

Design Guidelines

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1.0 PURPOSE

The Northside Design Guidelines have been prepared to establish the character of the estate. The guidelines are intended to support your journey through the home selection, design, approval, and construction process, to achieve a high-quality design outcome for both homes and landscaping areas across all stages of the estate. This will contribute positively to the quality of your local environment and will enhance the value of your dwelling.

The Beveridge Williams Design Assessment Panel encourages homes that achieve excellent neighbourhood character. From time to time, home designs that comply with the intent of the guidelines may vary from the requirements. These designs will be considered on merit by the Beveridge Williams Design Assessment Panel which reserves the right to consider all designs in its absolute discretion. Please note however that the Beveridge Williams Design Assessment Panel can only vary requirements solely created within these guidelines. It does not have the authority to vary controls specified in the restrictions on the Plan of Subdivision, Building Regulations, Small Lot Housing Code (SLHC) and related legislation.

Approval by the Beveridge Williams Design Assessment Panel does not constitute a Building Approval, or any other necessary approvals. A separate building permit is required from a licensed Building Surveyor prior to constructing your dwelling. It is the Purchaser's/Owner's responsibility to ensure all necessary approvals are in place prior to construction on the lot.

These Design Guidelines may be amended from time to time to reflect changes in design and building trends and/or amendments to legislation affecting building approvals. The Design Guidelines apply to each lot, except where more than one dwelling is to be constructed on a lot. Lots less than 300m², not affected by a Building Envelope are subject to the SLHC.

Some lots may be nominated to require double storey construction. Check the Restriction on the Plan of Subdivision and the Building Envelope Plan for further details.

As a landowner on this estate you are responsible for your home's compliance with the Design Guidelines. If you require any clarification regarding the content of this document, please seek guidance from your builder in the first instance and then from the Beveridge Williams Design Assessment Panel (BWDAP).

1.1 SUBMISSION REQUIREMENTS AND DEVELOPMENT APPROVAL PROCESS

The siting and design of your home must be approved by the Beveridge Williams Design Assessment Panel (DAP). The DAP is operated by Beveridge Williams to assess dwelling designs against these Design Guidelines, in order to ensure that dwellings maintain the quality of the estate. Prior to obtaining building permits, all plans and other relevant drawings and specifications must be submitted to the DAP for approval. To obtain Design Approval, you must lodge your application, including your house plans via the Design Portal at <https://portal.beveridgewilliams.com.au>

If this is your first time using the portal, you must create a login and select the appropriate Estate for your submission. All submission documents **must be in PDF file format** (less than 10MB) and must be in accordance with the detailed checklist included in this document.

To facilitate a timely assessment of the application, it is recommended that a completed Design Guidelines Checklist be provided as part of your application.

1.2 APPLICATION FOR DESIGN APPROVAL

Your submission must include:

- Site Plan (min scale 1:200) indicating setback dimensions for all buildings, total footprint and floor areas, vehicle crossover, driveway and building envelope.
- Floor Plans (min scale 1:100) showing key dimensions, window positions and roof plan.
- All External Elevations (min scale 1:100) indicating building heights, roof pitch, eaves depth and all external building equipment (e.g. garden sheds, pergolas, BBQ areas,)
- Landscaping Plan including Fences style/materials/locations, a species list, planting/garden bed areas, grass, tree/s, paths etc
- Schedule of External Colours and materials, including samples

Once you have created a login and uploaded your plans (as described in Section 1.1) you will receive confirmation of your plan lodgement. The DAP will then assess the design against the Guidelines and either request further information or amendments to the plans where required or it will issue approval to compliant plans. **All applications are to be made via the Design Portal**, correspondence and queries may be sent via email.

The DAP will use its best endeavors to assess proposals within 10 business days of receiving your fully completed application. Once your plans have been approved by the DAP you must then obtain a Building Approval from your Building Surveyor and any other Statutory Approvals required.

Please Note: The final decision on all aspects of the Design Guidelines is at the discretion of the DAP. We will endeavor to work with you to address any design issues that may arise.

1.3 DEFINITION OF TERMS

For the purpose of this document, the following interpretations are made:

Boundary length is defined as the whole depth of the block including the length cut off by the splay.

Front Façade means the wall of the dwelling (excluding verandah/porch posts and the like) orientated towards the Primary Frontage.

Primary Frontage means:

- (i) in the case of a lot where only one (1) boundary of that lot abuts a road, the boundary that abuts the road.
- (ii) in the case of a corner lot where two (2) boundaries of a lot abut a road, the boundary with the greater offset on the Building Envelope plan.

Responsible Authority means the City of Casey

Secondary Street Frontage means the boundary of a lot (other than the Primary Frontage) which abuts a road.

2.0 SITING AND ORIENTATION

Each dwelling must be designed to take advantage of the site orientation. Solar angles, available views, the relationship of the dwelling to the street, the location of internal open space, the form and extent of landscaping and the adjoining dwelling types and locations are important considerations when creating a responsive design.

A diagram is provided at Appendix A which shows the siting of a typical dwelling on a standard allotment. Appendix A1 shows a diagram of a corner allotment. The following details explain the requirements in relation to the siting of your proposed dwelling and the diagrams at Appendix A & A1 should be used as a reference guide only.

2.1 BUILDING ENVELOPES

Building Envelopes are defined on the Building Envelopes Plan referenced as a restriction on the relevant plan of subdivision and are found on the Beveridge Williams portal. The Building Envelope sets out the area on which your proposed dwelling can be sited.

The Building Envelopes define the Primary Frontage and the minimum setback required to it, the Secondary Street Frontage where the lot is on a corner, and the minimum setback required to the side or rear boundary. In most instances where a lot is burdened by an easement, the Building Envelope will mandate a setback of at least the easement width from the applicable boundary; however, it is the responsibility of the Purchaser/Owner to ensure that the location of easements is established before designing their home. Easement details can be found on the registered plan of subdivision*.

Dwellings, including garages, must be wholly contained within the Building Envelope, unless an encroachment is provided for by a restriction on the registered plan of subdivision or unless consent has been received from the Responsible Authority. Unless subject to approved variations, buildings must also comply with applicable planning controls and building regulations.

Only one dwelling may be built on any one lot unless approval is sought for a dual occupancy or multi-dwelling development from the Responsible Authority. The exception to this is a dependent person's unit, however that unit must be constructed within the applied Building Envelope and to the relevant statutory requirements.

For lots less than 300 square metres the dwelling must be sited in compliance with the SLHC or planning permit, as applicable. If the SLHC applies to your lot, a restriction will be applied on the registered plan of subdivision which will be nominated as Type A or B outcome. Designs must also comply with the requirements of the Design Guidelines. In case of a conflict between the Guidelines and Restrictions, the requirements of the Small Lot Housing Code will prevail.

Where lots greater than 300 square metres are not subject to a Building Envelope, the dwelling is to be sited in accordance with Part 5 of the current Building Regulations.

* Note: The relevant authority's consent is required to build over any easement. Consent must not be assumed. It is suggested that should this be proposed, the relevant authority's consent be obtained prior to proceeding with any building design, as often consent is not granted.

2.4 SIDE SETBACKS & BUILDING TO BOUNDARIES

Side setbacks must accord with the Building Envelope Plan for the specific lot or the SLHC as applicable. For double-storey developments, side setbacks must also accord with the applicable authority requirements including Building Regulations or SLHC standards.

Encroachments into the side setbacks must comply with the applicable legislation.

Where a Building Envelope traverses the boundary, the length and height of the wall on the boundary must meet the requirements of the applicable Building Regulations, unless the wall is to be constructed to match the height and length of a simultaneously constructed wall on an abutting lot.

On corner lots, building setbacks from the Secondary Street Frontage must comply with the Building Envelope Plan and any other relevant building controls.

2.5 SUSTAINABILITY

All home designs are to achieve the minimum energy rating requirements for energy efficient design. Please refer to the relevant Government approved rating scheme. For more information about sustainable homes, visit the Greensmart section of the HIA website at www.hia.com.au.

All home designs are encouraged to reduce greenhouse gas emissions through energy efficient design. All design submissions are required to include details of how they will meet minimum *National Construction Code* compliant levels of insulation and are required to demonstrate the use of draught seals throughout the home. All submitted plans must contain notes confirming these requirements have been met.

Home designs are also required to utilise water usage reduction methods. Water efficient fixtures and appliances must be used, including:

- Showerheads that use <7.5 litres per minute
- Taps to bathrooms, kitchen and laundry that use <6 litres per minute
- A dishwasher with a water consumption of ≤14 litres per use
- A washing machine with a water consumption of ≤ 110 litres per use

All submitted plans must contain notes confirming the provision of these items.

2.6 THOMPSONS ROAD TRAFFIC NOISE ABATEMENT

A requirement for specific lots fronting Thompsons Road, which are serviced by the 10m driveway, must include Noise Abatement as per Casey Planning Scheme Clause 13.05-1S and VicRoads 'A Guide to the Reduction of Traffic Noise'. See Appendix B for further information and the specific lot numbers.

Roof	Facade	Glazing
<p>Roof performance: $R_w + C_{tr}$ 37</p> <p>Example roof construction comprising:</p> <ul style="list-style-type: none"> • Roofing tiles or profiled metal roof • Pitched roofing trusses • Minimum 100 mm thick 14 kg/m³ density insulation • 13 mm thick standard plasterboard (minimum 8.4 kg/m² surface density). 	<p>Facade performance: $R_w + C_{tr}$ 34</p> <p>Brick veneer will offer sufficient sound insulation.</p> <p>Example lightweight construction comprising:</p> <ul style="list-style-type: none"> • 9 mm compressed fibre cement sheet behind desired lightweight facade finish • 90 mm thick timber stud • 90 mm cavity insulation with minimum density of 14 kg/m³ • 13 mm thick standard plasterboard (minimum 8.4 kg/m² surface density). <p>External doors to habitable rooms are to be solid core timber or glazing meeting the performance nominated above, and feature full perimeter acoustic seals.</p>	<p>Glazing performance: $R_w + C_{tr}$ 31</p> <p>6.76 mm thick laminated glazing, or 6 mm/12 mm cavity/6.76 mm double glazed system</p> <p>Assumes 7 m² glazing on facades facing Thompsons Road and 7 m² of glazing on side elevations.</p> <p>Operable windows are to feature robust acoustic seals so as to not degrade the sound insulation performance of the glazing.</p>

Windows are required to be closed to achieve the internal criteria.

Any ventilation paths should be acoustically treated to control road traffic noise ingress and to ensure that the sound insulation performance of the building envelope is not compromised. Note that cooling systems that require external windows or doors to be open (e.g. evaporative cooling) are not recommended.

3.0 HOME DESIGN

Dwellings must be designed to provide architectural interest to the streetscape within the Estate. To achieve the desired outcome for the Estate, the following design requirements should be achieved, unless it can be demonstrated that an alternative solution enhances the character of the area.

3.1 MINIMUM DWELLING SIZE

Minimum Dwelling Size Reference Table

Lot Size m ²	Minimum Floor Area**
Greater than 450m ²	140m ²
300m ² - 450m ²	110m ²
Below 300m ²	80m ²

**The Floor Area does not include the garage portico, verandah or alfresco area for the purpose of this calculation.

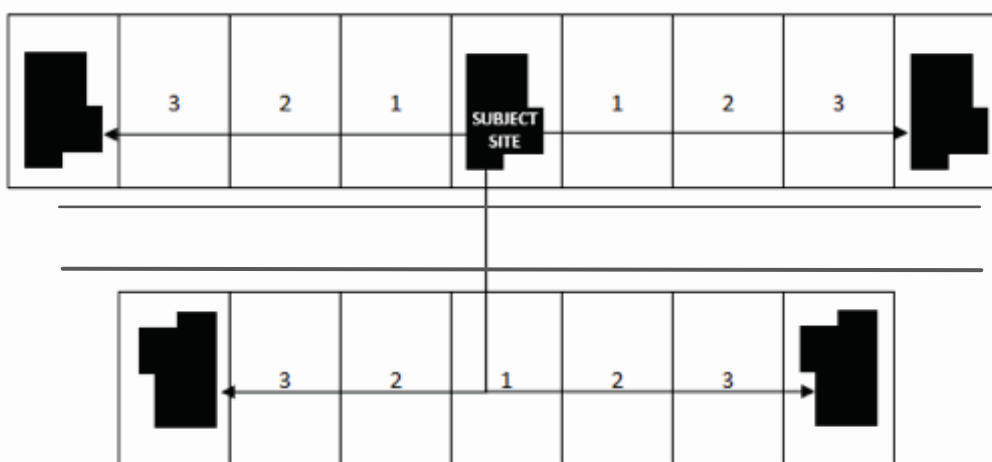
Site coverage must meet the Building Regulations or SLHC as applicable.

3.2 ARCHITECTURAL CHARACTER

- Façades must be contemporary and exclude references to historical and decorative styles (for example Victorian, Georgian) and or/details such as quoins, fretwork, moldings etc. At the discretion of the Design Assessment Panel, certain elements may be included as part of a contemporary design.
- Ceiling heights must not be less than 2.4 metres above floor level (for the ground floor).
- The main pedestrian entry (front door) must be clearly visible from the Primary Frontage.
- Dwellings must have a verandah, portico, porch or other similar entrance feature surrounding the front entrance and these must be consistent with the overall dwelling design.
- Dwellings must have staggered front setbacks.
- Kit homes and dwellings constructed of second-hand materials are not permitted.
- Where hipped roof forms are displayed, roof pitches must be a minimum of 22 degrees from the horizontal. Alternative roof forms are permitted where it can be demonstrated that they display a high degree of architectural merit.
- Homes must have metal sheet roofing or roof tiles which complement the home design and style. Metal sheet roofing is to be non-reflective.
- All roofs must be designed having minimum eaves of 450mm to the Primary Frontage including the garage. Eaves to the frontage of a dwelling must return and continue a minimum distance of 2 metres along the connecting return wall and/or walls from the frontage. Walls constructed on side boundaries and parapet walls will be exempt from the eave requirements unless otherwise directed by the DAP. (Where applicable, see section on Corner Lots for additional requirements.)

3.3 FAÇADE DESIGN VARIATION

Two (2) dwellings using the same front façade design shall be separated by a minimum of three (3) dwelling lots on the estate. This would include using lots either side and opposite your lot. Please contact the DAP for potential proposals on adjacent lots, if required.



3.4 GARAGES

All homes must have a lock-up garage. The colour and style of the garage structure and the door must be complementary to the overall home design and external colour scheme. Infills over the garage are required to be the same material as the surrounding façade area and finished flush with the façade.

- For lots where the SLHC does not apply, garage openings are to occupy no more than 40% of the width of the primary lot frontage, unless the dwelling is two (2) or more storeys. On a lot with an area between 250 to 300 square metres the garage opening must not exceed 30% of the area of the front façade of the dwelling with the area of the front façade measured from a two-dimensional elevation plan of the façade excluding the area of the roof of the dwelling.
- Garages must be setback a minimum of 5.5 metres from the front boundary, except where a Building Envelope allows a front setback of 3 metres whereby the garage can be setback 5 metres from the front boundary. In special circumstances, where lots are identified on the Building Envelope plan as having an alternative garage setback, garages to those lots must not be setback between 3 and 5 metres from the front boundary. Garages must also sit within the approved Building Envelope.

- The garage must be constructed at the same time as the dwelling.
- Unenclosed carports are not permitted.
- Individual garage doors shall not be more than 5.5 metres in width.
- Garages are to be setback behind the front façade of the dwelling unless it can be demonstrated that an alternate design solution ensures the garage does not dominate the streetscape.
- Where an oversized garage that faces the primary frontage is provided, a window addressing the front street must be provided. The window/s must complement the design and head height of other windows in the front façade and is to be located alongside the entry/other dwelling windows.
- Garage doors visible from a street must be panel lift or sectional overhead, or a tilt door. Roller doors are not permitted.
- For all lots less than 300m² where a Building Envelope does not apply, please refer to the Small Lot Housing Code standards for garage widths.

3.5 APPROPRIATE MATERIALS

An important element in maintaining a high quality residential neighbourhood character is the control of external building materials, colours and other related finishes for new dwellings. These items need to be durable which will reduce the need for future maintenance or repairs and will therefore maintain the development's appeal for many years to come.

Muted colours and finishes must be used to blend with the natural setting and a minimum of two (2) different material finishes (excluding windows and garage doors) should be used on the front façade. **The secondary material should cover a minimum of 20% of the façade.** Full face brick façades are not permitted. All external surfaces are to be in a finished state (painted or coated where required) prior to occupation. Bolder accent colours can be used sparingly to emphasise, contrast or create a rhythm in the built form.

Infill materials above the windows and garage door must match the surrounding façade material and must be finished flush with the wall.

Suggested materials include:

- Brickwork or bagged and painted or rendered brickwork.
- Masonry blocks, sandstone and stack stone.
- Lightweight cladding panels (e.g. weatherboards).
- Horizontal or vertical timber cladding.
- Colourbond (painted finish), Alucobond or similar.

3.6 EXTERNAL GLAZING / WINDOWS

The window frame and glazing selection should be complementary to the overall dwelling's colour palette. Contrasting colours will not be approved. Windows on the front façade must have:

- Sill heights no greater than 700mm above finished floor level to a habitable room.
- Matching head and sill heights.
- Awning in style, sliding windows are not permitted.

For double storey dwellings, window heights and widths should match on each storey.

Leadlight and stained-glass features are not permitted. Window tinting is discouraged, though where accepted must be a non-reflective tint.

3.7 CORNER LOTS

Corner lots have a significant impact upon streetscape character and in addition to the above guidelines, special consideration is required to ensure that a desirable outcome is achieved. Corner lots must address their prominent position in the streetscape and contribute to a visually appealing and safe living environment. A corner lot dwelling must appropriately address both street frontages with articulation of the built form as well including varying materials and window and door openings.

All corner lots must provide an appropriate corner design feature that will 'turn the corner' for both single and double storey dwellings between at least the front façade and the wing fence. Any change in treatment along the side wall of a dwelling facing a Secondary Street Frontage must have an appropriate transition to achieve good architectural outcomes.

A corner dwelling on its Secondary Street Frontage exposed to the street (i.e., forward of the wing fencing) must:

- have minimum 450mm deep Eaves to the entire secondary frontage facing the street and return to the rear for a distance of 2 metres
- Contain an awning habitable room window with sill and head heights to match windows on the front façade. In the case of a double storey, a window is required to each floor.

Materials on the front façade must be incorporated along the façade of the secondary frontage wall between the front façade and wing fence.

In addition, one or more of the following building elements is to be incorporated into the design as a corner feature:

- Additional Window/s to match front.
- A return verandah.
- A balcony.
- A pergola.
- An architectural element such as a blade/column compatible with the design of the dwelling.
- An articulated step back or setback to the side wall.

Corner lots with proposed crossovers intended to be located on the Secondary Street Frontage may be considered by the DAP on an individual basis.

3.8 DRIVEWAYS

Only one driveway is permitted per lot and must be located to comply with the crossover as shown in the Council- approved engineering plan and driveways must be completed before the home is occupied.

The driveway must be offset from the side boundary by at least 300mm to allow for a planting strip along the side. In order to minimise the hardstand area, **driveways must not exceed the width of the garage door**. This includes the provision of associated hardstand areas, such as paths.

The material and colour selection must complement the building design and the external colour scheme. Approved driveway materials are pavers, brick, asphalt with brick borders, exposed aggregate and coloured concrete. Plain concrete driveways are not permitted.

3.9 LETTERBOXES

Letterboxes should be designed to complement and match the dwelling, using similar materials, colours and finishes. Single post supporting letterboxes are discouraged. Letterboxes should be constructed of masonry or stone, rather than metallic materials. The street number must be clearly identifiable, suitably sized and located, and must not interfere with the overall streetscape.

4.0 FENCING

The owner is solely responsible for the maintenance and/or replacement of all fencing abutting their lot.

Side and rear fencing must comprise of timber palings, with timber capping and exposed timber posts to both sides of the fence. Fences between adjoining lots must be 1.8 metres in height above the natural ground level of the lot and must finish a minimum of 1 metre behind the front façade. A wing fence of 1.8 metres in height, that compliments the dwelling, can return between the side boundary and dwelling at that point the proposed fencing layout must be shown on the submitted site plans.

On a corner allotment, on the secondary street frontage side, the boundary fence must comprise of timber palings, with timber capping and exposed timber posts to both sides of the fence. The fence must stop and return, as a 1.8 metre high wing fence, at least 4 metres behind the front corner of the dwelling, to expose the corner treatment of the home.

Paling fences abutting a Secondary Street Frontage or public reserve may be stained with decking oil or like keep a natural timber look. Coloured paint is not permitted on any part of the paling fence visible to the public. Wherever permitted, gates must be consistent with, or complementary to, the adjoining fencing details.

Front Fences

Fencing to the front of homes is classed as any fence forward of the 1.8 metre high fence and is permitted only in circumstances where it:

- Has a maximum height of 1 metre;
- Is designed to complement the dwelling; and,
- Is transparent in design to allow views from the street into the front yard (i.e. not solid for its entirety).

Any side boundary fencing forward of the main frontage building line must not exceed 1 metre in height and must be transparent in style.

Lots Fronting the Cardinia Creek Conservation Area are not permitted to have front fences and side fences are to be no greater than 1.2 metres within the first 3 metres of the lots.

Subject to the approval of the DAP, retaining walls or courtyard defining walls may be acceptable in the zone between the front boundary and the front of the dwelling, but must be complementary in material finish and design to the main dwelling. Details must be included on any plans submitted for approval. For lots less than 300m², the Small Lot Housing Code must also be adhered to.

5.0 ANCILLARY ITEMS

Ancillary items including (but not limited to) clothes lines, rainwater tanks, hot water services, heating and cooling plants and bin storage areas must not be visible from the street. Solar water heaters and solar panels may be located on any elevation that provides the most suitable solar access. The location, design and colour of meter enclosures must be complementary to the overall design and minimise impact on the streetscape. Exposed plumbing and electrical services must not be visible from the street. The visual impact of downpipes and rainwater heads to the street façade must be minimised. Water tanks should be of a suitable, non-reflective, muted colour that blends into the home design.

5.1 OUTBUILDINGS

Outbuildings must be located so they are not visible from the street. Outbuildings must not be more than 20sqm and 2.5 metres high. The design, colour and materials must be consistent with the external home design.

5.2 AIR-CONDITIONING/HEATING UNITS

Air-conditioning/heating units and exposed componentry are to be located below the roof ridge line and towards the rear of the property to minimise visual impact. They are to be colour toned to match adjoining wall or roof colour. The units shall be of a profile type so as they have limited visibility, if any, from the street and, where appropriate, fitted with noise baffles.

5.3 OPTIC FIBRE

All homes must install or make an allowance for optic fibre cabling. To access this high-speed broadband and telephone service, homes need to comply with the NBN Co In-Home Wiring Guide (or any subsequent NBN Co guidance). Failure to comply may prevent connection to the NBN network infrastructure or may require the homeowner to incur additional costs in order to connect. All submitted plans must contain a note stating the provision of this service.

5.4 SIGNAGE

Signage is not permitted on residential lots with the following exceptions.

- Builders or tradespersons identification (maximum 600mm x 600mm) required during dwelling construction. These signs must be removed within 10 days of the issue of the Certificate of Occupancy.
- One sign only advertising the sale of a complete dwelling is permitted. These signs must be removed within 10 days of the property being sold; and
- There are to be strictly no signs erected for the purposes of advertising the sale of a vacant lot other than any sign that relates to the sale of a lot by the Developer.
- Display home signage with the written approval of BWDAP.
- Other signs may be permitted with the approval of BWDAP.

5.5 PLUMBING

All homes constructed must include fittings and be connected to the Southeast Water reticulated recycled water system, as specified by the relevant authorities for toilet flushing, laundry and garden irrigation. All submitted plans must contain a note confirming the compliance of this requirement.

- All external plumbing including but not limited to hot water units, spa pumps/motors are to be concealed from public view. Downpipes and gutters are exempt from this requirement.
- Downpipes on the front façade should be avoided where possible. If required, they are to compliment the colour of the dwelling.
- No exposed plumbing waste piping is permitted.
- Gutters and fascia treatments must complement the dominant house colour.

5.5A RAINWATER TANKS

In addition to the recycled water requirement above, the following measure must be implemented on lots (greater than) >300 m².

- A Rainwater tank, with a minimum capacity of 3000Ltrs.
- Water from the tanks can be used for toilet flushing, laundry and outdoor irrigation.

5.6 SOLAR WATER HEATING

Solar hot water panels/piping for the dwelling or swimming pools are permitted provided they are located on the roof and installed at the same pitch angle as the roof. Where practical they are to be located at the rear of the property to minimise visual impact from public viewing. Tanks for such systems are not permitted to be located on the roof and must be screened from public view.

5.7 PARKING OF HEAVY VEHICLES AND CARAVANS ETC.

Trucks or commercial vehicles (exceeding 1.5 tonnes), recreational vehicles and caravans shall be screened from public view when parked or stored.

5.8 EXTERNAL WINDOW TREATMENT

The use of roller shutters to windows is prohibited where visible from the public realm.

Metal bars over windows are not permitted.

Security flyscreen doors must be of a dark colour, not made of diamond mesh and be sympathetic to the home façade.

5.9 WINDOW FURNISHINGS

Internal windows furnishings which can be viewed from the public realm must be fitted within three months of occupancy. Sheets, blankets, or similar materials for which window furnishing is not their primary use, will not be permitted.

5.10 TIMING OF WORKS

Construction of the dwellings must commence within twelve months of settlement and must be completed within twelve months of work commencing.

Incomplete building works must not be left for more than three months without work being undertaken.

Boundary fencing must be completed prior to the dwelling being occupied.

6.0 LANDSCAPING

An investment in quality landscaping adds significant value to any community. You are encouraged to invest in the quality landscaping of your front and rear yards.

Gardens are encouraged to be environmentally sensitive by utilizing appropriate drought tolerant sensitive plants, organic or mineral mulches and drip irrigation systems.

Landscaping designs must address the following:

- A small to medium canopy tree is to be provided where it can be appropriately located to enhance the streetscape.
- Use landscaping effectively in your front garden to help define your boundary.
- Limit the number of hard surfaces and use 'soft' coverings such as garden beds, shrubs, ground cover and trees.
- A minimum of 50% of the front garden should be covered in softscape. Design paved areas to drain into lawns and garden beds for passive irrigation.
- The use of native species requiring less water is encouraged. Select planting and ground covers that are drought resistant and requires minimal maintenance.
- Concrete surfacing to the front of dwellings will not be accepted unless to provide for a driveway or pedestrian path from the footpath to the front entry of the dwelling. Where possible, the use of separate pedestrian paths should be avoided to increase soft landscaping opportunities.
- The front garden must be completed within three months of the Certificate of Occupancy being issued.



6.1 MAINTENANCE OF LOTS

Prior to the issue of the Certificate of Occupancy of any dwelling, the Purchaser/Owner shall not allow any rubbish including site excavations and building materials to accumulate on a lot (unless the rubbish is neatly stored in a suitably sized industrial bin or skip) or allow excessive growth of grass or weeds upon the lot.

The Purchaser/Owner shall not place any rubbish including site excavations and building materials outside the lot, including on adjoining land, in any waterway or reserve. Rubbish can only be placed outside the bounds of the lot on the abutting nature strip on collection day.

The Vendor or its Agent may enter upon and have access over a lot at any time without creating any liability for trespass or otherwise to remove rubbish, maintain, slash or mow a lot and the Purchaser/Owner agrees to meet the Vendor's reasonable costs of doing so.

CONTACT:

Please speak to your builder or Sales Office in the first instance if you have any queries about your Design Approval Submission Package. If they are unable to assist you, please contact the Beveridge Williams Design Assessment Panel.

A copy of the endorsed Northside Design Guidelines and Building Envelopes are available at

<https://portal.beveridgewilliams.com.au/>

To submit plans, or to lodge enquiries related to submitted plans, please go to the Beveridge Williams Design Assessment Panel page below:

<https://portal.beveridgewilliams.com.au>

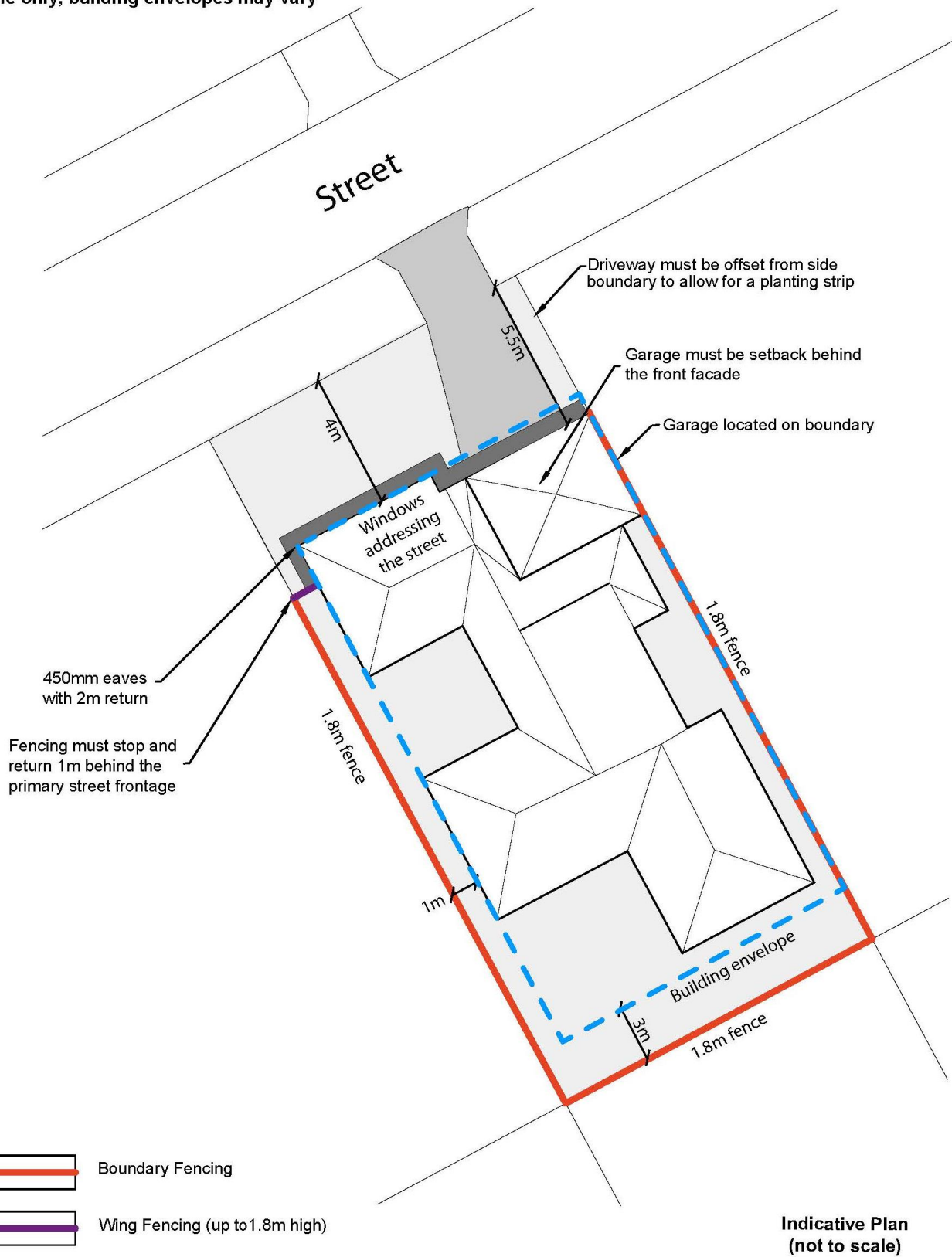
For remaining queries, please contact:

planlodgement@bevwill.com.au
(03) 9524 8888

Please provide details of the Estate and type of enquiry, to ensure we can address enquiries promptly.

Siting on Standard Allotment

example only, building envelopes may vary

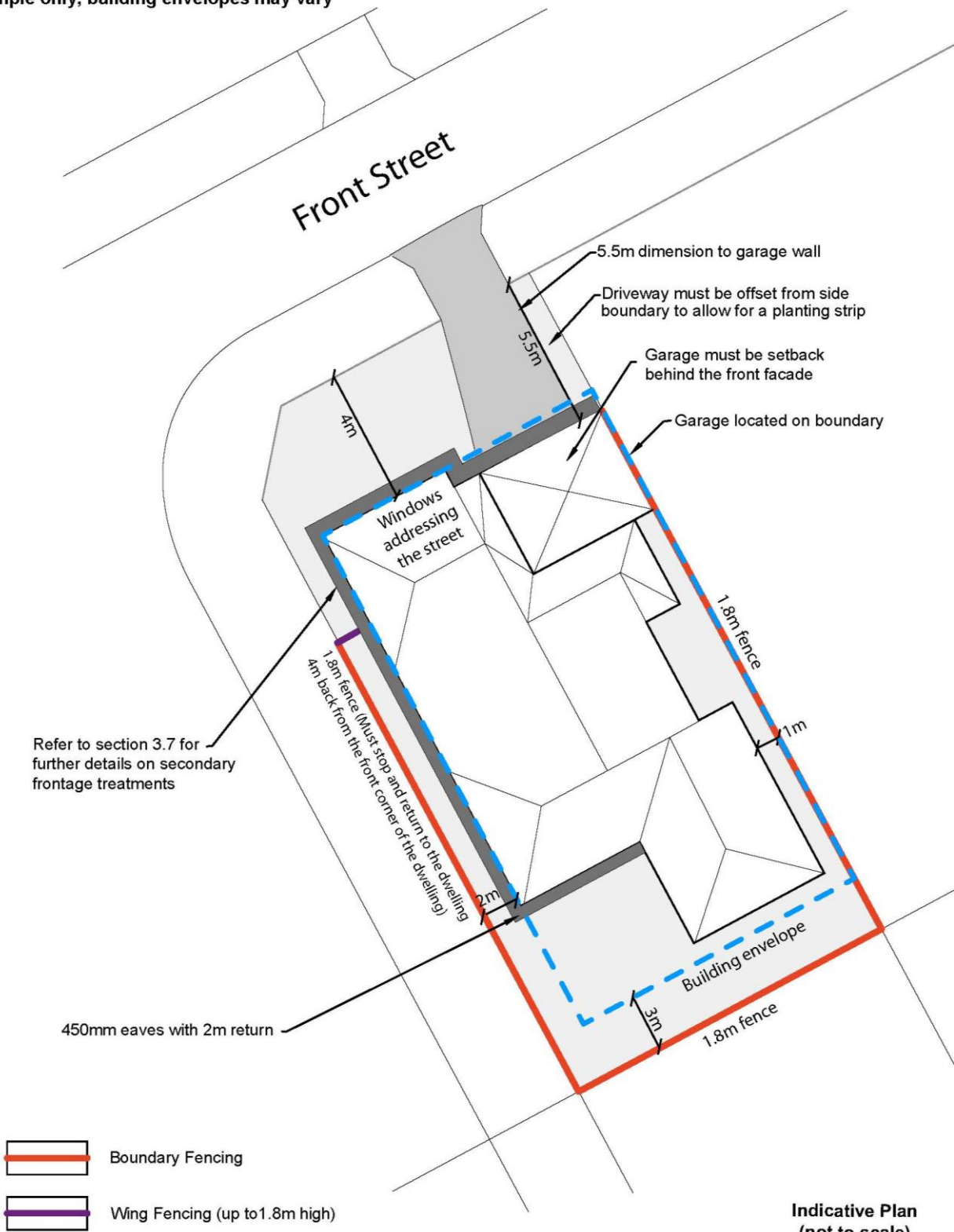


* Refer to section 4.0 for further details regarding fencing

Alternative siting occurs on; Small Lot Housing Code (SLHC lots) and variations as specified on building envelope plan.

Siting on Corner Allotment

example only, building envelopes may vary



* Refer to section 4.0 for further details regarding fencing

Alternative siting occurs on; Small Lot Housing Code (SLHC lots) and variations as specified on building envelope plan.

DESIGN APPROVAL APPLICATION FORM – Northside Estate

Lot No	
Owners Name	
Current Postal Address	
Home Ph	
Bus Ph	
Builder's Name	
Contact Name & Number	

Documentation required to be submitted for approval to Beveridge Williams Design Assessment Panel
(A3 size in PDF file format, under 10MB):

- | | Attached |
|---|--------------------------|
| 1. Site Plan (min scale 1:200) indicating setback dimensions for all buildings, total footprint and floor areas, vehicle crossover, driveway and building envelope. | <input type="checkbox"/> |
| 2. Floor Plans (min scale 1:100) showing key dimensions, window positions and roof plan. | <input type="checkbox"/> |
| 3. All External Elevations (min scale 1:100) indicating building heights, roof pitch, eaves depth and all external building equipment (e.g. garden sheds, pergolas, BBQ areas) | <input type="checkbox"/> |
| 4. Landscaping Plan including Fences style/materials/locations, a species list, planting/garden bed areas, grass, tree/s, paths etc | <input type="checkbox"/> |
| 5. Schedule of External Colours and materials, including samples | <input type="checkbox"/> |

The DAP will endeavour to assess proposals in the shortest possible time and generally within ten (10) working days of receipt of application if the above documentation is provided.
Applications cannot be assessed until all the above information is available. Please do not submit pages or documents that are not required.
Please submit the above documentation in pdf format to the Design Assessment Panel via the Design Portal:

<https://portal.beveridgewilliams.com.au>

31 October 2023

Development 10 Smiths Lane Clyde North Pty Ltd
Level 11, 468 St Kilda Road
St. Kilda VIC 3004

Attention: Drew Banks

Dear Drew

**10 SMITHS LANE, CLYDE NORTH
THOMPSONS ROAD TRAFFIC NOISE ABATEMENT**

Development 10 Smiths Lane Clyde North Pty Ltd proposes to develop land adjacent to a future extension to Thompsons Road, Clyde North.

The residential development is subject to the following planning permit condition:

A requirement for lots fronting Thompsons Road that are serviced by the 10 m driveway must include Noise Abatement as per Casey Planning Scheme Clause 13.05-1S and VicRoads 'A Guide to the Reduction of Traffic Noise'.

Twelve lots (namely 141-144, 915-918 and 1013-1016) have been identified where the above condition is considered applicable.

This letter aims to address this condition by:

- identifying relevant internal and external traffic noise criteria,
- presenting predicted future traffic noise levels at the facades of the affected lots,
- identifying lots where the acoustic criteria could be met without noise mitigation measures, and
- providing indicative noise mitigation measures that are expected to allow the internal noise criteria to be satisfied.

ACOUSTIC CRITERIA

Casey Planning Scheme

Clause 13.05-1S *Noise Management* of the Casey Planning Scheme is as follows:

Objective

To assist the management of noise effects on sensitive land uses.

Strategy

Ensure that development is not prejudiced and community amenity and human health is not adversely impacted by noise emissions.

Minimise the impact on human health from noise exposure to occupants of sensitive land uses (residential use, child care centre, school, education centre, residential aged care centre or hospital) near the transport system and other noise emission sources through suitable building siting and design (including orientation and internal layout), urban design and land use separation techniques as appropriate to the land use functions and character of the area.

Policy guidelines

Consider as relevant:

The noise requirements in accordance with the Environment Protection Regulations under the Environment Protection Act 2017.

Policy documents

Consider as relevant:

- Environment Protection Regulations *under the Environment Protection Act 2017*
- Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues (*Publication 1826, Environment Protection Authority, May 2021*)
- Environment Reference Standard (*Gazette No. S 245, 26 May 2021*)
- Passenger Rail Infrastructure Noise Policy (*Victorian Government, 2013*)
- VicTrack Rail Development Interface Guidelines (*VicTrack, 2019*)

Of the above policy guidelines and documents, only the Environment Reference Standard could be considered applicable to traffic noise.

Environment Reference Standard

As stated in Section 1 Preamble of the *Environment Reference Standard* published 25 May 2021, and as amended by Environment Reference Standard No. S158 Gazette 29 March 2022 (ERS):

This environment reference standard (ERS) is made under section 93 of the Environment Protection Act 2017 (the Act). It sets out the environmental values of the ambient air, ambient sound, land and water environments that are sought to be achieved or maintained in Victoria and standards to support those values.

Environmental values are the uses, attributes and functions of the environment that Victorians value. Some examples are water that is safe to drink; air quality that sustains life, health and wellbeing; land that is suitable for production of food; and an ambient sound environment that supports sleep at night.

Standards for the environmental values are comprised of objectives for supporting different uses of the environment and indicators that can be measured to determine whether those objectives are being met. The indicators and objectives provide a basis for assessment and reporting on environmental conditions in Victoria. By providing a benchmark for comparing desired outcomes to the actual state of the environment they enable an understanding of the current condition of the environment and a basis for assessing actual and potential risks to environmental values.

...

This ERS is not a compliance standard. Its primary function is to provide an environmental assessment and reporting benchmark. However, the Act specifically requires [Environmental Protection Agency Victoria, EPA] to consider the environmental values in this ERS when deciding whether or not to issue development, operating and pilot project licences, when reviewing operating licences and when deciding whether or not to issue development and operating licence exemptions and specified prescribed permits.

Part 3 of the ERS discusses ambient sound.

Table 3.1, reproduced in Table 1 below, describes the environmental values of the ambient sound environment.

Table 1: Environmental values of the ambient sound environment

Environmental value	Description of environmental value
Sleep during the night	An ambient sound environment that supports sleep at night
Domestic and recreational activities	An ambient sound environment that supports recreational and domestic activities in a residential setting
Normal conversation	An ambient sound environment that allows for a normal conversation indoors without the need to raise voices
Child learning and development	An ambient sound environment that supports cognitive development and learning in children
Human tranquillity and enjoyment outdoors in natural areas	An ambient sound environment that allows for the appreciation and enjoyment of the environment for its natural condition and the restorative benefits of tranquil soundscapes in natural areas
Musical entertainment	An ambient sound environment that recognises the community's demand for a wide range of musical entertainment

Table 3.2 and 3.3 of the ERS then quantifies objective ambient day and night noise levels for different land uses. The development is in an Urban Growth Zone, which is a Category III land use described as “lower rise building form including lower density residential development and detached housing typical of suburban residential settings or in towns of district or regional significance.” The outdoor indicators and objectives for Category III land use are as follows:

- Day, 0600 – 2200 hrs: 50 dB $L_{Aeq,16h}$
- Night, 2200 – 0600 hrs: 40 dB $L_{Aeq,8h}$

The ERS is not a compliance standard, and the values listed within the ERS for different land uses are explicitly not noise limits nor design criteria. The primary function of the ERS is to provide assessment and reporting benchmarks for environmental values.

EPA Publication 1992 *Guide to the Environment Reference Standard* provides information primarily for decision makers about how the ERS should be applied to support decision making, and how the environmental values, indicators and objectives for each element of the environment should be interpreted.

Section 5.4.1 b) of the guideline describes the derivation of the ERS objective noise levels being based on generally achieving internal noise levels recommended by AS 2107, and making assumptions regarding the typical noise reduction provided by the building envelope within the corresponding land use setting.

The AS 2107 design criteria for the acoustic environment within building interiors are set to ensure a healthy, comfortable and productive environment for the occupants and the users, as per Section 1.0 *Scope* of the Standard. Therefore, dwellings where the AS 2107 internal criteria are satisfied would generally satisfy the values for ambient sound nominated by the ERS within the dwelling.

Australian Standard AS 2107

The subdivision and staging plan submitted to and endorsed by City of Casey Council includes the following note:

Residential buildings to provide sound insulation treatment to residential dwellings sufficient to achieve compliance with the recommended internal noise levels. (Standard 2107-2000 Acoustic - Recommended design sound levels and reverberation times for building interiors)

Australian Standard 2107-2016 *Acoustics - Recommended design sound levels and reverberation times for building interiors* (AS 2107) provides recommendations for acceptable internal noise levels. Table 2 shows the recommended internal design sound levels stated in AS 2107 for *houses and apartments in inner city areas or entertainment districts or near major roads*, which is considered to be applicable to the proposed development.

Table 2: AS 2107 recommended internal noise levels

Area	Recommended design sound level range, dB L _{Aeq}
Sleeping areas at night	35-40
Living areas	35-45
Work areas	35-45

Achieving the lower level is preferred, but achieving with the maximum noise level is considered to be satisfactory. For this assessment, the following internal noise levels have been nominated as design criteria which align with the noise impact objectives for apartment developments in Casey Planning Scheme clause 58.04-3:

- Not greater than 35 dB L_{Aeq,8h} for bedrooms from 2200 – 0600 hrs.
- Not greater than 40 dB L_{Aeq,16h} for living areas from 0600 – 2200 hrs.

VicRoads Guidance

The planning permit condition references noise abatement as per VicRoads' publication *A Guide to the Reduction of Traffic Noise*.

Section 4 of the publication summarises the VicRoads *Traffic Noise Reduction Policy*, which nominates a noise level objective of 63 dB L_{A10,18h} between 0600 – 0000 hrs at the lowest level of a building, however, VicRoads will not ameliorate traffic noise where new buildings or subdivisions are built next to an existing or future road controlled by VicRoads.

Section 5 of the publication identifies opportunities for noise reduction in new homes. The following key points are noted:

- When planning the layout of the site, traffic noise can be reduced by increasing the distance between the road and the dwelling. The layout development has been finalised, so this option cannot be explored further.
- Use natural topographical features or create roadside mounds to shield dwellings from traffic noise, as discussed further in Section 9. However, there may not be sufficient space between the road and dwellings to accommodate mounds due to driveways and footpaths.

- Provide noise barriers to shield dwellings from traffic noise, as discussed further in Section 8. However, the provision of noise barriers may not be practical given:
 - The barriers may be prohibitively high to sufficiently reduce traffic noise, resulting in conflicting overshadowing, public safety and visual amenity issues.
 - The performance of barriers on the southern lot boundaries may be compromised by gates to enable vehicular access to the lots.
- Use the built form of dwellings to shield outdoor living areas from traffic noise.
- Where practical, the layout of dwellings should locate less noise sensitive spaces such as garages, bathrooms, walk in robes and laundries on facades facing roads to create a buffer for noise sensitive spaces such as bedrooms, living rooms and studies.
- The construction of dwellings can feature appropriate materials for the walls, windows, doors, ceilings and any ventilation paths to reduce indoor traffic noise levels. The size of windows facing roads should be minimised or eliminated where practical. Section 10 provides further details.

Of the options above, the last three points are considered to be the most practical options for addressing traffic noise where external noise levels are above external noise criteria.

VicRoads publication *Requirements of Developers – Noise Sensitive Uses* provides additional guidance on traffic noise abatement. If noise barriers are not practical to reduce noise levels below 63 dB $L_{A10,18h}$, including at second storeys, dwellings should be designed and constructed to achieve the internal noise levels recommended by AS 2107.

Summary of acoustic criteria

A summary of acoustic criteria from the above sources is as follows:

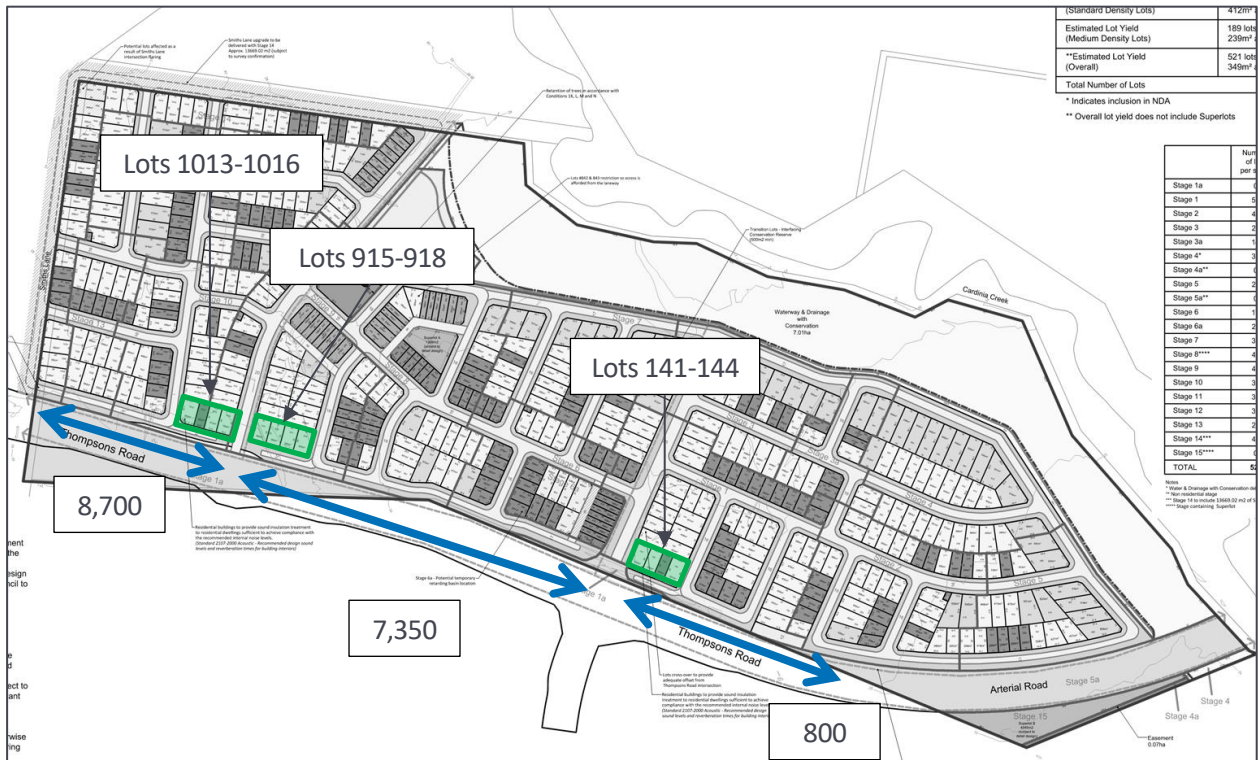
- External facade noise level of 63 dB $L_{A10,18h}$ as per VicRoads guidance.
- An aspirational external noise level of 50 dB L_{Aeq} during the day in outdoor living areas shielded from Thompsons Road, aligning with the environmental values, indicators and objectives of the ERS.
- Internal noise levels as per those recommended by AS 2107, aligning with VicRoads guidance and as referenced by EPA Publication 1992 *Guide to the Environment Reference Standard*.
For design purposes, the following internal noise levels have been nominated:
 - 35 dB $L_{Aeq,8h}$ for bedrooms from 2200 – 0600 hrs
 - 40 dB $L_{Aeq,16h}$ for living areas from 0600 – 2200 hrs.

PREDICTED TRAFFIC NOISE LEVELS

To predict noise levels due to traffic at the nominated lots, noise modelling was undertaken in accordance with the *Calculation of Road Traffic Noise (CoRTN)* method implemented in SoundPLAN v9.0 noise modelling software.

Figure 1 presents the future daily Thompsons Road traffic volumes that were provided by Beveridge Williams for this assessment. The 18-hour volumes used in the model were set to 95 % of the daily volumes.

Figure 1: Daily Thompsons Road two-way traffic volumes



Traffic speed was assumed to be 60 km/h and 11 % of traffic was assumed to be heavy vehicles based on VicRoads traffic data for the nearest existing section of Thompsons Road to the west. No specific road surface corrections were applied.

A facade correction of +2.5 dB was applied to the predicted free field external noise levels to account for any noise reflected off future dwelling facades.

A factor of -3 dB has been used for converting the predicted CoRTN $L_{A10,18h}$ noise level to average day $L_{Aeq,16h}$ noise level, and a factor of -7 dB has been used for converting the predicted CoRTN $L_{A10,18h}$ noise level to average night $L_{Aeq,8h}$ noise level.¹

Table 3 presents the predicted external traffic noise levels at facades facing Thompsons Road.

¹ The conversion factors are based on a review of traffic noise data collected at 121 sites across NSW. The approximation will vary from site to site depending on changes in noise levels during the day and night periods due to changes in factors such as traffic volume, speed and percentage heavy vehicles. Source: J. Parnell, J. Peng, *The Relevance of the 2018 WHO Noise Guidelines to Australasian Road Traffic Noise Objectives*, Acoustics 2019.

https://www.acoustics.asn.au/conference_proceedings/AAS2019/papers/p34.pdf accessed 24 October 2023.

Table 3: Predicted external traffic noise levels at facades facing Thompsons Road

Lots	18 hour noise level, dB LA10,18h	Average day period noise level, dB LAeq,16h	Average night period noise level, dB LAeq,8h
1013-1016	68	65	61
915-918	68	65	61
141-144	61-62	58-59	54-55

ASSESSMENT OF PREDICTED TRAFFIC NOISE LEVELS

Table 4 compares the predicted external noise levels to the VicRoads guideline level.

Table 4: Assessment of predicted external noise levels against VicRoads guideline level

Lots	Predicted noise level at front facade, dB LA10,18h	VicRoads guideline, dB LA10,18h	Outcome
1013-1016	68	63	5 dB above guideline
915-918	68	63	5 dB above guideline
141-144	61-62	63	Satisfies guideline

The VicRoads guideline level is predicted to be exceeded at the facades facing Thompsons Road for eight of the twelve nominated lots.

Traffic noise levels at any front (southern) outdoor areas are predicted to exceed the ERS objective noise levels during the day and night. Consideration has been given to traffic noise levels in rear (north facing) outdoor living areas. Table 5 presents the predicted external daytime traffic noise levels in rear yards shielded from Thompsons Road, assuming an approximate 15 dB reduction in traffic noise levels afforded by the built form of the dwellings and increased setback from the road.

Table 5: Estimated external traffic noise levels in rear yards shielded from Thompsons Road by dwellings

Lots	Average day period noise level, dB LAeq,16h	ERS daytime noise objective and indicator, dB LAeq,16h
1013-1016	50	50
915-918	50	50
141-144	43-44	50

The estimated traffic noise levels in rear/north facing yards are estimated to be broadly comparable to or lower than the ERS daytime noise objective and indicator.

Traffic noise levels at night are predicted to be higher than the ERS night objective level. Further discussion is provided below regarding achieving suitable internal noise levels in bedrooms at night.

BUILDING FACADE SOUND INSULATION

Modern energy efficient building envelope constructions for lots 141 – 144 are expected to provide sufficient traffic noise reduction in the order of 20 dB to allow AS 2107 recommended noise levels to be achieved, provided windows are closed.

As discussed above, traffic noise barriers are not expected to be feasible to the frontages of lots 1013-1016 and 915-918 to allow the external VicRoads guideline level to be achieved. Consideration should therefore be given to designing and constructing dwellings to achieve the internal noise levels recommended by AS 2107.

The predicted road traffic noise levels from our model have been used to determine some building envelope constructions that should provide sufficient mitigation of traffic noise ingress in habitable spaces for lots 1013-1016 and lots 915-918.

The example constructions in Table 6 should be sufficient to meet the nominated internal noise level design criteria. The example constructions assume a fully furnished habitable room of 20 m² floor area.

Table 6: Example building envelope construction (lots 1013 – 1016 and lots 915 – 918)

Roof	Facade	Glazing
Roof performance: $R_w + C_{tr}$ 37	Facade performance: $R_w + C_{tr}$ 34	Glazing performance: $R_w + C_{tr}$ 31
<p>Example roof construction comprising:</p> <ul style="list-style-type: none"> • Roofing tiles or profiled metal roof • Pitched roofing trusses • Minimum 100 mm thick 14 kg/m³ density insulation • 13 mm thick standard plasterboard (minimum 8.4 kg/m² surface density). 	<p>Brick veneer will offer sufficient sound insulation.</p> <p>Example lightweight construction comprising:</p> <ul style="list-style-type: none"> • 9 mm compressed fibre cement sheet behind desired lightweight facade finish • 90 mm thick timber stud • 90 mm cavity insulation with minimum density of 14 kg/m³ • 13 mm thick standard plasterboard (minimum 8.4 kg/m² surface density). <p>External doors to habitable rooms are to be solid core timber or glazing meeting the performance nominated above, and feature full perimeter acoustic seals.</p>	<p>6.76 mm thick laminated glazing, or 6 mm/12 mm cavity/6.76 mm double glazed system</p> <p>Assumes 7 m² glazing on facades facing Thompsons Road and 7 m² of glazing on side elevations.</p> <p>Operable windows are to feature robust acoustic seals so as to not degrade the sound insulation performance of the glazing.</p>

Windows are required to be closed to achieve the internal criteria.

Any ventilation paths should be acoustically treated to control road traffic noise ingress and to ensure that the sound insulation performance of the building envelope is not compromised. Note that cooling systems that require external windows or doors to be open (e.g. evaporative cooling) are not recommended.

We trust the above information meets your needs at this time.

Yours faithfully

MARSHALL DAY ACOUSTICS PTY LTD



Lachlan Deen

Associate