E RETAINING WALL STRUCTURES

Introduction

The Preliminary Detailed Design contains one retaining wall which is seen from the main carriageways.

The design complies with the Scope of Works and Technical Criteria, in particular Appendix 15, Urban Design Performance and Design Requirements, Section 15.7 Road Structures Generally. Reference has also been made to the Roads and Maritime urban design document Beyond the Pavement (July 2009).

The following design principles for retaining walls are derived from the above references and the overall design objectives and strategies for the Design:

- Design and detail all retaining walls, including their texture, materials, finishes and colour, to be consistent with the overall urban and landscape design philosophy established for the project;
- Minimise the visual impact of retaining walls;
- Design retaining walls to be aesthetically pleasing for both road users and road neighbours;
- Design walls to be robust, durable and low maintenance so that they maintain an acceptable standard of appearance over time; and
- Design retaining walls to minimise the potential for graffiti attack.

Key urban design aspects of the proposed retaining walls are as follows:

- The wall uses precast concrete panels constructed from one panel design;
- The wall is natural concrete colour (to avoid consistency issues with pigmented concrete);
- Planting is maximised in front of retaining wall as far as possible;
- The top edge of the retaining wall achieves a continuous flowing line;
- The retaining wall has a capping with smooth flowing lines and drainage is hidden as far as possible;
- The horizontal alignment of the wall has been kept parallel to the adjoining edge of the carriageway as far as possible;
- Safety railings will be provided on top of the wall and integrated into the design; and
- The wall has simple plan layout without kinks and bends.

Changes Since 15%DCD

- Retaining walls RW01 to RW06 eliminated.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.

The location of the wall is shown on the retaining wall location plan (Refer to Figure E.1.1) and its characteristics are summarised in the following table:

Table E.1 Retaining Wall Locations and Characteristics

Wall Number	Approximate Station	Cut/Fill	Adjacent to	Facing / Viewed from	Maximum Height (approx.)	Length (approx.)	Structural Wall type	Finish
RW07	64km000	Cut	Northbound carriageway	Main carriageways	6.0m	175.0m	TBD	Concrete vertical ribbed pattern, natural colour

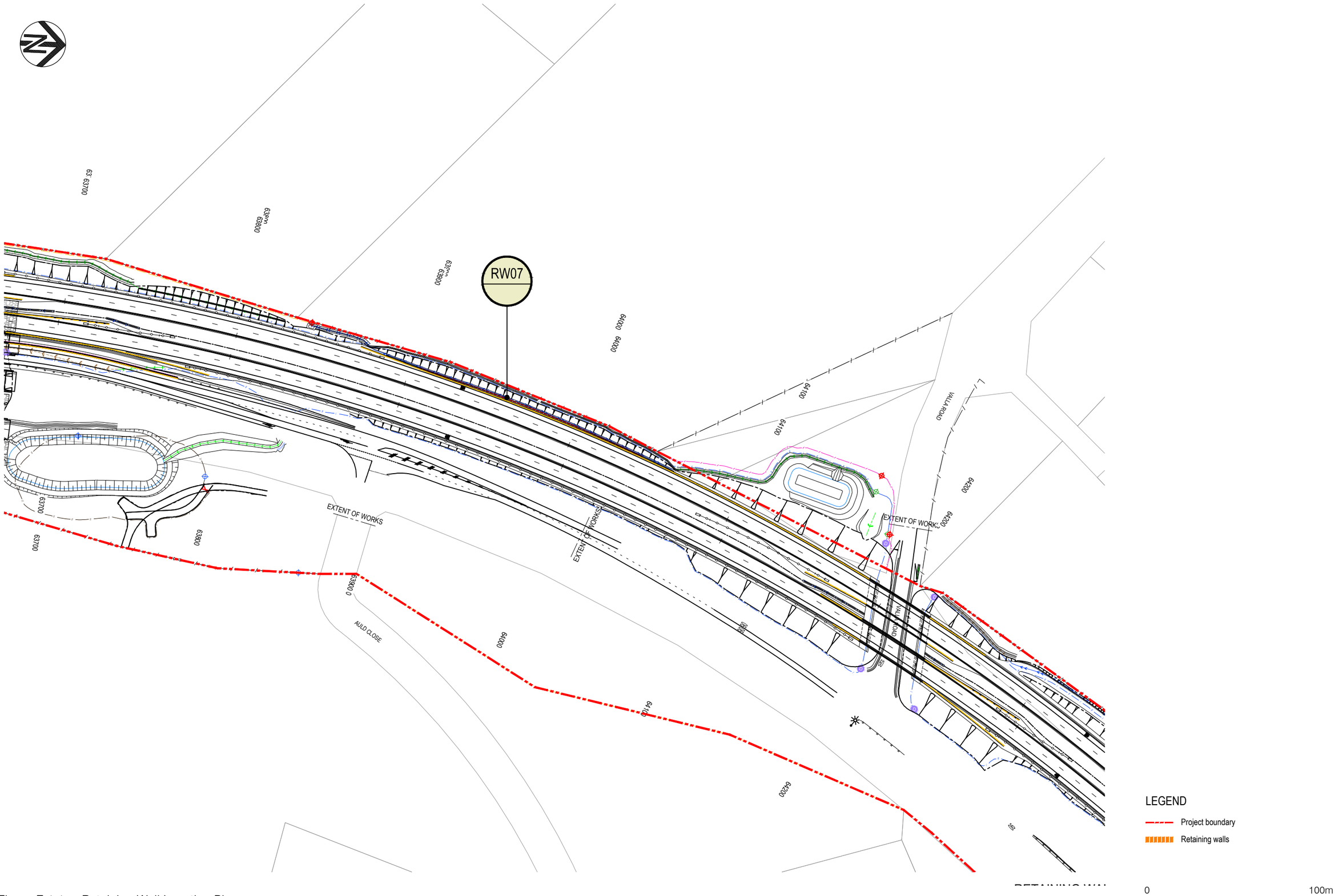
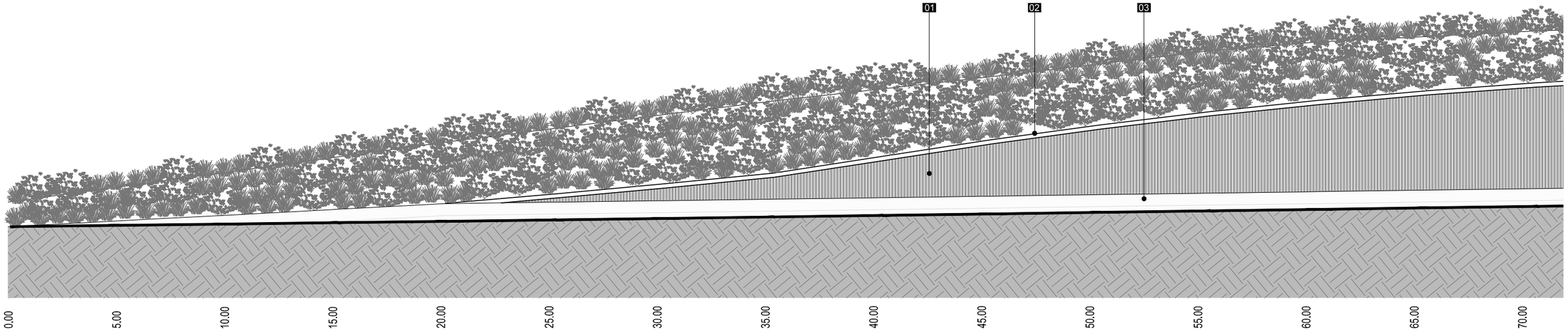
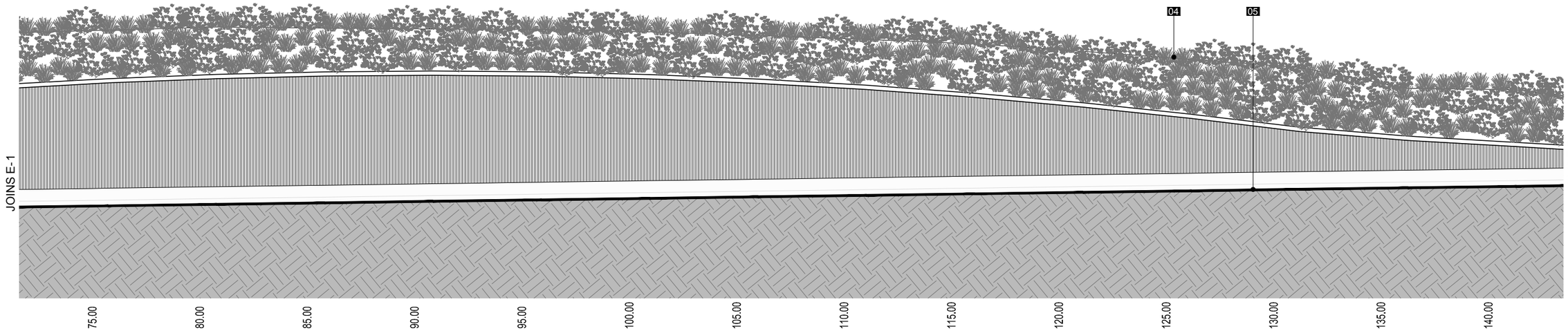


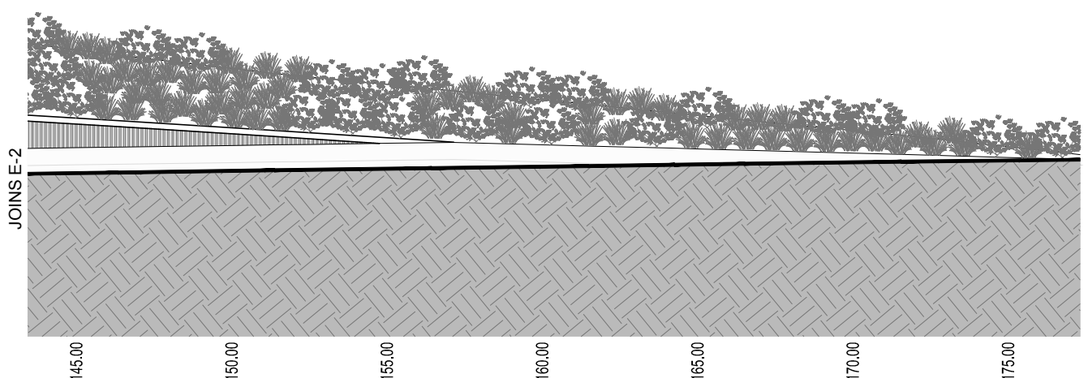
Figure E.1.1 Retaining Wall Location Plan



E-1 RW07 - ELEVATION 1 1:200



E-2 RW07 - ELEVATION 2 1:200

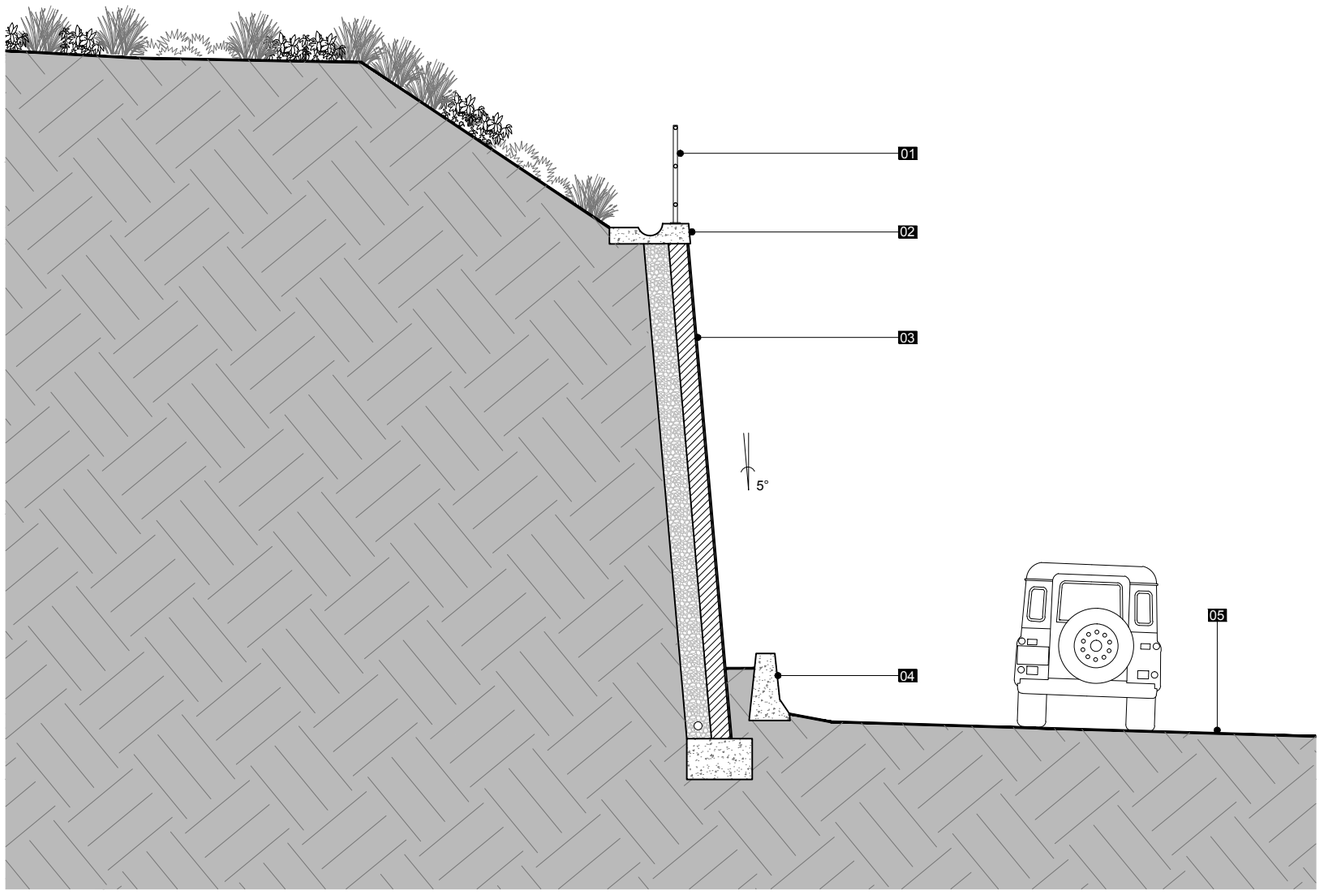


E-3 RW07 - ELEVATION 3 1:200

01 CONCRETE WALL WITH VERTICAL GROOVES
02 CONCRETE CAPPING BEAM
03 'F' TYPE CONCRETE BARRIER
04 EXISTING GROUND LEVEL AT BACK OF 1.5:1 SLOPE
05 ROAD LEVEL

0 10mm

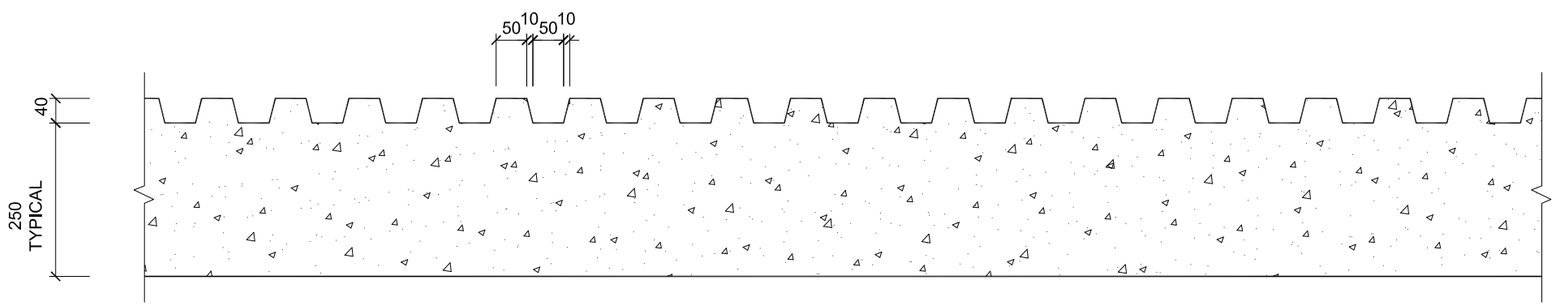
Figure E.1.2 Retaining Wall RW07: Elevations



01 1.2m HIGH SAFETY FENCE
02 CONCRETE CAPPING BEAM
03 CONCRETE WALL WITH VERTICAL GROOVES. REFER TO PLAN BELOW FOR DETAILS
04 'F' TYPE CONCRETE BARRIER
05 NORTHBOUND CARRIAGEWAY

RW07 - SECTION 1:75

0 3750mm



PLAN

0 250mm

Figure E.2.2 Wall RW07: Section

F REST AREA

F.1 REST AREA DESIGN

The Rest Area is located at the southern edge of the Deep Creek Floodplain and adjoins the Nambucca Interchange. With these two highway elements in close proximity it is important to provide an appropriate landscape response that gives this zone a character which is different from the rest of the alignment.

The existing environs of the rest area are a balance of cleared land with intermittent patches of bushland associated with creek and floodplain crossings set in an undulating topography.

The Interchange will signify the motorist's arrival at Nambucca Heads through the signature planting of advanced specimens of Hoop Pine. Hoop Pine is a striking tree often planted at north coast farmhouses to identify the house in the landscape, and is near the southern limit of its natural distribution at Nambucca Heads, hence Hoop Pine signifies to the northbound motorist a milestone in reaching the North Coast of NSW. Hoop Pine is also used in Rest Area planting at the perimeter to define the extent of the rest area.

From the highway, where the view of the rest area is unobstructed by landforming, native grasses only are used to provide a clear view of the Rest Area. This assists in orienting the motorist to its location and also to provide passive surveillance of the Rest Area.

Within the Rest Area a Couch grass lawn central picnic area is shaded with rainforest trees selected from the Mixed Floodplain Forest vegetation community (Refer to Planting Schedules Section H.3.7). Swales are planted with sedges selected from the freshwater Wetland vegetation community, capturing stormwater and improving its quality before it leaves the site. Larger depressed landscape areas are treated with a massed planting of rainforest trees and Cabbage Tree Palms to create a unique and restful setting.

The Driver Reviver Facility is located close to the car parking and level with the central picnic area (via a layback kerb) to reduce conflict between vehicles and pedestrians. Interpretive signage is located nearby, pointing out local features of significance to the traditional owners such as the Valla and Jagun Nature Reserves and the Nunguu Mirral Aboriginal Area (Picket Hill).

A 1200mm wide footpath connects car parking, driver reviver, picnic shelters and amenities. Footpaths also cross the vegetated swale separators or medians. The swales receive pavement stormwater runoff contributing to water quality and slowing the runoff before it leaves the rest area site. All footpaths have a level grade and can be accessed by ramps from the disabled parking bays.

Two potable water fountains have been incorporated into the design to provide drinking water. One water fountain is located near the car parking for convenient use and visibility, the other water fountain is located outside of the toilet block. The water fountain is constructed of stainless steel

The Rest Area accommodates trucks and light vehicles, providing facilities which include:

- Separate truck, stock truck, refrigerated truck, bus/trailer and light vehicle parking areas;
- Front to rear parking only in the truck, stock truck and refrigerated truck areas;
- Minimum truck travel lane widths of 6 metres and parallel truck parking bays in the truck parking area and stock truck and refrigerated truck parking area with minimum widths of 4 metres;
- 15 no. B-Double parking bays with minimum lengths of 30 metres each in the truck parking area;
- 12 no. stock/refrigerated truck parking bays with minimum lengths of 20 metres each in the stock/refrigerated truck parking area;
- 20 no. car parking bays with minimum lengths of 7 metres each and 8 no. car and trailer/bus parking bays with minimum lengths of 15 metres each in the light vehicle parking area;
- A layout developed generally in accordance with the typical cross section provided in Figure 17.1 of SWTC Appendix 17;
- A combined shoulder and verge with a minimum width of 1 metre in the parking areas;
- Landscape separation for noise and visual screening between the Main Carriageways and the rest area and between the truck , stock truck, refrigerated truck and light vehicle parking areas;
- A Couch grass lawn and landscaped picnic area with six sets of picnic shelters, including table and seating;
- Infrastructure for a 24 hour driver reviver facility rest area with lighting and mains power;
- A four cubicle unisex toilet block;
- Concrete paths with a min. width of 1.2m to service and provide access between all operational and functional areas in the rest area - paths are specified under "Rest Area Materials Schedule" in Section I;
- 12 no. garbage bins with warning signs and a minimum capacity of 200 litres each;
- Signposting that complies with Roads and Maritime Technical Direction 2003/RS01 - "Signposting of Rest Areas, Driver Reviver Sites and other Rest Stops";
- All other infrastructure necessary to provide for the safe and efficient operation of a truck and light vehicle rest area;
- Dedicated entry and exit to the rest area from the Nambucca Heads Interchange Western Roundabout in accordance with the requirements of Appendix 9 of the Scope of Works and Technical Criteria;
- Parking areas which are as level as possible, consistent with providing adequate drainage;
- Lighting of light vehicle parking areas that complies with AS/NZS 1158 Part 3.1;
- Low level vandal resistant personal security illumination sufficient to illuminate walkways from parking bays and picnic shelters to toilets that complies with AS/NZS 1158 Part 3.1; and
- Trees that provide suitable shade for users of the rest areas. Existing vegetation is retained where consistent with the functionality, safety and design requirements of the rest area.

The following Rest Area plans, sections, perspectives (Figures F.1.2 to F.1.6) provide further detail of the proposed rest areas. The Rest Area Materials Schedule is included under Road Furniture Section I.

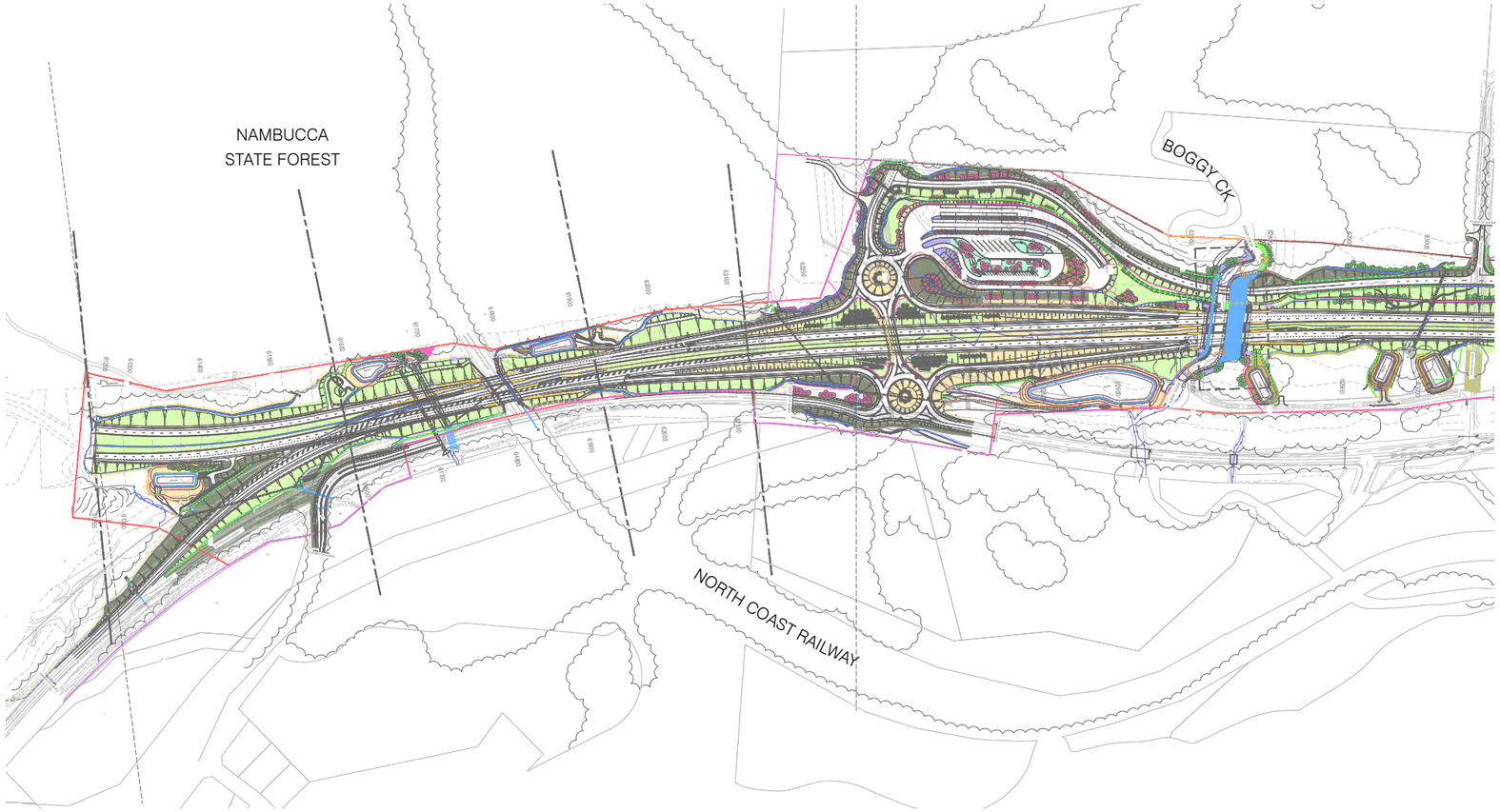


Figure F.1.1 Rest Area Location Plan

Not to scale

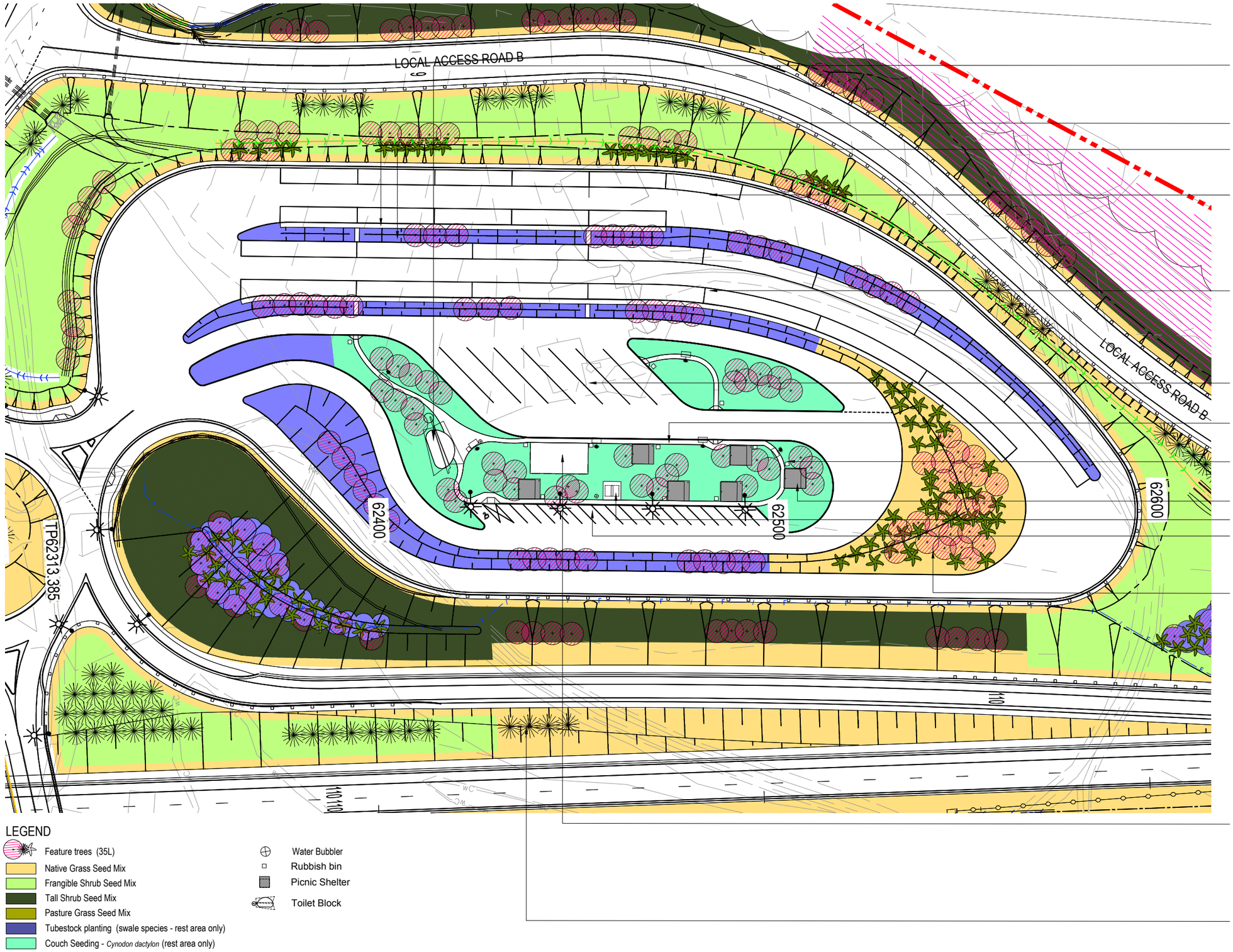
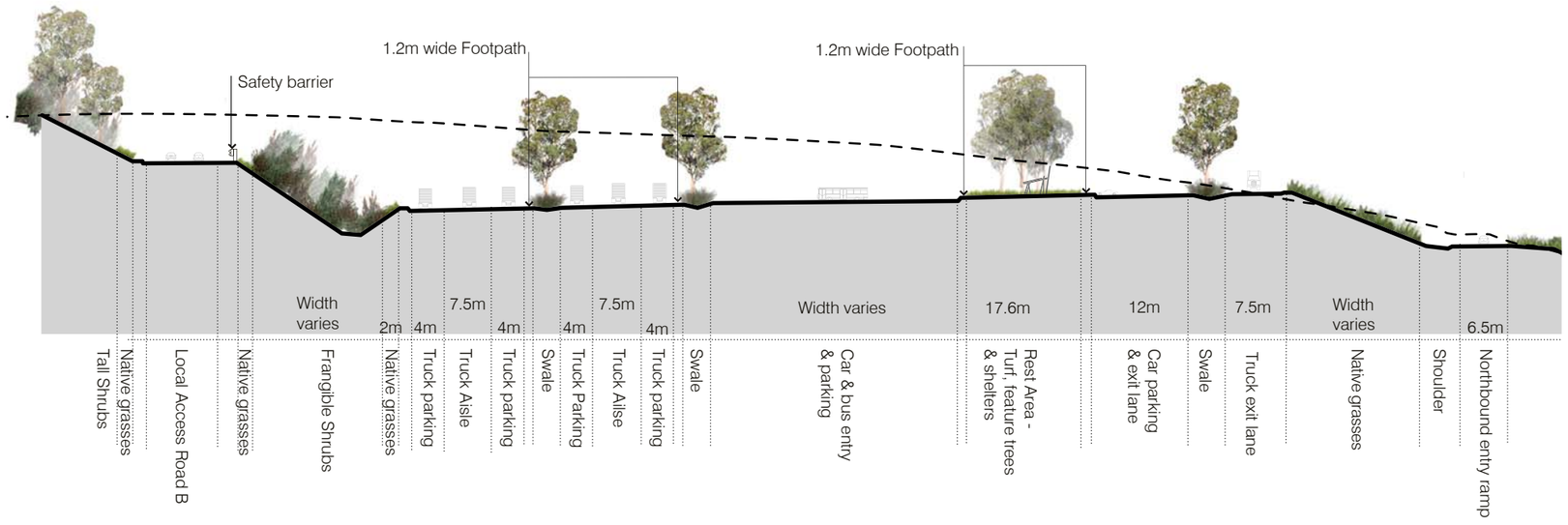
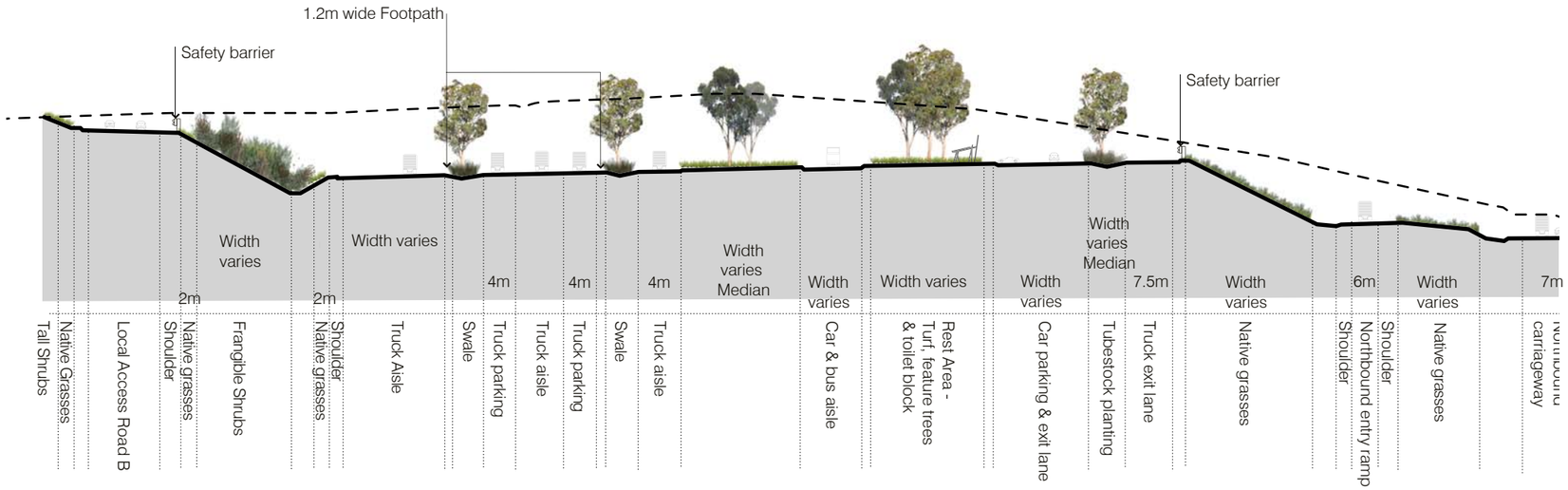


Figure F.1.2 Rest Area Plan



0 50m

Figure F.1.3 Rest Area Cross Section at Station 62km450



0 50m

Figure F.1.4 Rest Area Cross Section at Station 62km500

Figure F.1.5 Rest Area Photomontage 1

Figures F.1.6 Rest Area Photomontage 2

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