

## PROVISIONS

Unless provided for below, the provisions of the City of Wanneroo District Planning Scheme No 2 and the R-Codes apply.

### NOISE AFFECTED LOTS

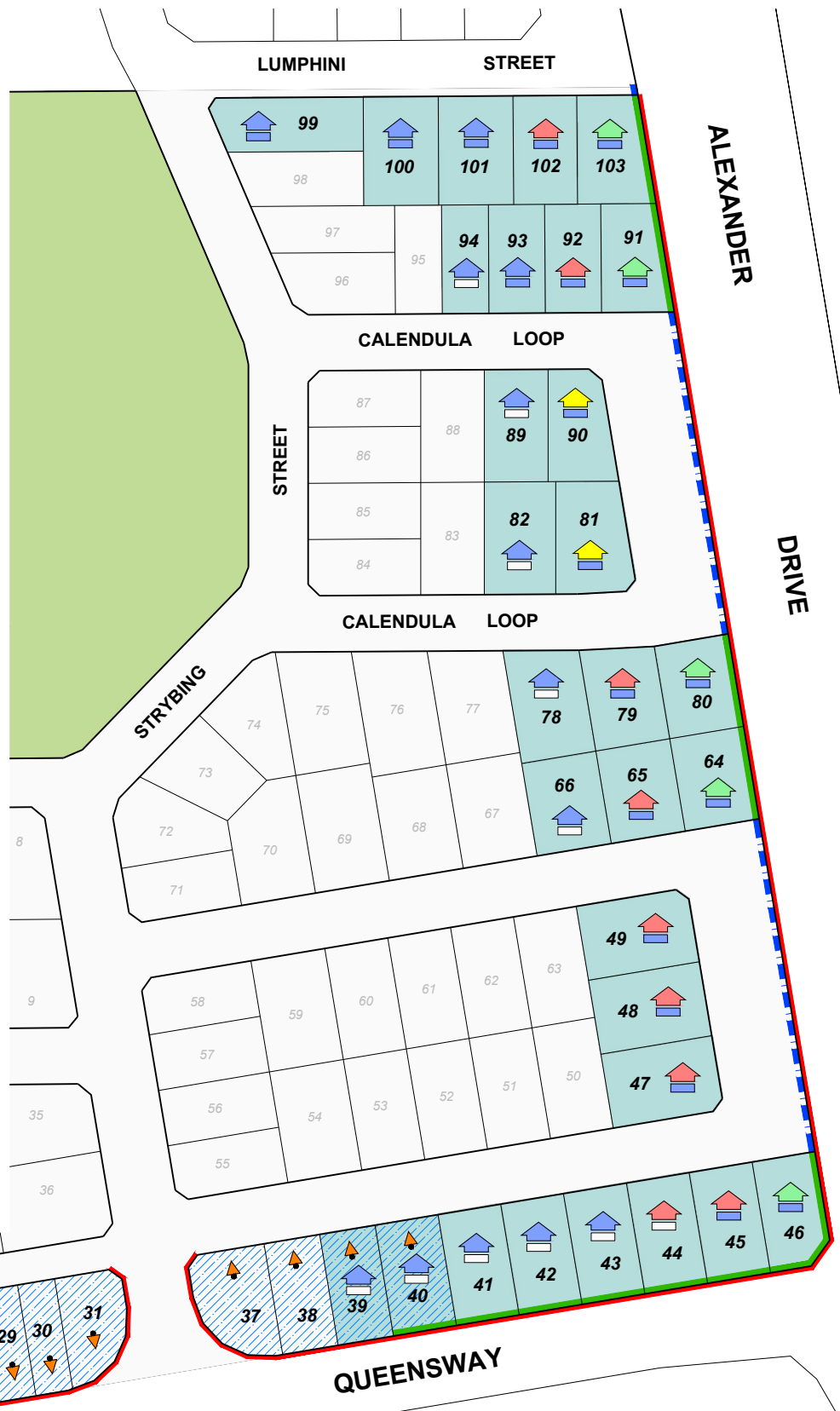
Quiet house design requirements are applicable to all noise affected lots identified on this Local Development Plan. Detail of quiet house design requirements (A, B & C) are included as Attachment 1.

Modifications to the quiet house design requirements may be approved by the City where it can be demonstrated that proposed development will be provided within the acceptable level of acoustic amenity and subject to the development proposal being accompanied by a Transportation Noise Assessment undertaken by a suitably qualified professional.

Where a residence is shown as requiring 'Specialist Advice', treatment details are to be determined by a suitably qualified acoustic consultant as part of the development proposal.

### QUEENSWAY LOT INTERFACE

- For Lots 25 to 31 (inclusive) development shall be set back a minimum distance of 2m from Queensway Road reserve boundary.
- For Lots 37 to 40 (inclusive) development shall be set back a minimum distance of 1m from Queensway Road reserve boundary.
- For Lots 37 to 40 (inclusive) visually permeable masonry fencing (as defined by the R-Codes) must be provided along the Queensway road reserve boundary.
- For Lots 25 to 31 and 37 to 40, development must provide surveillance to Queensway Road through the location of a major opening from a habitable room on both ground and upper storey levels (if applicable), facing Queensway Road.



### LEGEND

- Quiet House Design Required
- Queensway Lots
- Noise Wall
- Earthen Bund
- No Vehicular Access
- Primary Street Frontage

### QUIET HOUSE DESIGN

- Upper Floor - Package A  
Ground Floor - Package A
- Upper Floor - Package B  
Ground Floor - Package A
- Upper Floor - Package C  
Ground Floor - Package A
- Upper Floor - Specialist Advice  
Ground Floor - Package A
- Upper Floor - Package A  
Ground Floor - No Requirement

### ENDORSEMENT TABLE

Manager Approvals Services City of Wanneroo	Date
This Local Development Plan has been approved by Council under clause 52(1)(a) of the deemed provisions of District Planning Scheme No. 2.	

PROVISIONS IN ACCORDANCE WITH LLOYD GEORGE ROAD TRANSPORTATION NOISE ASSESSMENT, DATED OCTOBER 2018

Package A: (more than 60dB $L_{Aeq}$ (Day) and 55dB $L_{Aeq}$ (Night))		
Area	Orientation to Road Corridor	Noise Control Measures
Bedrooms	Facing	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_p</math> 28) – 6mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Window systems: As above.</li> </ul>
	Opposite	No requirements
Other Habitable Rooms Including Kitchens	Facing	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 60% of floor area (minimum <math>R_w + C_p</math> 28) – 6mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings. Doors to be either 35mm thick solid timber core door with full perimeter acoustic seals. Glazed inserts to match the above. Sliding glass doors to be same performance including brush seals.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Window systems: As above.</li> </ul>
	Opposite	No requirements
General	Any	<ul style="list-style-type: none"> <li>Walls (minimum <math>R_w + C_p</math> 45) – Two leaves of 90mm thick brick with minimum 50mm cavity.</li> <li>Roof and ceiling (minimum <math>R_w + C_p</math> 35) – Standard roof construction with 10mm plasterboard ceiling and minimum R2.5 insulation between ceiling joists.</li> <li>Eaves to be closed using 4mm compressed fibre cement sheet.</li> <li>Mechanical ventilation – refer Mechanical Ventilation Requirements below.</li> </ul>
Outdoor Living Area		<ul style="list-style-type: none"> <li>Boundary wall to be a minimum 2m high; or</li> <li>Located on the side of the building that is opposite to the corridor; or</li> <li>Located within alcove area so that the house shields it from the corridor.</li> </ul>

Package B: (more than 63dB $L_{Aeq}$ (Day) and 58dB $L_{Aeq}$ (Night))		
Area	Orientation to Road Corridor	Noise Control Measures
Bedrooms	Facing	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_p</math> 31) – 10mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Window systems: As above.</li> </ul>
	Opposite	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_p</math> 25) – 4mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings. Alternatively, 6mm thick glass (monolithic, toughened or laminated) in sliding frame.</li> </ul>
Other Habitable Rooms Including Kitchens	Facing	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 60% of floor area (minimum <math>R_w + C_p</math> 31) – 10mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings. Doors to be either 35mm thick solid timber core door with full perimeter acoustic seals. Glazed inserts to match the above. Sliding glass doors to have laboratory certificate confirming <math>R_w + C_p</math> 31 performance. Alternatively, change to hinge door with performance acoustic seals and 10mm thick glass.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 60% of floor area (minimum <math>R_w + C_p</math> 28) – 6mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings. Doors to be either 35mm thick solid timber core door with full perimeter acoustic seals. Glazed inserts to match the above. Sliding glass doors to be same performance including brush seals.</li> </ul>
	Opposite	No requirements
General	Any	<ul style="list-style-type: none"> <li>Walls (minimum <math>R_w + C_p</math> 50) – Two leaves of 90mm thick brick with minimum 50mm cavity. Cavity to include 24mm thick, 24kg/m<sup>3</sup> insulation and where wall ties are required, these are to be anti-vibration/resilient type.</li> <li>Roof and ceiling (minimum <math>R_w + C_p</math> 35) – Standard roof construction with 10mm plasterboard ceiling and minimum R2.5 insulation between ceiling joists.</li> <li>Eaves to be closed using 4mm compressed fibre cement sheet.</li> <li>Mechanical ventilation – refer Mechanical Ventilation Requirements below.</li> </ul>
Outdoor Living Area		<ul style="list-style-type: none"> <li>Boundary wall to be a minimum 2.4m high; or</li> <li>Located on the side of the building that is opposite to the corridor; or</li> <li>Located within alcove area so that the house shields it from the corridor.</li> </ul>

Package C: (more than 65dB LAeq (Day) and 60dB LAeq(Night)).		
Area	Orientation to Road Corridor	Noise Control Measures
Bedrooms	Facing	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_{tr}</math> 34) – 10.5mm thick VLam Hush glass in fixed sash, awning or casement opening with seals to openings.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_{tr}</math> 31) – 10mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.</li> </ul>
	Opposite	<ul style="list-style-type: none"> <li>Window systems: Glazing up to 40% of floor area (minimum <math>R_w + C_{tr}</math> 28) – 6mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.</li> </ul>
Other Habitable Rooms Including Kitchens	Facing	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 40% of floor area (minimum <math>R_w + C_{tr}</math> 31) – 10mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.  Doors to be either 40mm thick solid timber core door with full perimeter acoustic seals. Glazed inserts to match the above. Sliding glass doors to have laboratory certificate confirming <math>R_w + C_{tr}</math> 31 performance. Alternatively, change to hinge door with performance acoustic seals and 10mm thick glass.</li> </ul>
	Side	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 60% of floor area (minimum <math>R_w + C_{tr}</math> 31) – 10mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.  Doors to be either 35mm thick solid timber core door with full perimeter acoustic seals certified to <math>R_w</math> 30. Glazed inserts to match the above. Sliding glass doors to have laboratory certificate confirming <math>R_w + C_{tr}</math> 31 performance. Alternatively, change to hinge door with performance acoustic seals and 10mm thick glass.</li> </ul>
	Opposite	<ul style="list-style-type: none"> <li>Windows and external door systems: Glazing up to 60% of floor area (minimum <math>R_w + C_{tr}</math> 28) – 6mm thick glass (monolithic, toughened or laminated) in fixed sash, awning or casement opening with seals to openings.</li> </ul>
General	Any	<ul style="list-style-type: none"> <li>Walls (minimum <math>R_w + C_{tr}</math> 50) – Two leaves of 90mm thick brick with minimum 50mm cavity. Cavity to include 25mm thick, 24kg/m<sup>3</sup> insulation and where wall ties are required, these are to be anti-vibration/resilient type.</li> <li>Roof and ceiling (minimum <math>R_w + C_{tr}</math> 40) – Standard roof construction with 2 x 10mm plasterboard ceiling and minimum R3.0 insulation between ceiling joists.</li> <li>Eaves to be closed using 6mm compressed fibre cement sheet.</li> <li>Mechanical ventilation – refer Mechanical Ventilation Requirements below.</li> </ul>
Outdoor Living Areas		<ul style="list-style-type: none"> <li>Located on the side of the building that is opposite to the corridor; or</li> <li>Located within alcove area so that the house shields it from the corridor.</li> </ul>

NOTE: Any penetrations in a part of the building envelope must be acoustically treated so as to not downgrade the performance of the building envelope. Most penetrations in external walls such as pipes, cable or ducts can be sealed through caulking gaps with non-hardening mastic or suitable mortar.

#### Mechanical Ventilation Requirement

Natural ventilation must be provided in accordance with F4.6 and F4.7 of Volume One and 3.8.5.2 of Volume Two of the National Construction Code. Where the noise limit is *likely* to be exceeded, a mechanical ventilation system is usually required. Mechanical ventilation systems will need to comply with AS 1668.2 - *The use of mechanical ventilation and air-conditioning in buildings*.

In implementing the acceptable treatment packages, the following must be observed:

- Evaporative air conditioning systems will meet the requirements for Packages A and B provided attenuated air vents are provided in the ceiling space and designed so that windows do not need to be opened.
- Refrigerant based air conditioning systems need to be designed to achieve fresh air ventilation requirements.
- External openings (e.g. air inlets, vents) need to be positioning facing away from the transport corridor where practicable.
- Ductwork needs to be provided with adequate silencing to prevent noise intrusion.

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