



Phillips Marler - Noise Wall Experience & Considerations for Moss Vale Bypass Noise Wall

For Discussion

21st September 2023

Phillips Marler worked with TfNSW and the Ventia Boral Amey Joint Venture on the Noise Wall design and visual impact assessment for the Taren Point Public School Noise Wall. Concrete walls with playful colouring and patterns were added to the concrete panels to reflect the school and its pine trees. Small regular steps in the wall were strategically positioned to work with the slope, minimising the amount of earthworks required which allowed for the existing pine trees outside the wall to be retained which subsequently helped to set the new wall into the landscape.

As the rear side of the wall backed onto the school grounds, it allowed for the installation of a large mural featuring native birds and flora which has helped to deter graffiti.



Phillips Marler worked with TfNSW and the Ventia Boral Amey Joint Venture on Noise Wall design and visual impact assessment for the Taren Point Road and Old Taren Point Road Noise Wall. The layout was optimised by using a combination of panel widths to enable smooth panel transitions along the slope and allow posts to span over existing services. The panels were also cut to create a smooth top, emulating the ground line.

Patterns were routed into the wall that were inspired by the nearby Georges River and the surrounding strata. The panels were routed to a depth of 20mm giving the pattern more depth, colour variation and texture. A more intricate feature pattern was used on the first 60m of the wall while a simplified secondary pattern was used on the rest of the wall. New native trees planted in scattered groups were used to soften the transition between the patterns while improving the biodiversity and tree canopy in the road corridor.



Phillips Marler worked with TfNSW, the Ventia Boral Amey Joint Venture and GC Civil on Noise Wall design and visual impact assessment for The Taren Point Road and Old Taren Point Road Noise Wall. Panel lengths were optimised to enable the height of the wall to consistently step with the topography of the site. Acrylic panels were utilised on the top 1.5m of the wall sections adjacent to housing on Old Taren Point Road to minimise overshadowing while maximising noise reduction.

A pattern was recessed into the concrete panels with laser etching on the Acrylic panels ensuring a consistent visual theme along the entire alignment. The patterns were inspired by the aerial roots prevalent in the mangrove species located in the nearby shallows of Woollooware Bay and compliment the pattern on the existing noise wall in front of the Taren Point Public School located to the south of the subject site, creating a progressive series of visual events as road users drive past them in both northbound and southbound lanes.



Phillips Marler worked with TfNSW, the Ventia Boral Amey Joint Venture and SD Group on Noise Wall design and visual impact assessment for the Fairford Road Noise Wall in Bankstown. A combination of concrete and transparent Plexiglass panels at 4.5m above the ground line will be used to obtain maximum noise attenuation. Full height Plexiglass panels were used to retain existing and important entry points and sight lines for pedestrians at the northern end of the site and at the bus stop adjacent to an adjoining cul-de-sac.

Patterning on the concrete and plexiglass panels was inspired by local vegetation and complimented the rigid geometric patterns of the adjacent noise wall. The intricacy of the patterns were successful in deterring graffiti and vandalism.



1. Wall Composition

- Consider noise walls as three-dimensional sculptural objects that have two faces:
 - One seen fleetingly from the road corridor as a continuous linear object;
 - and the other viewed from the landscape as a permanent structure and from adjacent or nearby residents.
- Walls should be designed in the context of a precinct and as part of the character and visual experience of a corridor.
- Excessively long sections of noise wall on both sides of a road should be avoided.
- Noise walls should avoid blocking significant views of the surrounding area, both towards and from the corridor.
- They should be located and designed to avoid over-shadowing properties and also blocking sight lines for surveillance purposes.

2. Height & Vertical Alignment

- Where possible, avoid stepping in the wall.
 - If steps are required, ensure they are small and regular or organised in equal or controlled rhythms.
- Consider tapering the ends of the wall to either fit the wall into the adjacent landform or to create a wall termination that is not abrupt depending on the context.

3. Horizontal Alignments

- Walls close to the road should be parallel to the road alignment horizontally, as well as vertically.
- Varying the alignment of the wall at a micro scale to skirt around road structures and road furniture should be avoided.
- Noise walls adjacent to residences may be located on the property boundary (preferable with just a 300mm offset from the boundary and footings protruding into the public verge space), replacing existing fences.
 - They may otherwise be located in front of the property boundary, preserving the individual fences, but at a distance of at minimum 1m away from the property boundary, depending on wall length, to allow for maintenance.
- Noise wall design along a shared path or footpath should consider the human scale, not appear bulky and incorporate planting where possible.

4. Wall Posts & Panel Articulation

- Panel joints should line up and posts should be consistently spaced.

5. Materials & Finishes

- The mixing of different wall types and materials should be avoided where possible.
 - If required, this should be done architecturally, yet boldly.
 - Avoid small sections of different materials.
- **Concrete**
 - Great strength.
 - Allows flexibility in design.
- **Blocks and bricks**

- Adds local interest
- More suited to a domestic scale.

- **Lightweight (aerated) concrete e.g. Hebel**

- Cost-effective when used on a large scale.
- Allows flexibility in design.

- **Stone**

- Expensive.
- Adds character.
- Effective in highly sensitive, scenic or heritage environments.

- **Timber**

- Useful on a domestic scale, away from the road along property boundaries.
- Unobtrusive.
- Needs consideration with regard to durability, maintenance and fire damage.

- **Acrylic**

- Can be expensive.
- Only alternative if noise is to be mitigated and views retained.
- Glare, privacy and bird deterrence must be considered.

- The top section of a noise wall above say 2.5m from ground level should also be transparent to allow solar access to adjacent residential properties; this also helps to reduce visual bulk.
- Walls should be painted to reduce maintenance and enable graffiti to be painted over.

6. Colour

- Natural subdued colours should be used.
 - A natural concrete light grey can complement the road environment
 - A dark charcoal grey tends to complement the Australian bush
- There can be exceptions to enliven a corridor or signify a location.
- Avoid painted pictures and patterns
 - Difficult to maintain and draw attention to the wall.

7. Decoration

- Textures can deter graffiti and add interest.
 - Should be used sparingly.
 - Repetitive abstract patterns are preferable.
- ‘Art’ used solely as an additional adornment should be avoided.
 - Artistic input, where called for, should be integrated into the design process.

8. Planting

- Planting should be used in most circumstances to complement or screen the wall visually.
- It can be advantageous to communities to vertically ‘green’ an entire wall from behind.

9. Maintenance

- Durability, access for maintenance and cost-effective design and selection of materials for maintenance all need to be considered from the early stages of design.

Fitting into the Rural Context & Visual Scope

- The Noise Wall should reflect the natural surrounding conditions, responding to the existing character of the place as well as the existing vegetation communities that are present.
- Natural subdued colours should be applied to the panels.
- Due to the narrow space between the rear side of the Noise Wall alignment and the lot boundaries, planting in the adjacent gas easement and adjacent residential lots should be considered in order to screen the wall from adjacent residences and view corridors.



View of the Bypass corridor from Eloura Lane showing the approximate location of the Noise Wall.



View from the Bypass corridor showing the approximate proximity of the Noise Wall to residences on Napper Close.



Noise Wall on the Pacific Highway at Macksville. Colour has been used to integrate the wall into the surrounding landscape. Source: TfNSW



The Taren Point Public School Noise Wall utilises colour, new planting and existing vegetation to integrate into the landscape.

Vertical Alignments

- The noise wall should follow the topography of the Bypass corridor.
- Panels stepping at regular and equal intervals is preferred as this will simplify and reduce the number of shapes and panel sizes required.
- The ends of the wall should either taper out or end with a corner piece (dependant on topography and noise mitigation required) in order to avoid and abrupt ending.



The Taren Point Road Noise Wall steps at consistent heights and lengths to fit with the sites existing topography.



The Taren Point Road Noise Wall tapers into the embankment to give the appearance of a seamless finish.

Horizontal Alignments

- The Noise Walls should be parallel to the road alignment.
- When directly adjacent to residences, the Noise Wall should replace existing fences.
- Planting should be utilised between the Noise Wall and shared path to reduce bulk and scale of the wall from the perspective of pedestrians.
- Panel joints should line up and posts should be consistently spaced.



The Fairford Road Noise Wall runs parallel to the road and replaced fences on the property boundary. Landscape treatment was also offered to residents on the rear side of the wall.



Example of the residential facing side Noise Wall along the M5 where planting has been utilised between the wall and shared path to soften the appearance and scale of the wall. Source: Google StreetView.

Materials

- Precast concrete panels are preferable as they will provide high design flexibility, allowing for various heights lengths and thicknesses.
- Lightweight (aerated) concrete such as Hebel should be considered as it is more cost effective to cut to the exact shape of the topography if this is preferred to stepping between the panels.
- Acrylic tops to the Noise Wall should be considered where significant medium - long distance views in and out of the road corridor should be retained.



The Taren Point Road Noise Wall utilised pre-cast concrete panels of consistent height and length.



The Alford's Point Road Noise Wall utilised Hebel panels with the top panels cut to match the slope of the alignment.

Patterning & Textures

- Repetitive, simple, abstract patterns and/or textures should be used deter graffiti and add interest.



The Taren Point Road Noise Wall utilised a series of repeating patterns based on nearby mangrove communities engraved into the concrete panels.



The Fairford Road Noise Wall utilised a series of repeating patterns based on the locally occurring saltbush plant. The pattern extended onto the Acrylic above the pre-cast concrete panels.