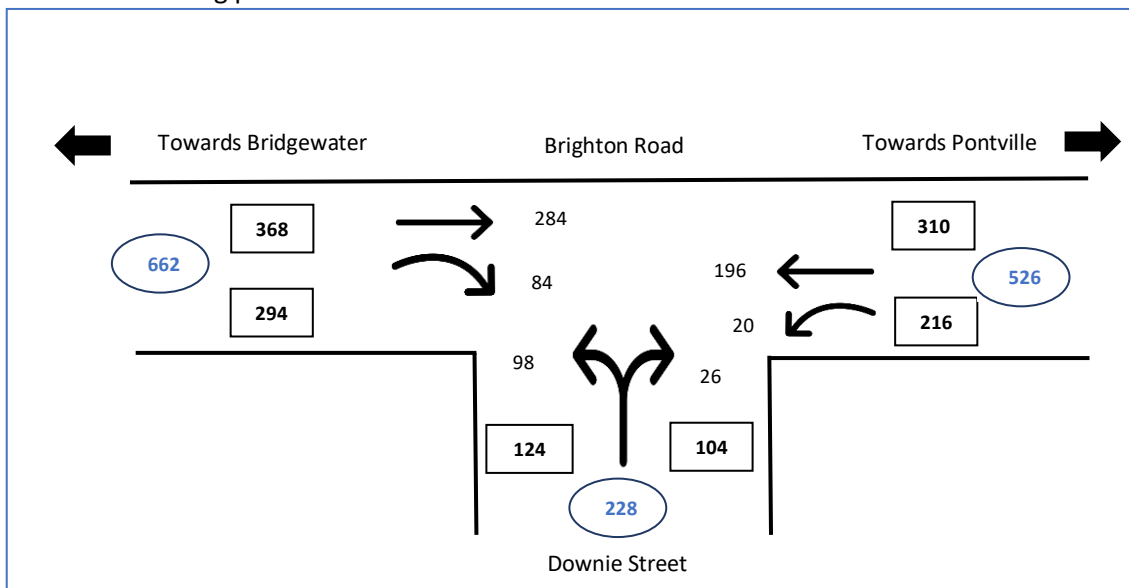


Diagram 10.1B – Evening peak hour traffic movements



11. Appendix B – Traffic modelling

Jubilee Avenue, Downie Street, and Martyn Place intersection

Morning peak – Existing flows

MOVEMENT SUMMARY								
▽ Site: 101 [Jubilee and Downie - Morning existing traffic]								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Jubilee Street								
1	L2	116	0.0	0.065	5.5	LOS A	0.0	0.1
2	T1	4	0.0	0.065	0.0	LOS A	0.0	0.1
3	R2	1	0.0	0.065	5.5	LOS A	0.0	0.1
Approach		121	0.0	0.065	5.4	NA	0.0	0.1
East: Martyn Place								
4	L2	13	0.0	0.023	5.6	LOS A	0.1	0.6
5	T1	17	0.0	0.023	4.6	LOS A	0.1	0.6
6	R2	1	0.0	0.023	5.6	LOS A	0.1	0.6
Approach		31	0.0	0.023	5.1	LOS A	0.1	0.6
North: Jubilee Street								
7	L2	1	0.0	0.012	5.8	LOS A	0.0	0.2
8	T1	17	0.0	0.012	0.1	LOS A	0.0	0.2
9	R2	4	0.0	0.012	5.8	LOS A	0.0	0.2
Approach		22	0.0	0.012	1.4	NA	0.0	0.2
West: Downie Street								
10	L2	1	0.0	0.094	5.6	LOS A	0.3	2.3
11	T1	4	0.0	0.094	4.5	LOS A	0.3	2.3
12	R2	91	0.0	0.094	6.0	LOS A	0.3	2.3
Approach		96	0.0	0.094	5.9	LOS A	0.3	2.3
All Vehicles		269	0.0	0.094	5.2	NA	0.3	2.3

Morning peak – Existing flows with development traffic

MOVEMENT SUMMARY								
▽ Site: 101 [Jubilee and Downie - Morning existing traffic with additional traffic]								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Jubilee Street								
1	L2	116	0.0	0.066	5.5	LOS A	0.0	0.1
2	T1	5	0.0	0.066	0.0	LOS A	0.0	0.1
3	R2	1	0.0	0.066	5.5	LOS A	0.0	0.1
Approach		122	0.0	0.066	5.3	NA	0.0	0.1
East: Martyn Place								
4	L2	13	0.0	0.023	5.6	LOS A	0.1	0.6
5	T1	17	0.0	0.023	4.7	LOS A	0.1	0.6
6	R2	1	0.0	0.023	5.6	LOS A	0.1	0.6
Approach		31	0.0	0.023	5.1	LOS A	0.1	0.6
North: Jubilee Street								
7	L2	1	0.0	0.016	5.8	LOS A	0.0	0.2
8	T1	25	0.0	0.016	0.1	LOS A	0.0	0.2
9	R2	4	0.0	0.016	5.8	LOS A	0.0	0.2
Approach		31	0.0	0.016	1.1	NA	0.0	0.2
West: Downie Street								
10	L2	1	0.0	0.095	5.6	LOS A	0.3	2.3
11	T1	4	0.0	0.095	4.5	LOS A	0.3	2.3
12	R2	91	0.0	0.095	6.0	LOS A	0.3	2.3
Approach		96	0.0	0.095	6.0	LOS A	0.3	2.3
All Vehicles		279	0.0	0.095	5.0	NA	0.3	2.3

Evening peak – Existing flows

MOVEMENT SUMMARY

Site: 101 [Jubilee and Downie - Evening existing traffic]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Jubilee Street								
1	L2	135	0.0	0.085	5.5	LOS A	0.1	0.5
2	T1	13	0.0	0.085	0.0	LOS A	0.1	0.5
3	R2	11	0.0	0.085	5.5	LOS A	0.1	0.5
Approach		158	0.0	0.085	5.1	NA	0.1	0.5
East: Martyn Place								
4	L2	6	0.0	0.014	5.6	LOS A	0.1	0.4
5	T1	11	0.0	0.014	4.8	LOS A	0.1	0.4
6	R2	1	0.0	0.014	5.7	LOS A	0.1	0.4
Approach		18	0.0	0.014	5.1	LOS A	0.1	0.4
North: Jubilee Street								
7	L2	1	0.0	0.009	5.9	LOS A	0.0	0.3
8	T1	4	0.0	0.009	0.4	LOS A	0.0	0.3
9	R2	11	0.0	0.009	5.9	LOS A	0.0	0.3
Approach		16	0.0	0.009	4.4	NA	0.0	0.3
West: Downie Street								
10	L2	11	0.0	0.096	5.6	LOS A	0.3	2.4
11	T1	8	0.0	0.096	4.5	LOS A	0.3	2.4
12	R2	82	0.0	0.096	6.0	LOS A	0.3	2.4
Approach		101	0.0	0.096	5.9	LOS A	0.3	2.4
All Vehicles		293	0.0	0.096	5.3	NA	0.3	2.4

Evening peak – Existing flows with development traffic

MOVEMENT SUMMARY

Site: 101 [Jubilee and Downie - Evening with development traffic]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Jubilee Street								
1	L2	135	0.0	0.088	5.5	LOS A	0.1	0.6
2	T1	18	0.0	0.088	0.0	LOS A	0.1	0.6
3	R2	11	0.0	0.088	5.5	LOS A	0.1	0.6
Approach		163	0.0	0.088	4.9	NA	0.1	0.6
East: Martyn Place								
4	L2	6	0.0	0.014	5.6	LOS A	0.1	0.4
5	T1	11	0.0	0.014	4.8	LOS A	0.1	0.4
6	R2	1	0.0	0.014	5.7	LOS A	0.1	0.4
Approach		18	0.0	0.014	5.1	LOS A	0.1	0.4
North: Jubilee Street								
7	L2	1	0.0	0.010	6.0	LOS A	0.0	0.3
8	T1	5	0.0	0.010	0.4	LOS A	0.0	0.3
9	R2	11	0.0	0.010	5.9	LOS A	0.0	0.3
Approach		17	0.0	0.010	4.2	NA	0.0	0.3
West: Downie Street								
10	L2	15	0.0	0.099	5.6	LOS A	0.4	2.5
11	T1	8	0.0	0.099	4.6	LOS A	0.4	2.5
12	R2	82	0.0	0.099	6.1	LOS A	0.4	2.5
Approach		105	0.0	0.099	5.9	LOS A	0.4	2.5
All Vehicles		303	0.0	0.099	5.2	NA	0.4	2.5

Brighton Road and Downie Street junction

Morning peak – Existing flows

MOVEMENT SUMMARY

▽ **Site: 101 [Brighton and Downie - Morning existing traffic]**

New Site

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Downie Street								
1	L2	143	0.0	0.131	5.8	LOS A	0.5	3.7
3	R2	36	0.0	0.131	7.1	LOS A	0.5	3.7
Approach		179	0.0	0.131	6.0	LOS A	0.5	3.7
East: Brighton Road								
4	L2	105	0.0	0.092	5.5	LOS A	0.0	0.0
5	T1	69	0.0	0.092	0.0	LOS A	0.0	0.0
Approach		175	0.0	0.092	3.3	NA	0.0	0.0
West: Brighton Road								
11	T1	171	0.0	0.137	0.3	LOS A	0.5	3.4
12	R2	74	0.0	0.137	6.0	LOS A	0.5	3.4
Approach		244	0.0	0.137	2.0	NA	0.5	3.4
All Vehicles		598	0.0	0.137	3.6	NA	0.5	3.7

Morning peak – Existing flows with development traffic

MOVEMENT SUMMARY

▽ **Site: 101 [Brighton and Downie - Morning with development traffic]**

New Site

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Downie Street								
1	L2	144	0.0	0.132	5.8	LOS A	0.5	3.8
3	R2	36	0.0	0.132	7.1	LOS A	0.5	3.8
Approach		180	0.0	0.132	6.0	LOS A	0.5	3.8
East: Brighton Road								
4	L2	105	0.0	0.092	5.5	LOS A	0.0	0.0
5	T1	69	0.0	0.092	0.0	LOS A	0.0	0.0
Approach		175	0.0	0.092	3.3	NA	0.0	0.0
West: Brighton Road								
11	T1	171	0.0	0.137	0.3	LOS A	0.5	3.4
12	R2	74	0.0	0.137	6.0	LOS A	0.5	3.4
Approach		244	0.0	0.137	2.0	NA	0.5	3.4
All Vehicles		599	0.0	0.137	3.6	NA	0.5	3.8

Morning peak – Existing flows and all development traffic using Downie Street

MOVEMENT SUMMARY**▽ Site: 101 [Brighton and Downie - Morning - sensitively with all traffic using junction]**

New Site

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
South: Downie Street								
1	L2	153	0.0	0.138	5.8	LOS A	0.6	4.0
3	R2	36	0.0	0.138	7.1	LOS A	0.6	4.0
Approach		188	0.0	0.138	6.0	LOS A	0.6	4.0
East: Brighton Road								
4	L2	105	0.0	0.092	5.5	LOS A	0.0	0.0
5	T1	69	0.0	0.092	0.0	LOS A	0.0	0.0
Approach		175	0.0	0.092	3.3	NA	0.0	0.0
West: Brighton Road								
11	T1	171	0.0	0.137	0.3	LOS A	0.5	3.4
12	R2	75	0.0	0.137	6.0	LOS A	0.5	3.4
Approach		245	0.0	0.137	2.0	NA	0.5	3.4
All Vehicles		608	0.0	0.138	3.6	NA	0.6	4.0

Morning peak – Existing flows with 2% growth on Brighton Road and 1% growth on Downie Street for the next 10 years

MOVEMENT SUMMARY**▽ Site: 101 [Brighton and Downie - Morning with development and growth]**

New Site

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
South: Downie Street								
1	L2	158	0.0	0.150	5.8	LOS A	0.6	4.3
3	R2	40	0.0	0.150	7.5	LOS A	0.6	4.3
Approach		198	0.0	0.150	6.1	LOS A	0.6	4.3
East: Brighton Road								
4	L2	116	0.0	0.106	5.6	LOS A	0.0	0.0
5	T1	84	0.0	0.106	0.0	LOS A	0.0	0.0
Approach		200	0.0	0.106	3.2	NA	0.0	0.0
West: Brighton Road								
11	T1	207	0.0	0.160	0.3	LOS A	0.5	3.8
12	R2	78	0.0	0.160	6.2	LOS A	0.5	3.8
Approach		285	0.0	0.160	1.9	NA	0.5	3.8
All Vehicles		683	0.0	0.160	3.5	NA	0.6	4.3

Evening peak – Existing flows

MOVEMENT SUMMARY

▽ Site: 101 [Brighton and Downie - Evening existing traffic]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Downie Street								
1	L2	103	0.0	0.111	6.2	LOS A	0.4	3.0
3	R2	27	0.0	0.111	8.1	LOS A	0.4	3.0
Approach		131	0.0	0.111	6.6	LOS A	0.4	3.0
East: Brighton Road								
4	L2	21	0.0	0.117	5.6	LOS A	0.0	0.0
5	T1	206	0.0	0.117	0.0	LOS A	0.0	0.0
Approach		227	0.0	0.117	0.5	NA	0.0	0.0
West: Brighton Road								
11	T1	240	0.0	0.185	0.4	LOS A	0.6	4.5
12	R2	88	0.0	0.185	6.3	LOS A	0.6	4.5
Approach		328	0.0	0.185	2.0	NA	0.6	4.5
All Vehicles		686	0.0	0.185	2.4	NA	0.6	4.5

Evening peak – Existing flows with development traffic

MOVEMENT SUMMARY

▽ Site: 101 [Brighton and Downie - Evening with development]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
South: Downie Street								
1	L2	104	0.0	0.112	6.2	LOS A	0.4	3.0
3	R2	27	0.0	0.112	8.1	LOS A	0.4	3.0
Approach		132	0.0	0.112	6.6	LOS A	0.4	3.0
East: Brighton Road								
4	L2	21	0.0	0.117	5.6	LOS A	0.0	0.0
5	T1	206	0.0	0.117	0.0	LOS A	0.0	0.0
Approach		227	0.0	0.117	0.5	NA	0.0	0.0
West: Brighton Road								
11	T1	240	0.0	0.188	0.4	LOS A	0.7	4.7
12	R2	93	0.0	0.188	6.3	LOS A	0.7	4.7
Approach		333	0.0	0.188	2.0	NA	0.7	4.7
All Vehicles		692	0.0	0.188	2.4	NA	0.7	4.7

Evening peak – Existing flows with 2% growth on Brighton Road and 1% growth on Downie Street for the next 10 years

MOVEMENT SUMMARY

▽ **Site: 101 [Brighton and Downie - Evening with development and growth]**

New Site

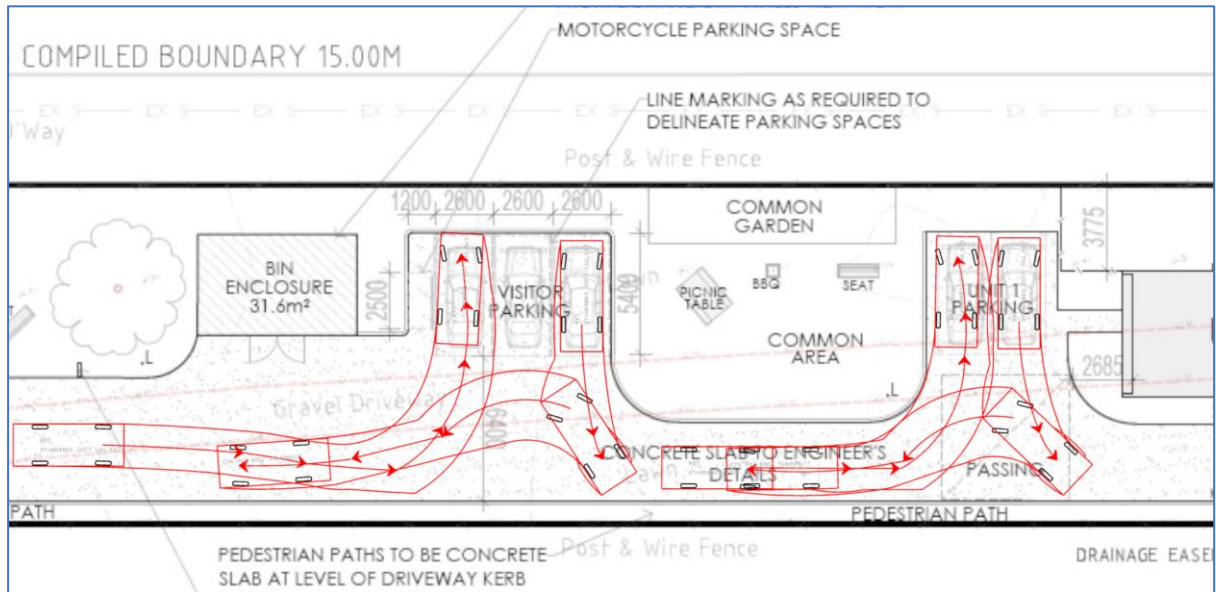
Site Category: (None)

Giveaway / Yield (Two-Way)

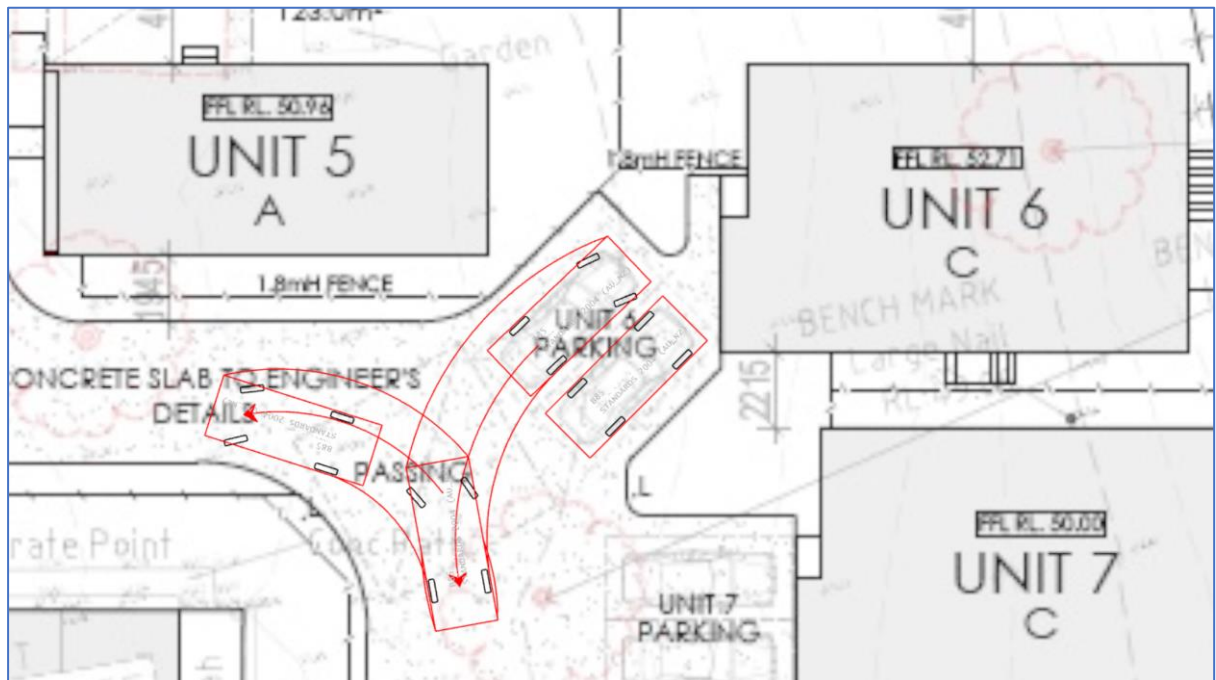
Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
South: Downie Street								
1	L2	114	0.0	0.136	6.4	LOS A	0.5	3.7
3	R2	31	0.0	0.136	9.6	LOS A	0.5	3.7
Approach		144	0.0	0.136	7.1	LOS A	0.5	3.7
East: Brighton Road								
4	L2	23	0.0	0.140	5.6	LOS A	0.0	0.0
5	T1	249	0.0	0.140	0.0	LOS A	0.0	0.0
Approach		273	0.0	0.140	0.5	NA	0.0	0.0
West: Brighton Road								
11	T1	364	0.0	0.261	0.4	LOS A	0.9	6.0
12	R2	101	0.0	0.261	6.6	LOS A	0.9	6.0
Approach		465	0.0	0.261	1.8	NA	0.9	6.0
All Vehicles		882	0.0	0.261	2.2	NA	0.9	6.0

12. Appendix C – Sample of swept paths for on-site parking spaces

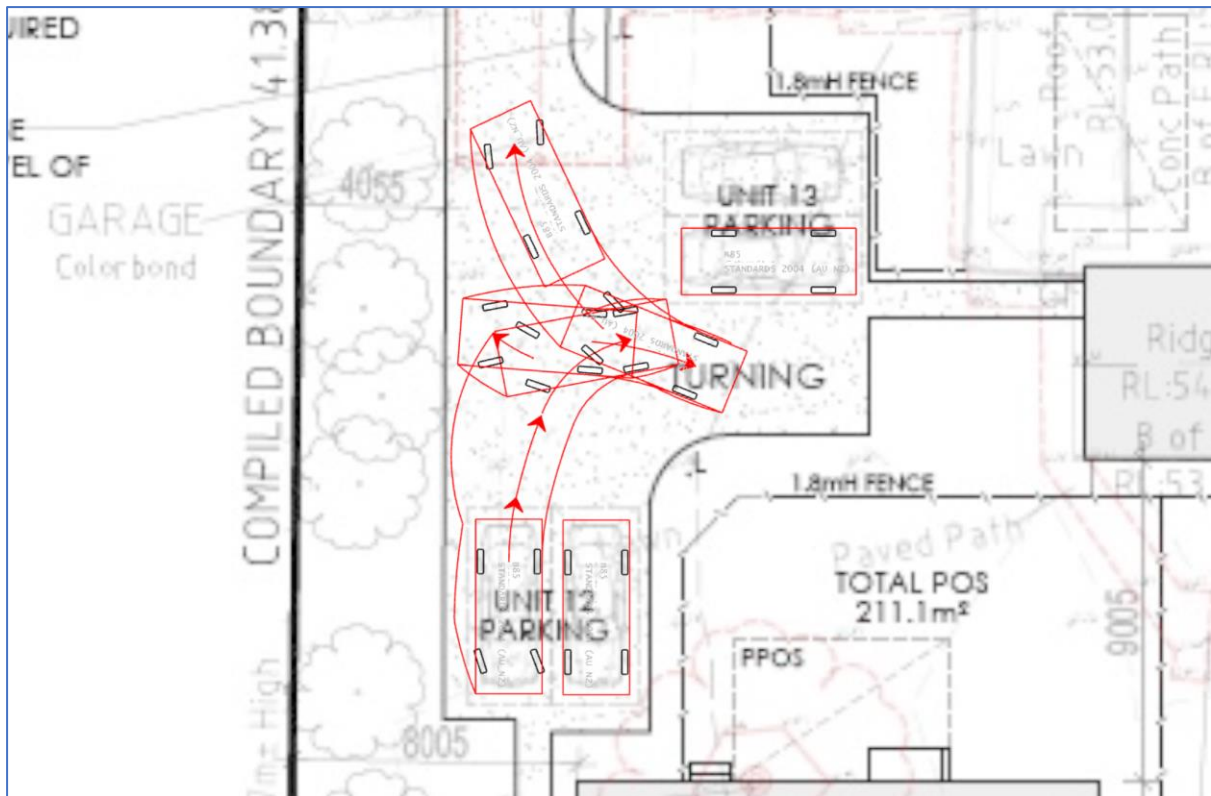
Swept path of B85 vehicle entering and leaving unit 1 and visitor parking spaces



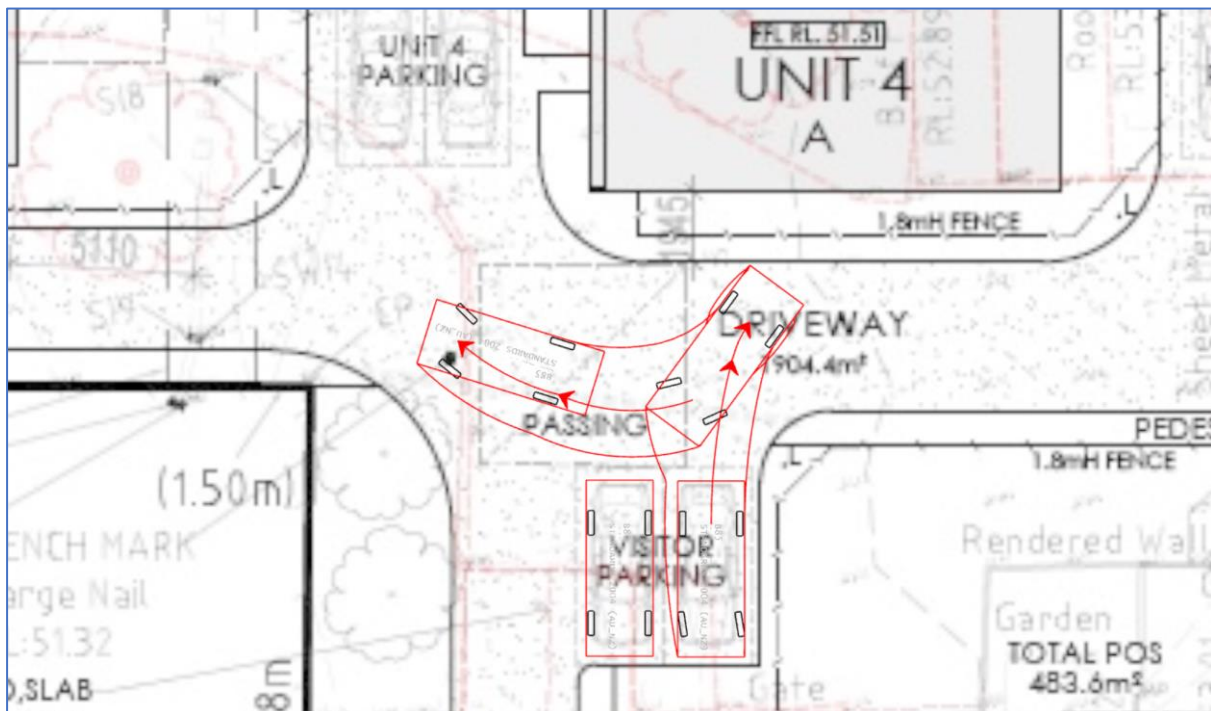
Swept path of B85 vehicle leaving unit 6



Swept path of B85 vehicle leaving unit 12



Swept path of B85 vehicle leaving visitor spaces opposite unit 4



STORMWATER REPORT

Unit Development
12 Jubilee Avenue
Brighton TAS 7030

250807 SR 24 E 35 - 24 REV A



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PROJECT INFORMATION

DOCUMENT TITLE	Stormwater Report – 23 E 35-24 Rev A
PROJECT LOCATION	12 Jubilee Avenue, Brighton TAS 7030
CLIENT ORGANISATION	Creative Homes
CLIENT REFERENCE	Unit Development
CLIENT CONTACT/S	Creative Homes
ALDANMARK REFERENCE	24 E 35 - 24
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REVISION	DATE	REVISION DETAILS	PREPARED	VERIFIED	APPROVED
A	250807	Development Approval	LG	NM	DG

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PROJECT SUMMARY

Aldanmark Engineers were engaged by Creative Homes to prepare a stormwater report and engineering plans for a proposed development at 12 Jubilee Avenue, Brighton to demonstrate that the stormwater quality and quantity requirements outlined in Brighton Council's RAI (ref: DA2025/006) can be achieved.

A Drains IL-CL model was created to analyse the pre-development and post-development site runoff quantities. The results of the DRAINS model showed that the post-development site runoff is increased by 67 L/s.

An on-site detention system was modelled in DRAINS comprising of:

- **1 x 62,500 L Underground detention tank** (10m L x 5m W x 1.25m H) fitted with a 110mm orifice and located at the outfall of the catchment.

The proposed detention system can reduce the post-development critical peak flow to below pre-development conditions, hence satisfying the conditions of Brighton Council's RAI.

Atlan were also engaged to provide a MUSIC model for the site and propose a treatment solution to meet the water quality targets. The proposed system included:

- 7x Atlan Stormsacks installed in each grated pit.
- 1x Atlan Filter 850mm in a Vault (FIL-3.0)

The proposed system satisfied the treatment targets.

1. INTRODUCTION

Aldanmark have been engaged by Creative Homes to provide a stormwater report for the proposed development at 12 Jubilee Avenue, Brighton.

This report aims to demonstrate that the development at 12 Jubilee Avenue, Brighton complies with the stormwater quality and quantity requirements outlined in Brighton Council's RAI (ref: DA2025/006) dated January 2025.

2. SITE OVERVIEW

The site contains one existing dwelling and an existing gravel driveway area as per Figure 1 below. The existing site stormwater system discharges through the existing stormwater lot connection to a public main along the Northern boundary.

Twelve (12) new residential units are proposed to be constructed on the subject site, as well as new concrete driveway and parking areas as shown in Figure 2 below. The increase in impervious area within the site is expected to increase the quantity of site stormwater runoff beyond the current site outflows.



FIGURE 1: EXISTING SITE



FIGURE 2: PROPOSED DEVELOPMENT PLAN

3. QUANTITY MODEL

3.1 INITIAL LOSS / CONTINUING LOSS (IL-CL) METHOD

The Initial Loss / Continuing Loss (IL-CL) loss method was applied within the software DRAINS to determine the increase in runoff between the pre-development and post-development conditions. The DRAINS model was then used to determine the volume and configuration of on-site detention required to reduce the site runoff below the pre-development conditions.

Rainfall data for the DRAINS model was sourced from the ARR Data Hub website (<https://data.arr-software.org/>) and includes the following:

- Storm losses – Initial and continual
- Pre-burst rainfall depths
- Temporal patterns

3.2 SITE CATCHMENTS

The site catchment areas assumed for the IL-CL method calculations were determined from the architectural site plan prepared by Creative Homes dated January 2024. For the pre-development condition, a single homogenous catchment was simulated whilst for the post-development condition two separate catchments were defined as shown in Figure 3 below.



FIGURE 3: PROPOSED SITE CATCHMENTS

The proportion of effective impervious area (EIA), remaining impervious area (RIA) and pervious area (PA) defined for the catchments in the DRAINS model is shown in Table 2. Times of concentration for all catchments were determined within DRAINS using the kinematic wave equation.

TABLE 1: SITE CATCHMENT BREAKDOWN

CATCHMENT	AREA (HA)	EIA (%)	RIA (%)	PA (%)
Pre-development	0.671	15.5	0	84.5
Post-development (Catchment 1)	0.514	70	0	30
Post-development (Catchment 2)	0.157	35.7	0	64.3

3.3 STORM LOSSES

The initial and continuing losses for the pre-development condition were sourced from the ARR Data Hub website and the impervious area losses were set as per advice in ARR 2019 Book 5 Chapter 3 Section 3.5.3.1.2.

For the post-development condition, an allowance for climate change is required. The rainfall data sourced from the ARR data website was adjusted based on the climate change scenario/target horizon **SSP2-4.5/2100**. The Watercom Climate Change Rainfall modifier (<https://climatechange.watercom.com.au/>) was utilised to adjust the data.

Table 3 captures the storm losses assumed in the DRAINS model for both the pre-development and post-development conditions.

TABLE 2: ASSUMED STORM LOSSES (ARR)

STORM LOSSES	PRE-DEVELOPMENT	POST-DEVELOPMENT
Impervious Area Initial Losses (mm)	1	1
Post-Impervious Area Continuing Losses (mm/hr)	0	0
Pervious Area Initial Losses (mm)	26	28.6
Pervious Area Continuing Losses (mm/hr)	4.30	5.25

3.4 MODEL RESULTS

The results of the DRAINS model showed that the post-development site runoff is increased by 67 L/s over pre-existing runoff quantities as shown in Table 4.

To reduce the post-development site outflow below pre-development quantities, the following on-site detention system was modelled in DRAINS:

- Catchment 1: **1 x 62,500 L Underground detention tank** (10m L x 5m W x 1.25m H) fitted with a 110mm orifice and located at the outfall of the catchment.
- Catchment 2: **Unmitigated**.

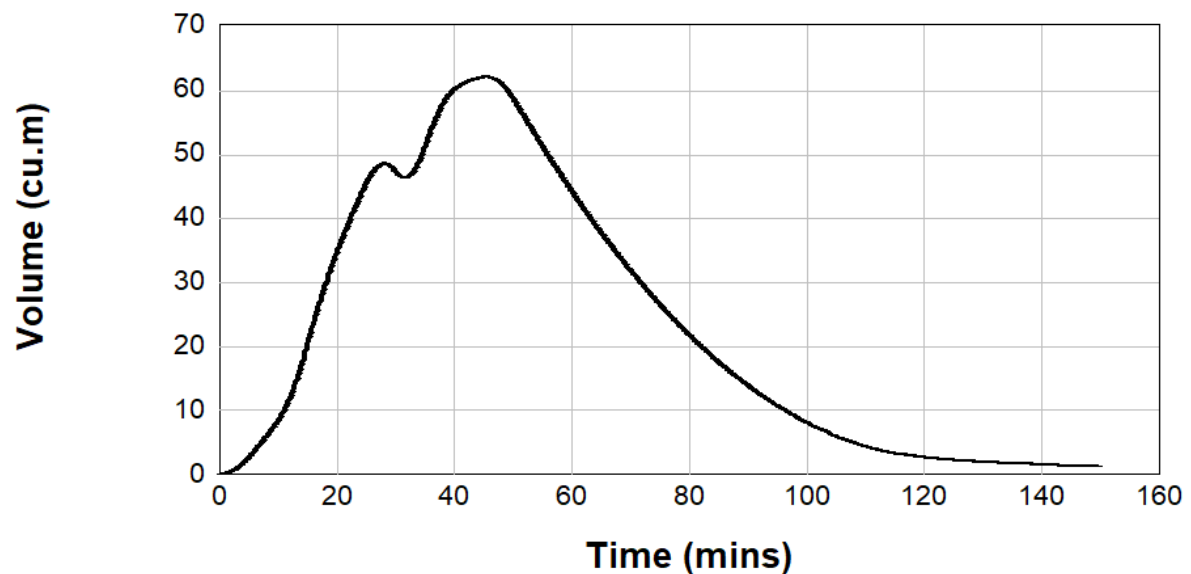
The model results showed that the proposed detention system can reduce the post-development critical peak flow to 41 L/s.

TABLE 3: PEAK SITE RUNOFF SUMMARY

CONDITION	SITE RUNOFF (L/S)	CRITICAL DURATION
Pre-development	42	5-minute
Post-development (unmitigated)	109	5-minute
Post-development (with OSD)	41	1-hour

Note: Refer to Appendix A for box and whisker plots of pre & post development outflows.

Figure 4 below shows the detention storage graph for the post-development condition. The maximum storage volume was 62,000 L.

**FIGURE 4: OSD STORAGE GRAPH**

Full specifications for the required on-site detention tank will be provided once the detailed Civil design has been completed.

4. QUALITY MODEL

Aldanmark Engineers have collaborated with Atlan and a Model for Urban Stormwater Improvement Conceptualisation (MUSIC) was used to model the site and the effectiveness of various treatment devices to achieve the stormwater quality targets outlined in the Brighton Council Stormwater Quality Control Contributions policy:

- 90% reduction in the average load of litter/gross pollutants
- 80% reduction in the average load of total suspended solids (TSS)
- 45% reduction in the average annual load of total phosphorous (TP)
- 45% reduction in the average annual load of total nitrogen (TN)

Proprietary devices by Atlan have been utilized to meet the water quality targets. The propriety devices include:

- 7x Atlan Stormsacks installed in each grated pit.
- 1x Atlan Filter 850mm in a Vault (FIL-3.0)

The MUSIC model is shown in Figure 5 below.

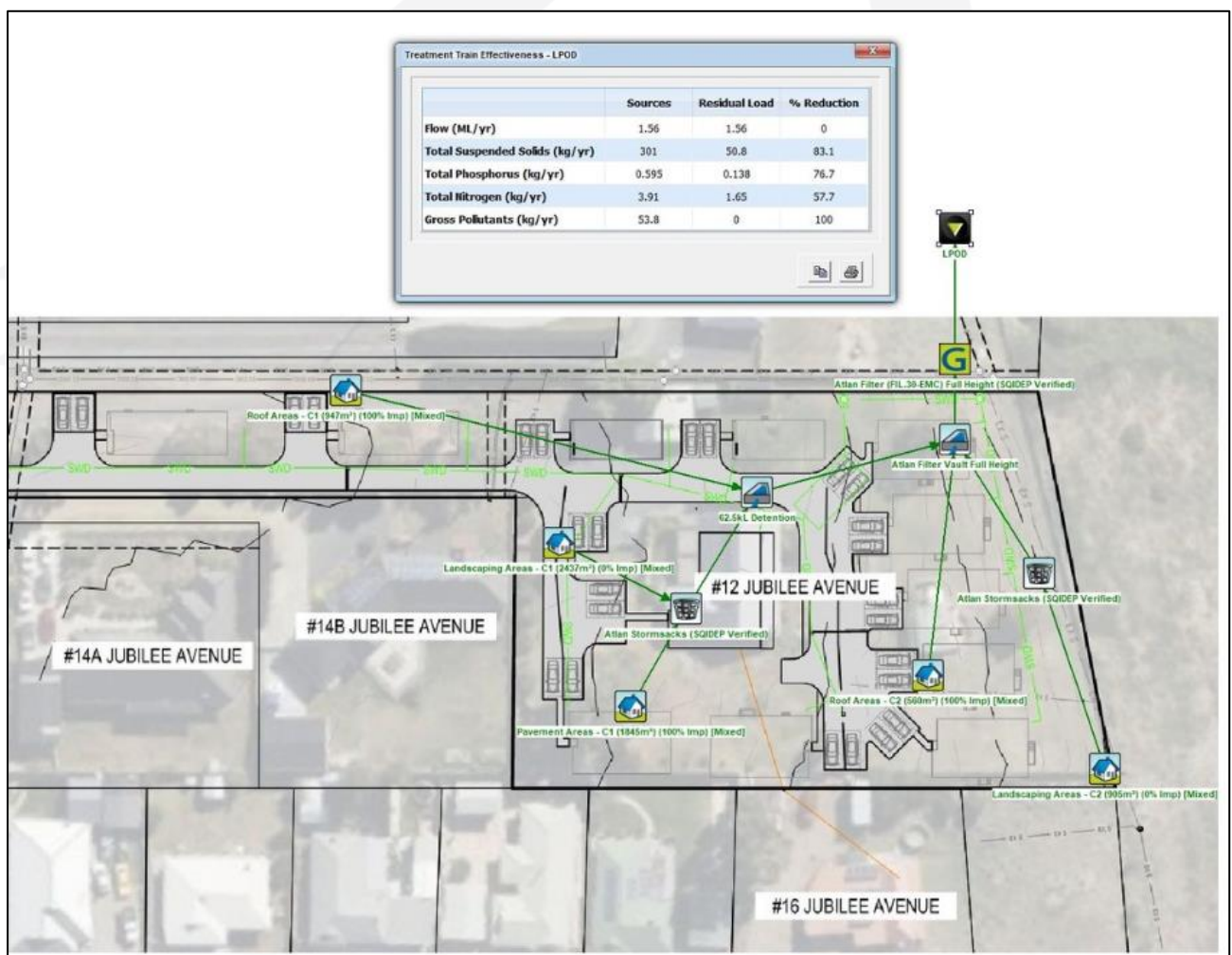


FIGURE 5: MODEL FOR URBAN STORMWATER IMPROVEMENT CONCEPTUALISATION OUTPUT

5. MAINTENANCE

The recommended maintenance schedule for the on-site detention and stormwater treatment devices specified in this report are outlined in Table 5 and Table 6 respectively.

The manufacturer's maintenance requirements for the stormwater detention and treatment devices that are installed will form part of the project's Plumbing Maintenance Schedule.

TABLE 4: MAINTENANCE FOR ATLAN TREATMENT DEVICES

ATLAN STORMSACKS	FREQUENCY
VISUAL INSPECTION Filter bag inspection and evaluation Removal of captured pollutants Disposal of material	Every 4 months.
SYSTEM REPLACEMENT Filter bag replacement Support frame rectification	As required
ATLAN FILTER	FREQUENCY
VISUAL INSPECTION Removal of gross pollutants System assessment Minimal rectification works as needed	Every 4 months
GENERAL CLEANING At the end of each standard inspection, trigger measures will identify if general cleaning is required or if requested by the owner.	As required
CARTRIDGE REPLACEMENT Replacement of Atlan Filter cartridge system	Within 10 years.

TABLE 5: MAINTENANCE PLAN FOR RAINWATER TANKS

ACTIVITY	FREQUENCY
Visual inspection of rainwater detention tank for sediment accumulation, sludge, and algae growth, and clogging at outlet orifice.	Every 6 months
Vacuum truck sediment removal/desludging of rainwater detention tank	Approximately every 2-3 years or if sediment/'sludge' is evident upon inspection
Inspection and cleaning of gutters	Every 6 months

6. CONCLUSION

This report has demonstrated that the proposed development at 12 Jubilee Avenue, Brighton complies with the stormwater quality and quantity conditions outlined in Brighton Council's RAI (ref: DA2025/006) dated January 2025.

Note:

- No assessment has been undertaken of Council's stormwater infrastructure and its capacity.
- This report assumes the Council stormwater main has capacity for the pre-development peak discharge.
- It is the responsibility of Council to assess their infrastructure and determine the impact (if any) of altered inflows into their stormwater network.

Please contact me at lgadomski@aldanmark.com.au if you require any additional information.

Yours faithfully,



Lachlan Gadomski BEng Civil (Hons), Dip. Project Management
Civil Engineer

APPENDIX A – BOX AND WHISKER PLOTS

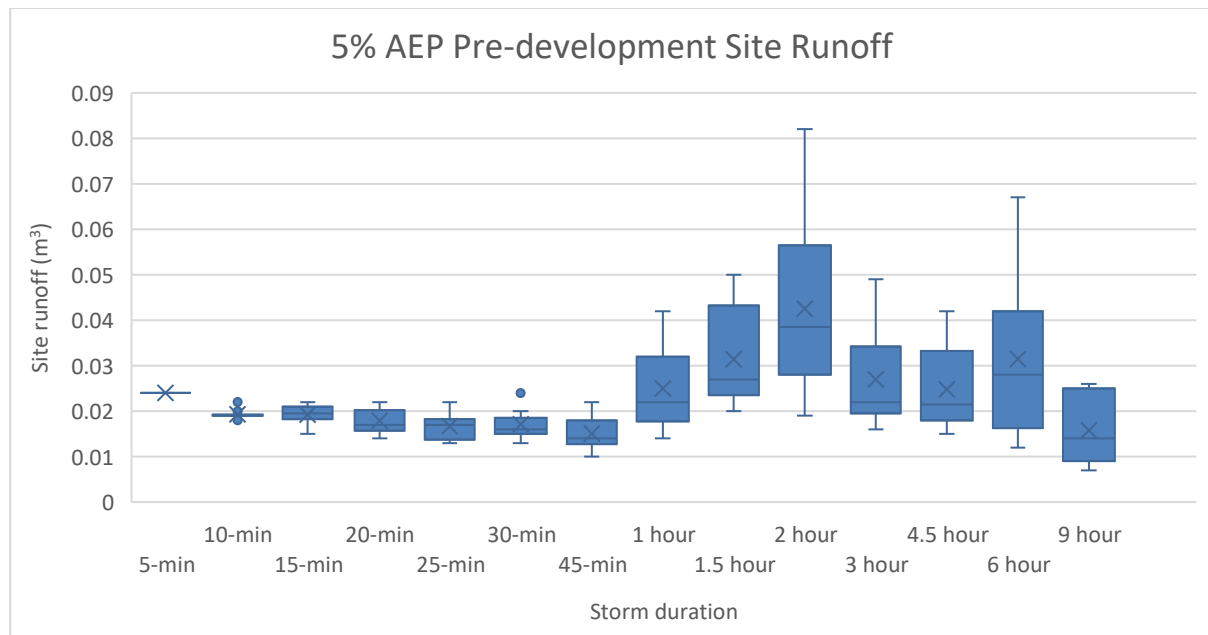


FIGURE 6: PRE-DEVELOPMENT OUTFLOW

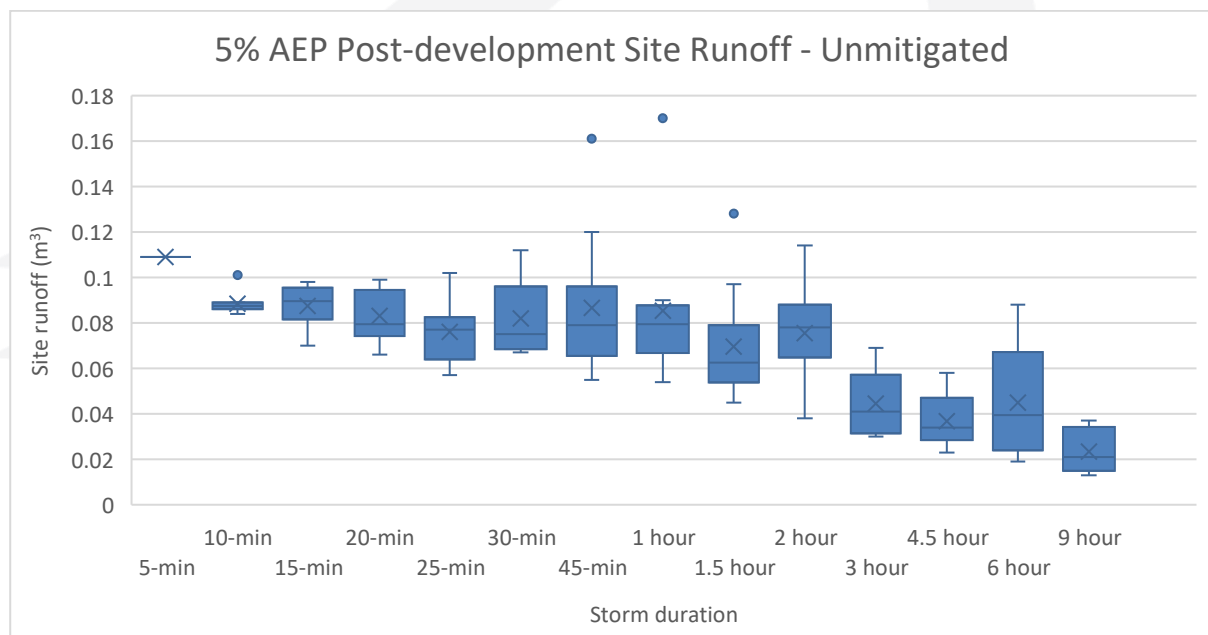


FIGURE 7: POST-DEVELOPMENT OUTFLOW - UNMITIGATED

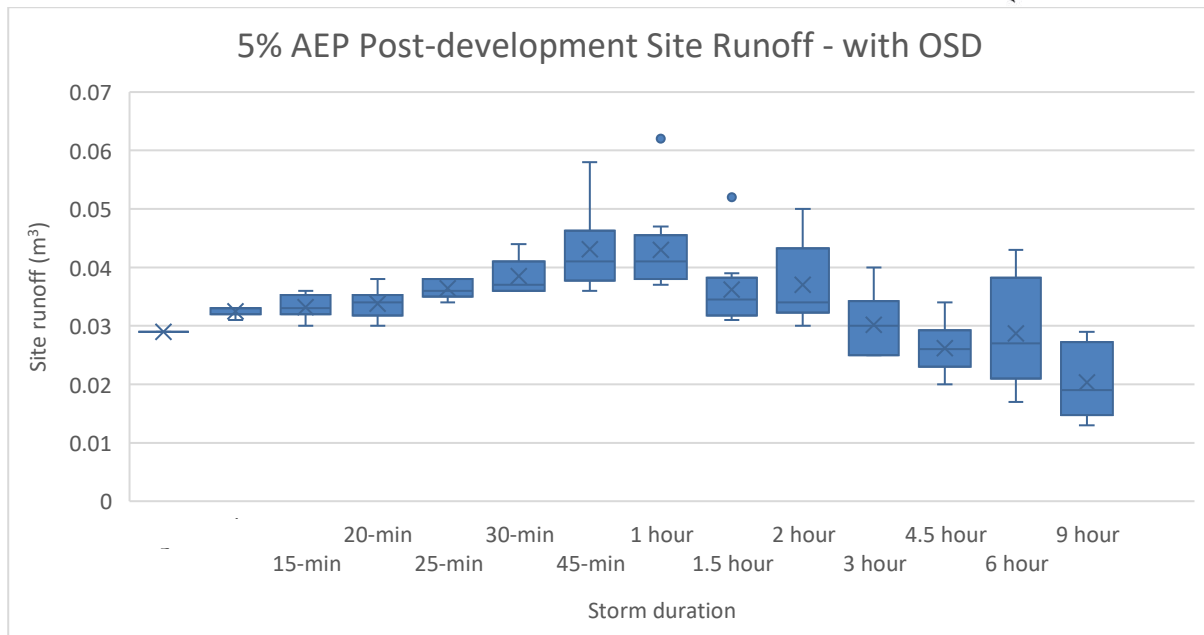
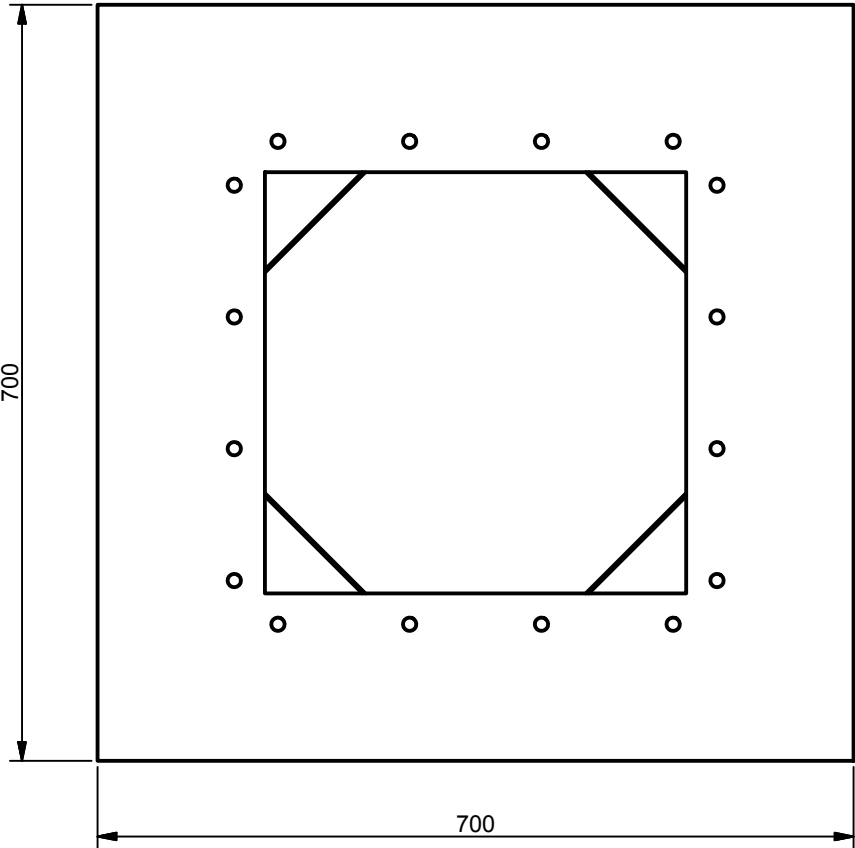


FIGURE 8: POST-DEVELOPMENT OUTFLOW - WITH OSD

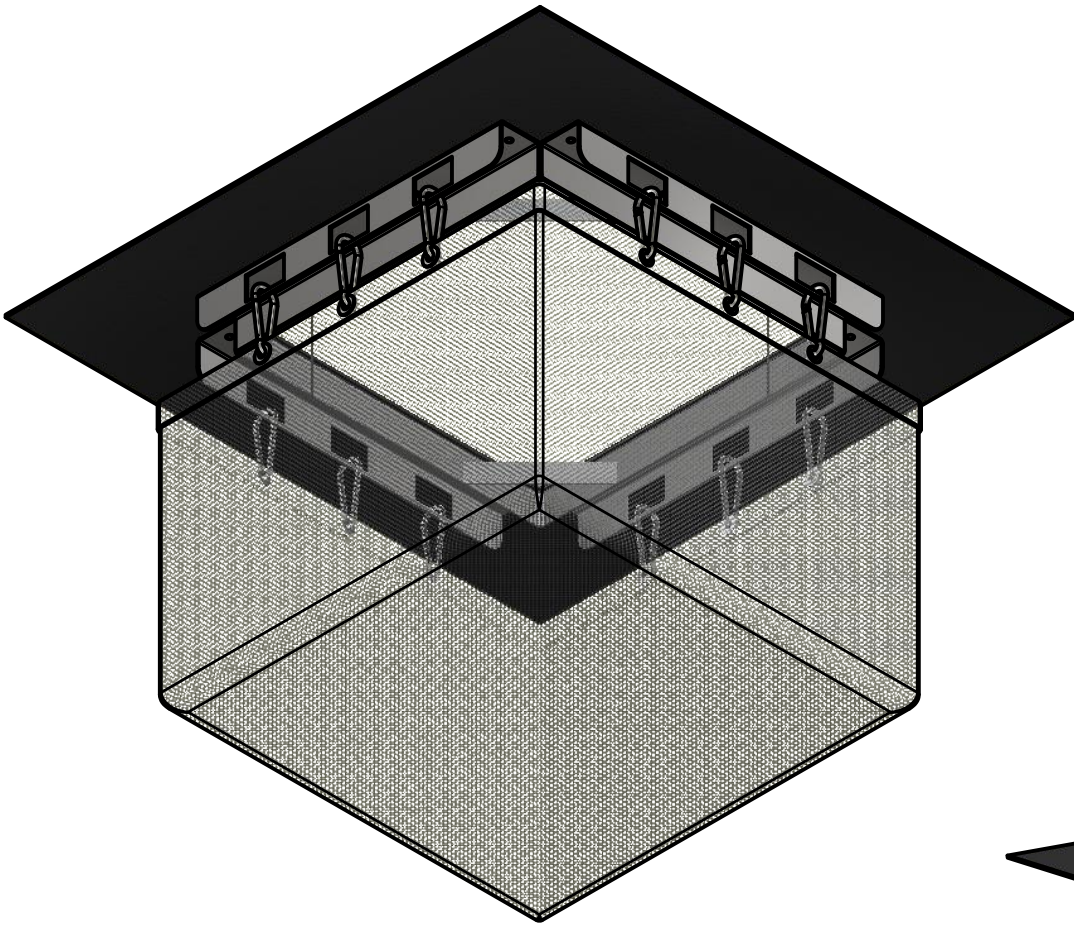
APPENDIX B – ATLAN TREATMENT DEVICES DRAWINGS



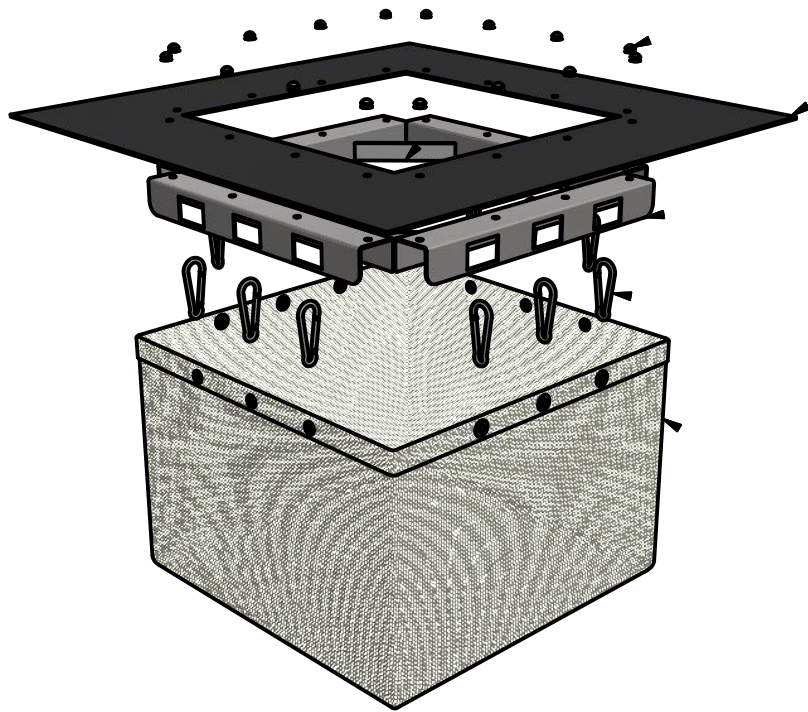
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REV	DESCRIPTION	DESIGNER	DATE	CHECKED BY
1	INITIAL RELEASE	M.M	25/03/2015	



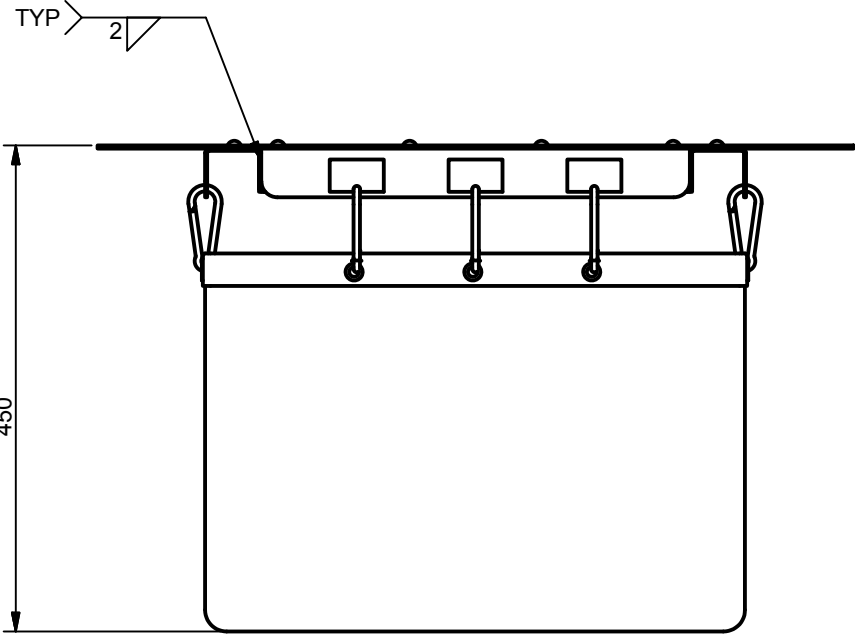
PLAN VIEW



ISOMETRIC VIEW
BOTTOM VIEW



ISOMETRIC VIEW
EXPLOSION



ELEVATION VIEW

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DISTRIBUTOR

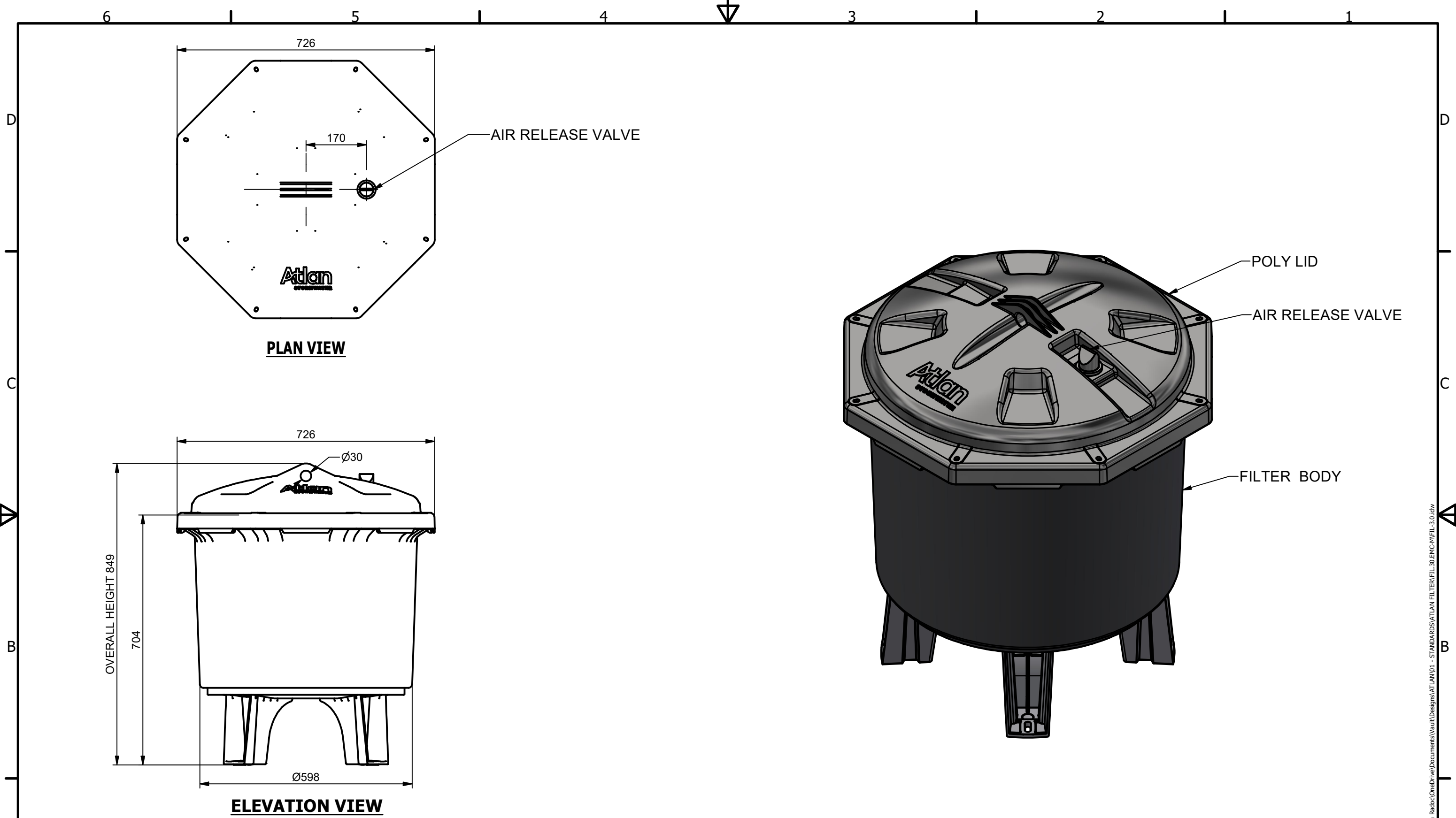
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www.spel.com.au

TITLE
SPEL STOMSACK
FRAME 600 x 600
BASKET MOUNTING ASSEMBLY DRAWING

REQUEST No. D20194	SIZE A3	SHEET 1	REV 1
SCALE N.T.S	DWG No. SP15-BB4610-S		



TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm

ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

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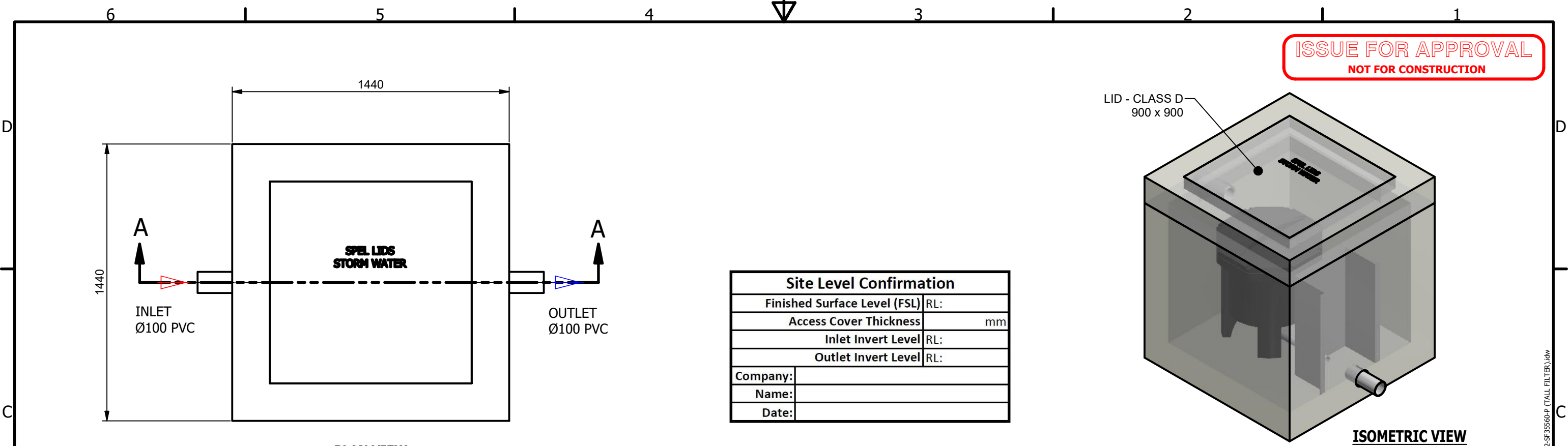
Drawn R.J.				
Check P.Z.				
Verified				
Approved				
Request No.				

Date 15/04/2025				
Date				
Date				
Date				

Request No.				
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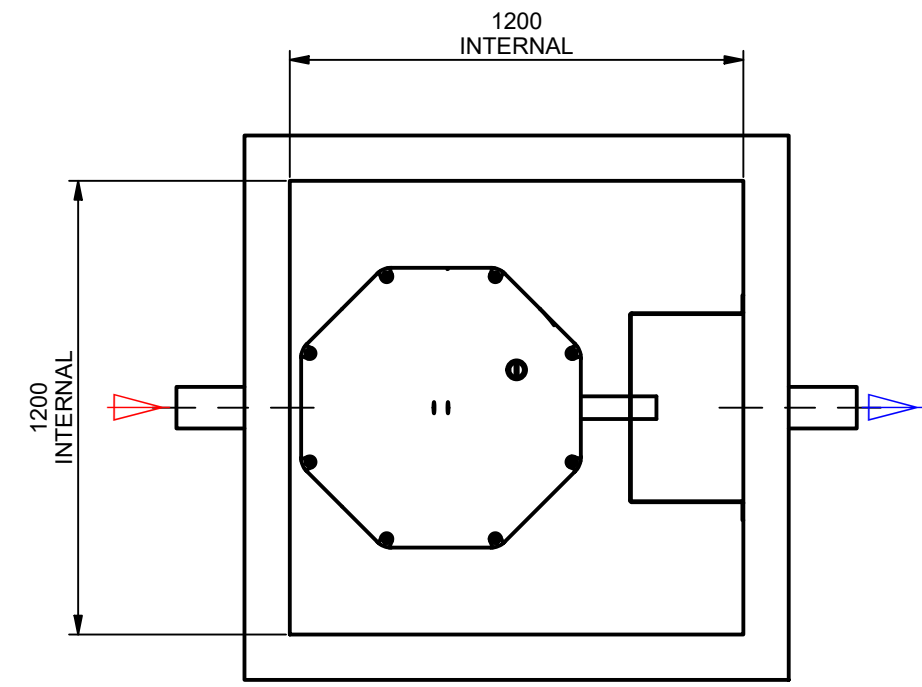
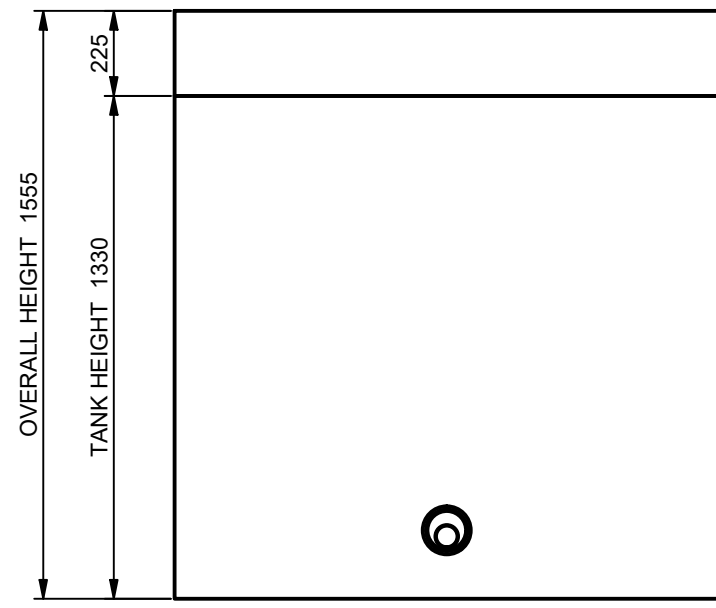
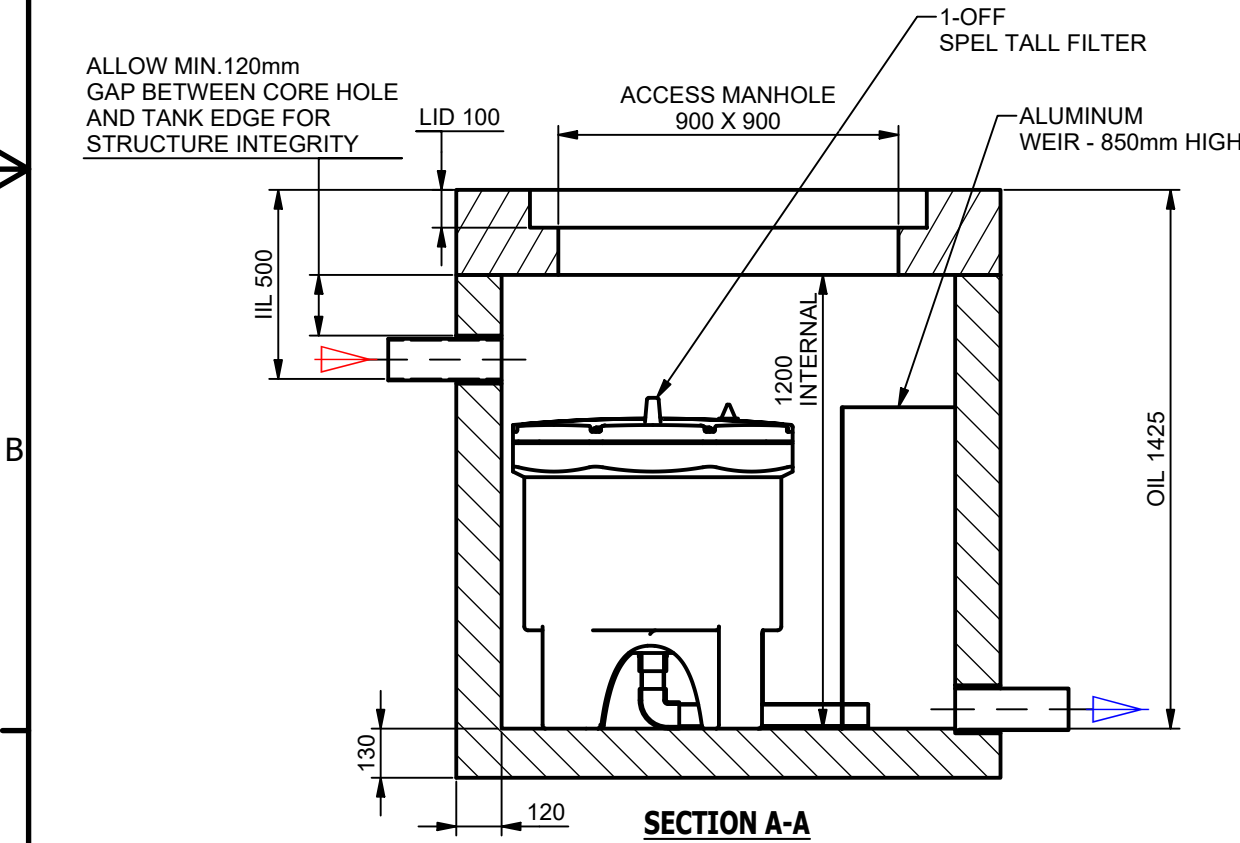


PROJECT :			
TITLE			
ATLANFILTER MODEL : FIL-3.0 GENERAL ARRANGEMENT			
SCALE N.T.S	SIZE A3	SHEET 1	REV 1
CUSTOMER CODE :	DWG No. FIL-3.0		



ISSUE FOR APPROVAL
NOT FOR CONSTRUCTION

Site Level Confirmation	
Finished Surface Level (FSL)	RL:
Access Cover Thickness	mm
Inlet Invert Level	RL:
Outlet Invert Level	RL:
Company:	
Name:	
Date:	

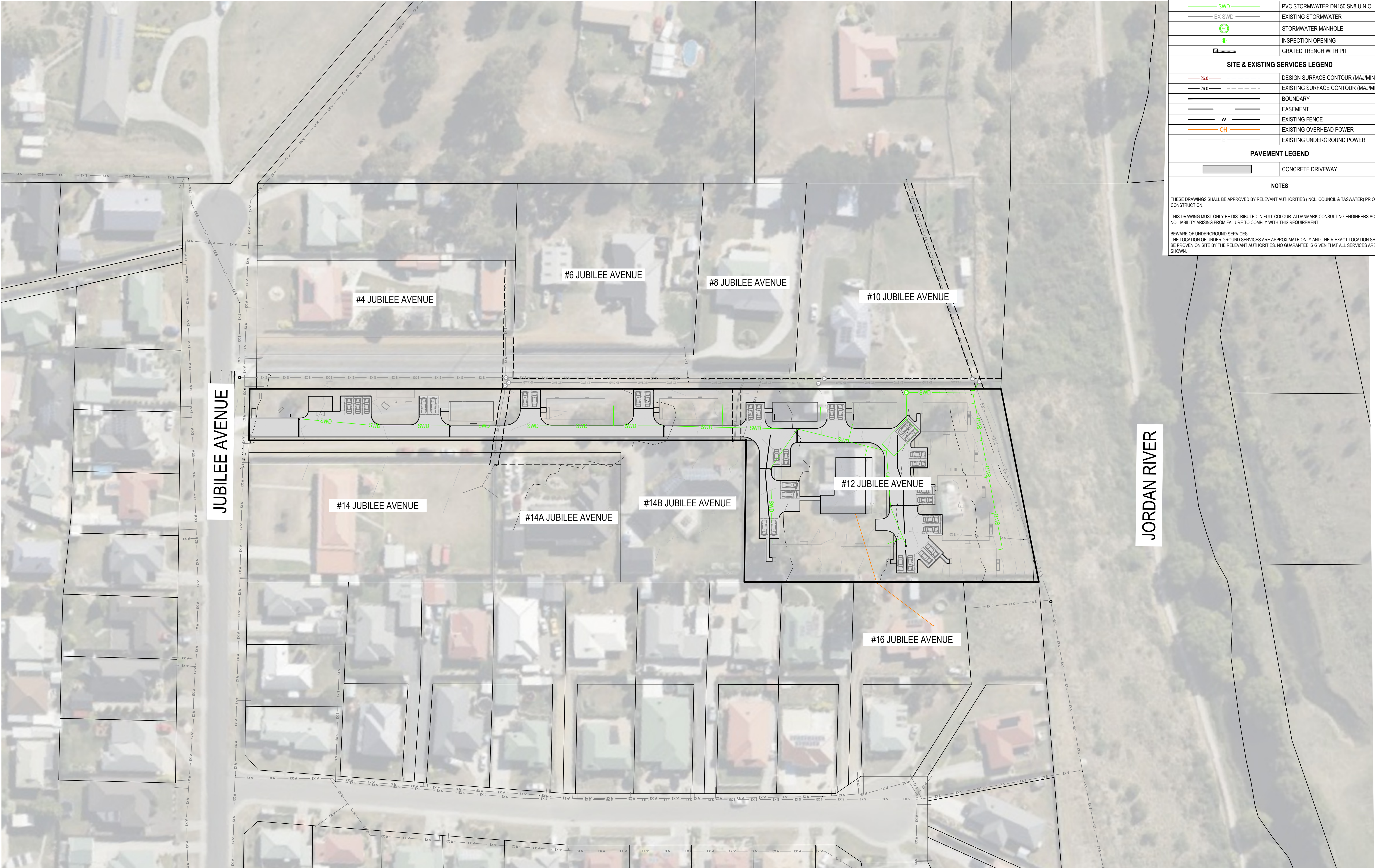


TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm					ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS															
<table><tr><td>1</td><td>07/07/2022</td><td></td><td></td><td>INITIAL RELEASE</td></tr><tr><td>REV</td><td>DATE</td><td>BY</td><td></td><td>DESCRIPTION</td><td>CHK</td></tr></table>					1	07/07/2022			INITIAL RELEASE	REV	DATE	BY		DESCRIPTION	CHK	CLIENT: 				
					1	07/07/2022			INITIAL RELEASE											
					REV	DATE	BY		DESCRIPTION	CHK										

CIVIL DRAWINGS
UNIT DEVELOPMENT
12 JUBILEE AVENUE
BRIGHTON

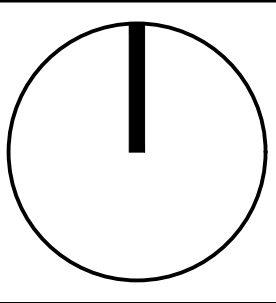
C001	COVER	A	7/08/2025
C101	SITE PLAN	A	7/08/2025
C102	ROAD AND STORMWATER PLAN - SHEET 1	A	7/08/2025
C103	ROAD AND STORMWATER PLAN - SHEET 2	A	7/08/2025
C104	ROAD AND STORMWATER PLAN - SHEET 3	A	7/08/2025
C105	ROAD AND STORMWATER PLAN - SHEET 4	A	7/08/2025

			DRAWN:	LG	 Lower Ground 199 Macquarie Street Hobart TAS 7000 03 6234 8666 mail@aldanmark.com.au www.aldanmark.com.au	PROJECT:	UNIT DEVELOPMENT	ADDRESS:	12 JUBILEE AVENUE BRIGHTON	SHEET: COVER		
			CHECKED:	NM								
			DESIGN:	LG								
			CHECKED:	NM								
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	7/08/2025	VERIFIED:	-				CLIENT:	CREATIVE HOMES	SCALE:	AS INDICATED	TOTAL SHEETS: 6
REV	ISSUE	DATE	APPROVAL						PROJECT No:	24E35-24	SHEET: C001	REV: A



STORMWATER LEGEND	
	PVC STORMWATER DN150 SN8 U.N.O.
	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED TRENCH WITH PIT
SITE & EXISTING SERVICES LEGEND	
	DESIGN SURFACE CONTOUR (MAJ/MIN)
	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
	EXISTING OVERHEAD POWER
	EXISTING UNDERGROUND POWER
PAVEMENT LEGEND	
	CONCRETE DRIVEWAY
NOTES	
THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION.	
THIS DRAWING MUST ONLY BE DISTRIBUTED IN FULL COLOUR. ALDANMARK CONSULTING ENGINEERS ACCEPTS NO LIABILITY ARISING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.	
BEWARE OF UNDERGROUND SERVICES: THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.	

			DRAWN:	LG
			CHECKED:	NM
			DESIGN:	LG
			CHECKED:	NM
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	7/08/2025	VERIFIED:	-
REV	ISSUE	DATE	APPROVAL	



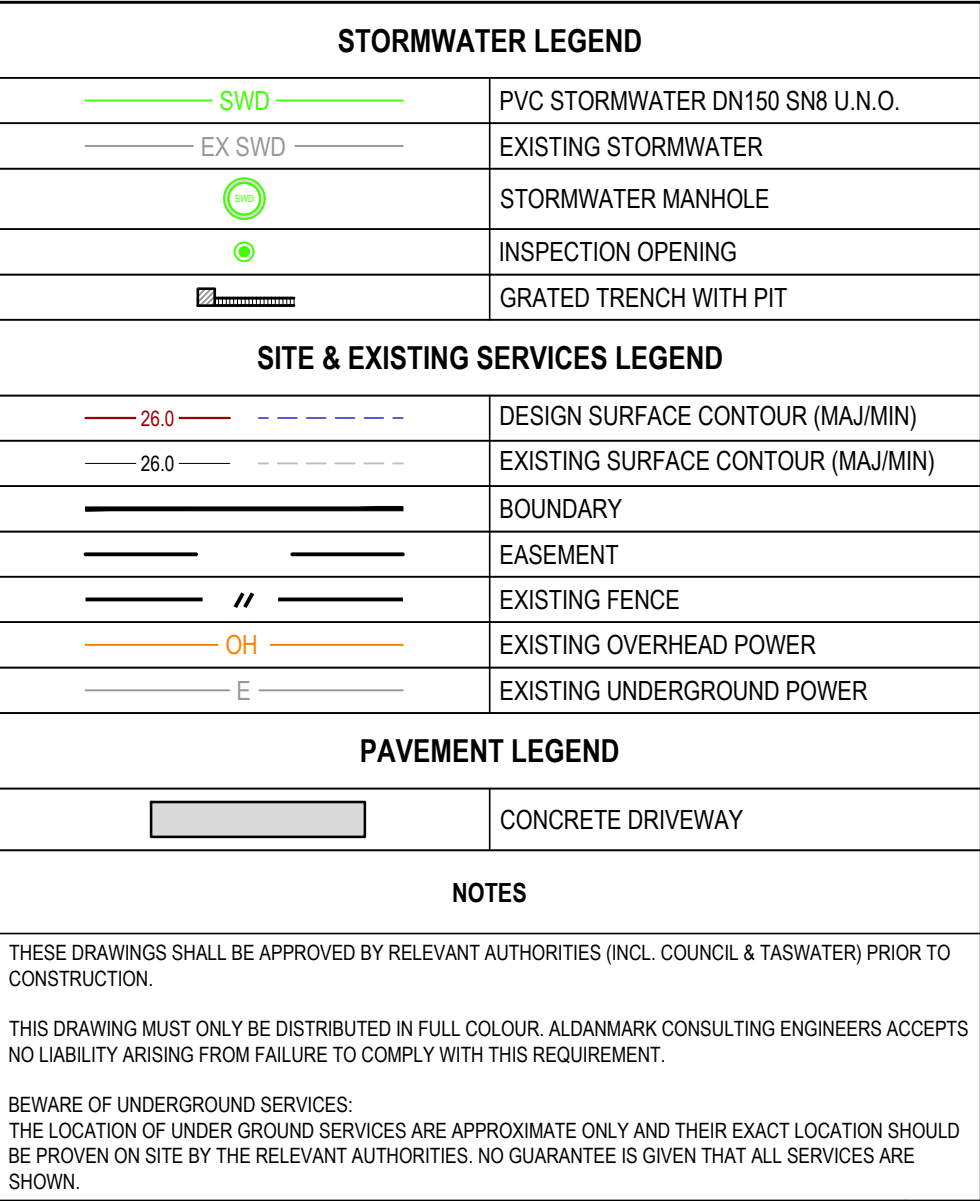
Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT:	UNIT DEVELOPMENT

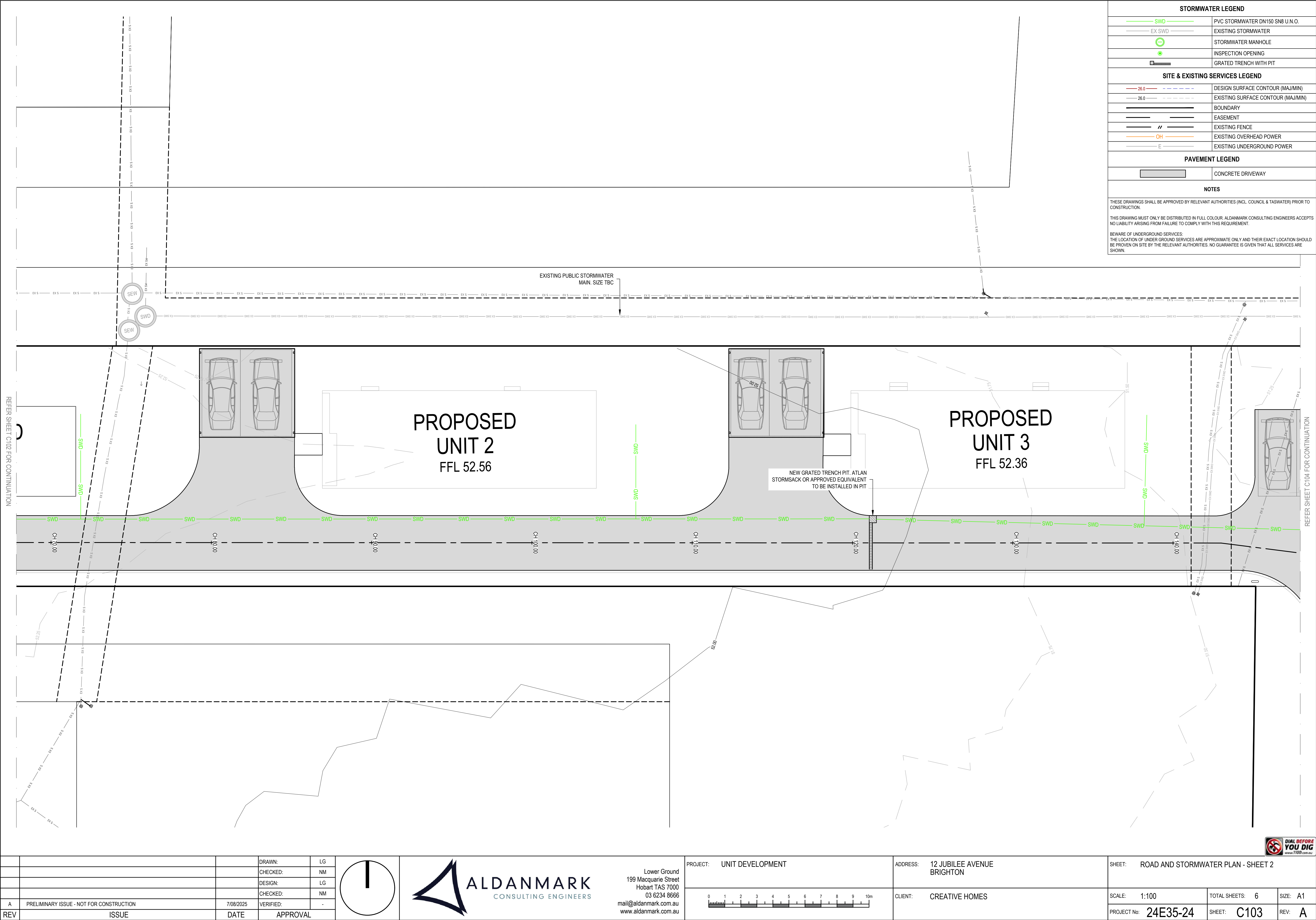
ADDRESS:	12 JUBILEE AVENUE BRIGHTON
CLIENT:	CREATIVE HOMES

SHEET:	SITE PLAN		
SCALE:	1:500	TOTAL SHEETS:	6
PROJECT No:	24E35-24	SHEET:	C101
SIZE:	A1	REV:	A



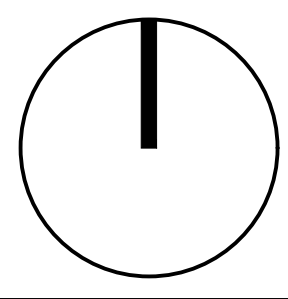


SHEET: ROAD AND STORMWATER PLAN - SHEET 1		
SCALE: 1:100	TOTAL SHEETS: 6	SIZE: A1
PROJECT No: 24E35-24	SHEET: C102	REV: A



STORMWATER LEGEND	
	PVC STORMWATER DN150 SN8 U.N.O.
	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED TRENCH WITH PIT
SITE & EXISTING SERVICES LEGEND	
	DESIGN SURFACE CONTOUR (MAJ/MIN)
	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
	EXISTING OVERHEAD POWER
	EXISTING UNDERGROUND POWER
PAVEMENT LEGEND	
	CONCRETE DRIVEWAY
NOTES	
THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION.	
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			DRAWN:	LG
			CHECKED:	NM
			DESIGN:	LG
			CHECKED:	NM
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	7/08/2025	VERIFIED:	-
REV	ISSUE	DATE	APPROVAL	



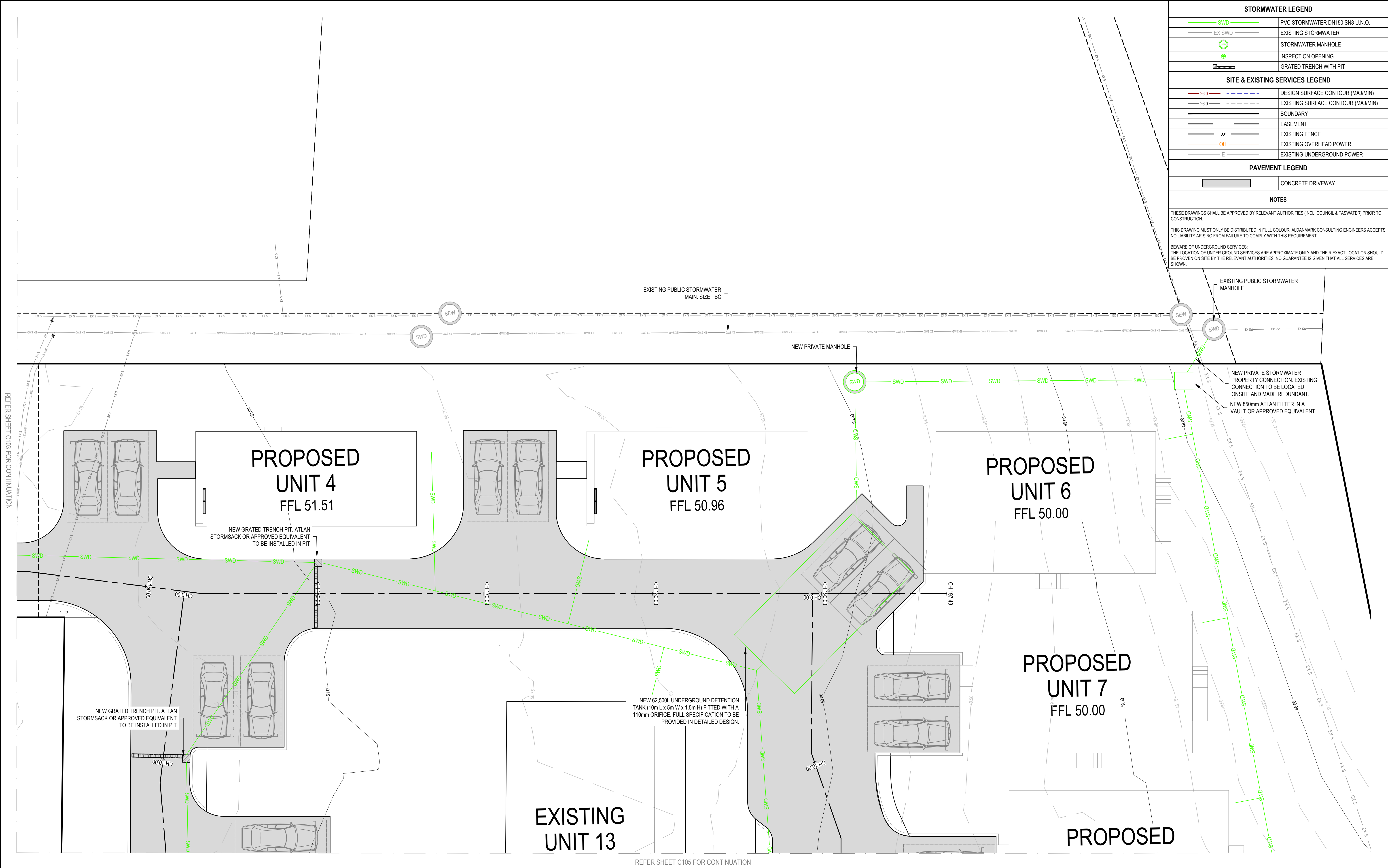
Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT:	UNIT DEVELOPMENT

ADDRESS:	12 JUBILEE AVENUE BRIGHTON
CLIENT:	CREATIVE HOMES

SHEET:	ROAD AND STORMWATER PLAN - SHEET 2		
SCALE:	1:100	TOTAL SHEETS:	6
PROJECT No:	24E35-24	SHEET:	C103
		REV:	A



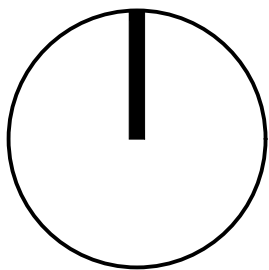


STORMWATER LEGEND	
	PVC STORMWATER DN150 SN8 U.N.O.
	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED TRENCH WITH PIT
SITE & EXISTING SERVICES LEGEND	
	DESIGN SURFACE CONTOUR (MAJ/MIN)
	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
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REFER SHEET C108 FOR CONTINUATION

REFER SHEET C105 FOR CONTINUATION

			DRAWN:	LG
			CHECKED:	NM
			DESIGN:	LG
			CHECKED:	NM
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	7/08/2025	VERIFIED:	-
REV	ISSUE	DATE	APPROVAL	



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Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: UNIT DEVELOPMENT



ADDRESS: 12 JUBILEE AVENUE
BRIGHTON

CLIENT: CREATIVE HOMES

SHEET: ROAD AND STORMWATER PLAN - SHEET 3

SCALE: 1:100 TOTAL SHEETS: 6 SIZE: A1

PROJECT No: 24E35-24 SHEET: C104 REV: A



	PVC STORMWATER DN150 SN8 U.N.O.
	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED TRENCH WITH PIT

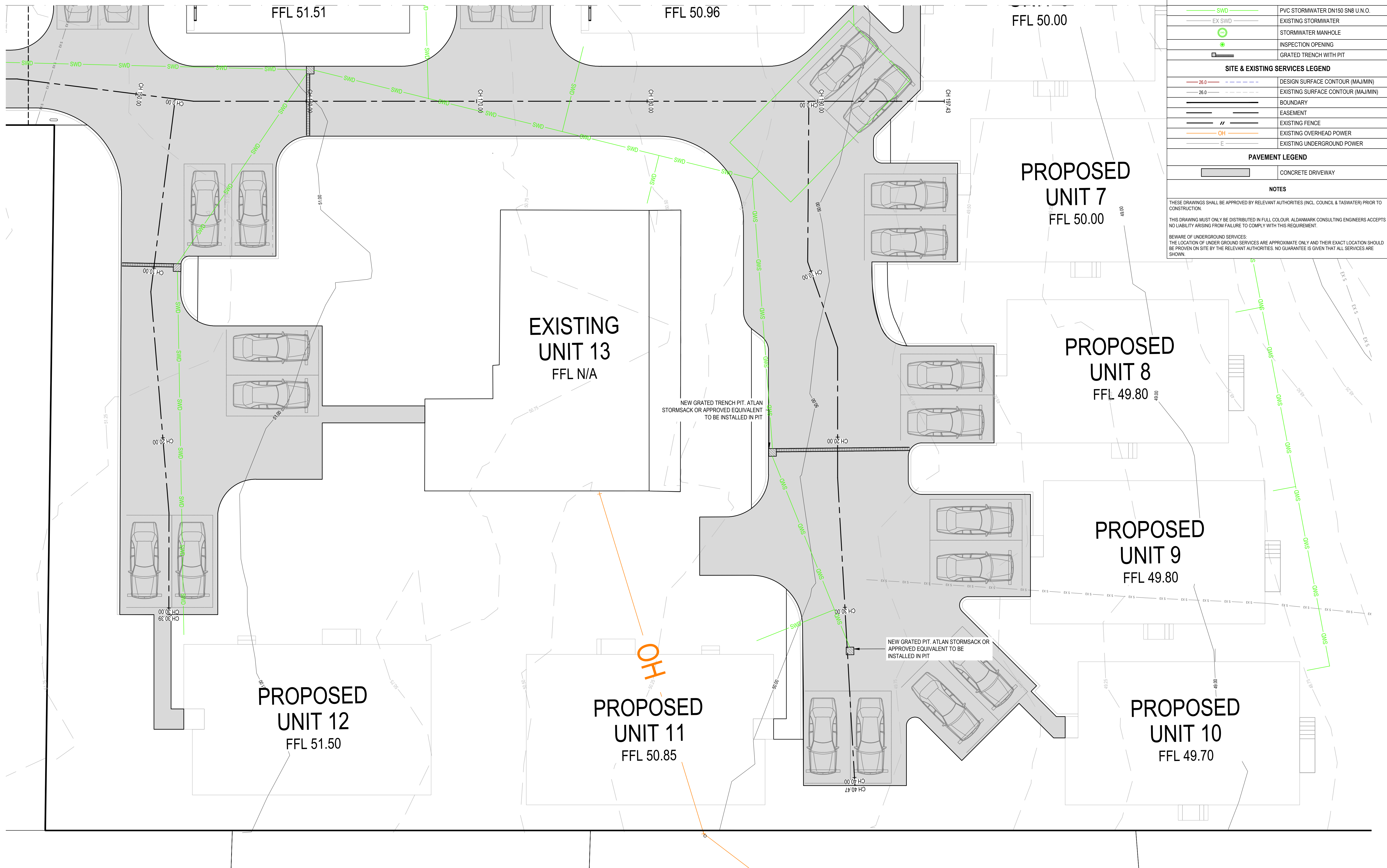
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	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
	EXISTING OVERHEAD POWER
	EXISTING UNDERGROUND POWER

	CONCRETE DRIVEWAY
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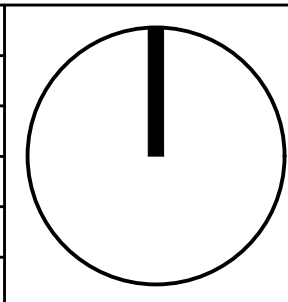
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			DRAWN:	LG
			CHECKED:	NM
			DESIGN:	LG
			CHECKED:	NM
			VERIFIED:	-
A	PRELIMINARY ISSUE - NOT FOR CONSTRUCTION	7/08/2025		
REV	ISSUE	DATE	APPROVAL	



Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT:	UNIT DEVELOPMENT
ADDRESS:	12 JUBILEE AVENUE BRIGHTON
CLIENT:	CREATIVE HOMES
SCALE:	1:100
PROJECT No:	24E35-24

TOTAL SHEETS:	6
SIZE:	A1
SHEET:	C105
REV:	A

SCALE:	1:100
PROJECT No:	24E35-24
TOTAL SHEETS:	6
SIZE:	A1
SHEET:	C105
REV:	A

AS2870:2011 SITE ASSESSMENT

12 Jubilee Avenue

Brighton

March 2024



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Investigation Details

Client:	Creative Homes Hobart
Site Address:	12 Jubilee Avenue, Brighton
Date of Inspection:	07/03/2024
Proposed Works:	New Unit(s)
Investigation Method:	Geoprobe 540UD - Direct Push
Inspected by:	C. Cooper

Site Details

Certificate of Title (CT):	34441/2
Title Area:	Approx. 6637 m ²
Applicable Planning Overlays:	Bushfire-prone areas, Landslip Hazard
Slope & Aspect:	2°-12° ESE facing slope
Vegetation:	Mixed Flora

Background Information

Geology Map:	MRT
Geological Unit:	Tertiary Basalt
Climate:	Annual rainfall 450mm
Water Connection:	Mains
Sewer Connection:	Serviced-Mains
Testing and Classification:	AS2870:2011, AS1726:2017 & AS4055:2021

Investigation

A number of bore holes were completed to identify the distribution and variation of the soil materials at the site, bore hole locations are indicated on the site plan. See soil profile conditions presented below. Tests were conducted across the site to obtain bearing capacities of the material at the time of this investigation.

Soil Profile Summary

BH 1 Depth (m)	BH 2 Depth (m)	USCS	Description
0.00-0.20	0.00-0.10	SP	SAND: grey, dry, loose,
0.20-0.60	0.10-0.30	SP	SAND: pale grey, slightly moist, loose
0.60-1.20	0.30-0.60	CI	Silty CLAY: medium plasticity, brown, slightly moist, stiff, refusal

BH 3 Depth (m)	BH 4 Depth (m)	USCS	Description
0.00-0.20	0.00-0.10	SP	SAND: grey, dry, loose,
0.20-0.40	0.10-0.30	SP	SAND: pale grey, slightly moist, loose
0.40-0.90	0.30-1.40	CI	Silty CLAY: medium plasticity, brown, slightly moist, stiff
0.90-1.40	1.40-1.60	GC	Clayey GRAVEL: pale yellow, brown, slightly moist very stiff, refusal

BH 5 Depth (m)	BH 6,7 Depth (m)	USCS	Description
	0.00-0.10	GP	FILL: GRAVEL : grey, dry, loose,
0.00-0.10	0.00-0.10	SP	SAND : grey, dry, loose,
0.10-0.80	0.10-0.30	SP	SAND : pale grey, slightly moist, loose
0.80-1.60	0.30-1.40	CI	Silty CLAY : medium plasticity, brown, slightly moist, stiff
1.60-2.20	1.40-1.60	GC	Clayey GRAVEL : pale yellow, brown, slightly moist very stiff, refusal

BH 8 Depth (m)	BH 9,10,11 Depth (m)	USCS	Description
0.00-0.30	0.00-0.10	SW	SAND : trace of clay, brown, dry, loose,
0.30-0.50	0.10-0.20	CI	Silty CLAY : medium plasticity, brown, slightly moist, stiff
0.50-0.60	0.20-0.40	GW	Sandy GRAVEL : brown, dry, very dense, refusal

BH 12 Depth (m)	USCS	Description
0.00-0.20	SP	SAND : brown, dry, loose,
0.20-0.40	SP	SAND : pale grey, slightly moist, loose
0.40-1.00	CI	Silty CLAY : medium plasticity, brown, slightly moist, stiff
1.00-1.10	GC	Clayey GRAVEL : pale yellow, brown, slightly moist very stiff, refusal

Site Notes

The soil on the site is developing from Tertiary basalt, the clay fraction is likely to show moderate ground surface movement with moisture fluctuations.

Site Classification

The site has been assessed and classified in accordance with AS2870:2011 *“Residential Slabs and Footings”*.

The site has been classified as:

Class M

Y^s range: **20-40mm**

Notes: that is a moderately reactive clay.

Wind Loading Classification

According to *“AS4055:2021 - Wind Loads for Housing”* the house site is classified below:

Wind Classification:	N3
Region:	A
Terrain Category:	2.0
Shielding Classification:	NS
Topographic Classification:	T1
Wind Classification:	N3
Design Wind Gust Speed – m/s ($V_{h,u}$):	50

Construction Notes & Recommendations

The site has been classified as **Class M** - Moderately reactive clay or silt site, which may experience moderate ground movement from moisture changes. Site conditions indicate possible removal of trees on the site which may have implications for the preparation of foundations, and specific care must be taken to ensure any remnant roots or loose soil are adequately removed prior to construction.

It is recommended the foundations be placed on the underlying bedrock to minimise the potential for significant foundation movement.

All earthworks on site must comply with AS3798:2012, and I further recommend that consideration be given to drainage and sediment control on site during and after construction. Care should also be taken to ensure there is adequate drainage in the construction area to avoid the potential for weak bearing and foundation settlement associated with excessive soil moisture.

I also recommend that during construction that I and/or the design engineer be notified of any major variation to the foundation conditions as predicted in this report.

A handwritten signature in blue ink, consisting of a stylized, overlapping loop structure followed by a horizontal stroke.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD

Director

Explanatory Notes

1 Scope of Works

The methods of description and classification of soils used in this report are based largely on Australian Standard 1726 – Geotechnical Site Investigations (AS1726:2017), with reference to Australian Standard 1289 – Methods for testing soils for engineering purposes (AS1289), for eventual Site Classification according to Australian Standard 2870 (AS2870:2011) – Residential Slabs and Footings and Australian Standard 1547 (AS1547:2012) On-site domestic wastewater management.

1.1 Site Classification AS2870:2011

Site classification with reference to the above Australian Standards are based on site reactivity.

Class	Foundation Conditions	Characteristic Surface Movement
A	Most sand and rock sites with little or no ground movement from moisture changes.	0mm
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes.	0 – 20mm
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes.	20 – 40mm
H-1	Highly reactive clay sites, which may experience high ground movement from moisture changes.	40 – 60mm
H-2	Highly reactive clay sites, which may experience very high ground movement from moisture changes.	60 – 75mm
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes.	>75mm

*Note: Soils where foundation performance may be significantly affected by factors other than reactive soil movement are classified as **Class P**.*

A site is classified as **Class P** when:

- The bearing capacity of the soil profile in the foundation zone is generally less than 100kpa
- If excessive foundation settlement may occur due to loading on the foundation.
- The site contains uncontrolled fill greater than 0.8m in depth for sandy sites and 0.4m in depth for other soil materials.
- The site is subject to mine subsistence, landslip, collapse activity or coastal erosion.
- The site is underlain by highly dispersive soils with significant potential for erosion
- If the site is subject to abnormal moisture conditions which can affect foundation performance

1.2 Soil Characterisation

This information explains the terms of phrase used within the soil description area of the report.

It includes terminology for cohesive and non-cohesive soils and includes information on how the Unified Soil Classification Scheme (USCS) codes are determined.

NON COHESIVE – SAND & GRAVEL		
Consistency Description	Field Test	Dynamic Cone Penetrometer blows/100 mm
Very loose (VL)	Easily penetrated with 13 mm reinforcing rod pushed by hand.	0 - 1
Loose (L)	Easily penetrated with 13 mm reinforcing rod pushed by hand. Can be excavated with a spade; 50 mm wooden peg can be easily driven.	1 - 3
Medium dense (MD)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, - hard shovelling.	3 - 8
Dense (D)	Penetrated 300 mm with 13 mm reinforcing rod driven with 2 kg hammer, requires pick for excavation: 50 mm wooden peg hard to drive.	8 - 15
Very dense (VD)	Penetrated only 25 - 50 mm with 13 mm reinforcing rod driven with 2 kg hammer.	>15

COHESIVE - SILT & CLAY		
Consistency Description	Field Test	Indicative undrained shear strength kPa
Very soft	Easily penetrated >40 mm by thumb. Exudes between thumb and fingers when squeezed in hand.	<12
Soft	Easily penetrated 10 mm by thumb. Moulded by light finger pressure	>12 and <25
Firm	Impression by thumb with moderate effort. Moulded by strong finger pressure	>25 and <50
Stiff	Slight impression by thumb cannot be moulded with finger.	>50 and <100
Very Stiff	Very tough. Readily indented by thumbnail.	>100 and <200
Hard	Brittle. Indented with difficulty by thumbnail.	>200

1.3 USCS Material Descriptions

Soils for engineering purposes are the unconsolidated materials above bedrock, they can be residual, alluvial, colluvial or aeolian in origin.

Major Divisions		Particle size mm	USCS Group Symbol	Typical Names	Laboratory Classification				
COARSE GRAINED SOILS (more than half of material less than 63 mm is larger than 0.075 mm)	BOULDERS	200			% < 0.075 mm (2)	Plasticity of fine fraction	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{(D_{30})^2}{(D_{10})(D_{60})}$	NOTES
	COBBLES	63							
	GRAVELS (more than half of coarse fraction is larger than 2.36 mm)	coarse	GW	Well graded gravels and gravel-sand mixtures, little or no fines	0-5	—	>4	Between 1 and 3	(1) Identify fines by the method given for fine-grained soils. (2) Borderline classifications occur when the percentage of fines (fraction smaller than 0.075 mm size) is greater than 5% and less than 12%. Borderline classifications require the use of SP-SM, GW-GC.
		20	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels	0-5	—	Fails to comply with above		
		medium	GM	Silty gravels, gravel-sand-silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
		fine	GC	Clayey gravels, gravel-sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
	SANDS (more than half of coarse fraction is smaller than 2.36 mm)	2.36	SW	Well graded sands and gravelly sands, little or no fines	0-5	—	>6	Between 1 and 3	
		coarse	SP	Poorly graded sands and gravelly sands, little or no fines	0-5	—	Fails to comply with above		
		0.6	SM	Silty sands, sand silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
		medium	SC	Clayey sands, sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
		0.2							
		fine							
FINE GRAINED SOILS (more than half of material less than 63 mm is smaller than 0.075 mm)	SILTS & CLAYS (Liquid Limit ≤50%)	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Plasticity Chart For classification of fine grained soils and fine fraction of coarse grained soils. The Plasticity Chart is a graph with Plastic Index (%) on the y-axis (0 to 60) and Liquid Limit (%) on the x-axis (0 to 100). It features two main diagonal lines: the 'A' line (IL = 2.5 * PI) and the 'U' line (IL = 4 * PI). The chart is divided into several regions labeled with soil types: CL (Clay, Low Plasticity), CH (Clay, High Plasticity), MH (Silt, High Plasticity), OH (Organic Silt, High Plasticity), ML (Silt, Low Plasticity), OL (Organic Silt, Low Plasticity), and PT (Peat). The chart also includes horizontal lines for Liquid Limit values of 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100, and vertical lines for Plastic Index values of 5, 10, 20, 30, 40, 50, and 60.					
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays						
		OL	Organic silts and clays of low plasticity						
	SILTS & CLAYS (Liquid Limit >50%)	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts						
		CH	Inorganic clays of high plasticity, fat clays						
		OH	Organic silts and clays of high plasticity						
	HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils						

Grain size analysis is performed by two processes depending on particle size. Sand silt and clay particles are assessed using a standardised hydrometer test, and coarse sand and larger is assessed through sieving by USCS certified sieves. For more detail see the following section.

Soil Classification	Particle Size
Clay	Less than 0.002mm
Silt	0.002 – 0.06mm
Fine/Medium Sand	0.06 – 2.0mm
Coarse Sand	2.0mm – 4.75mm
Gravel	4.75mm – 60.00mm

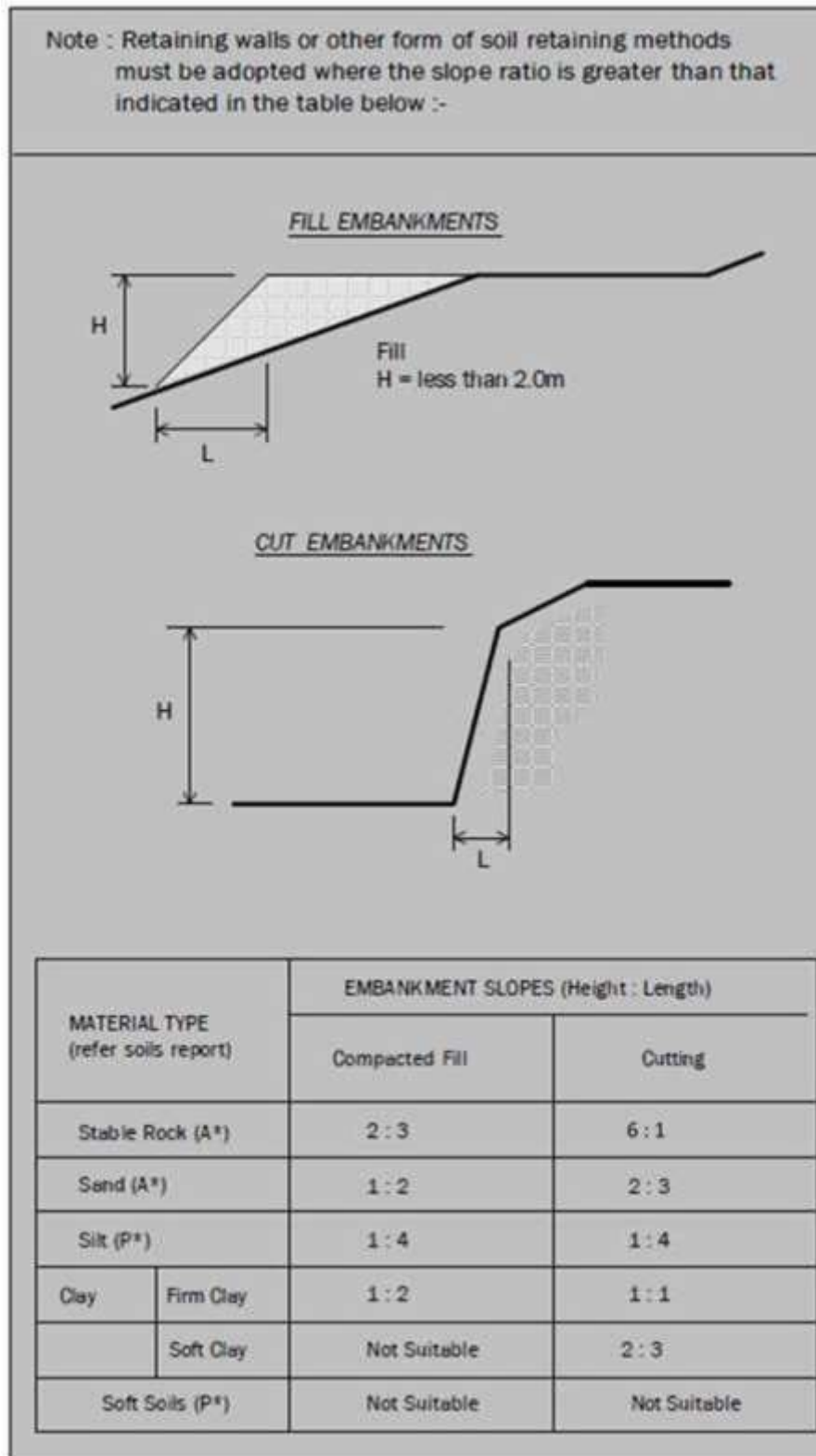
1.4 Bearing Capacities and DCP testing.

DCP and PSP weighted penetrometer tests – Dynamic Cone Penetrometer (DCP) and Perth Sand Penetrometer (PSP) tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 100mm increments of penetration. Normally, there is a depth limitation of 1.2m but this may be extended in certain conditions by the use of extension rods. The methods for the two tests are quite similar.

- Dynamic Cone Penetrometer – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS 1289, Test 6.3.2).
- Perth Sand Penetrometer – a 16mm diameter flat-ended rod is driven with a 9kg hammer, dropping 600mm (AS 1289 Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.

Site Anomalies – During construction GES will need to be notified of any major variation to the foundation conditions as predicted in this report.

1.5 Batter Angles for Embankments (Guide Only)



Glossary of Terms

Bearing Capacity – Maximum bearing pressure that can be sustained by the foundation from the proposed footing system under service loads which should avoid failure or excessive settlement.

Clay – (Mineral particles less than 0.002mm in diameter). Fine grained cohesive soil with plastic properties when wet. Also includes sandy clays, silty clays, and gravelly clays.

Dynamic Cone Penetrometer (DCP) – Field equipment used to determine underlying soil strength and therefore bearing capacity (kPa) by measuring the penetration of the device into the soil after each hammer blow.

Dispersive soil – A soil that has the ability to pass rapidly into suspension in water.

Footing – Construction which transfers the load from the building to the foundation.

Foundation – Ground which supports the building

Landslip – Foundation condition on a sloping site where downhill foundation movement or failure is a design consideration.

Qualified Engineer – A professional engineer with academic qualifications in geotechnical or structural engineering who also has extensive experience in the design of the footing systems for houses or similar structures.

Reactive Site – Site consisting of clay soil which swells on wetting and shrinks on drying by an amount that can damage buildings on light strip footings or unstiffened slabs. Includes sites classified as S, M, H-1, H-2 & E in accordance with AS2870-2011.

Sand – (Mineral particles greater than 0.02mm in diameter). Granular non-cohesive, non-plastic soil that may contain fines including silt or clay up to 15%.

Services – Means all underground services to the site including but not limited to power, telephone, sewerage, water & storm water.

Silt – (Mineral particles 0.002 – 0.02mm in diameter). Fine grained non-cohesive soil, non-plastic when wet. Often confers a silky smoothness of field texture, regularly includes clay and sand to form clayey silts, sandy silts and gravelly silts.

Site – The site title, as denoted by address, lot number, or Certificate of Title (CT) number, or Property Identification Number (PID).

Surface Movement (Ys) – Design movement (mm) at the surface of a reactive site caused by moisture changes.

Disclaimer

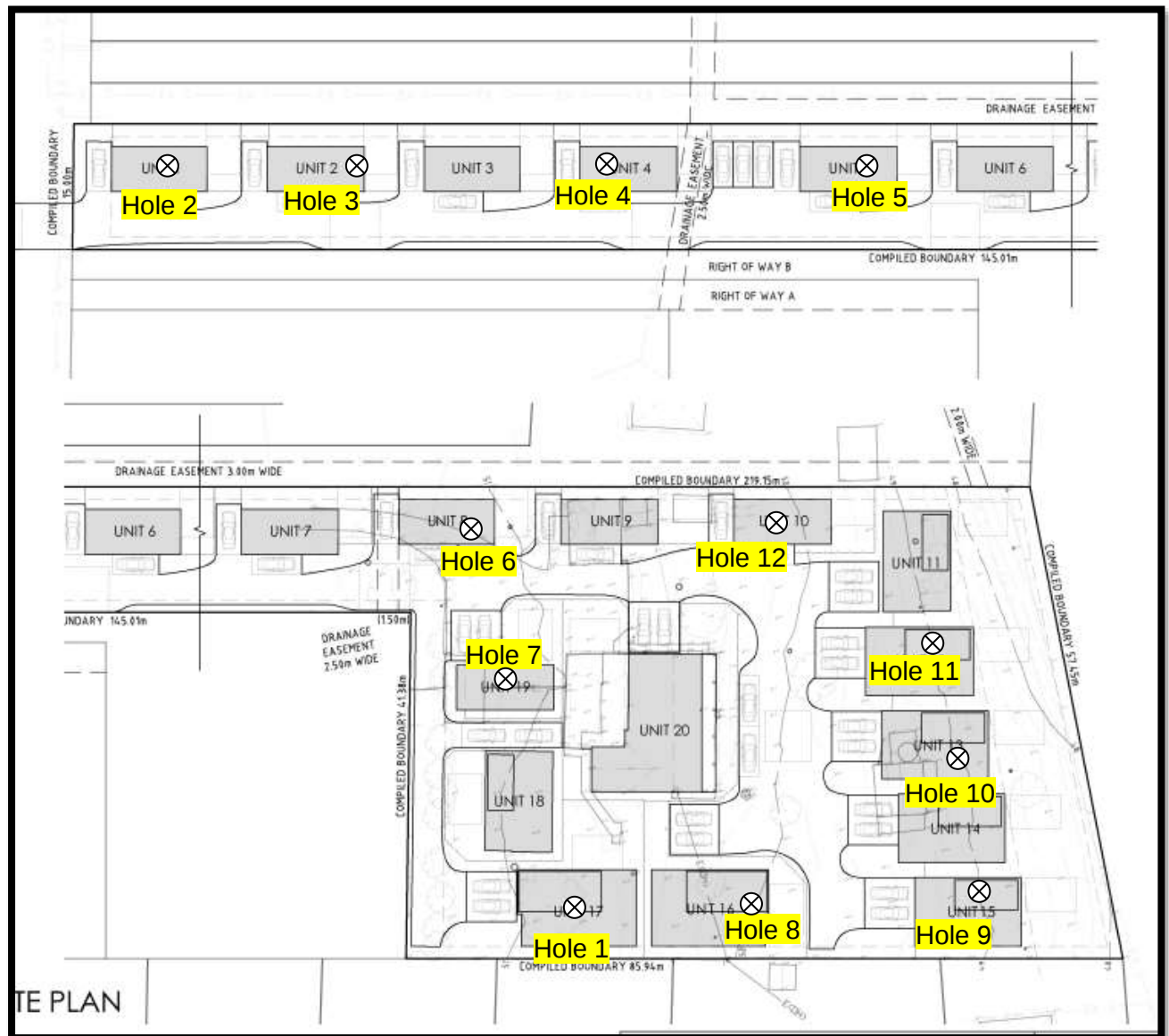
This Report has been prepared in accordance with the scope of services between Geo-Environmental Solutions Pty. Ltd. (GES) and the Client. To the best of GES's knowledge, the information presented herein represents the client's requirements at the time of printing of the Report. However, the passage of time, manifestation of latent conditions or impacts of future events may result in findings differing from that discussed in this Report. In preparing this Report, GES has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations referenced herein. Except as otherwise stated in this Report, GES has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

The scope of this study does not allow for the review of every possible geotechnical parameter or the soil conditions over the whole area of the site. Soil and rock samples collected from the investigation area are assumed to be representative of the areas from where they were collected and not indicative of the entire site. The conclusions discussed within this report are based on observations and/or testing at these investigation points.

This report does not purport to provide legal advice. Readers of the report should engage professional legal practitioners for this purpose as required.

No responsibility is accepted for use of any part of this report in any other context or for any other purpose by third a party.

Site Plan



APPENDIX 1 - DCP Results Table

Dynamic Cone Penetration (DCP) Conversion to Californian Bearing Ratio
(ref: Australian Standard AS 1289.6.3.2 - 1997)

DCP Location BH4

Depth (mm)	DCP (Blows/100mm)	DCP (mm/Blow)	DCP Resistance (mPa)	Allowable Bearing Capacity (kPa)	CBR (Rounded Up)
0-100	6	16.7	1.9	208	13
100-200	5	20.0	1.6	174	10
200-300	7	14.3	2.2	243	15
300-400	6	16.7	1.9	208	13
400-500	8	12.5	2.5	278	17
500-600	5	20.0	1.6	174	10
600-700	8	12.5	2.5	278	17
700-800	9	11.1	2.8	313	20
800-900	11	9.1	3.4	382	25
900-1000	12	8.3	3.8	417	27
1000-1100	12	8.3	3.8	417	27
1100-1200	13	7.7	4.1	451	30
1200-1300	11	9.1	3.4	382	25
1300-1400	14	7.1	4.4	486	32
1400-1500	18	5.6	5.6	625	43
1500-1600	21	4.8	6.6	729	51

APPENDIX 1 - DCP Results Table

Dynamic Cone Penetration (DCP) Conversion to Californian Bearing Ratio
(ref: Australian Standard AS 1289.6.3.2 - 1997)

DCP Location BH5

Depth (mm)	DCP (Blows/100mm)	DCP (mm/Blow)	DCP Resistance (mPa)	Allowable Bearing Capacity (kPa)	CBR (Rounded Up)
0-100	6	16.7	1.9	208	13
100-200	6	16.7	1.9	208	13
200-300	6	16.7	1.9	208	13
300-400	7	14.3	2.2	243	15
400-500	6	16.7	1.9	208	13
500-600	5	20.0	1.6	174	10
600-700	5	20.0	1.6	174	10
700-800	8	12.5	2.5	278	17
800-900	13	7.7	4.1	451	30
900-1000	15	6.7	4.7	521	35
1000-1100	13	7.7	4.1	451	30
1100-1200	10	10.0	3.1	347	22
1200-1300	9	11.1	2.8	313	20
1300-1400	11	9.1	3.4	382	25
1400-1500	12	8.3	3.8	417	27
1500-1600	16	6.3	5.0	556	37
1600-1700	18	5.6	5.6	625	43

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

Form **55**

To: Owner /Agent
 Address
 Suburb/postcode

Qualified person details:

Qualified person:
Address: Phone No:
 Fax No:
Licence No: Email address:

Qualifications and Insurance details: (description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Speciality area of expertise: (description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: Lot No:
 Certificate of title No:
The assessable item related to this certificate: (description of the assessable item being certified)
Assessable item includes –
- a material;
- a design
- a form of construction
- a document
- testing of a component, building system or plumbing system
- an inspection, or assessment, performed

Certificate details:

Certificate type: (description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable item, at any stage, as part of - (tick one)

building work, plumbing work or plumbing installation or demolition work ☒
or

a building, temporary structure or plumbing installation: ☐

In issuing this certificate the following matters are relevant –

Documents:	The attached soil report for the address detailed above in 'details of work'
Relevant calculations:	Reference the above report.
References:	AS2870:2011 residential slabs and footings AS1726:2017 Geotechnical site investigations CSIRO Building technology file – 18.

Substance of Certificate: (what it is that is being certified)

Site Classification consistent with AS2870-2011.

Scope and/or Limitations

The classification applies to the site as inspected and does not account for future alteration to foundation conditions as a result of earth works, drainage condition changes or variations in site maintenance.

I, John-Paul Cumming certify the matters described in this certificate.

Qualified person:

Signed:

Certificate No:

Date:

J10154

19/03/2024



A handwritten signature in black ink, appearing to be "John Paul Cumming", written over a light grey circular stamp.

Submission to Planning Authority Notice

Application details

Council Planning Permit No.	DA 2025 / 00006
Council notice date	16/01/2025
TasWater Reference No.	TWDA 2025/00046-BTN
Date of response	03/10/2025
TasWater Contact	Timothy Carr
Phone No.	0419 306 130

Response issued to

Council name	BRIGHTON COUNCIL
Contact details	development@brighton.tas.gov.au

Development details

Address	12 JUBILEE AVE, BRIGHTON
Property ID (PID)	7430740
Description of development	Multiple Dwellings x 13 (12 New and 1 Existing)

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Issue date
Creative Homes	Drawing Number – 0056 sheets 03, 04, 27, 32, 41 & 44	G	25/09/25
Aldanmark	Sewer And Water Plan Sheet 1 & 4 – C106 & C109	A	25/09/2025

Conditions

Pursuant to the *Water and Sewerage Industry Act 2008* (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connections and sewerage system and connections to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.

Advice: TasWater will not accept direct fire boosting from the network unless it can be demonstrated that the periodic testing of the system will not have a significant negative effect on our network and the minimum service requirements of other customers serviced by the network. To this end break tanks may be required with the rate of flow into the

break tank controlled so that peak flows to fill the tank do not also cause negative effect on the network.

2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.
3. Prior to commencing construction of the development, any water connection utilised for construction must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

INFRASTRUCTURE

4. Prior to applying for a Certificate for Certifiable Works, the developer must physically locate all existing infrastructure to provide sufficient information for accurate design and physical works to be undertaken.
5. Prior to undertaking any works related to water and sewerage, physical markers must be in place that clearly identify where water and/or sewer connections are to be made in accordance with any approved plan to TasWater's satisfaction.
6. The developer must take all precautions to protect existing TasWater infrastructure. Any damage caused to existing TasWater infrastructure during the construction period must be promptly reported to TasWater and repaired by TasWater at the developer's cost.
7. Ground levels over the TasWater assets and/or easements must not be altered without the written approval of TasWater.

56W CONSENT

8. Prior to the issue of the Certificate for Certifiable Work (Building) and/or (Plumbing) by TasWater the applicant or landowner as the case may be must make application to TasWater pursuant to section 56W of the Water and Sewerage Industry Act 2008 for its consent in respect of that part of the development which is built within a TasWater easement or over or within two metres of TasWater infrastructure.
9. When applying for a Certificate for Certifiable Work (Building) and/or (Plumbing), the application documentation must include an application to TasWater, pursuant to section 56W of the Water and Sewerage Industry Act 2008, for its consent in respect of that part of the development which is built within a TasWater easement or over or within two metres of TasWater infrastructure.

DEVELOPER CHARGES

10. Prior to TasWater issuing a Certificate(s) for Certifiable Work (Building) and/or (Plumbing), the applicant or landowner as the case may be, must pay a developer charge totalling \$15,461.60 to TasWater for water infrastructure for 8.80 additional Equivalent Tenements, indexed by the Consumer Price Index All groups (Hobart) from the date of this Submission to Planning Authority Notice until the date it is paid to TasWater.
11. Prior to TasWater issuing a Certificate(s) for Certifiable Work (Building) and/or (Plumbing), the applicant or landowner as the case may be, must pay a developer charge totalling \$19,766.25 to TasWater for sewerage infrastructure for 11.25 additional Equivalent Tenements, indexed by the Consumer Price Index All groups (Hobart) from the date of this Submission to Planning Authority Notice until the date it is paid to TasWater.

12. In the event Council approves a staging plan, prior to TasWater issuing a Certificate(s) for Certifiable Work (Building) and/or (Plumbing) for each stage, the developer must pay the developer charges commensurate with the number of Equivalent Tenements in each stage, as approved by Council.

DEVELOPMENT ASSESSMENT FEES

13. The applicant or landowner as the case may be, must pay a development assessment fee of \$802.53 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater.

The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit

<https://www.taswater.com.au/building-and-development/technical-standards>

For application forms please visit

<https://www.taswater.com.au/building-and-development/development-application-form>

Important Notice Regarding Plumbing Plans and Associated Costs

The SPAN includes references to documents submitted as part of the application. These plans are acceptable for planning purposes only and are subject to further detailed assessment and review during the next stage of the development proposal.

TasWater's assessment staff will ensure that the design contains sufficient detail to assess compliance with relevant codes and regulations. Additionally, the plans must be clear enough for a TasWater contractor to carry out any water or sewerage-related work.

Depending on the nature of the project, your application may require Building and/or Plumbing permits or could be exempt from these requirements. Regardless, TasWater's assessment process and associated time are recoverable through an assessment fee.

Please be aware that your consultant may need to make revisions to their documentation to ensure the details are fit for construction. Any costs associated with updating these plans should be discussed directly with your consultant.

Developer Charges

For information on Developer Charges please visit the following webpage –

<https://www.taswater.com.au/building-and-development/developer-charges>

Water Submetering

As of July 1 2022, TasWater's Sub-Metering Policy no longer permits TasWater sub-meters to be installed for new developments. Please ensure plans submitted with the application for Certificate(s) for Certifiable Work (Building and/or Plumbing) reflect this. For clarity, TasWater does not object to private sub-metering arrangements. Further information is available on our website (www.taswater.com.au) within our Sub-Metering Policy and Water Metering Guidelines.

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be

located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.

- (a) A permit is required to work within TasWater's easements or in the vicinity of its infrastructure. Further information can be obtained from TasWater.
- (b) TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit <https://www.taswater.com.au/building-and-development/service-locations> for a list of companies.
- (c) Sewer drainage plans or Inspection Openings (IO) for residential properties are available from your local council.

56W Consent

The plans submitted with the application for the Certificate for Certifiable Work (Building) and/or (Plumbing) will need to show footings of proposed buildings located over or within 2.0m from TasWater pipes and will need to be designed by a suitably qualified person to adequately protect the integrity of TasWater's infrastructure, and to TasWater's satisfaction, be in accordance with AS3500 Part 2.2 Section 3.8 to ensure that no loads are transferred to TasWater's pipes. These plans will need to also include a cross sectional view through the footings which clearly shows;

- (a) Existing pipe depth and proposed finished surface levels over the pipe;
- (b) The line of influence from the base of the footing must pass below the invert of the pipe and be clear of the pipe trench and;
- (c) A note on the plan indicating how the pipe location and depth were ascertained.
- (d) The location of the property service connection and sewer inspection opening (IO).

Advice to Planning Authority (Council) and developer on fire coverage

TasWater cannot provide a supply of water for the purposes of firefighting to the entirety the lot.

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.