Pyrenees Highway Road Safety Works – Green Gully, Victoria

Preliminary Documentation (EPBC 2016/7809)

Prepared for Department of Environment and Energy on behalf of VicRoads

7 September 2017

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Document information

Report to:	VicRoads
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Biosis project no.:	24012

File name: 24012.VicRds.PyreneesHwy.Prelim.Docum.FIN02.20170907

Citation: Biosis 2017. Pyrenees Highway Road Safety Works – Green Gully, Victoria. Report for VicRoads. Authors: Gibson M & Stoot L, Biosis Pty Ltd, Melbourne. Project no. 24012

Document control

Version	Internal reviewer	Date issued
Draft version 01	DCG	08/06/2017
Final version 01	MSG	30/06/2017
Final version 02	MSG	07/09/2017

Acknowledgements

Biosis acknowledges the contribution of the following people and organisations in undertaking this study:

- Peter Woods and Kelly Wilson (VicRoads)
- Department of Environment, Land, Water and Planning for access to the Victorian Biodiversity Atlas and Native Vegetation Information Tools
- Department of the Environment and Energy for access to the Protected Matters Search Tool of the Australian Government

Biosis staff involved in this project were:

- Sonika Kumar (mapping)

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1. Introduction

Biosis Pty Ltd was commissioned by VicRoads to prepare the preliminary documentation that the Commonwealth Department of the Environment and Energy (DoEE) prescribed in relation to Referral 2016/7809 (Road Safety Works, Pyrenees Highway, Green Gully, Section 2 CH 10.90 – 15.00 km) (Figure 1).

The proposed works involve road safety improvement works on the Pyrenees Highway over approximately a 4.1 km section in Green Gully, central Victoria. On 17 January 2017 the proposed works were declared a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as they are considered likely to have a significant impact on the critically endangered Swift Parrot *Lathamus discolor*.

The Pyrenees Highway is a "B" class rural Highway. This road classification typically has two 3.3 metre sealed lanes and 2.0 m unsealed shoulders. This section of Highway is a 2-way 2-lane road with a posted speed limit of 90 km/hr to 100 km/hr. The vehicle traffic volumes along this section of the Pyrenees Highway is approximately 5,900 vehicles per day with 11% of the traffic being heavy vehicles. The terrain throughout the 4.1 km stretch is undulating with several curves, with either unsealed shoulders or sealed shoulders. There are numerous trees and drop offs in close proximity to the road pavement.

VicRoads was awarded Traffic Accident Commission (TAC) Project funding under the Safe System Road Infrastructure Program by the Victorian State Government in 2015-16 to complete road safety improvement works on the Pyrenees Highway (Sec 2) between road chainage 10.90 km and 15.00 km. Funding was granted based on the crash history and the need to address deficiencies and unprotected hazards throughout this section of highway. Four run-off road incidents were recorded within the project area between 2009 and 2013. All incidents involved vehicles colliding with trees. One of these resulted in a fatality and three in serious injury. The fatality occurred on a curve, with a drop-off and trees close to the road. Improvements and implementation of road safety treatments to this stretch of highway will benefit all road users and assist in reducing serious trauma.

An initial biodiversity assessment of the site was completed by Ecolink Consulting in August 2016. This assessment identified potential habitat for Swift Parrot. The action was referred to the Australian Government Minister for the Environment in 2016 (referral 2016/7809) to determine if approval was required under the EPBC Act.

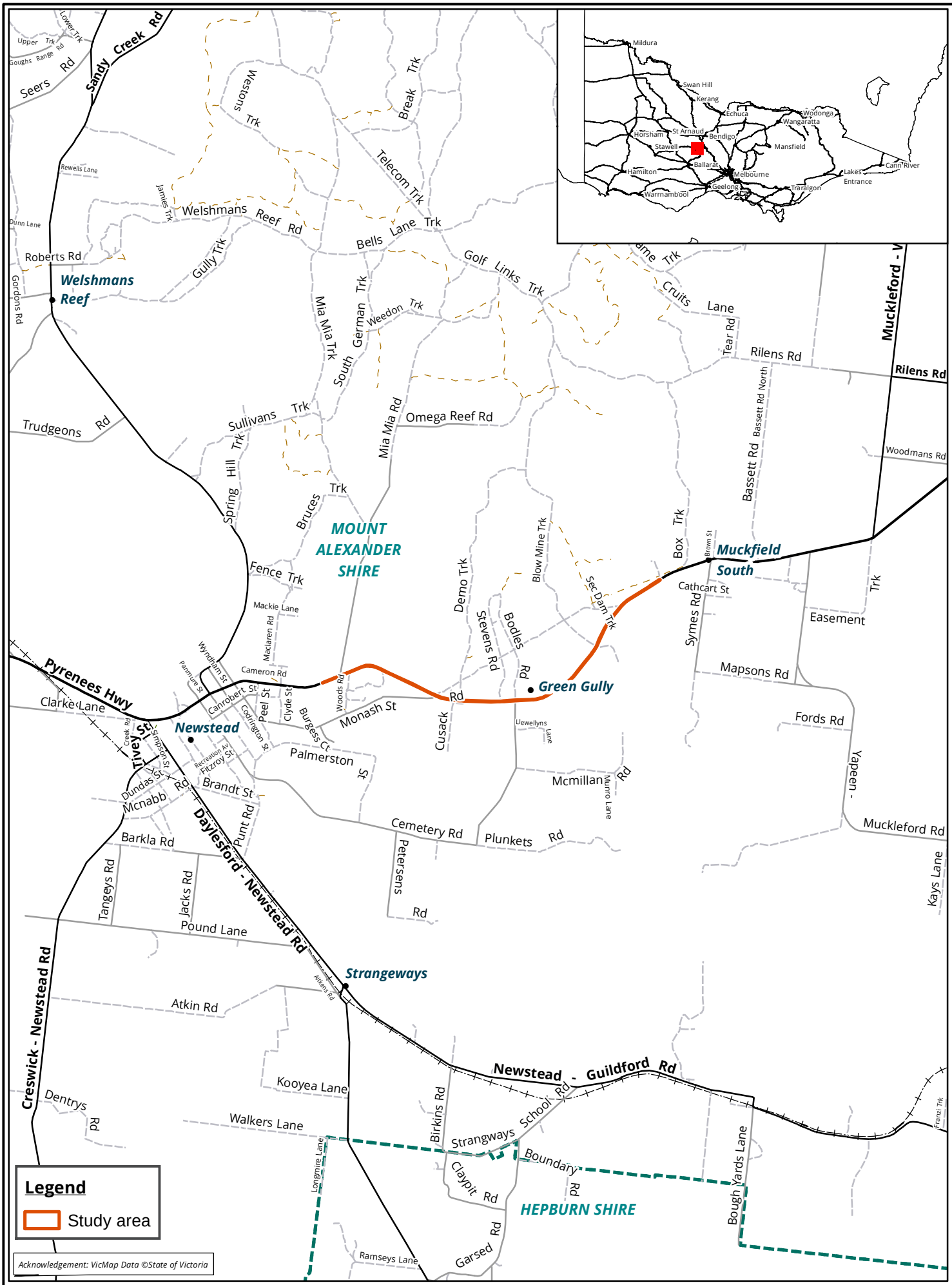

Figure 1: Location of the study area

Scale 1:50,000 @ A4, GDA 1994 MGA Zone 55

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2. Description of the Proposed Action

2.1 Location of works

The study area is located in the Mount Alexander Shire local government area, Victoria, approximately 1 km east of Newstead on the Pyrenees Highway between road chainage 10.90 and 15.00 km in Green Gully, Victoria. The proposed works area is entirely contained within the existing road reserve of the Pyrenees Highway. The road reserve bisects the southern end of the Muckleford State Forest, and Muckleford Nature Conservation Reserve is located approximately 4 km to the north. A number of small rural properties are located along the road, which are accessed by the Pyrenees Highway.

The road reserve has a total area of 20.67 hectares within the 4.1 km project area. Road safety works will be conducted within approximately 1.744 hectares of road formation and in part road reserve. The footprint of impact upon native vegetation is considerably smaller at 0.632 hectares.

Table 1 GPS Points of locations along the proposed works, Pyrenees Highway, Victoria.

Point	Latitude	Longitude
1	S37° 5' 49.747"	E144° 6' 51.869"
2	S37° 5' 56.566"	E144° 6' 37.318"
3	S37° 6' 22.083"	E144° 6' 13.901"
4	S37° 6' 27.698"	E144° 6' 1.959"
5	S37° 6' 26.396"	E144° 5' 20.763"
6	S37° 6' 14.760"	E144° 4' 51.056"
7	S37° 6' 21.068"	E144° 4' 27.868"

2.2 Proposed construction activities

The proposed safety works are designed to reduce the severity and occurrence of run-off road accidents through targeted road safety improvements to the highway between chainage 10.90 km and 15.00 km. The proposed safety works include:

- Installation of 23 safety barriers at various location throughout the project area with a mix of steel beam guard fences and wire rope safety barriers to be installed;
- Minor widening of the existing road formation and batter flattening;
- Tree and vegetation removal to enable road safety improvements;
- Sealing of road shoulders and side road bellmouths; and
- Extension of existing culverts.

All safety works will be undertaken in accordance with current Austroads and VicRoads Guidelines. The safety upgrades will provide benefits to the community and road users which include:

- wire rope safety and guard fence barrier installations to reduce the severity of any run off road crashes;
- removal or protection of identified fixed hazards in close proximity to the road pavement (i.e. trees, culverts and drop-offs next to the road) that cannot be protected with barrier treatments, such as guard fence or wire rope safety barrier; and
- improved safety through bellmouth sealing of unsealed intersections with the Pyrenees Highway and sealing the road shoulders at selected locations.

Pre-construction phase

All pre-construction activities have been completed, including iterative design improvements to minimise impacts to native vegetation while maximizing safety improvements. A contract for the construction is ready to be awarded, following the conclusion of the EPBC approval process. Works are planned to commence in mid to late October 2017.

Construction phase

Construction work will commence with tree and vegetation removal beginning in November 2017. Tree removal is expected to take two weeks. Vegetation and trees will only be removed if authorised / approved for removal for this Project.

During this time, other construction works which will include minor road widening, extension of existing culverts, shoulder sealing and the installation of safety barriers will be conducted in parallel. These construction works will continue for 16 weeks, with a planned completion by end of February 2018.

Operation phase

Once operational, requirements to maintain operation will be minimal. Maintenance of the road reserve and infrastructure, such as safety barriers, culverts and road surface will occur as required.

2.3 Operational requirements

Once road safety upgrades are complete, the operational requirements will be minimal. Maintenance of the road reserve and road infrastructure (i.e. safety barriers, culverts, road pavement and road furniture) will occur as required via an internal contract with the VicRoads Road Services division. Maintenance inspections and hazard reduction are completed on a routine basis, in accordance with the *Road Management Act 2004* (Vic) and VicRoads' Road Management Plan. As the Pyrenees Highway is defined as a Category 3 road, it is inspected weekly to identify hazards. Typical existing and on-going routine maintenance activities that occur annually or as required include:

- As identified through inspection, repair and maintenance of the existing or new infrastructure (i.e. repair of damaged safety barriers);
- Pre-fire season grass slashing will be conducted annually from the road edge to a maximum distance of 3 m behind the guide posts, as is practical;
- Vegetation regrowth will be managed annually around any barriers and road furniture (i.e. signs, guideposts) on the formation of the road. This is typical done via controlled herbicide application;

- Emergency management will be conducted as required (i.e. storm damage clean-up, management of dangerous trees, bushfire management etc);
- The road vegetation envelope will be controlled periodically to maintain clear space extending horizontally to 1.0m behind the guideposts and vertically for 4.5 to 5.5m; and
- Noxious weeds will be controlled in the road reserve, as required depending on weed species present.

2.4 Feasible alternatives

Proposed works are being completed for the purpose of a road safety upgrade. This 4.1 km section of the Pyrenees Highway has high crash statistics and large volumes of daily traffic. Therefore, due to the safety implications regarding these works, the alternatives of taking no action, or using an alternative location, time frame or activities are not plausible.

The project has been designed to minimise native vegetation removal while achieving the required safety benefits. The ability to further avoid or minimise native vegetation through barrier treatments in the study area is constrained by the existing road location, geometry and width of the road formation in relation to existing native vegetation. Placement of barriers is also constrained by the need to maintain access to residential and rural driveways. In such instances, there will be unavoidable impacts on adjoining vegetation.

VicRoads, through design and environmental assessment for this project, has designed all 23 barrier sections with significantly reduced offsets, ranging from 1.2 – 3.0 m from the existing edge of traffic lane to reduce the impact to native vegetation. The construction design specifies both safety barrier types, Steel Beam Guard Fences and the Wire Rope Safety Barriers, which use a desirable offset of 4.0 m from the edge of traffic lane to barrier, or an absolute minimum of 3.0 m. Both Guard Fences and the Wire Rope Safety Barriers have been shortened in length and the offset from the edge of traffic lane minimised. The current barrier design enabled the protection of an additional 10 large old trees (≥ 700 mm diameter) in comparison to the initial draft designs, which included the reduced barrier offsets.

By taking no action, 0.632 ha of native vegetation, which includes 159 trees (10 large old trees, 8 medium trees, 128 small trees and 13 stumps) would remain within the road reserve. These trees provide potential foraging habitat for Swift Parrot and other species for the short, medium and long-term. By not removing the proposed native vegetation, the proposed road safety upgrades cannot be installed and tree hazards will remain present. As this section of highway has recorded a high number of run-off road crashes, the implementation of road safety barriers and the removal of necessary vegetation will reduce road hazards throughout this section of the Pyrenees Highway and has the potential to reduce the frequency of serious injuries and fatalities.

3. Swift Parrot

3.1 Description of Swift Parrot *Lathamus discolor*

The Swift Parrot *Lathamus discolor* is a medium size, nectarivorous parrot that is endemic to Australia. It is identified by its bright green colouration with patches of yellow, red and blue located on its throat, chin, face and wings. They breed in Tasmania and overwinter in mainland Australia (Saunders and Tzaros 2011). Breeding occurs between September and April in Tasmania in a range of forest types (Higgins 1999). Once breeding is complete, they disperse from breeding areas, across Tasmania, and to mainland Australia (Higgins 1999). Birds arrive in Victoria as early as February and March, however most 'first' records for the year are from April (Higgins 1999). Most birds spend the winter in Victoria and New South Wales, but they are also known to extend as far north as Brisbane, although this is unusual (Higgins 1999). They disperse across broad landscapes, foraging on nectar, pollen and lerps in a variety of eucalypt species. (Saunders and Tzaros 2011). They return to Tasmania in August and September, with the largest number of 'returning' records from September (Higgins 1999).

Swift Parrots occur as a single population that is estimated to be approximately 1000 pairs which is most likely continuing to decline (Garnett et al. 2011; Saunders and Tzaros 2011). Swift Parrot is currently listed as 'Critically Endangered' under the EPBC Act and is also listed as a threatened species in all states and territories in which it occurs (New South Wales, Tasmania, Victoria, Queensland, ACT and South Australia).

Key factors contributing to their decline reported in the National Recovery Plan (Saunders and Tzaros 2011) include:

- Loss and alternation of habitat from forestry activities (firewood harvesting, residential clearing, agricultural and industrial developments)
- Attrition of old growth trees within agricultural landscapes
- Suppression of forest regeneration and fire
- Climate change
- Food and nest competition
- Flight collision hazards
- Psittacine beak and feather disease
- Illegal capture and trade.

More recently, Stojanovic et al. (2014) have reported that nest predation on adults, young and eggs by Sugar Glider *Petraurus breviceps* as an additional threat to Swift Parrots in Tasmania.

3.2 Resources used to identify and assess environmental values and impacts

Resources that have been used to assess and identify environmental impacts to the Swift Parrot, include the National Recovery Plan (Saunders and Tzaros 2011), the Threatened Species Scientific Committee Conservation Advice (2016), the Biodiversity Assessment and database searches of the Pyrenees Highway, Green Gully (Ecolink Consulting 2016) and the referral of proposed action 2016-7809. Full citations can be found in the References section. Maps were generated using records from the Victorian Biodiversity Atlas (DSE, 2010).

3.3 Known/recorded populations and potential habitat

Upon arrival to the mainland, Swift Parrot disperse throughout Victoria and New South Wales, foraging on flower and lerps from *Eucalyptus* spp. (Saunders and Tzaros 2011). Swift Parrots are found throughout eucalypt woodlands and forests located in Victoria and New South Wales. Previous studies evaluating the tree species in Box-Ironbark woodlands found that White Box *Eucalyptus albens* (19.5% of observations) was the preferred nectar for Swift Parrot. Additionally, Swift Parrots also forage upon a range of other species including Yellow Gum *Eucalyptus leucoxylon*, Yellow Box *Eucalyptus melliodora* and Grey Box *Eucalyptus microcarpa* (Higgins 1999), all of which are found within the study area. Swift Parrot prefer larger, mature trees as provide more reliable resources than younger trees (Wilson and Bennett 1999, Law et al. 2000; Kennedy and Overs 2001; Kennedy and Tzaros 2005).

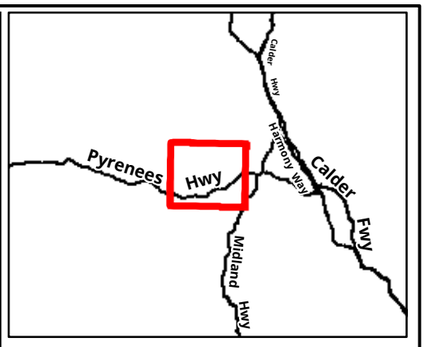
Habitat mapping has been conducted throughout the Box-ironbark forest regions in Victoria and identified 40 priority sites where Swift Parrot have a high level of site fidelity or occur in large flocks (Saunders et al. 2007). The Muckleford Historic and Cultural Reserve (currently gazetted as Muckleford Nature Conservation Reserve), has been identified as a Swift Parrot 'Priority Site' within the recovery plan (Saunders and Tzaros 2011). This reserve is located between 3 and 4 km to the north of the project area, and is surrounded by Muckleford State Forest, which adjoins the project area (Figure 2). The Muckleford area has particular importance for Swift Parrot as it is used by large proportions of the Swift Parrot population and is used repeatedly between seasons (Saunders and Tzaros 2011). The most recent records of Swift Parrot from the Victorian Biodiversity Atlas (VBA) occur in the Muckleford State Forest were recorded in 2008 and approximately 2 kms north of the Project area (refer to section 3.5.3 and Figure 2 of Ecolink Consulting Pty Ltd 2016).

The proposed works area currently supports moderate to high quality potential habitat for Swift Parrot. Although no records of Swift Parrot exist in the proposed project area, the species is assumed to make use of the area for foraging during the mainland migration period. The habitat can be characterised as open woodland, with relatively intact vegetation, mature trees, sparse understorey and low weed abundance. Much of the study area is surrounded by similar quality, or higher quality, habitat within the Muckleford State Forest.

3.4 Swift Parrot Habitat utilization

Trees within the road reserve consist of *Eucalyptus* spp. which include White Box, Yellow Gum, Yellow Box and Grey Box, which are preferred foraging habitat. Swift Parrot have not been recorded in the immediate proposed study area but have been recorded in Muckleford State Forest with the most recent record in the Victorian Biodiversity Atlas being from 2008.

The Muckleford region, situated adjacent to the study area, provides regular over-wintering foraging resources for this species and Muckleford Nature Conservation Reserve and adjoining Muckleford State Forest is identified as a priority site for the species while overwintering on mainland Australia (Saunders and Tzaros 2011). Regional habitat use throughout the mainland varies from year to year, based on tree flowering patterns and availability of other foraging resources (Kennedy and Overs 2001; Kennedy and Tzaros 2005; Saunders 2005; Saunders and Heinsohn 2008; Saunders and Tzaros 2011). Furthermore, seasonality including amount of rainfall and subtle temperature increase can influence timing and frequency of *Eucalyptus* spp. flowering which affects Swift Parrot habitat selection (Mac Nally et al. 2009). Throughout 2002 and 2009, increased numbers of Swift Parrot were recorded in coastal NSW due to low rainfall throughout Victoria (Saunders and Tzaros 2001).



Legend

- Study area
- Swift Parrot Records*

Public land

- Muckleford Nature Conservation Reserve
- Muckleford State Forest

* Swift Parrot records sourced from the Victorian Biodiversity Atlas and Birdlife Australia databases

Figure 2 Location of the project area, showing Swift Parrot records and surrounding habitat areas

0 400 800 1,200 1,600 2,000

Metres
Scale: 1:40,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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4. Relevant Impacts

The biodiversity assessment prepared by Ecolink Consulting (2016) was used primarily to make detailed assessments of the relevant impacts to the proposed Project works. Furthermore, the National Recovery Plan for Swift Parrot (Saunders and Tzaros 2011) and the Threatened Species Scientific Committee Conservation Advice for Swift Parrot (2016) was used to determine priority areas of the population and details of foraging habitat requirements and seasonal movement patterns. The Victorian Biodiversity Atlas and Birdlife Australia databases were used to determine the recorded distribution of Swift Parrot within and near the project area.

4.1 Potential impacts

Below is a summary of potential impacts to Swift Parrot resulting from the proposed action.

4.1.1 Direct loss of habitat

A decrease of foraging habitat throughout both Tasmania and mainland Australia is a major threat to the Swift Parrot. Land clearing for the development of plantations and native forest silviculture has greatly reduced the nesting and foraging habitat throughout most of the Swift Parrot's range (Prober and Thiele 1995; Saunders et al. 2007). Additional habitat loss has also resulted from clearing of land for residential, agricultural and industrial development (Wilson and Bennett 1999; Kennedy and Overs 2001; Kennedy and Tzaros 2005). Reduction of nesting habitat in Tasmania is of particular concern as competition with other hollow-nesting species increases with limited availability (Heinsohn et al. 2015; Stojanovic, D. unpublished data).

The habitat within the study area that would be affected by the proposed project works is moderate to high quality Box Ironbark Forest (EVC 61) and Alluvial Terraces Herb-rich Woodland (EVC 67) (Ecolink Consulting 2016). This habitat can be characterised as open woodland habitat, with relatively intact remnant vegetation, mature trees, sparse understorey and low weed abundance.

The proposed project will remove native vegetation including potentially suitable foraging habitat for Swift Parrot and would reduce the extent of the habitat by up to 0.632 ha, including 146 trees along a 4.1 km stretch of the Pyrenees Highway. The 146 trees comprise:

- 9 live Large Old Trees (≥ 700mm diameter), and one dead Large Old Tree;
- 8 Medium trees (≥ 520mm – 699mm diameter); and
- 128 Small trees (≤ 519mm diameter), including 6 already dead.

The area of the road reserve within the 4.1 km study area is approximately 20.67 hectares. Within this area, road safety improvement works will be undertaken in approximately 1.744 hectares of road formation and in part road reserve. The area of impact to native vegetation is 0.632 hectares.

Extensive areas of habitat are adjacent to the project area, including approximately 3,000 hectares within Muckleford State Forest (Figure 2) and 550 hectares within Muckleford Nature Conservation Reserve. Muckleford Nature Conservation Reserve is noted in the recovery plan (Saunders and Tzaros 2011) as a priority foraging site for Swift Parrot, due to high site fidelity and a large proportion of the Swift Parrot population being recorded throughout the area.

As the proposed impact area is very small in relation to the area of surrounding habitat, impacts to the population are expected to be negligible to low. Furthermore, only nine large trees (> 70cm DBH), which are preferred foraging habitat for Swift Parrot, are proposed for removal. Suitable foraging habitat will remain undisturbed throughout the surrounding Muckleford State Forest (approximately 3,000 ha), and in the

remainder of road reserve, both adjacent to and beyond the study area. The road reserve will retain many mature trees that are unaffected by the Project works. Additionally, natural regeneration within the road reserve (outside the limits of works) will continue, and it is expected that natural tree recruitment will effectively replace many of the impacted trees over time.

Construction works for this Project are proposed to occur while the entire population is in Tasmania, during the breeding season, thereby avoiding direct impact to individuals. As Swift Parrot breed exclusively in Tasmania, no impacts or disturbances to breeding will occur.

The project has been designed to minimise removal of trees, while maintaining the target safety improvement outcomes. The mitigation measures outlined in Section 5 and Appendix 1 (measures 1.1, 2.1, 2.2, 3.1 – 3.3, 6.1 – 6.4, 13.1 and 14.1 – 14.2) are focussed on limiting vegetation removal to the minimum possible, through strict compliance with the specified limits-of-works (Appendix 3).

4.1.2 Disturbance to foraging parrots during construction

Construction activity has potential to impact upon fauna populations through increased noise, vibration, artificial lighting, tree removal, vegetation disturbance and dust.

All construction work will be completed between November 2017 and February 2018 when the entire Swift Parrot population is in Tasmania. As they will not be present within the study area during this period, there will be no disturbance to individual Swift Parrots during construction works.

Key mitigation measures for addressing the aforementioned potential impacts during construction are detailed in Appendix 1 (measures 1.1, 6.3 – 6.4, 9.1, 10.1, 10.2 and 11.1).

4.1.3 Disturbance to foraging habitat through increase in weeds or pathogens

Five species listed as noxious under the *Catchment and Land Protection Act 1994* (Vic) were recorded within the study area (Ecolink Consulting Pty Ltd 2016). These included Blackberry *Rubus fruticosus* spp. ag. and St John's Wort *Hypericum perforatum* subsp. *veronense* which are 'Regionally Controlled' within the North Central Catchment Management Area (NCCMA). It also includes Montpellier Broom *Genista monspessulana*, English Broom *Cytisus scoparius* and Bridal Creeper *Asparagus asparagoides* which are listed as 'Restricted' within the NCCMA. Weed invasion has potential to impact upon Swift Parrot habitat through displacement of native flora species and interference to regeneration and recruitment of foraging trees. The level of this risk is assessed as low.

Phytophthora cinnamomi is a root rot fungus that may selectively impact upon native flora if introduced to a site during wet conditions. The project area is not in a climatic zone, or vegetation type that is highly susceptible to infection by this pathogen. As a result, the level of this risk is assessed as negligible/low.

Key mitigation measures for addressing potential impacts to foraging habitat through increase in weeds and pathogens are detailed in Appendix 1 (measures 1.1, 8.1 and 14.2).

4.1.4 Disturbance to foraging habitat by fire

There is a low risk of unintentional fire resulting from ignition during works. Should this occur, there is potential for impact upon woodland vegetation within the road reserve, resulting in an indirect impact to Swift Parrot foraging habitat. In addition to this there is risk of fire from a range of other sources in this landscape, unrelated to the road safety project.

Key mitigation measures for addressing potential impacts to foraging habitat unintentional fire are detailed in Appendix 1 (measures 1.1 and 7.1).

4.1.5 Disturbance to foraging habitat by soil erosion and sediment pollution

Soil erosion and movement of sediment from the construction area into adjacent native vegetation and waterways has potential to impact upon native vegetation outside the limits of works. The risk of soil erosion or sediment movement impacting upon Swift Parrot is assessed as low.

Key mitigation measures for addressing potential impacts to foraging habitat through soil erosion or sediment movement are detailed in Appendix 1 (measures 1.1, 9.1, 13.1 and 14.1).

4.1.6 Disturbance to foraging habitat by contamination by chemical spills

Spills of chemicals, including fuel, into adjacent native vegetation and waterways has potential to impact upon native vegetation outside the limits of works. The risk of soil erosion or sediment movement impacting upon Swift Parrot is assessed as low.

Key mitigation measures for addressing potential impacts to foraging habitat through contamination by chemical spills are detailed in Appendix 1 (measures 1.1 and 12.1).

4.2 Local, regional and national scale analysis of the likely impacts

Local

Within the local area, the impacts to the Swift Parrot population through direct removal of habitat will be minimal, as the proposed works will remove 0.623 ha of native vegetation, including 146 trees (see Sec 4.1.1). However, the project is likely to reduce the area of occupancy of the species, on a negligible-small scale and impact roosting and foraging habitat for the species by removing potential foraging trees within the species range close to a listed priority area (Muckleford State Forest and Muckelford Nature Conservation Reserve). These actions will also contribute to cumulative impacts on the species, which is identified as a threatening process for the Swift Parrot as part of the National Recovery Plan (Saunders and Tzaros 2011).

Despite this, the magnitude of the impact is small and will leave large amounts of higher quality, habitat within the Muckleford State Forest that is immediately adjacent to the study area undisturbed.

Regional and National

Swift Parrots are known to disperse widely throughout south-eastern Australia while overwintering on the mainland. The species forages through south-eastern South Australia, most of southern and eastern Victoria, and coastal areas and the western slopes of the Great Dividing Range within New South Wales and south-eastern Queensland.

The proposed works will have a negligible impact to Swift Parrot on the regional and national scale. Although the proposed works are within 3 km of a priority site (Saunders and Tzaros 2011), removal of 0.632 ha of native vegetation is negligible compared to the extent of mainland overwintering foraging habitat available.

4.3 Impacts likely to be unknown, unpredictable or irreversible

All impacts to the Swift Parrot population have been accounted for the proposed works and are discussed in Section 4 and Appendix 1. All unknown or unpredictable impacts will be managed through the mitigation measures outlined in Appendix 1, which will be implemented via a Construction Environmental Management Plan for the project.

The removal of 0.632 ha of native vegetation, including 146 trees (139 live trees and seven dead trees), represents a reduction in the area of foraging habitat in Victoria (refer to Section 4.1). Compensatory offsets will be provided for this residual impact, as required by the EPBC Act Offset Policy (refer to Section 6).

4.4 Summary of impacts

This section provides an assessment of the potential impact to Swift Parrot, with reference to relevant significant impact criteria from the National Recovery Plan (Saunders and Tzaros 2011) and the Significant Impact Guidelines (DSEPaC 2013).

Relevant significant impact criteria are:

- **The clearance of foraging and roosting habitat adjacent to priority foraging sites, which includes Muckleford Historic and Cultural Reserve**.
  The extent of habitat clearance is described in section 4.1.1. The project involves removal of 0.632 ha of potential habitat, and this residual impact will be offset as required by the EPBC offsets policy. The project area is located within 3k m of the Muckleford Historic and Cultural Reserve (now gazetted as the Muckleford Nature Conservation Reserve), and is surrounded by Muckleford State Forest, which also contains important Swift Parrot Habitat. The extent of removal of habitat for the project is, however, very minor in relation to the amount of habitat within the local area and surrounding region. The project footprint will be undertaken within a small proportion of the road reserve, and the remainder of the road reserve will continue to provide habitat, including numerous large old trees.
- **Lead to a long-term decrease in the size of a population.**
  The proposed works are unlikely to lead to a long-term decrease in the size of the population because the works do not impact upon breeding resources for the parrot and removes only a small amount of foraging habitat from an area that supports a large quantity of higher quality habitat.
- **Impact thresholds relating to removal of potential foraging habitat:**
  - Reduce the area of occupancy of the species;
  - Adversely affect habitat critical to the survival of a species; and
  - Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

  The proposed works involve the removal of 0.632 ha of foraging habitat that may be occupied by the Swift Parrot on occasion. This vegetation removal will occur in a landscape where foraging habitat is abundant, including within the remainder of the road reserve, and the adjacent Muckleford State Forest and Muckleford Nature Conservation Reserve. Vegetation outside the project Limits of Works will not be impacted by the works.
- **Result in invasive species that are harmful to a critically endangered species becoming established in the critically endangered species' habitat.**
  Potential impacts to habitat by weed or pathogen invasion is addressed in Section 4.1.3. Without mitigation measures there is a low risk of weeds or pathogens impacting upon Swift Parrot habitat within or adjacent to the works area. A range of mitigation measures are proposed to further reduce the risk.

5. Proposed Avoidance and Mitigation Measures

A comprehensive range of mitigation measures have been developed to manage environmental impacts related to the proposed road safety upgrade works, including impacts to Swift Parrot habitat. A detailed list of proposed measures is provided in Appendix 1, and summarised in this section.

Appendix 1 provides a tabulation of proposed mitigation measures, including the following information:

- The project phase (pre-construction, construction and post-construction);
- Details of the proposed measures;
- Details of how the proposed measures relate to risk to Swift Parrot, and the level of residual risk following implementation of the measure;
- Performance objectives and target outcome;
- Relevant construction contract clauses, which ensure the measures are incorporated into the contractor's environmental management plan (CEMP) and construction activities. The corresponding general and specific contract clauses are provided in Appendix 2; and
- Relevant Commonwealth and Victorian legislation.

5.1 Responsibility

VicRoads will have ultimate responsibility for meeting performance criteria in accordance with the environmental objectives and mitigation measures (detailed in Appendix 1), including satisfying requirements for monitoring, reporting and should any incidents occur ensuring they are addressed and appropriate corrective actions are taken in a timely manner.

The principal construction contractor will be responsible for ensuring that specified performance criteria are met on a day-to-day basis.

5.2 Statutory or policy basis

Appendix 1 outlines the statutory or policy basis for the proposed avoidance, management and mitigation measures. Relevant legislation includes:

- *Environment Protection Biodiversity Conservation Act* 1999 (Comm);
- *Aboriginal Heritage Act* 2006 (Vic);
- *Catchment & Land Protection Act* 1994 (Vic);
- *Environment Protection Act* 1970 (Vic);
- *Flora & Fauna Guarantee Act* 1988 (Vic);
- *Planning & Environment Act* 1987 (Vic);
- *Wildlife Act* 1975 (Vic); and
- *Victorian Country Fire Act* 1958 and Regulations (Vic).

5.3 Mitigation measures and target outcomes

Detailed mitigation measures are provided in Appendix 1, and the corresponding contract clauses, through which the mitigation measures will be implemented, are provided in Appendix 2. A summary is provided in Table 2. The mitigation measure numbers correspond with the numbers used in Appendix 1 (i.e. #1 refers to "performance objective" 1 and "mitigation measure" 1.1 in this Appendix).

Table 2 Summary of risks and mitigation measures

Relevant impact	Mitigation measures	Target outcome
Pre-construction phase		
Direct loss of Swift Parrot foraging habitat	Minimise project footprint through design (#3). Provide offsets (#5) in accordance with the Act Environmental Offsets Policy.	Residual impact to 0.6322 hectares of potential habitat. Offset provided in accordance with EPBC Act (2012) *Environmental Offsets Policy*
Direct loss of Swift Parrot foraging habitat beyond the approved limits of works	Preparation of CEMP (#1). Pre-works start induction and training (#2). Surveillance plan (#4).	No removal of native vegetation beyond that authorised for removal within the project Limits of Works.
Construction phase		
Disturbance to Swift Parrot foraging habitat beyond the approved Limits of Works	Implement and monitor compliance with CEMP and defined Limits of Works (#6).	No removal or disturbance of native vegetation beyond that authorised for removal within the project Limits of Works.
Disturbance to foraging Swift Parrots during construction	Construction activity to be undertaken during spring and summer (November 2017 to February 2017) while Swift parrots are in Tasmania (#6 and #10).	No disturbance to foraging Swift Parrots during construction.
Disturbance to Swift Parrot habitat by pests, weeds and pathogens	Protocols for prevention of weed and pathogen spread to be specified in the CEMP (#8), including treatment of existing weeds prior to ground disturbance, equipment cleaning procedures, reuse of topsoil and no movement of topsoil between work zones.	No disturbance to native vegetation beyond that authorised for removal within the project Limits of Works. No establishment of high threat weeds or soil pathogens within the work area or in adjoining Muckelford State Forest.
Disturbance to Swift Parrot habitat beyond the approved limits of	Procedures for managing fire risk to be specified in the CEMP (#7).	No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works.

Relevant impact	Mitigation measures	Target outcome
works by accidental fire ignition		No disturbance to Swift Parrot foraging habitat adjoining the project Limits of Works.
Disturbance to Swift Parrot habitat beyond the approved limits of works by surface runoff, erosion or sedimentation	Protocols for management of stormwater, drainage, sedimentation and erosion to be specified in the CEMP (#9).	No removal or disturbance to native vegetation beyond that authorised for removal within the project Limits of Works.
Disturbance to Swift Parrot foraging during construction works by Noise, Light, Air pollution, & Dust generation	Construction activity to be undertaken during spring and summer (November 2017 to February 2017) while Swift parrots are in Tasmania (#10). Protocols for management of light, noise, air pollution and dust generation to be specified in the CEMP (#10 and #11).	No disturbance to foraging Swift Parrots during construction
Disturbance to Swift Parrot habitat beyond the approved limits of works by chemical or fuel spills	Procedures for chemical and fuel storage, handling and spill response to be specified in the CEMP (#12).	No disturbance to native vegetation beyond that authorised for removal within the project Limits of Works.
Post-construction phase		
Disturbance to Swift Parrot habitat beyond the approved limits of works from site reinstatement works.	The CEMP will include protocols for site rehabilitation and reinstatement (#14), including weed monitoring.	No disturbance to native vegetation beyond that authorised for removal within the project Limits of Works.

5.4 Exclusion and buffer zones

The project "Limits of Works" is set out at each works site in Table 2 of the Contract and marked on a set of the contract drawings (plans). This table and marked contract drawings identify the works zones (within the Limits of Works) and areas that are No Go Zones (outside of the Limits of Works) that must be complied with for the duration of the Contracted works. A copy of this table and marked contract drawing is attached in Appendix 3 of this report.

Under the Contract, the establishment of the project worksite Limits of Works (No Go Zones) is a Contract Hold Point. This Hold Point can only be released enabling native vegetation removal and construction activities to commence once the Limits of Works have been established and delineated in accordance with the Contract

specification to VicRoads satisfaction per the Limits of Works table as shown on Appendix 3. These requirement are also established in the VicRoads Contract Surveillance Plan for site inspection and monitoring.

VicRoads will ensure that:

- Prior to commencement of any works, a project site induction(s) for the Contractor and VicRoads staff is completed. This induction will include communication about the Project approvals / permits conditions, contract environmental requirements, authorised native vegetation / tree removal clearances, fauna management, defined "Limits of Works' for authorised native vegetation removal and 'No Go Zones';
- Prior to commencement of any works, the Limits of Works (No Go Zones) (e.g. native vegetation adjoin works footprint) are established and clearly marked with as a minimum, wooden stakes with flagging tape / and or rope bunting. A joint inspection by VicRoads Project management staff, Contractor representatives and Surveillance staff will not let work commence until the Limits of Works have been established and delineated in accordance with the Contract specification.;
- Construction activities, including vehicle / Plant parking, turn around points or temporary storage areas, do not occur outside the Limits of Works (i.e. enter No Go Zones);
- Construction activities are surveilled through onsite inspection to ensure that construction impacts do not extend beyond the established Limits of Works; and
- Regular inspection of the Limits of Works, barriers and other environmental controls, including silt traps, compounds etc. carried out and recorded in the Surveillance Plan.

5.5 Proposed rehabilitation

All work under the Contract will require the rehabilitation of affected areas. Topsoil and organic mulch from within each construction zone section of works will be retained and reused to rehabilitate each works zone affected area. This will ensure that existing topsoil seed bank is used in site rehabilitation.

Topsoil from each construction zone area will not be spread or shared between works zones.

Any re-seeding works is subject to VicRoads approval before this activity can commence and requires that any grass seed used is consistent with the existing native vegetation values of the works site(s).

Any seeding with exotic grasses is restricted to only using sterile rye grass to provide a top cover for site erosion protection where required.

5.6 Expected achievability and effectiveness of avoidance and mitigation measures

Swift Parrot will be the only MNES affected by the proposed works. The impact upon habitat has been avoided and minimised through the design process to achieve a balance between the impact and the effectiveness of the works in improving safety for road users.

The proposed management and mitigation measures will limit impacts to Swift Parrot foraging habitat to the minimum extent (defined by the approved Limits of Works and authorised native vegetation removal) required for the project to achieve the required safety outcomes.

All mitigation, monitoring and management measures proposed in this document and throughout Appendix 1 and 2, have be designed to be achievable throughout the duration of this project, and have been used by VicRoads and their contractors in numerous similar projects. The mitigation measures are achievable, and

construction contracts include clauses to ensure compliance with environmental management requirements of the contract.

5.7 Monitoring and independent auditing

VicRoads will undertake monitoring and surveillance during the project works to ensure compliance with mitigation measures (Appendix 1) and the conditions of Contract, as per standard VicRoads contract management procedures.

There are several hold points, requiring satisfactory demonstration of compliance before further work can be undertaken by a contractor. At each hold point, the site will be inspected by the surveillance officer, VicRoads project engineer and an environmental representative, contractors representative and an independent ecologist (as required).

Key hold points relating to environmental management are:

1. Preparation of a comprehensive Construction Environmental Management Plan (CEMP and Site Environmental Management Plan) by the contractor.
2. Establishment and marking of the project Limits of Works.
3. Marking of trees for removal.

The VicRoads surveillance officer will undertake regular inspections of the worksite to ensure no works, or vegetation disturbance, are conducted beyond the approved Limits of Works.

The contractors CEMP will also include procedures for day to day monitoring by the contractor to ensure compliance with approval conditions and conditions of Contract (see Appendix 1 and 2).

6. Residual impacts and proposed offsets

The proposed road safety improvement project will result in removal of 0.632 ha of Swift Parrot Foraging habitat, which includes nine live large old trees (≥ 700mm diameter), eight medium trees (≥ 520mm – 699mm diameter) and 128 small trees (≤ 519mm diameter). The vegetation removal will occur within three kilometres of a known Swift Parrot Priority foraging site (Muckleford Nature Conservation Reserve).

6.1.1 Description of offset site

A number of potential offsets sites have been assessed for suitability to provide the required offsets for the residual impacts. One suitable site has been selected and the characteristics of this site are summarised below. Table 3 presents a summary of the suitability of the site, with reference to the location, vegetation types, Swift Parrot habitat and site area.

Location

The site is located near the locality of Deep Lead, approximately 10 km north-west of Stawell in western Victoria (Figure 3). The site adjoins Deep Lead Nature Conservation reserve (NCR), separated by the railway line. Deep Lead NCR is listed as a priority site for conservation of Swift Parrot habitat within the Swift Parrot Recovery Plan (Saunders and Tzaros 2011). There are no database records of Swift Parrot within the site, but there are numerous records within Deep Lead NCR and other nearby habitat, within two kilometres of the site.

Habitat description

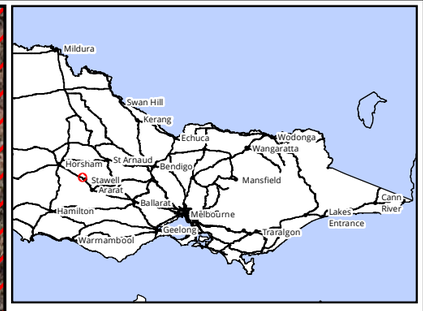
The site is located within the Goldfields Bioregion, and contains a mosaic of Shallow Sands Woodland (EVC 882) and Plains Sedgy Woodland (EVC 283) dominated by Yellow Gum *Eucalyptus leucoxylon*, Yellow Box *Eucalyptus melliodora* and Grey Box *Eucalyptus microcarpa*.

All eucalypt species present within the site are considered key Swift Parrot foraging tree species within Victoria (Saunders and Tzaros 2011). There are no database records (Victorian Biodiversity Atlas and BirdLife Australia databases) of Swift Parrot within the site, however there are several Victorian Biodiversity Atlas records to the east within Deep Lead NCR (shown on Figure 3), and in nearby reserves including Lonsdale NCR and Illawarra NCR.

The site has a sparse mid-storey of shrubs, including Golden Wattle *Acacia pycnantha* and Spreading Wattle *Acacia genistifolia*. The ground layer supports a diverse range of shrubs including Gold-dust Wattle *Acacia acinacea*, Cranberry Heath *Astroloma humifusum*, Flame Heath *Astroloma conostephioides* and Common Eutaxia *Eutaxia microphylla*, herbs including Cotton Fireweed *Senecio quadridentatus*, Fuzzy New Holland Daisy *Vittadina cuneata* and Sheep's Burr *Acaena echinata*, and graminoid species including Black-anther Flax-lily *Dianella admixta*, Common Wheat-grass *Anthosachne scabra*, Wattle Mat-rush *Lomandra filiformis*, Small Mat-rush *Lomandra sororia*, Common Rapier-sedge *Lepidosperma filiforme*, Tall Sedge *Carex apressa*, Knob Sedge *Carex inversa*, Grey Tussock-grass *Poa sieberiana*, Wallaby Grasses *Rytidosperma* spp. and Spear Grasses *Austrostipa* spp.

An assessment of tree density and species composition was undertaken within the site, including GPS mapping of all large old trees (over 70cm DBH) and assessment of tree the size (DBH) and species of all trees within three 20x20m sub-plots. The proposed offset area includes 22 large old Yellow Gum trees, one large old Yellow Box tree and one large old Grey Box tree. Based on the three sub-plots, approximately 93% of trees within the site are Yellow Gum, with Grey Box making up the remaining seven percent. Yellow Box was recorded within the site but not within the sub-plots.

Corner point	Eastings	Northings
1	652497.7842	5903069.731
2	652633.7884	5903128.213
3	652506.8055	5903401.111
4	652356.2471	5903343.402
5	652420.7467	5903212.704
6	652454.9907	5903224.578
7	652482.7827	5903161.333
8	652455.0618	5903150.459



Legend

- Proposed Offset Area
- Parcel boundary
- Deep Lead Nature Conservation Reserve Boundary
- Large old trees

Old Glenorchy Rd

WESTERN SG LINE

Ballast Lane

Western Hwy

Red Hill Rd

Cross St

Acknowledgements: State Government of Victoria - VicMap - Nearmap

Figure 3 Proposed Deep Lead offset site

0 30 60 90 120 150

Metres
Scale: 1:3,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

N

Biosis Pty Ltd
Ballarat, Brisbane, Canberra, Hobart, Melbourne, Newcastle, Sydney, Wangaratta & Wollongong

Matter: 24012,
Date: 30 June 2017,
Checked by: MSG, Drawn by: SSK, Last edited by: skumar
Location:P:\24000s\24012\Mapping\24012_F3_Proposed_Offset.mxd

Total tree density across the site is assessed as 3,900 trees per hectare, based data from the three sub-plots. The site supports a range of tree size classes, with seedlings (diameter of 1 cm or less) representing 51% of trees, and small trees 1-20cm DBH representing 42%. The density of trees with a DBH of over 20cm is estimated to be 250 trees per hectare. Large tree density (based on the GPS mapping of all large trees within the offset area) is estimated to be 5.3 per hectare.

Table 3 Summary of offset site suitability

Site feature	Impact site	Proposed offset site
Bioregion	Goldfields	Goldfields
Site area	Impact area 0.6322 hectares.	Proposed offset area 4.5 hectares.
Ecological Vegetation Class (EVC)	Box Ironbark Forest (EVC 61) and Alluvial Terraces Herb-rich Woodland (EVC 67).	Shallow Sands Woodland / Plains Sedgy Woodland Mosaic (EVC 711).
Swift Parrot foraging habitat	Removal of key foraging tree species Grey Box, Yellow Gum and Yellow Box. Removal of other tree species - Red Box *Eucalyptus polyanthemos* and River Red-gum *Eucalyptus camaldulensis*.	Site supports key foraging tree species Yellow Gum, Yellow Box and Grey Box.
Large old trees	Project will impact upon nine large old trees (as defined within EVC benchmarks).	24 large old trees (> 70 cm DBH) were recorded within the 4.5 ha site, which equates to 5.3 per hectare.
Swift Parrot records	Not recorded within the project area, but known to occur in nearby habitat. Victorian Biodiversity Atlas records within nearby Muckleford State Forest and Muckleford NCR (Figure 2).	Not recorded within the proposed offset site, but known to occur in nearby habitat. Victorian Biodiversity Atlas records within Deep Lead NCR (Figure 3).
Proximity to priority foraging areas	Project area within 3 km of priority foraging site Muckleford NCR and adjacent to Muckleford State forest.	Site adjoins priority foraging site Deep Lead NCR.
Proposed legal protection mechanism	N/A	Trust for Nature Covenant.

Site condition

The site has been subject to past disturbance for gold mining, with numerous old mine shafts scattered throughout the site, and areas of excavated ground with little topsoil present. The site is also likely to have been recently grazed, which may have impacted upon the understorey, in particular recruitment within the medium and large shrub layer.

The site is in moderate condition, having a relatively well developed overstorey, presence of large old trees and most understorey life forms present. There is strong recruitment of canopy species, and most other woody species were observed to be recruiting. The quality of the habitat for Swift Parrot foraging is considered moderate-high, due to the dominance of preferred foraging tree species, the mixture of age classes, the presence of large trees and the close proximity of other key foraging areas (within 500m of Deep Lead NCR).

Weed cover is general low throughout the site (approximately 10% cover). A range of introduced species are present, including Panic Veldt-grass *Ehrharta erecta* var. *erecta*, Common Centaury *Centaurium erythraea*, Bridal Creeper *Asparagus asparagoides*, Common Sow-thistle *Sonchus oleraceus*, Stinkwort *Dittrichia graveolens*, Onion Grass *Romulea rosea* and Cleavers *Galium aparine*.

There are also signs of old rabbit warrens within the site.

Current permitted land uses

The property is zoned Rural Living Zone (RLZ-Schedule 2) within the Northern Grampians Shire Planning Scheme. The purpose of the RLZ is to allow for residential use in a rural environment, and to allow for some agricultural uses. Further subdivision of the land is subject to a minimum lot size of eight hectares. The property is also subject to the Bushfire Management Overlay, which imposes additional condition on the design and approval of new buildings including the provision to provide defendable space.

Within Victoria, removal of native vegetation is controlled under Clause 52.17 of the Victoria Planning Provisions. Some removal of native vegetation is currently permitted (exempt from a planning permit requirement – See Clause 52.17-7) to the minimum extent possible, for activities including:

- Removal of dead vegetation.
- Removal of vegetation for construction of a boundary fence.
- Mowing of understorey grass vegetation to a height of 100 mm above ground level.
- Grazing by domestic stock.
- Timber harvesting of 'reasonable amounts' for personal use, including firewood and construction of fences or buildings.
- Pruning of up to 1/3 of the foliage of individual plants.
- Treatment of pest animal burrows or weed infestations.
- Stone exploration or extraction.
- Fire protection, including periodic fuel reduction burning or construction of firebreaks and fire fighting access tracks.

Removal of native vegetation within the site may also require approval via the EPBC Act, for impacts to Matters of National Environmental Significance including Swift Parrot. There are no existing buildings within the property in which the proposed offset area is located.

Existing offset arrangements

The proposed offset area has not been used for the provision of any other offsets, either under the EPBC offsetting policy or for provision of offsets under Victorian policy, including the Biodiversity Assessment Guidelines or the Net Gain Framework.

Other sections of the property contain Matters of National Environmental Significance, including populations of threatened flora - Spiny Rice-flower *Pimelea spinescens* and Large-fruit Fireweed *Senecio macrocarpus*. These sections may be subject to separate, future offset arrangements for other projects.

6.1.2 Assessment of offset site using Department's Offset Assessment Guide

A preliminary offset calculation has been undertaken using the EPBC Act Offset Assessment Guide spreadsheet. The input parameters and results of this calculation are summarised in Table 4.

A conservative set of parameters have been specified. The provision of a six hectare offset area results in a direct offset of over 200% of the impact.

Table 4 Offset assessment guide calculations

Parameter	Value	Notes
Impact to Swift Parrot habitat		
Area of impact	0.63	Total area (hectares) of direct foraging habitat loss
Quality	5	Scale of 0 – 10. Habitat hectare score (from the Ecolink biodiversity assessment) has been used as a surrogate for site quality. Habitat scores of impacted areas ranged from 0.37 to 0.61.
Total quantum of impact	0.32	
Offset calculations – Deep Lead offset site		
Offset area	4.5	Hectares
Time until ecological benefit	5	Years
Time over which loss is averted	20	Years
Start quality	6	Scale of 0 – 10.
Future quality without offset	5	Potential for decline in quality through weed invasion and grazing, which is currently allowable within the property according to current planning controls.
Further quality with offset	7	Gradual improvement in condition of overstorey (foraging habitat) and understorey
Risk of loss (%) without offset	25%	Potential for partial permitted clearance of the site, including timber harvesting for firewood collection. Other permitted

Parameter	Value	Notes
		uses, including grazing would continue to decline the habitat condition.
Risk of loss (%) with offset	10%	Low risk of temporary loss of foraging habitat following wildfire.
Confidence in results	80%	
% of impact offset	155%	Exceeds minimum of 90% direct offset

6.1.3 EPBC Act Environmental Offsets Policy

The EPBC Act Environmental Offsets Policy specifies a range of offset principles to guide the development of strategies to offset for residual impacts. These principles, and a description of the way in which this offset strategy complies, are presented in Table 5.

Table 5 EPBC Act offset principles

#	Offset principle Suitable offset must:	Response
1	Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.	The offset proposal includes securing and managing an area of suitable foraging habitat, with key species favoured by Swift Parrot, within close proximity (< 500m) of an identified priority foraging area (Deep Lead NCR).
2	Be built around direct offsets but may include other compensatory measures.	The offset proposal includes direct offsets only.
3	Be in proportion to the level of statutory protection that applies to the protected matter.	The offset proposal is informed by the EPBC offsets calculator, which takes the level of statutory protection into account. Existing permitted uses of the site are discussed above.
4	Be of a size and scale proportionate to the residual impacts on the protected matter.	The offset proposal is informed by the EPBC offsets calculator, which calculates offset areas in relation to impact areas.
5	Effectively account for and manage the risks of the offset not succeeding.	This risk factor is also a component of the offset calculations, and risk will be managed through the management plan for offset site.
6	Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.	Management actions specified in the management plan for the site will be in addition to current legislative requirements, including foregoing currently permitted uses

#	Offset principle Suitable offset must:	Response
		and additional weed control, pest animal control and management of tree recruitment.
7	Be efficient, effective, timely, transparent, scientifically robust and reasonable.	Management of the site will be guided by the offset management plan (to be developed), and enforced through the Trust for Nature Covenanting process.
8	Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	The management plan will be enforced through the Trust for Nature Covenanting process and any conditions applied through the EPBC approval process.

6.1.4 Offset site management and monitoring

A 10 year plan of management of the site will be detailed within an Offset Management Plan (to be developed). Key elements of the plan will be to maintain and improve the existing condition of the site, to manage pest plants and animal populations, and to prevent outbreaks of high threat weeds. The management plan will need to consider compatibility of management within other parts of the property, outside of the offset area.

The eucalypt canopy of Yellow Gum, Yellow Box and Grey Box provide suitable foraging habitat for Swift Parrot, and there is potential for the quality of the canopy to improve over time, including the gradual development of larger trees.

Key management actions:

- Establish legal protection – Trust for Nature Covenant.
- Mark the boundaries of the offset area with appropriate signage.
- Exclude livestock, and maintain fences in a condition that prevents entry of neighbouring livestock.
- Prohibit firewood collection, including cutting of live standing trees, dead standing trees or fallen timber.
- Undertake an adaptive management approach to manage weeds, including monitoring, elimination of woody weeds and targeted removal of non-woody weeds.
- Undertake an adaptive management approach to managing pests, including monitoring of rabbits, removal of all active rabbit warrens and periodic fox control.
- Monitor condition of the tree canopy, including tree recruitment and size class distribution. Ecological thinning may be considered to encourage canopy growth in some parts of the site.
- Undertake an adaptive management approach to understorey management, including monitoring of shrub recruitment and, if necessary, supplementary planting of mid storey species such as Golden Wattle *Acacia pycnantha*, Black Wattle *Acacia mearnsii* and Silver Wattle *Acacia dealbata*.

- Monitor compliance with management actions and progress towards targets set in the Offset Management Plan. Monitoring frequency will be specified within the offset management plan. This may include monitoring actions in years 1, 3, 5, 7 and 10.

7. Other Approvals, Compliance requirements and Conditions

The proposed action (project works) will be undertaken within the context of the following Victorian State or Commonwealth legislative approvals and / or compliance requirements as outlined.

7.1 Approvals required by State or Commonwealth

7.1.1 *Flora and Fauna Guarantee Act* 1988 (Victoria)

The Project works requires the removal of protected flora species, which have legal protection under the *Flora and Fauna Guarantee Act 1988* (FFG), as follows:

Protected plant Families and Genera impacted by the project works are limited to the following:

Members of the Acacia genera:

- Golden Wattle *Acacia pycnantha* (209 individuals)
- Gold-dust Wattle *Acacia acinacea* (84 individuals)
- Spreading Wattle *Acacia genistifolia* (12 individuals)

Members of Family Asteraceae:

- Shiny Everlasting *Xerochrysum viscosum* (494 individuals)
- Drooping Cassinia *Cassinia arcuata* (338 individuals)
- Cotton Fireweed *Senecio quadridentatus* (6 individuals)

Removal of the above listed FFG Act (1998) protected flora species are covered by Permit number 10007409, expires 31st December 2017, which is a Statewide blanket permit issued by DELWP for minor improvement and road safety treatment works to VicRoads. A copy of this Permit and conditions contained within is attached in Appendix 4.

7.1.2 *Planning and Environment Act* 1987 (Victoria) - DELWP Memorandum of Understanding

A planning permit under the *Planning and Environment Act* 1987 for the proposed native vegetation removal will not be required from the Shire of Mount Alexander Council, as the road safety works are to be undertaken in accordance with the Memorandum of Understanding (MOU) between the Department of Economic Development, Jobs, Transport and Resources (formerly the Department of Transport) and the Department of Environment, Land, Water and Planning (formerly the Department of Sustainability and Environment) as detailed in VicRoads (2009) *Native Vegetation Removal Guidelines*, under Clause 52.17-7 of the Victorian State Planning provisions. This Clause permits VicRoads to clear native vegetation without a planning permit under the "Road Safety" exemption subject to the operation of the Memorandum of Understanding (MOU) and the VicRoads guidelines to ensure the 'safe and efficient function of an existing public road' (VicRoads 2009, p. 6).

VicRoads in accordance with the requirements of the MOU had jointly met and inspected the Project with DELWP representatives to discuss and clarify the projected works and native vegetation removal impacts.

Project documentation detailing the proposed native vegetation removal was submitted to the DELWP (Loddon Mallee Region) under the MOU on the 3 December 2016 and approved on the 27 March 2017 (refer to Appendix 4).

7.2 Additional compliance requirements

7.2.1 *Catchment and Land Protection Act* 1994 (Victoria)

The *Catchment and Land Protection Act 1994 (*CaLP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under the CaLP Act, landowners have a responsibility to avoid causing or contributing to land degradation. This Act lists the species that are considered weeds and pest animals. It is a requirement of this Act that land managers have the responsibility to take all reasonable steps to prevent the growth and spread of declared noxious weeds on their land.

Five species recorded within the proposed study area are listed as noxious under the CaLP Act; Blackberry, St John's Wort, Montpellier Broom, English Broom and Bridal Creeper.

Weed management protocols for the project works will be included in the approved Construction Environmental Management Plan (refer to Appendix 1 and 2), which will be prepared for the proposed works.

7.2.2 *Wildlife Act* 1987 (Victoria)

Victoria's *Wildlife Act 1975* (Vic) and the *Wildlife Regulations 2002* (Vic) protect all indigenous vertebrate fauna, some non-indigenous vertebrate fauna, and some invertebrate fauna listed as 'threatened' under the FFG Act. The *Wildlife Act 1975* (Vic) prevents intentional injury to wildlife, and stipulates that a licence should be granted where there is a possibility that wildlife are injured, or where wildlife is to be kept, relocated or traded.

It is likely that some native fauna species will be displaced by the proposed works. This is likely to include some birds and/or arboreal and aerial mammals that will be impacted by the removal of trees that provide them with refuges (such as flaking bark) and hollows. Therefore in the interests of animal welfare, a Fauna / Wildlife Management Protocol/ Plan has been prepared for this Project, which will be utilised to manage any wildlife encountered during the proposed tree removal works by VicRoads (Appendix 5).

7.2.3 *Environment Protection Act* 1970 (Victoria)

The Environmental Protection Authority (EPA) is a statutory body established under the *Victorian Environment Protection Act 1970*. The EPA administers this Act, which sets out the legal framework by which environmental objectives, goals and regulations are established through the State of Victoria for industry, commerce and the general public.

The Act is outcome oriented, with a basic philosophy of preventing pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them.

A key aim of the Act includes sustainable use and holistic management of the environment.

The Act establishes the powers, duties and functions of the EPA. These include the administration of the Act and any regulations and orders made pursuant to it, recommending State Environment Protection Policies (SEPPs) and Industrial Waste Management Policies (IWMPs) to the Governor in Council, issuing works approvals, licences, permits, clean-up notices, pollution abatement notices and implementing National Environment Protection Measures (NEPMs).

VicRoads as a Contract requirement for this project to ensure compliance with the EPA 1970, requires as a performance objective that any Contractor minimises the risk of soil erosion and sediment pollution of the site, adjacent land, and waterways, by defining and implementing erosion and sediment controls measures as part of its construction environmental management plan (CEMP). Any control measures are required to be developed with reference (but not limited) to the Environment Protection Authority's publications including EPA Publication No. 960 '*Doing it Right on Subdivisions*', EPA Publication No. 275 '*Construction Techniques for Sediment Pollution Control*', EPA Publication No. 480 *'Environmental Guidelines for Major Construction Sites'* and the International Erosion Control Association *'Best Practice Erosion and Sediment Control'* (IECA, 2008*)*.

Erosion and sediment control protocols and performance requirements for the project works will be included in the approved Construction Environmental Management Plan (refer to Appendix 1 and 2), which will be prepared for the proposed works.

7.3 Monitoring, enforcement and procedure reviews

VicRoads under Contract management conducts regular or intensive surveillance / audits depending on the level of risk identified for a particular environmental or construction activity, including permit / or approvals condition compliance. Environmental risks and construction activities will be monitored for compliance during the course of Project works.

VicRoads monitoring includes the ability to stop works and to issue Non Conformance's / Corrective Action Requests where a non-compliance is occurring during the course of a Contract (i.e. Construction Environmental Management Plan, limits of works, contract compliance).

Within the Contract specification for this Project, there is also a Contract damage clause specified in Clause 200.2 (Appendix 3) that enables VicRoads in the event that any existing native vegetation to be retained is removed or damaged by the Contractor during the works, to apply damages at specified rate(s) and if applied are deducted from the Contract Sum (see Appendix 2).

If a Non Conformance / Corrective Action Request is issued during Contract works, VicRoads requires a formal written response from the Contractor to address any non-compliances identified and a requirement to outline corrective action(s) taken and action(s) taken to prevent recurrence of any non-compliance.

In the event of an environmental incident, Contract specification Clause Section 176.K2 "*Environmental Incident*" stipulates VicRoads processes that must be followed, which includes notification of the relevant responsible authorities in the event of an incident.

8. Social and Economic

8.1 Public Consultation

Consultation with key stakeholders for this project has been undertaken in accordance with VicRoads internal process.

Community Consultation

VicRoads undertook extensive consultation with the local community located within the broader Newstead and Castlemaine area, Central Victoria. This included an evening Public Consultation Meeting held on Thursday, 3 March 2016 in the township of Newstead.

This community meeting included invitations being extended to local residents directly affected by the works, community groups, Landcare groups, Mount Alexander Shire staff and other interested parties. This meeting was also advertised throughout the local community.

At this consultation meeting, VicRoads provided informative material on the reasoning of the project, associate effects and project timing to attendees. Feedback was collected via "Feedback Sheets" using direct email or letter contact. All requests for follow up correspondence or face-to-face meetings were held with concerned parties. All feedback has been dealt with and a project update provided to all attendees, including answers to queries. The majority of the attendees were supportive of the project to improve road safety. Liaison with the Newstead Landcare Group has resulted in VicRoads agreeing to provide removed tree trunks from the Project works as habitat to various planting sites and conducting native tree planting at the Newstead rotunda.

One of the major queries received from this Community meeting was why a speed reduction would not be a better solution within the Project area. VicRoads provided feedback in regard to this query that based on modelling, a speed reduction will not reduce the number of casualty and fatal accidents.

Indigenous Stakeholder Consultation

The study area is located within the boundaries of the area of the Dja Dja Wurrung Clans Aboriginal Corporation, who are the Registered Aboriginal Party (RAP). VicRoads engaged Dr Vincent Clark and Associates to undertake an assessment of the project section length and proposed works footprint. The findings concluded that the road reserve within the area of proposed works has already been subjected to significant ground disturbance as a result of past land use. The proposed works are not considered to be in an area of Aboriginal cultural heritage sensitivity and the proposed works will occur largely within the existing footprint of the road and associated road infrastructure. Therefore the activity is not expected to have any impact on Aboriginal cultural heritage.

No project approvals were required under the Aboriginal Heritage Act 2006 (Vic) and the Aboriginal Heritage Regulations 2007 (Vic).

Based on the assessment findings, consultation with the Dja Dja Wurrung Clans Aboriginal Corporation was not required for the Project.

Agency Consultation

VicRoads has also met and discussed the Project with staff from the Department of Environment, Land, Water and Planning (DELWP – Loddon Mallee Region). This meeting occurred on the 5 August 2015 and was followed by an onsite inspection of proposed works and native vegetation impacts with a DELWP Senior Biodiversity

Officer on the 19 April 2016. Approval was sought from the DELWP on the 3 December 2016 for the proposed native vegetation removal for this Project under the operation of the Memorandum of Understanding (MOU) and the "Road Safety" exemption under the Victorian Planning Provisions. The DELWP approved the proposed native vegetation removal under the MOU on the 27 March 2017 (see Appendix 4).

VicRoads has also liaised with Heritage Victoria on matters pertaining to potential historical heritage. However, no heritage matters were identified as being affected by the Project.

8.2 Costs and benefits of the Project

Costs

VicRoads estimates the total proposed costs of the project to be $1,811,000.00. VicRoads has already spent extensive funds on the initial biodiversity assessment, design and business case development associated with the proposed works.

Local and regional benefits

The proposed road safety upgrades, including the removal of native vegetation in addition to the installation of barrier to the Pyrenees Highway, would alleviate road hazards and reduce to both the number and severity of run-off road type accidents.

Approximately 5,900 vehicles travel this section of the Pyrenees Highway daily. The removal and or protection of road safety hazards (e.g. drop-offs, culverts, hazardous trees) as well as the installation of road safety barriers and other targeted road safety treatments will minimise road hazards and reduce the number and severity of run-off road type accidents on the Project section length.

The calculated cost-benefit ratio over a 5 year period would equate to 1:3.8. In addition to the aforementioned community road safety benefits, the reduction in run-off road crashes will also minimise the resources that are utilised each time a crash occurs for services such as police support, ambulatory care, repair works etc.

National benefits

This proposed project aims to target the local and regional level, and benefits are to be seen at this scale.

9. Environmental Record of VicRoads

9.1 Details of Proceedings under a Commonwealth, State or Territory

The Victorian Roads Corporation (VicRoads) has initiated and completed a significant number of both major and minor road projects across the State, all of which have the potential for environmental impact. In any one year, it is estimated that approximately 200 projects are completed, of which, on average, five projects per year are referred for approval under the EPBC Act.

Although not established under the Corporation Act 2000, VicRoads publically reports its environmental performance in the Annual Report. In recent years, the environmental incident reporting system was upgraded to automatically track and escalate issues as appropriate. Since January 2010, there have only been three significant environmental incidents reported (significant is defined as Level 4 and Level 5 incidents) of which only one related to EPBC issues and resulted from contractor non-compliance with VicRoads specifications and requirements. Details are as follows:

- The incident occurred on 6 December 2010;
- VicRoads notified the Department of the Environment on 8 December 2010.
- The incident was investigated by VicRoads and corrective action taken.

In addition, to the best of our knowledge, neither VicRoads or its directors have been refused a licence, permit or authority under any environment protection legislation or had any such licence, permit or authority suspended, revoked or withdrawn in Australia or elsewhere been prosecuted for an offence under any environment protection legislation either in Australia or elsewhere been found guilty of an indictable environmental office either in Australia or elsewhere.

A search of EPA Victoria's prosecutions database as at 5 June 2015, [http://www.epa.vic.gov.au/our-work/compliance-and-enforcement/epa-sanctions/prosecutions] in relation to enforcement of the Environment Protection Act 1970 and the Pollution of Waters by Oil and Noxious Substances Act 1986, has indicated no prosecutions involving VicRoads.

VicRoads has been involved in EPBC compliance audits as noted below.

EPBC 2005/1990 – Construction of Bayles Bridge

Approval conditions attached to a project by VicRoads to replace the Bayles Bridge in Victoria were audited on 25 to 26 October 2006. The conditions related to the protection of Growling Grass Frog *Litoria raniformis*, Southern Brown Bandicoot *Isoodon obesulus* and Dwarf Galaxias *Galaxiella pusilla*.

The audit identified compliance with eight of the 12 conditions of approval. Two instances of non-compliance were found, these related to the implementation of an offset strategy and bridge construction material. Five elements of the conditions were found to be partially compliant. These related to construction methods and materials, water quality testing, and reporting to the Department. A formal warning was issued to VicRoads and recommendations for rectification of the compliance issues made. The non-compliances have been addressed to the satisfaction of the Department in accordance with the Department's Compliance and Enforcement Policy.

EPBC 2008/4486 – Geelong Ring Road – Section 4A, Victoria

A compliance audit of the Geelong Ring Road – Section 4A, Victoria, was conducted by the Department on 21 August 2012.

There are seven particular manner requirements set out in the decision notification. VicRoads demonstrated compliance with requirements 2, 5, 6 and 7 relating to best practice erosion, siltation and sediment controls being implemented; controls to manage a one in two Year Average Recurrence Interval event being implemented and maintained, construction activities that could potentially impact on the breeding of the Yarra Pygmy Perch and the Growling Grass Frog not being undertaken during September and October in associated habitat; and the construction area being fenced off to ensure that areas outside of the construction area are not impacted.

Non-compliance was found with elements of requirements 1, 3 and 4 relating to the implementation of the Project Environment Protection Strategy and water quality monitoring requirements for the project. The non-compliances have been addressed to the satisfaction of the Department in accordance with the Department's Compliance and Enforcement Policy.

EPBC 2010/5741 – Western Highway Project Section 2: Beaufort to Ararat, Victoria

VicRoads self-reported an alleged breach of conditions attached to EPBC 2010/5741 to the Department the day following the potential impact to an area less than 0.1 hectare of Grassy Eucalypt Woodland of the Victorian Volcanic Plain.

Condition 5 of the approval required VicRoads to implement the Threatened Species Management Plan approved by the Department. The Plan required no-go zones to be installed at the section of the site where unapproved works were undertaken. Vegetation, located outside the no-go zone, that had been marked and agreed to be cleared by VicRoads and its Contractor was fallen and stored in the no-go zone by a subcontractor.

An audit by the Department determined that although condition 5 of EPBC 2010/5741 had been contravened, no matters of national environmental significance were impacted in this instance.

No further action was taken by the Department at that time.

9.2 Details on VicRoads Environmental Policy

VicRoads has a comprehensive environmental management system designed to identify and minimise environmental impact from its construction and maintenance activities. VicRoads approach to environmental management is modelled on ISO 14001- Environmental Management Systems.

The main elements of VicRoads environmental management system are:

- VicRoads Sustainability and Climate Change Policy (2014)
- VicRoads Sustainability and Climate Change Strategy (2010-2015)
- VicRoads Environmental Risk Management Guidelines (2012);
- Environmental procedures for management of projects;
- Project Environment Protection Strategies;
- Where appropriate, specific guidance documents e.g. integrated water management, fauna sensitive design, etc
- Contract specifications with specific environmental clauses
- Surveillance audits of contractor activities based on a risk based approach
- Independent environmental audits of contractor environmental management systems prior to commencement of major works

- Independent environmental audits throughout the life of major construction projects
- Training modules including e-learning modules for environmental aspects of project construction

When managing projects, VicRoads exercises high standards of environmental diligence both in the contract preparation and administration. The VicRoads Environmental Risk Management Guidelines provide more detail about VicRoads systems which are utilised to manage risk and protect the environment and how these systems and tools are implemented throughout the life cycle of a project.

10. Conclusion

The proposed safety works on the Pyrenees Highway accords with the principles of Ecologically Sustainable Development as it improves the safety and efficiency of a regional road network while minimising environmental impacts and, in particular, impacts on native vegetation, biodiversity and essential ecological processes. The guiding principles of Ecologically Sustainable Development (ESD) listed in the *National Strategy for Ecologically Sustainable Development* (1992) are as follows:

- decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations;
- where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the global dimension of environmental impacts of actions and policies should be recognised and considered;
- the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised; and
- the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.

The proposed works area provides moderate to high quality foraging habitat for Swift Parrot. This area is located adjacent to an important priority site for Swift Parrot, the Muckleford Historic and Cultural Reserve (Muckelford State Forest and Muckelford Nature Conservation Reserve), due to site fidelity and utilisation of habitat by large flocks. Furthermore, VicRoads have developed a variety of Swift Parrot specific mitigation measures (Section 5, Appendix 1 and Appendix 2), in addition to various environmental mitigation measures to minimise the effects to Swift Parrot as well as the removal of native vegetation. For example, works will be conducted between November 2017 and February 2018 when Swift Parrot are not present on the mainland.

VicRoads will also provide an "offset" for the proposed loss of native vegetation from the project road safety works in accordance with EPBC Act (2012) *Environmental Offsets Policy.*

10.1 Ecologically sustainable development

The *National Strategy for Ecologically Sustainable Development* (1992) sets out the policy framework for the Australian Government to make decisions and take actions to pursue ecologically sustainable development (ESD).

Australia's *National Strategy for Ecologically Sustainable Development* (1992) defines ecologically sustainable development as: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

The *National Strategy for Ecologically Sustainable Development* provides broad strategic directions and framework for governments to direct policy and decision-making. The strategy facilitates a coordinated and co-operative approach to ecologically sustainable development and encourages long-term benefits for Australia over short-term gains.

The strategy was adopted by all levels of Australian government in 1992.

The National Strategy requires government departments to ensure that the principles and objectives of ESD are delivered and sets out the following core objectives for achieving ESD:

- to enhance individual and community well-being by following a path of economic development that safeguards the welfare of future generations;
- to provide for equity within and between generations; and
- to protect biological diversity and maintain essential ecological processes and life-support systems.

Table 3 summarises the assessment of the Project against EPBC Act principles of ecologically sustainable development.

Table 6 Assessment of the project against the EPBC Act principles of ecologically sustainable development.

EPBC Act Guiding Principle	Project Response
The long-term and short-term economic, environmental, social and equitable considerations	This project is funded under the Victorian Traffic Accident Commission – *Victorian Road Safety Strategy 2013 – 2022,* Safe System Roads Infrastructure Program (SSRIP), which is a program of targeted road safety treatments at high risk areas across Victoria where projects can have a specific and immediate safety benefit to the Victorian community. The project will provide social and economic benefits to the Victorian community through saving lives and reducing serious injuries and hence road trauma. Thus reducing the social and financial cost of transport accident injuries to the Victorian community. VicRoads, through design and environmental assessment for this Project, has designed all road safety treatments with the principles of "avoidance" and "minimisation" to reduce the impacts of the project on native vegetation and fauna within the Project area. Environmentally the project has also further applied the principles of impact "avoidance" and "minimisation" in developing its contract performance requirements for the project site works environmental management and mitigation measures.
The precautionary principle which states that a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation	Robust environmental assessments have been completed to assess the potential impacts of the project including ecological assessments, cultural and historic heritage archaeological assessments. The assessments undertaken for this project provide a sound basis for understanding the likely project impacts and in developing effective environmental management and mitigation measures for the proposed works. Additionally, the precautionary principle has been applied in developing the environmental management and mitigation measures. Refer to Section 5 and Appendix 1 for further details on the proposed management measures.
The principle of inter-generational equity which states that the present generation should ensure	The project will provide social and economic benefits to the Victorian community through saving lives and reducing serious injuries and road trauma for current and future road users.

EPBC Act Guiding Principle	Project Response
that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations	The proposed design, mitigation and offset of impacts will ensure minimal impact of the project on MNES.
The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making	VicRoads has applied the following principles through design of the project road safety treatments in accordance with its internal guidelines and State legislative requirements, specifically: • Avoid vegetation removal where practical: This requires VicRoads staff to carefully assess the location of new works to avoid impacts on native vegetation where it is practical to do so; and • Minimise the extent of native vegetation removal: Where the removal, destruction or lopping of native vegetation cannot be avoided the extent and impact of clearing must be minimised through the planning, design and undertaking of works. VicRoads has through design and environmental assessment of the proposed project works treatments considered and implemented these principles for this project to reduce the impact to native vegetation. In doing so, all 23 road safety barrier treatments have been designed with significantly reduced offsets, ranging from 1.2 – 3.0 m from the existing edge of traffic lane to reduce the impact to native vegetation within the road reserve. VicRoads design notes for both the Steel Beam Guard Fence and the Wire Rope Safety Barrier call for a desirable offset of 4.0 m from the edgeline of traffic lane to barrier, or an absolute minimum of 3.0 m. Both Guard Fences and the Wire Rope Safety Barriers have been shortened in length and the offset from the edge of traffic lane minimised. The current barrier designs enabled the protection of an additional 10 large old trees (≥ 700 mm diameter) in comparison to the initial draft designs, which included the reduced barrier offsets. An ecological assessment has also been conducted to identify key constraints for the project, which involved both desktop and detailed field assessments. The ecological assessment was completed during the pre-construction design process so that the findings, where applicable, could be considered through this process, including mitigation measures for construction activities. A Construction Environmental Management Plan will be developed for the project to minimise impact on native vegetation, flora and fauna, as well as scheduling the proposed time of the project works to the summer period to when the Swift Parrot (MNES) is in Tasmania and addressing other project risks such as weed management, fire, dust, noise and site reinstatement, including other relevant outputs from construction (refer to Section 5 and Appendix 1). As outlined above, MNES have been thoroughly considered and will be appropriately managed in accordance with the relevant approval conditions.

EPBC Act Guiding Principle	Project Response
Improved valuation, pricing and incentive mechanisms should be promoted.	This does not apply to the project.

10.2 Proposed conditions

The project was identified through a risk assessment process and funded by the Traffic Accident Commission under the Victorian Road Safety Strategy 2013-2022. The project was identified as a high priority for funding due to the fatality and accident history and the improved benefit to the community through provision of a safer road environment. VicRoads have designed the project to achieve a balance between environmental and road safety outcomes for the community, through avoiding and minimising impacts to native vegetation and committing to strict protocols and conditions as outlined in this document.

VicRoads accepts that the proposed road safety project works and associated native vegetation removal has been determined as a controlled action under the EPBC Act due to the potential impact upon the critically endangered Swift Parrot through loss of foraging habitat in an identified priority area for the species. VicRoads is committed to managing the risk to the Swift Parrot and providing offsets to compensate for the loss of foraging habitat.

It is VicRoads' position that the project be approved subject to the conditions detailed in Appendix 6. These conditions are proposed to form the minimum set of requirements imposed by the Commonwealth, should the action be approved. The proposed conditions relate to undertaking the action in a manner that minimises impact on the Swift Parrot, through compliance with construction plans and established limits of works, site inductions, fauna management and adherence to strict environmental management protocols. Compensatory offsets are proposed for the residual impacts to Swift Parrot foraging habitat.

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Appendices

Appendix 1 – Detailed mitigation measures

The following table outlines the mitigation measures, surveillance monitoring and site management that will be required to address environmental issues associated with construction of road safety treatments on the Pyrenees Hwy (Sec 2) Ch 10.9 – 15.0km. The focus is on commitments and measures to avoid, mitigate or manage impacts on Matters of National Environmental Significance (MNES), particularly the Swift Parrot. VicRoads has also commissioned an Offset Strategy to specify offset requirements for this Project in accordance e with Federal offset policy. Once a Contract is awarded a Construction Environment Management Plan (CEMP) will be prepared for this Project in accordance with the VicRoads Contract Specification and in line with this Table). The following table has been based upon the Contract Specification requirements for the Project Construction Environmental Management Plan, some of which formed part of the EPBC Act referral.

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
Preconstruction Phase						
Establish Project Site & Contract Works in accordance with Applicable legislation and conditions of any permits and approvals **Protect & Minimise Risks to native vegetation and Fauna within the Project area**	• Direct and indirect loss of potential foraging habitat. • Disturbance to foraging parrots.	**1. Preparation of Construction & Environmental Management Plan to identify and monitor Project site risks and mitigation a measures, prior to commencement of any construction works** **2. Induction & Training of Staff / Contractor staff, prior to commencement of any construction works**	**1.1 Preparation and Approval of Contractors Construction Environmental Management Plan (CEMP) & Site Environmental Management** A comprehensive CEMP and Site Environmental Management Plan will be prepared for the Project Construction works for review and approval by VicRoads Project Manager under a contract Hold Point. The approval of the CEMP will only be released when VicRoads is satisfied that it meets the requirements of the Contract specification for each stage of works. The review ensures all risks identified in the Specification, Planning Permit (including conditions) and EPBC Act Permit (including conditions) have been addressed by the Contractor in this planning stage. **2.1 Pre –Commencement of Works Training**: Prior to commencement of works onsite, VicRoads and the Contractor shall ensure that all personnel are informed of the environmental issues and specific risks associated with the project and the required management and mitigation measures to address these risks and have the required training and accreditations to implement the EMP. This will be completed through a Project site induction by VicRoads. On-site records inductions of all workers on site reviewed by Surveillance Officer. **2.2 Pre-commencement of Works – Swift Parrot site Induction:** All construction personnel will receive a VicRoads led induction prior to the commencement of works. The induction will include communication about the Project approvals / permits conditions, contract environmental requirements, authorised native vegetation / tree removal clearances, fauna management, defined "Limits of Works' for authorised native vegetation removal and 'No Go Zones'. On-site records inductions of all workers on site reviewed by Surveillance Officer.	• *Clauses 176. A1 – L1* • *Clause 176.A3* • *CS Clause 100.6* • *CS Clause 100.7* • Clause 160.A10 • *Clause 176.A4* • *CS Clause 100.6* • *CS Clause 100.8* • Clause 160.A10 • *Clause 176.A4* • *CS Clause 100.6* • *CS Clause 100.8*	• Aboriginal Heritage Act 2006(Vic) • Catchment & Land Protection Act 1994 (Vic) • Environment Protection Act 1970 (Vic) • Environment Protection Biodiversity Conservation Act 1999 (Comm) • Flora & Fauna Guarantee Act 1988 (Vic) • Planning & Environment Act 1987 (Vic) • Wildlife Act 1975 (Vic)	**N/A**
Reduce / Minimise Project Footprint Impacts	• Direct and indirect loss of potential foraging habitat. • Disturbance to foraging parrots.	**3. Design - Minimise Project Footprint Impacts**	**3.1 Reduce tree impacts** VicRoads through planning and design of barriers (wire rope and guard fence) - all 23 barrier sections have been designed with significantly reduced offsets, ranging from 1.2 – 3 metres from the edge of traffic lane to reduce the impact to native vegetation. Refer to project alignment plans **(Appendix3).**		• Planning & Environment Act 1989 (Vic) • Environment Protection Biodiversity Conservation Act 1999 (Comm)	**Residual risk:** **Minimisation of direct loss of potential foraging habitat**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
			(*Note* - VicRoads design notes for both the Steel Beam Guard Fence and the Wire Rope Safety Barrier call for a desirable offset of 4.0 metres from the edge-line of traffic lane to barrier, or an absolute minimum of 3.0 metres.) **3.2 Avoidance of Matters of MNES** Other Impacts on native vegetation will be negated by the Contract specified requirement to use existing stacksites and the existing road formation for material storage, site compounds and plant / vehicle storage (i.e areas outside any established Limits of Works / No Go Zones). **3.3 Specified Limits of Work** The worksite Limits of Works (i.e No-Go Zones) are incorporated into the Contract specification to ensure no additional impact on flora and fauna in accordance with the works footprint and authorised native vegetation removal (i.e. DELWP MOU / Road Safety Exemption). A requirement for the Contractor is to incorporate specified Limits of Works into site plans / CEMP for this Project. **4.1 Surveillance Planning** VicRoads develops specific risk-based surveillance plans for each major contract. Risk Plans are developed by Project Engineers and reviewed and accepted by Team Leaders. Risk Plans are converted into Surveillance Plans based on the number of weekly site reviews of specific activities. For this Contract Environmental Management is designated a High Risk and hence the Surveillance plan will be developed accordingly.	• Clause 176. A1 – L1 • Clause 176.A3 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 100.8 • CS Clause 100.1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 200.1 • CS Clause 200.2 • Clause 160.A10 • Clause 176. A1 – L1		**<u>Target outcome:</u>** **No removal of native vegetation beyond that authorised for removal within the project Limits of Works**
Establish Offsets to compensate for Biodiversity losses associated with the Project **Offsets provided in accordance with the EPBC Act (2012) *Environmental Offsets Policy***	• Direct and indirect loss of potential foraging habitat.	**5. Offsets Provide compensatory offsets for the removal of native Vegetation for the Project**	**5.1 Establish EPBC Act offsets** Meet EPBC Act offset requirements for the Swift Parrot in accordance with the EPBC Act (2012) *Environmental Offsets Policy*		• Environment Protection Biodiversity Conservation Act 1999 (Comm)	**Residual impact to foraging habitat subject provision of offsets – see section 6.**
Construction Phase						
Establish Project Site & Contract Works in accordance with Applicable legislation and conditions of any permits and approvals **Protect & Minimise Risks to native vegetation and Fauna within the Project area**	• Direct and indirect loss of potential foraging habitat. • Disturbance to foraging parrots.	**6. Implementation and Monitoring of Construction & Environmental Management Plan (CEMP) and Establishment of Limits of Works (No Go Zones).** **Prevent the removal of Native Vegetation not authorised under Approvals or Permits**	**6.1 Construction Footprint** Prior to the commencement of works, the extent of the construction zone, vehicle and machinery access will be clearly defined both on a plan (Appendix 3) included within the CEMP and physically delineated (e.g. through temporary fencing, wooden stakes / and or rope bunting or similar on the Project length where works are occurring. **6.2 Limits of Works (No Go Zones)** Under the Contract, the establishment of the Project worksite Limits of Works (No Go Zones) is a Contract Hold Point. This Hold Point can	• Clause 160.A10 • Clauses 176. A1 – L1 • Clause 176.A3 • CS Clause 100.1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 100.8 • CS Clause 200.1 • CS Clause 200.2	• Aboriginal Heritage Act 2006 • Catchment & Land Protection Act 1994 (Vic) • Environment Protection Act 1970 (Vic) • Environment Protection Biodiversity Conservation Act 1999 (Comm)	**<u>Residual risk:</u>** **Low Risk / Minimal Impact with Works Undertaken in Summer (November 2017 – February 2018) while Swift Parrots are in Tasmania.** **<u>Target outcomes:</u>**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
		Limit the removal of Native Vegetation to that as authorised under Approvals or Permits **Manage Construction timing of works to daylight hours between November and February (inclusive), when Swift Parrots are in Tasmania**	only be released enabling native vegetation removal and construction activities to commence once the Limits of Works have been established and delineated in accordance with the Contract specification to VicRoads satisfaction per the Limits of Works table as shown on Appendix 3. These requirement are also established in the VicRoads Surveillance Plan for site inspection and monitoring. **VicRoads will ensure that:** • Limits of Works (No-go zones) (e.g. native vegetation adjoin works footprint) are established and clearly marked with as a minimum, wooden stakes with flagging tape / and or rope bunting. A joint inspection by VicRoads Project management staff, Contractor representatives and Surveillance staff will not let work commence until limits have been established and delineated in accordance with the specification and the Surveillance Plan • Construction activities, including vehicle / Plant parking, turn around points or temporary storage areas, do not occur outside the Limits of Works. • Construction activities are surveilled through onsite inspection to ensure that construction impacts do not extend beyond the established Limits of Works. • Regular inspection of the Limits of Works, barriers and other environmental controls, including silt traps, compounds etc. carried out and recorded in the Surveillance Plan. **6.3 Removal of Native Vegetation** In conjunction with Section 6.2, under a Contract Hold Point, prior to removing any vegetation, all trees authorised for removal and trimming will be clearly identified and marked onsite with high visibility marking paint by VicRoads Project management staff, Contractor representatives and the tree removal contractor in accordance with the VicRoads Road Safety Treatments - Construction Drawings and the contract specified tree list table. Any marked vegetation removal will be consistent with all authorisations, permits and the designated Limits of Works. A zoologist will be onsite, as required, to implement the Project Fauna Management Plan / Protocol to manage and salvage any fauna encountered during tree removal works (Appendix 5). VicRoads Surveillance staff will conduct regular inspection of the Limits of Works (No-Go Zone) and barriers and other environmental controls, including silt traps, compounds etc. carried out and recorded in the Surveillance Plan. Environmental Incidents managed on-site by Surveillance Officer and in accordance with approved EMPs.	• Clause 160.A10 • CS Clause 176.A3 • Clause 176.I1 • CS Clause100.1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 100.8 • CS Clause 200.1 • CS Clause 200.2 • Clause 160.A10 • CS Clause 176.A3 • Clause 176.I1 • CS Clause100.1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 100.8 • CS Clause 200.1 • CS Clause 200.2	• Flora & Fauna Guarantee Act 1988 (Vic) • Planning & Environment Act 1987 (Vic) • Wildlife Act 1975 (Vic) • Environment Protection Biodiversity Conservation Act 1999 (Comm)	**No removal of native vegetation beyond that authorised for removal within the project Limits of Works.** **No disturbance to Swift Parrot foraging behaviour.**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
			6.4 Tree Removal - Timing of Works All vegetation / tree removal activities for the Project works will be conducted during spring and summer (November 2017 – February 2018) while Swift Parrots are in Tasmania.	• CS Clause 100.8 • CS Clause 200.1 • CS Clause 200.2		
Forest fire resulting in damage to adjoining road reserve / State Forest. **Minimise impacts to terrestrial native vegetation within or adjoining the Project area.**	• Direct and indirect loss of potential foraging habitat. • Disturbance to foraging parrots.	**7. Prevention and minimisation of fire risk and risk of fire ignition during the Construction works period.**	**7.1 Procedures for the Prevention of Bush Fire risk and Emergency Response** As outlined in Sec 1.1, a comprehensive CEMP and Site Environmental Management Plan will be prepared for the Project Construction works for review and approval by VicRoads Project Manager under a contract Hold Point. As part of the CEMP the contractor must have an emergency preparedness and response procedure in place. The Contractor will also be responsible for ensuring that: • Fire-fighting equipment is provided and maintained on site. • No work is undertaken on days declared as Total Fire Ban or with a Code Red Fire Danger Rating. • No fires are lit on site. • The requirements of the Victorian Country Fire Act 1958 and Regulations are met. • The construction plant is fitted with fully working and efficient spark control devices in accordance with the applicable standard. Compliance with the CEMP and Contract requirements will be monitored by VicRoads Surveillance Officer through a Surveillance Plan for site inspection and monitoring.	• Clause 160.A10 • *Clause 176.A3* • *Clause 176.K2* • *CS Clause 100.6* • *CS Clause 100.7*	• Victorian *Country Fire Act 1958* and Regulations (Vic)	**<u>Residual risk:</u>** **Low Risk / Minimal Impact with controls in Place** **<u>Target outcomes:</u>** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works** **No disturbance to Swift Parrot foraging habitat.**
Works activities resulting in an invasive species that are harmful to a critically endangered or endangered species becoming established in the habitat of the Swift Parrot **Minimise impacts via implementation Vehicle / Plant Hygiene Measures to prevent the spread or importation of weeds and diseases (pathogens) into the Project Area or adjoining Native Vegetation**	• Construction works resulting in invasive species / pathogen becoming established in the habitat of an endangered or critically endangered species'.	**8. Prevent the spread of noxious or environmental weeds or Pathogens to within or areas adjoining the Project Area from the Construction Works**	**8.1 Prevention of the Spread or Importation of Weeds & Diseases (Pathogens) into the Project Area.** As outlined in Sec 1.1, a comprehensive CEMP and Site Environmental Management Plan will be prepared for the Project Construction works for review and approval by VicRoads Project Manager under a contract Hold Point. This risk is identified in the Contract specification and requires that the Contractor prevent the spread of declared weeds, pests and diseases (pathogens) within the Site and offsite. The Contractor and site personnel will be responsible specifically for ensuring that the implementation of the following controls / measures as a minimum include: • treatment of declared weeds prior to the commencement of any ground disturbing activities • response to their identification through monitoring of the site • management of weed and soil pathogen potential within imported materials • provisions for cleaning plant and equipment at the following times - o prior to arrival on Site o prior to departure from Site o prior to movement within the Site from infested to non-infested areas. This risk will be further minimised in the rehabilitation of affected areas, as required, in that topsoil and organic mulch from within each	• *Clause 176.A3* • *Clause 176.I2* • *CS Clause 100.6* • *CS Clause 100.7*	• Environment Protection Biodiversity Conservation Act 1999 (Comm) • Catchment & land Protection Act 1994 (Vic)	**<u>Residual risk:</u>** **Low Risk / Minimal Impact with controls in Place** **<u>Target outcomes:</u>** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works** **No disturbance to Swift Parrot foraging habitat**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
			construction zone section of works will be retained and reused to rehabilitate each works zone affected area. This will ensure that existing topsoil seed bank is used in site rehabilitation. Topsoil from each construction zone area will not be spread or shared between works zones. Compliance with the CEMP and Contract requirements will be monitored by VicRoads Surveillance Officer through a Surveillance Plan for site inspection and monitoring. VicRoads will also conduct monitoring post the end of construction works for any declared noxious or environmental weed outbreaks. Any outbreaks identified will be treated and monitored as part of any VicRoads periodic weed treatment programs.			
Water quality – surface - Prevent the generation and discharge of turbid and contaminated water from construction activities into adjoining native vegetation, drainage lines and or waterways. **Minimise the risk of soil erosion and sediment pollution of the site, adjacent land, and waterways, by defining and implementing erosion and sediment controls measures as part of the CEMP.**	• Direct and indirect loss of potential foraging habitat.	**9. Prevent and minimise damage or sedimentation any adjoining waterways and areas of adjoining terrestrial native vegetation.**	**9.1. Stormwater, drainage, sedimentation and erosion management** As outlined in Sec 1.1, a comprehensive CEMP will include measures to control stormwater runoff, site drainage, sedimentation and erosion in accordance with EPA's Environmental Guidelines for Major Construction Sites (EPA 1996) and EPA's Construction Techniques for Sediment Pollution Control (EPA 1991). The Contractor must minimise the risk of soil erosion and sediment pollution of the site, adjacent land, and waterways, by defining and implementing erosion and sediment controls measures as part of the CEMP. Appropriate control structures (such as sediment control fences) will be required to prevent surface water run-off contaminated with suspended sediments and other contaminants from exiting works zones in adjoining native vegetation. . Compliance with the CEMP and Contract requirements will be monitored by VicRoads Surveillance Officer through a Surveillance Plan for site inspection and monitoring.	• *Clause 176.A3* • *Clause 176.D1* • *CS Clause 100.6* • *CS Clause 100.7*	• EPA Act 1970 • Catchment & land Protection Act 1994 (Vic)	**<u>Residual risk</u>:** **Low Risk / Minimal Impact with controls in Place** **<u>Target outcomes:</u>** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works** **No disturbance to Swift Parrot foraging habitat**
Disturbance to fauna from noise and light. **Minimise impacts to local amenity and native fauna from Construction Works / Activities.**	• Disturbance to foraging parrots	**10. Minimise disturbance to terrestrial Fauna**	**10.1. Restricting working hours and noise criteria** As outlined in Sec 1.1, a comprehensive CEMP will include measures to control disturbance from Noise and light during works. The Contract Specification requires all work under the Contract to comply with the following requirements: • hours of work shall be between 7am and 6pm Monday to Saturday • construction vehicles and equipment shall have appropriate measures fitted and be effectively maintained to minimise engine noise • noisy equipment shall be enclosed where possible • advise local residents in advance when unavoidable out-of-hours work will occur. Any variation requires VicRoads approval prior to undertaking works outside of these requirements.	• *Clause 176.A3* • Clause 176.H1 • *CS Clause 100.6* • *CS Clause 100.7*	• EPA Act 1970 (Vic)	**<u>Residual risk:</u>** **Minimal impact with controls in place** **Minimal Risk – Noting existing traffic volumes of 5900 vehicles per day on the Pyrenees Hwy through the project section.** **<u>Target outcomes:</u>** **No disturbance to foraging Swift Parrots.**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
			Compliance with the CEMP and Contract requirements will be monitored by VicRoads Surveillance Officer through a Surveillance Plan for site inspection and monitoring **10.2 Timing of Construction Works** As stated in Sec 6.4, all vegetation / tree removal activities for the Project works will be conducted during spring and summer (November 2017 – February 2018) while Swift Parrots are in Tasmania.			
Air pollution & Dust generation **Minimise impacts to local amenity from air and dust pollution arising from construction activities.**	• Disturbance to foraging parrots	**11. Prevent and Minimise Disturbance to terrestrial Fauna and local community amenity**	**11.1. Controlling emissions of vehicles, plant and equipment and dust generation from construction activities** As outlined in Sec 1.1, a comprehensive CEMP will include measures to control disturbance from air pollution during works. The Contract Specification requires all work under the Contract to comply with the following measures: • dust generated from road construction activities shall not create a hazard or nuisance to the public, • disperse from the site or across roadways, nor interfere with crops and stock or commercial or residential • properties or other dust-sensitive receptors • emissions of visible smoke from construction plant and equipment shall be for periods no greater than ten consecutive seconds • emissions of odorous substances or particulates shall not create or be likely to create objectionable conditions for the public • materials of any type shall not be disposed of through burning • materials that may create a hazard or nuisance dust shall be covered during transport. • All vehicles will be fitted with emission control devices and comply at all times with relevant Australian Design Rules for the type and age of vehicle. Compliance with the CEMP and Contract requirements will be monitored by VicRoads Surveillance Officer through a Surveillance Plan for site inspection and monitoring.	• Clause 176.A3 • Clause 176.C1 • CS Clause 100.6 • CS Clause 100.7	• EPA Act 1970 (Vic)	**Residual risk:** **Minimal impact with controls in place.** **Target outcomes:** **No disturbance to foraging Swift Parrots.**
Project Site or adjoining area contamination from chemicals and fuels spills **Prevent any contamination from chemicals and fuels of the adjoining environment (i.e. road reserve, waterways, adjoining state forest and reserves).**	• **Direct and indirect loss of potential foraging habitat**	**12. Prevent any contamination from chemicals and fuels & Storage and handling of fuels and chemicals in accordance with Victorian EPA SEPP s and Guidelines**	**12.1. Procedures for chemical and fuel storage, handling and spill response** As outlined in Sec 1.1, a comprehensive CEMP will include measures ensure any leakage or spillage of any fuels or chemicals shall not have detrimental environmental impact from the construction works. The Contract Specification requires all work under the Contract to comply with the following measures: • The Contractor shall include specific procedures to mitigate the effect on the environment from fuels and chemicals, including herbicides and pesticides. Such procedures shall include but not be limited to:	• Clause 176.A3 • Clause 176.G1 • CS Clause 100.6 • CS Clause 100.7	• EPA Act 1970 (Vic)	**Residual risk:** **Minimal Impact with controls in Place** **Target outcomes:** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works.**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
			o nominated fuel and chemical storage areas that comply with Dangerous Goods (Storage and Handling) Regulations 2012 and EPA Bunding Guidelines (EPA Publication No. 347) including the o placarding of compounds and bulk storage containers o nominated points for fuel and chemical storage, the refuelling and fluid top up of vehicles and plant o which shall be undertaken in a designated area at least 20 metres from any drainage point or waterways o provision of readily accessible and maintained spill kits for the purpose of cleaning up chemical, oil o and fuel spillages on the Site at all times o ensuring that personnel trained in the efficient deployment of the spill kits are readily available in the event of spillages o a contingency plan that shall address the containment, treatment and disposal of any spill. o Monitoring any fuel and chemical storages and equipment fill areas for compliance at intervals of not more than 7 days. Any storage of chemicals and fuels must at all times comply with the requirements of the Victorian *Environment Protection Act 1970* and *Dangerous Goods Act 1985.* All chemicals and fuels stored on site must be kept to a minimum and bunded in accordance with EPA's Bunding Guidelines (EPA 1992).			**No disturbance to Swift Parrot foraging habitat.**
Disturbance to flora and fauna from site reinstatement. **Minimise the impact of the Project on the existing site and adjacent areas.**	• **Direct and indirect loss of potential foraging habitat.**	**13. Prevent and minimise damage or sedimentation any adjoining waterways and areas of adjoining terrestrial native vegetation**	**13.1. Site rehabilitation and reinstatement** In accordance with the Contract Specification, all work under the Contract will require the rehabilitation of affected areas, as required, in that topsoil and organic mulch from within each construction zone section of works will be retained and reused to rehabilitate each works zone affected area. This will ensure that existing topsoil seed bank is used in site rehabilitation. Topsoil from each construction zone area will not be spread or shared between works zones. Any re-seeding works is subject to VicRoads approval before this activity can commence and requires that any grass seed used is consistent with the existing native vegetation values of the works site(s). Any seeding with exotic grasses is restricted to only using sterile rye grass to provide a top cover for site erosion protection where required.	• Clause 176.A3 • Clause 176.G1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 200.6	• EPA Act 1970 (Vic) • Catchment & land Protection Act 1994 (Vic)	**<u>Residual impact:</u>** **Minimal impact with controls in place.** **<u>Target outcome:</u>** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works.**

Environmental Issue and Management Objective	Risk to Swift Parrot without mitigation measures	Performance Objective	Measures to Address the Environmnetal Issue, Mitigation and Management Requirements	Appendix 2 Clauses from Contract CN9277 (NB. CS = Specific Clauses)	Applicable Legislation (Victorian State (Vic) or Commonwealth (Comm)	Residual Risk to Swift Parrot with mitigation measures applied Target Outcome
Post Construction Phase						
Disturbance to flora and fauna from site reinstatement – post Construction Works. **Minimise the impact of the Project on the existing site and adjacent areas.**	• **Direct and indirect loss of potential foraging habitat.**	**14. Prevent and minimise damage or sedimentation any adjoining waterways and areas of adjoining terrestrial native vegetation** **Prevent the spread of noxious or environmental weeds or Pathogens within or adjacent to the Project Area from the Construction Works.**	**14.1. Monitoring of site rehabilitation and reinstatement** VicRoads will be responsible for monitoring the progress of site re-instatement post works completion. Any identified site reinstatement requirements will be rectified under the Contract Specification defects liability period. **14.2. Weed management** VicRoads will be monitor and undertake weed control measures as part of the post-construction site monitoring. The focus will be on high threat environmental and/or noxious weed species.	• Clause 176.A3 • Clause 176.G1 • CS Clause 100.6 • CS Clause 100.7 • CS Clause 200.6 • CS Clause 100.18 • Clause 176.A3 • Clause 176.I2 • CS Clause 100.6 • CS Clause 100.7	• EPA Act 1970 (Vic) • Catchment & land Protection Act 1994 (Vic)	**Residual risk:** **Minimal Impact with controls in Place** **Target outcomes:** **No disturbance of native vegetation beyond that authorised for removal within the project Limits of Works** **No disturbance to Swift Parrot foraging habitat**

Appendix 2 – General and specific contract clauses

Clause from Contract CN9277	Clause Detail
SECTION 160 - CONSTRUCTION - GENERAL	
PART A - MANAGEMENT SYSTEMS	
160.A10 SURVEILLANCE AND AUDITS BY THE SUPERINTENDENT	The Superintendent will arrange surveillance and audits to ensure that the Contractor is complying with the Quality Management System. The Contractor shall, upon being given reasonable notice by the Superintendent, make or arrange to be available all facilities, documentation, records and personnel, including those of any sub-contractors, that are reasonably required for audits to be undertaken. Notwithstanding that VicRoads may have previously undertaken audits of a sub-contractors quality management system in connection with other work, the Contractor shall include the operations of all such sub-contractors in the Contract quality plan and shall fulfil all the quality obligations of the Contract. VicRoads will carry out audit and surveillance of the work of all sub-contractors as it sees fit, in the same way that it may carry out audit and surveillance of all work done and materials supplied by the Contractor. The Superintendent may for this purpose have recourse to audit and surveillance carried out for other VicRoads contracts. Copies of any such audit and surveillance reports used by the Superintendent will be provided to the Contractor.
SECTION 176 ENVIRONMENTAL MANAGEMENT (Minor)	
PART A - ENVIRONMENTAL MANAGEMENT	
176.A1 INTRODUCTION	Works under the Contract shall be undertaken so that impacts on the environment are avoided or minimised. The Contractor shall ensure that the environmental objectives and measures outlined in the relevant State and Federal legislation are complied with. Where different objectives are nominated, the more stringent requirement shall be adopted. The Contractor shall prepare a project specific Environmental Management Plan for the management of activities that impact on the environment in accordance with the requirements of this section.
176.A2 DEFINITIONS	**Ancillary Work Area** – an area outside the Limit of Works that is used by the Contractor to support the delivery of the project. This may include but is not limited to the establishment of site compounds, borrow areas and temporary sedimentation basins and temporary works. **Contaminated Material –** the presence of any chemical substance or waste that exists above the natural background level of the land or water and represents, or potentially represents, an adverse health or environmental impact.

	Cultural Heritage – Aboriginal heritage as defined in Section 4 of the Aboriginal Heritage Act 2006 (Vic) and cultural heritage and archaeological relic as defined in Section 3 of the Heritage Act 1995 (Vic), including but not limited to, Aboriginal artefacts, scarred trees, burial sites, and historic bridges and buildings. **Cultural Heritage Advisor** – a person who is appropriately qualified in a discipline directly related to the management of cultural heritage, such as anthropology or history; or has extensive experience or knowledge in relation to the management of cultural heritage. **Cultural Heritage Management Plan (CHMP)** – an overview of the heritage values of the project area and an outline of management processes and initiatives to be implemented to avoid or minimise impacts on those values during the course of the project. **Environmental Management Plan (EMP)** – Contractor's document that provides: • an overview of the environmental management processes to be utilised for work under the Contract, including procedures to protect the beneficial uses of the environment; and • and details proposals/actions to be undertaken for the management of individual stages of work (defined by work activity and/or location) that impact on the environment. **Environmental Improvement Plan (EIP)** – a plan, prepared for approval by the Environment Protection Authority (EPA) Victoria, to address the use of non-potable water and/or contaminated materials that identifies potential risks to human health or the environment, and details management options to mitigate the identified risks. **Environmental Incident** – an event which results in or has the potential to result in the environmental requirements in this Contract being breached, and occurs at any location where works under the Contract are performed. **Noise Sensitive Receptors** – dwellings that may be affected by construction noise during the day such as aged persons homes, hospitals, schools, kindergartens, libraries and other noise sensitive community buildings. **Rain Event** – when rainfall results in an offsite discharge, and/or when onsite construction activities are ceased due to rain, and/or rainfall that is equal to or greater than the Rainfall Intensity Chart published in the VicRoads Integrated Water Management Guidelines (Section 5.4.2 - Construction Monitoring). **Waterway** – includes waterways as defined in the Water Act 1989 and any natural collection of water (other than water collected and contained in a private dam or a natural depression on private land) whether or not the flow is continuous, as well as tidal and coastal water and groundwater.
176.A3 ENVIRONMENTAL MANAGEMENT PLANS	The Contractor shall be responsible for the preparation, implementation and other arrangements associated with the Environmental Management Plan (EMP). The EMP shall include, as a minimum: (a) a statement of scope, purpose and environmental objectives (b) a schedule of environmental elements that are expected to be affected by the works under the Contract including an outline of proposed mitigation treatments and proposed timeframes (c) the identification of work activities and an assessment of their potential impacts and associated risks to onsite and offsite environmental receptors (e.g. community, land uses, waterways, flora and fauna, cultural heritage, etc.) including times when the Contractor is not on site, including but not limited to matters covered in this specification

(d) processes and responsibilities for -

- the implementation, onsite review and maintenance of EMP and associated controls
- reporting and investigation of environmental incidents or complaints relating to any environmental issue under the Contract
- an adaptive approach for the review and update of the EMP as works progress and/or following non-conformances, complaints, or previously unidentified issues
- after hours response including arrangements for containing environmental damage and attendance on site in the event of an emergency

(e) legal and other requirements - details of approvals, licences and permits necessary to meet statutory requirements and associated conditions

(f) competence, training and awareness - an induction and training plan to ensure that all site personnel (including subcontractors) understand the EMP and are aware how the EMP is to be implemented in relation to the works, including any possible emergency response procedures

(g) operational control – the EMP shall document environmental procedures to manage all identified impacts and environmental protection requirements, including the requirements, where relevant, in Section 176 Parts B – H and any specific environmental requirements in Section 100. These procedures shall include inspection and monitoring

(h) scaled drawings that clearly show the location and extent of environmental controls, modifications to existing control devices and monitoring locations

(i) emergency preparedness and response - an emergency response procedure shall include processes for managing any environmental emergency on-site, such as contacting relevant stakeholders and clean-up of the site

(j) nonconformity, environmental incidents and corrective and preventative action procedures

(k) audit - a documented process for audit of the EMP against the contract requirements, including the effectiveness of on-site environmental protection measures.

The EMP shall consider any other Contract specific requirements identified elsewhere in the Specification.

The Contractor shall submit to the Superintendent for review an EMP not less than two weeks prior to the commencement of work. Work shall not commence until:

- **the Superintendent is satisfied that the EMP meets the requirements of the specification for that stage of work**
- **the controls detailed in the EMP relevant to that stage of work are implemented.**

Control measures identified in the EMP shall be installed prior to works commencing, or at the programmed timing for their implementation. Control measures shall be maintained in working order for the duration of the associated works.

The Superintendent will undertake surveillance of the Contract and may arrange for audits of the EMP and may issue a non compliance report. If the Contractor does not take action within seven days of

	receipt of a non compliance report, remedial action may be arranged by the Superintendent and the cost of such remedial work shall be deducted from money due to the Contractor.
176.A4 TRAINING	Prior to commencement of works onsite, the Contractor shall ensure that all personnel are informed of the environmental issues and specific risks associated with the project and the required management and mitigation measures to address these risks. Prior to commencement of works onsite, the Contractor shall ensure that personnel directly involved in the implementation of the EMP and the installation and maintenance of control measures for this contract: • have demonstrated competence and suitable experience in environmental management in a construction environment; or • have successfully completed a nationally accredited training course which addresses management practices for erosion and sediment control (Green Card or equivalent).
176.A5 PERMITS	The Contractor shall be responsible for obtaining all necessary permits and approvals from the relevant authorities, other than those already obtained by VicRoads. Copies of all relevant documentation relating to permits and approvals obtained by the Contractor shall be provided to the Superintendent within one week of their receipt and prior to any works relating to the permit commencing. Copies of all permits and approvals will be kept on site. The Contractor shall be responsible for implementing any conditions identified in any permits whether obtained by VicRoads or the Contractor. All permits and associated conditions shall be identified in the EMP.
PART B - WATER QUALITY	
176.B1 WATER QUALITY	(a) General The quality of water in waterways shall not be detrimentally impacted by runoff from the site. Water quality and rainfall shall be monitored for the parameters identified in Table 176.B1.01 during all stages of construction to ensure that the water quality in the receiving waterways: • does not vary between the upstream and downstream limits of the works site during the period (where upstream results become the background limits), although a variation between results of no more than twice the measurement uncertainty of the instrument will be allowable; or • is as agreed between the Contractor, the Superintendent and EPA. **Table 176.B1.01 Construction Monitoring**

Parameter	Method
Turbidity - NTU	Measure with on-site meter
Electrical Conductivity (EC) – µS/cm	Measure with on-site meter
pH	Measure with on-site meter

	<table><tr><td>Dissolved oxygen (DO) – mg/L</td><td>Measure with on-site meter</td></tr><tr><td>Temperature - °C</td><td>Measure with on-site meter</td></tr><tr><td>Litter (definition, including solid inert waste)</td><td>Visual (prevent litter from entering waterways and drainage systems)</td></tr><tr><td>Oils and Greases</td><td>Visual (No visible free oil or greases)</td></tr></table> (b) Monitoring Monitoring shall be carried out in waterways and/or drainage infrastructure upstream and downstream of the limits of the site for each rain event as follows: • within one hour of commencement of rain event during working hours • every four hours for periods of continuous rain during working hours • within 12 hours of a rain event, outside working hours. ~~(c) Dewatering~~ ~~Water quality monitoring shall be undertaken when dewatering ponded water to receiving waterways.~~ ~~The quality of ponded water to be dewatered to receiving waterways shall not exceed 30 NTU or shall not exceed the turbidity of water in the receiving waterways.~~ ~~The pH of ponded water to be dewatered shall be within the range of 6.4 - 7.7 / 6.5 - 8.3.~~
176.B2 NON-POTABLE WATER	Non-potable water sources shall be used as the primary source of water for all activities unless the Contractor can demonstrate to the Superintendent's satisfaction that the use of non-potable water is not practicable and feasible. Where non-potable water is used an Environmental Improvement Plan (EIP) shall be developed in accordance with VicRoads Integrated Water Management Guidelines and shall include the management of all activities related to the sourcing, transport, storage and use of the non-potable water.
PART C - AIR QUALITY	
176.C1 DUST	All work under the Contract shall comply with the following requirements: • dust generated from road construction activities shall not create a hazard or nuisance to the public, disperse from the site or across roadways, nor interfere with crops and stock or commercial or residential properties or other dust-sensitive receptors • emissions of visible smoke from construction plant and equipment shall be for periods no greater than ten consecutive seconds • emissions of odorous substances or particulates shall not create or be likely to create objectionable conditions for the public • materials of any type shall not be disposed of through burning • materials that may create a hazard or nuisance dust shall be covered during transport.

PART D - EROSION AND SEDIMENT CONTROL	
176.D1 EROSION AND SEDIMENT CONTROL	The Contractor shall minimise the risk of soil erosion and sediment pollution of the site, adjacent land, and waterways, by defining and implementing erosion and sediment controls measures as part of its EMP. The control measures shall be developed with reference (but not limited) to the Environment Protection Authority's publications including EPA Publication No. 960 'Doing it Right on Subdivisions', EPA Publication No. 275 'Construction Techniques for Sediment Pollution Control', EPA Publication No. 480 'Environmental Guidelines for Major Construction Sites' and the International Erosion Control Association 'Best Practice Erosion and Sediment Control' (IECA, 2008). The Contractor shall inspect all erosion and sedimentation control works at least once per week with additional inspections during a rain event as follows: • within one hour of commencement during working hours • every four hours for periods of continuous rain during working hours • within 12 hours of a rain event outside working hours • when runoff is leaving the site. Any defects and/or deficiencies in control measures identified by monitoring undertaken shall be rectified immediately and these control measures shall be cleaned, repaired and augmented as required to ensure effective control measures thereafter.
176.D2 STOCKPILES	Where soil is stockpiled on site it shall be located no less than 10 metres from waterways. Where it is not possible to provide a clearance of 10 metres, the stockpile shall be above the normal high water level of the waterways and protection shall be provided to prevent stockpiled material entering the waterways
176.D3 MUD ON PUBLIC ROADS	The Contractor shall take all steps necessary to prevent vehicles from trafficking and depositing mud and other debris on the surface of adjacent roads when entering and leaving the site. The cleaning of plant and equipment shall not impact on any other element of the environment. Any mud deposited on the road shall be removed immediately.
PART E - CONTAMINATED SOILS AND MATERIALS	
176.E1 CONTAMINATED SOILS AND MATERIALS	All work under the Contract shall comply with the following requirements: • soils or materials shall not be contaminated as a consequence of work under the Contract • materials imported to the site shall be free from contaminants • contaminated materials shall only be reused on site through agreement and approval from the Superintendent and EPA • contaminated materials to be reused onsite shall be temporarily stored and managed to minimise any impact on the site or surrounding environment

- the transport and disposal of contaminated soils or materials offsite shall be undertaken in accordance with relevant legislation and State Environment Protection Policies, or by a method agreed with the EPA.

The discovery of contaminated material on the site during works shall be managed in accordance with VicRoads and EPA Guidelines. The contractor shall immediately notify the Superintendent and where applicable EPA when contaminated material is encountered.

The nature and extent of the waste material should be identified. Where required by the Superintendent and/or EPA a management plan shall be developed to manage the waste.

The use of contaminated material in the Works shall be subject to the approval of the Superintendent and EPA. Prior to the use of any material on the site, the material shall be analysed to verify that the proposed use is in accordance with legislative requirements. Where directed an EIP or other documentation shall be prepared in liaison with EPA and the Superintendent. Where any contaminated material is used in the Works, records shall be kept of the source, type of contamination, volume of contaminated material incorporated, the locations placed and all investigations undertaken. The location of contaminated material incorporated into the site shall be identified in the 'As Constructed' drawings. Copies of all documentation including the EIP are to be forwarded to the Superintendent for inclusion in the VicRoads Contaminated Site Register.

PART F - WASTE AND RESOURCE REUSE

176.F1WASTE AND RESOURCE REUSE

(a) General

The generation of waste materials shall be managed in accordance with the hierarchy, of avoid, reuse, recycle or dispose of waste material. The Contractor shall be responsible for the management of any waste produced in performing the work under the Contract.

Solid inert wastes may be reused when approved by the Superintendent.

The Contractor shall also control the generation of wind blown litter, or litter spread by birds and animals, from disturbed material. This may include limiting the disturbed area or recovering material.

All vehicles transporting waste shall be covered and appropriately licensed.

Copies of all waste disposal records shall be provided to the Superintendent within five working days of their issue date.

Unless otherwise agreed by the Superintendent and where recycling facilities are available, the materials shall be managed in accordance with Table 176.F1.01.

Table 176.F1.01 Resource Management Requirements

Material	Waste Management Option
Asbestos	EPA licensed landfill
Asphalt	Recycle or reuse - not to landfill
Concrete and concrete washings	Recycle or reuse - not to landfill
Contaminated soil	Recycle or reuse on site if opportunity exists If removed from site, transported by an EPA licensed contractor and disposed in accordance with EPA regulations

Felled woody vegetation (except fragments of noxious or environmental weeds capable of regeneration)	Mulched for re-use, or used for habitat logs
Woody weed fragments capable of regeneration	Burial on site (deeper than 500mm and not in fill, pavement or other critical areas), composting, or disposal to landfill
Formwork	Reuse or dispose to landfill
Plastics (Recycle Nos. 1,2,3,4,5,6,7)	Recycling facility - not to landfill
Metal	Recycle or reuse - not to landfill
Oils and containers and lead acid batteries	Recycling facility - not to landfill
Packaging materials	Recycle where possible or dispose to landfill
Empty paint tins	Recycling facility - not to landfill
Petroleum products from spills (absorbed in spill kit material or contaminated soil)	Recycle or reuse with rehabilitation of contaminated soils if opportunity exists Transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Timber (untreated)	Recycle - not to landfill
Litter	Recycle or dispose to landfill
Office waste	Recycle where possible or dispose to landfill
Other waste excluding the above wastes	Recycle or reuse if opportunity exists

(b) Monitoring

The Contractor shall monitor the whole site for instances of inappropriate waste management or disposal at intervals of not more every 7 days.

PART G - FUELS AND CHEMICALS

176.G1 FUELS AND CHEMICALS

(a) General

Any leakage or spillage of any fuels or chemicals shall not have detrimental environmental impact.

The Contractor shall include specific procedures to mitigate the effect on the environment from fuels and chemicals, including herbicides and pesticides. Such procedures shall include but not be limited to:

- nominated fuel and chemical storage areas that comply with Dangerous Goods (Storage and Handling) Regulations 2012 and EPA Bunding Guidelines (EPA Publication No. 347) including the placarding of compounds and bulk storage containers

	• nominated points for fuel and chemical storage, the refueling and fluid top up of vehicles and plant which shall be undertaken in a designated area at least 20 metres from any drainage point or waterways • provision of readily accessible and maintained spill kits for the purpose of cleaning up chemical, oil and fuel spillages on the Site at all times • ensuring that personnel trained in the efficient deployment of the spill kits are readily available in the event of spillages • a contingency plan that shall address the containment, treatment and disposal of any spill. (b) Monitoring Fuel and chemical storages and equipment fill areas shall be monitored for compliance at intervals of not more than 7 days.
PART H - NOISE	
176.H1 NOISE	All work under the Contract shall comply with the following requirements: • hours of work shall be between 7am and 6pm Monday to Saturday • construction vehicles and equipment shall have appropriate measures fitted and be effectively maintained to minimise engine noise • noisy equipment shall be enclosed where possible • advise local residents in advance when unavoidable out-of-hours work will occur. The contractor shall obtain the Superintendent's approval prior to undertaking works outside of the above hours.
PART I - FLORA AND FAUNA	
176.I1 FLORA AND FAUNA	(a) General All work under the Contract shall comply with the following requirements: • avoid, minimise and offset (where appropriate) the removal of native vegetation during construction • avoid injury to fauna or damage to protected vegetation or habitat • protect significant flora and fauna sites, species or habitat not previously identified. (b) Permits and Approvals Permits from relevant authorities shall be obtained prior to disturbance of flora/fauna sites or relocation of native fauna affected by works under the Contract. Works under the Contract shall comply with all permits and approvals and associated conditions. (c) Protection of Flora and Fauna Areas of existing vegetation and native fauna habitat identified to be retained, shall be identified as 'No-Go Zones' and protected by temporary fencing and signage. **HP Prior to removing any vegetation or habitat, the Contractor shall arrange an on-site inspection with the Superintendent and other relevant authorities to confirm and clearly identify and mark trees, vegetation or habitat to be removed. Any removal shall be**

		consistent with the Contract drawings and any relevant permits and shall fence and sign all sites nominated as No-Go Zones. Plant, equipment, material or debris shall not be placed or stored within the limit of the root zone of the tree or vegetation to be retained. (d) Soil Compaction The Contractor shall avoid trafficking and compacting, or storing materials on soil in all areas that are currently vegetated and those areas to be re-vegetated. (e) Monitoring The Contractor shall undertake monitoring of the condition of flora and fauna habitat sites and protective measures at the site every 7 days.
176.I2	**WEED PEST AND DISEASE MANAGEMENT**	(a) General Declared weeds, pests and diseases (also referred to as pathogens) shall not be introduced to the Site, spread through the Site, or removed from the Site as a consequence of work under the Contract. The Contractor shall prevent the spread of declared weeds, pests and diseases within the Site and off-site through the implementation of controls that as a minimum shall include: • treatment of declared weeds prior to the commencement of any ground disturbing activities • response to their identification through monitoring of the site • management of weed and soil pathogen potential within imported materials • provisions for cleaning plant and equipment at the following times - - prior to arrival on Site - prior to departure from Site - prior to movement within the Site from infested to non-infested areas. (b) Monitoring The Site shall be monitored for the presence of weeds and pests. At intervals of not more than 7 days.
PART J - CULTURAL HERITAGE		
176.J1	**CULTURAL HERITAGE**	(a) General Cultural heritage sites and areas of cultural significance shall not be damaged, disturbed or otherwise adversely impacted unless an appropriate authorisation has been obtained. Where a Cultural Heritage Management Plan (CHMP) has been prepared for the project, the Contractor shall comply with the Plan in relation to any discovery. Where a CHMP for the project is not required, the Contractor shall obtain a Cultural Heritage Permit prior to any disturbance of cultural heritage sites and shall comply with all conditions of any permits.

	The Contractor shall identify and protect with clearly marked fencing all nominated archaeological and/or heritage areas prior to commencing work on site. (b) Discovery of Cultural Heritage The following procedure will apply in the event of the discovery i.e. uncovering and/or identification of any cultural heritage during works: • immediate notification to the Superintendent; • work at the immediate location to be suspended, and the site isolated by a 'No-Go Zone' as specified in Clause 177.J1(e), pending completion of an evaluation of the cultural heritage and the determination of an appropriate course of protective action; • the Contractor shall evaluate the nature and extent of the cultural heritage. A cultural heritage advisor shall be engaged to assist in this evaluation; • work greater than 50 metres away from the area in which the cultural heritage was uncovered and/or identified may recommence and continue. Work in areas less than 50 metres from the cultural heritage site may proceed if agreed by the relevant approval authority, and in consultation with any other relevant cultural heritage stakeholders and the Superintendent; • the Contractor shall consult with the Superintendent, relevant approval authorities, any monitor(s) on site and the Contractor's cultural heritage advisor to determine the process to be followed to manage the discovered cultural heritage, and how to proceed with the works. The Superintendent's agreement shall be obtained to the proposed process for management of the discovered cultural heritage prior to implementation; • within 24 hours notify any monitor(s) on site, any engaged cultural heritage advisor and the relevant approval authorities of the discovery of cultural heritage and its location; • the Contractor shall obtain a cultural heritage permit prior to any disturbance of cultural heritage discovered during construction and shall comply with all conditions of any such permits. Removal of any cultural heritage from the site shall be undertaken in accordance with statutory requirements and relevant cultural heritage permit conditions; • works may recommence in the relevant area if all relevant cultural heritage records have been updated and/or completed, and - works can resume without risk to the discovered cultural heritage, or the discovered cultural heritage been removed from the relevant part of the works area, or any agreed or stipulated cultural heritage management actions have been fully implemented. (c) Monitoring The Contractor shall undertake a visual assessment of the site for cultural heritage during ground disturbing activities.
PART K - REPORTING	
176.K1 REPORTING	(a) General

All environmental monitoring results and all non-conformance reports relating to environmental performance and current status shall be submitted to the Superintendent.

The Contractor shall submit to the Superintendent copies of the data/information listed in Table 176.K1.01. This submission shall include both the data for the latest report and a summary of data collected to date under the Contract.

Table 176.K1.01

Data/Information	Frequency
Pollution Infringement Notices or Pollution Abatement Notices and/or any notices of prosecution.	Within 24 hours of receipt by the Contractor.
Statutory documents obtained by the Contractor as part of the project (e.g. permits).	Within one week of receipt by the Contractor.
Results of any air quality and water quality monitoring undertaken as part of the project.	At completion of Works
Itemised fuel (diesel unleaded and LPG) use on-site by contractors and sub-contractors.	At completion of Works
Itemised volumes/quantities, including recycled materials, for the following: • concrete • steel (reinforced and other) • road surface material i.e. spray seal, asphalt • aggregate • cement treated crushed rock • fill material • lime stabilized aggregate • plastic products • copper wire.	At completion of Works
Itemised quantities and types of materials sent offsite including prescribed waste certificates.	At completion of Works
Itemised quantities and sources of all water used on site.	At completion of Works
Itemised quantities of energy use (electricity and gas) including the proportion of renewable sources.	At completion of Works

	(b) Notice of Authority Inspections The Contractor shall notify the Superintendent within 24 hours of all environmental inspections, correspondence and/or discussions with the EPA or other authorities.
176.K2 ENVIRONMENTAL INCIDENTS	In the event that an environmental incident occurs in relation to the work under the Contract, the Contractor shall: • take immediate action to avoid continuance of the incident (which may include cessation of work), and to minimise the effect of the incident on the environment • immediately notify the Superintendent and EPA Pollution Watch (Tel. 1300 EPA VIC) or other responsible authorities of the incident (or by 9am the next working day if the incident occurs outside of working hours) • submit to the Superintendent for review an incident report within 7 days of the incident. The incident report shall include photographs where available and cover details of the incident, and the proposed corrective action to avoid a re-occurrence.

PART L - REFERENCES

Table 176.L1.01 References

STATUTORY GUIDELINES / PUBLICATIONS
Environment Protection Authority Publication 275 – Construction Techniques for Sediment Pollution Control
Environment Protection Authority Publication 347 – Bunding Guidelines
Environment Protection Authority Publication 448 – Classifications of Wastes
Environment Protection Authority Publication 480 – Environmental Guidelines for Major Construction Sites
Environment Protection Authority Publication 464.2 – Guidelines for Environmental Management - Use of Reclaimed Water
Environment Protection Authority Publication 960 – Doing It Right On Subdivisions
Environment Protection Authority Publication 1178 – Off-site Management and Acceptance to Landfill
Industrial Waste Resource Guidelines (IWRG701): Sampling and analysis of waters, wastewaters, soils and waste
State Environment Protection Policy (Groundwaters of Victoria)
State Environment Protection Policy (Prevention and Management of Contaminated Land)
State Environment Protection Policy (Waters of Victoria) and schedules
VICROADS DOCUMENTS
VicRoads Sustainability and Climate Change Policy

VicRoads Guide to Managing Environmental Risks during Road Construction and Maintenance Guidelines
VicRoads Integrated Water Management Guidelines
VicRoads Contaminated Land (Planning, Construction & Maintenance) Guidelines
VicRoads Cultural Heritage Guidelines
VicRoads Biodiversity Guidelines
VicRoads Noise Guidelines - Construction and Maintenance Works
AUSTRALIAN STANDARDS
AS 2724.5 (1987) Ambient Air Particulate Matter Part 5 – Determination of impinged matter expressed as direction dirtiness, background dirtiness and/or area dirtiness (directional dust gauge method)
AS 3580.10.1 (2003) – Method for sampling and analysis of ambient air. Method 10.1 Determination of particulate matter – deposited matter – Gravimetric method
AS 3580.9.6 Methods for sampling and analysis of ambient air Method 9.6: Determination of suspended particulate matter - PM10 high volume sampler with size selective inlet - Gravimetric method
AS 3580.9.7 Methods for sampling and analysis of ambient air Method 9.7: Determination of suspended particulate matter - PM10 dichotomous sampler - Gravimetric method
AS 3580.9.8 Methods for sampling and analysis of ambient air Method 9.8: Determination of suspended particulate matter — PM10 continuous direct mass method using a tapered element oscillating microbalance analyser
AS 3580.9.9 Methods for sampling and analysis of ambient air Method 9.9: Determination of suspended particulate matter - PM10 low volume sampler - Gravimetric method
AS 3580.9.11 Methods for sampling and analysis of ambient air Method 9.11: Determination of suspended particulate matter - PM10 beta attenuation monitors
ADDITIONAL REPORTS AND TOOLS
Austroads Guide to Road Design - Part 6B: Roadside Environment and VicRoads Supplement to AGRD Part 6B
Engineers Australia - Australian Runoff Quality – A guide to Water Sensitive Urban Design
International Erosion Control Association – Best Practice Erosion and Sediment Control
Melbourne Water (2005) WSUD Engineering Procedures: Stormwater
VicRoads Carbon Gauge Calculator 2012
VicRoads Temporary Sedimentation Basin Design Tool
VicRoads Project Environment Protection Strategy

CONTRACT SPECIFIC - CLAUSES

SECTION 100 - GENERAL

100.1 EXTENT OF WORK

The works under this Contract are located on Pyrenees Highway Sec 2, Muckleford South, Green Gully, Newstead. Work is to be completed on both sides of the road between chainages 10.90- 15.0KM.

Notwithstanding the limits noted above, any works required to be undertaken as part of the above works (including traffic control as required) or as directed by the Superintendent may extend beyond these limits.

Drawing Nos. 761356- 761374 in Section VI of the Specification detail the location and nature of the work to be performed. The quantities indicated in the Drawings are **estimates only**. Actual quantities shall be verified by the Contractor from on-site investigation and the drawings. Unless specified, chainages indicated in the drawings are to be based on the nearest kilometre marker in the approach direction to the site.

HP **The contract specific drawings in Section IV of the contract documents, sets out the limits of works at each site. The Contractor shall peg out the Limit of Works for approval by the Superintendent prior to undertaking any works on site. The Contractor shall arrange an onsite inspection to verify the limits of the works with the Superintendent at least 5 working days prior to the commencement of the works. The Contractor shall provide the Superintendent at least 1 working days' notice prior to the inspection. All areas of native vegetation outside the Limit of Work shall not be disturbed (refer to clause 200.2 for limits of tree and regrowth removal).**

The works under this Contract, as detailed in the Specification, Standard Drawings and Contract Specific Drawings, generally consist of the following:

General	Site establishment and removal, site management and supervision, provision for traffic and staging of the works, preparation and management of the quality system (including environmental and OH&S management) and supply, installation and removal of Community Information Billboard signs.
Earthworks	Clearing, grubbing, stripping, stockpiling of topsoil, placement and compaction of fill material. Flattening / widening of some verges and batters. Topsoiling and seeding.
Vegetation	Removal of trees, scrub and regrowth identified in the Specification. Refer to Table 3 Tree Removals & contract specific drawings.
Drainage	Culvert extensions, installation and construction of endwalls, relocation and reshaping of table drains, and supply and installation of a small quantity of rock beaching.
Pavement Construction	Pavement and Bell mouth construction and sealing works as marked on the Contract Specific drawings.
Safety Barriers	Supply and installation of wire rope safety barriers and guard fence including terminals at locations specified and concrete maintenance strip(s) where specified. Refer to Contract specific

	drawings, standard drawings, and attached VicRoads design notes. The works include formation widening as per the offset requirements, supply, place and compact structural fill as per the relevant cross sectional drawing. The Contractor shall verify the location of barriers at the site with the Superintendent prior to the installation. Other Works — Linemarking, signage, guideposts and other items required to complete the works in accordance with contract specific drawings and the specification. The Contractor should note that chainages increase when travelling from Muckleford South to Newstead. LHS means left hand side of the road when travelling in the direction of increasing chainage. RHS means right hand side of the road when travelling in the direction of increasing chainage.
100.2 ENVIRONMENTAL MANAGEMENT	Further to Section 176, the Contractor shall develop an Environmental Management Plan for the Contract. The Contractor's Environmental Management Plan (EMP) shall include, but not be limited to: (a) details of approvals and licenses to meet statutory requirements; (b) the name of a person, directly responsible to the Contractor's senior management, who has the defined responsibility for ensuring implementation of the EMP; (c) emergency contacts, and procedures to ensure after hours attendance at the site in the event of an emergency; (d) authorised personnel and procedures for amending the EMP; (e) a site induction and training plan to ensure that all site personnel are aware of how the EMP is to be implemented in relation to the stage of the works, including any possible emergency response procedures - the plan shall include personnel to be trained, training objectives, induction procedures; (f) arrangements to ensure that subcontractors comply with the requirements of the EMP; (g) details of the nature and location of environmental aspects pertaining to the stage of the Works and associated environmental objectives, monitoring controls and procedures; (h) timing and responsibility for implementing, maintaining, assessing and monitoring of environmental controls; (i) emergency response procedures for containing environmental damage, and procedures for restoration activities; (j) procedures for registration, reporting and investigation of environmental incidents or complaints relating to any environmental matter under the Contract; (k) environmental inspection and test plans with checklists; In preparing the Environmental Management Plan, the Contractor shall consult with the Environment Protection Authority and other relevant authorities. The plan shall be developed with reference to the Environment Protection Authority's Publication No. 480, "Environmental Guidelines for Major Construction Sites" and any specific requirements of relevant authorities. The Environmental Management Plan shall demonstrate, as a minimum, compliance with the requirements of the "Catchment and Land Protection Act 1994", the "Environmental Protection Act 1970", and other relevant Acts of Parliament, Regulations, Ordinances, By-laws and State Environmental Protection Policies. **HP The Contractor shall submit to the Superintendent its final EMP for all activities associated with the project within 14 days after the award of the Contract. Work shall not commence until the Superintendent is reasonably satisfied that the plan meets the requirements of the specification and authorises release of this Hold Point.**

	The Superintendent may arrange to audit the Environmental Management System and Plan and may request corrective action as part of the ongoing surveillance of the Contractor's Quality System. If the Contractor does not take action within 7 days of receipt of a Corrective Action Request, remedial action may be arranged by the Superintendent and the cost of such remedial work shall be deducted from money due to the Contractor. Urgent works will be treated in accordance with the General Conditions of Contract.
100.3 IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN	The Contractor shall be responsible for the implementation of measures to control air and water pollution emanating from the site at all times during the contract. The cost of compliance with these requirements shall be deemed to be included in the tender sum. The Contractor shall: (a) Have an awareness of the Conservation value of the roadside (high, medium or low conservation status) and an understanding of the implications of these values on road construction and maintenance techniques. The sites are classified as being of high conservation value and all native vegetation needs to be sensitively managed. (b) Locate material stockpiles and store plant and equipment at sites approved by the Superintendent. Designated plant, equipment and material storage sites within the road reserve shall be stripped of topsoil prior to the commencement of work, and topsoiled and seeded at the completion of works. The location of construction compounds and site offices shall be on land already cleared of vegetation, subject to the approval of the Superintendent. (c) Select turning points for plant and equipment, to minimise surface and vegetation disturbance and shall only use those turning points approved by the Superintendent. (d) Restrict in-field plant service operations to designated cleaning/service sites. (e) Ensure that all topsoil, fill and pavement material used in the works, brought into or removed from the worksite is free of weed, vermin and/or pathogen contamination. Any occurrence of weed infestation is to be reported immediately to the Superintendent and remedial action initiated. (f) Ensure the protection of all trees that are not identified for removal. (g) Adopt construction methods that minimize the spread or introduction of weeds and / or fungal contamination on or adjacent to the site. This shall include, but not be limited to cleaning plant prior to arriving on site, and cleaning plant at the end of each day at an appropriately designated and controlled site. (h) Minimise air pollution due to construction by watering of works areas to suppress dust. (i) Minimize the risk of soil erosion and sediment pollution of the site, adjacent land, watercourses, waterbeds and wetlands, by implementing erosion and sediment control measures during works, particularly those works involving disturbance of roadsides or work within waterways. All items listed above shall be detailed in the Environmental Management Plan.
100.4 SWIFT PARROT	The Swift Parrot is a nationally threatened species. It is an Australian endemic winter migrant from Tasmania. The Parrots breed during summer in open, dry, grassy sclerophyll woodlands, usually

	associated with Tasmanian Blue Gum. Birds arrive in Victoria in February and March, and spend the winter in Victoria, and eastern parts of Australia, as far north as Brisbane. The Parrots then return to Tasmania in August and September. During its winter visit to mainland Australia, Swift Parrots generally prefer Box-Ironbark forests and woodlands inland of the Great Dividing Range. In Box-Ironbark woodlands one study found their preferred nectar came from White Box Eucalyptus albens (19.5% of observations), but also included a range of other species including Yellow Gum Eucalyptus leucoxylon, Yellow Box Eucalyptus melliodora and Grey Box Eucalyptus microcarpa, all of which are found within the Project Area. To minimise potential impact on the Swift Parrot the following measures will be undertaken: 1. Vegetation works will occur only between November 2016 and January 2017. 2. VicRoads will induct all construction personnel prior to the commencement of works. The induction will include communication about the Project approvals / permits conditions, Contract environmental requirements, authorised native vegetation clearances, fauna management, defined "Limits of Works' for authorised native vegetation removal and 'No Go Zones'. 3. VicRoads will employ a zoologist to manage and salvage any fauna encountered during tree removal works.
100.5 CULTURAL HERITAGE MANAGEMENT	Further to Clause 176. J1 the following shall apply to all cultural heritage management for the works: (a) General Cultural heritage sites and areas of cultural significance shall not be damaged, disturbed or otherwise adversely impacted. The cost of compliance with these requirements shall be deemed to be included in the tender sum. Where a Cultural Heritage Management Plan for the project is not required: • The work under the Contract shall be undertaken to comply with any cultural heritage management procedures or initiatives outlined in a cultural heritage agreement or cultural heritage permit relevant to the project. **Any identified** Cultural Heritage shall be protected during site establishment and construction. • Where a cultural heritage permit has been obtained, prior to any disturbance of cultural heritage sites the Contractor shall comply with all conditions of any permits obtained. • Any cultural heritage sites discovered during construction works shall be managed in accordance with (b), (c), (d) and (e) and shall comply with all conditions of any such permits, if required. (b) Discovery of Cultural Heritage Where a Cultural Heritage Management Plan has been prepared for the project, the Contractor shall comply with the Plan in relation to the processes outlined for any discovery of Cultural Heritage during construction. Where a Cultural Heritage Management Plan has not been prepared for the project, the following procedure will apply in the event of the discovery i.e. uncovering and/or identification of any Cultural Heritage during construction: • Immediate notification of the Superintendent; • Work at the immediate location to be suspended, and the site isolated by a "No-Go Zone" as specified in 176.JI and Clause (d) (below) pending completion of an evaluation of the Cultural Heritage and the determination of an appropriate course of protective action; • For any aboriginal cultural heritage, VicRoads and /or the Contractor as agreed with the Superintendent will within 24 hours notify any engaged Cultural Heritage Advisor, Registered Aboriginal Party (RAP) and Aboriginal Affairs Victoria of the discovery of Cultural Heritage and its location. Contact details for Aboriginal Affairs Victoria are:

	o Aboriginal Affairs Victoria – Heritage Services Branch. Level 9, 1 Spring Street, Melbourne Vic 3000. Telephone 1800 762 003 • For any historic or non-Aboriginal archaeological deposits (such as deposits of artefacts – including bottles, sub-surface features or structural remains), VicRoads and /or the Contractor as agreed with the Superintendent will within 24 hours notify Heritage Victoria of the discovery of Cultural Heritage and its location. Contact details for Heritage Victoria are o Heritage Victoria., Level 9, 8 Nicholson Street, EAST MELBOURNE VIC 3002. Telephone: 03 8644 8800 or 1300 366 356. • The Contractor shall evaluate the nature and extent of the Cultural Heritage. A Cultural Heritage Advisor shall be engaged to assist in this evaluation; • Work greater than 50 metres away from the area in which the Cultural Heritage was uncovered and/or identified may recommence and continue. Work in areas less than 50 metres from the Cultural Heritage site may proceed if agreed by the relevant Cultural Heritage Approval Authority, and in consultation with any other relevant cultural heritage stakeholders and the Superintendent; • The Contractor shall consult with the Superintendent, relevant Cultural Heritage Approval Authorities, any monitor(s) on site and the Contractor's Cultural Heritage Advisor to determine the process to be followed to manage the discovered Cultural Heritage, and how to proceed with the works. The Superintendent's agreement shall be obtained to the proposed process for management of the discovered Cultural Heritage prior to implementation. • The Contractor shall obtain a Cultural Heritage permit prior to any disturbance of Cultural Heritage discovered during construction and shall comply with all conditions of any such permits. Removal of any Cultural Heritage from the Site shall be undertaken in accordance with statutory requirements and relevant Cultural Heritage permit conditions. • Works may recommence in the relevant area if all relevant Cultural Heritage records have been updated and/or completed, and: ▪ Works can resume without risk to the discovered Cultural Heritage; or ▪ The discovered Cultural Heritage been removed from the relevant part of the works area; or ▪ Any agreed or stipulated Cultural Heritage management actions have been fully implemented. (c). Discovery of Human Remains In the case of discovery of human remains, in accordance with the requirements of the Coroners Act 1985 (Vic), VicRoads or its Contractor will also immediately notify the local office of Victoria Police or the State Coroner's Office (ph:1300 309 519) or the DSE Emergency Coordination Centre (ph: 1300 888 544) of the discovery. Where a Cultural Heritage Management Plan has been prepared for the project, the Contractor shall comply with the Plan in relation to the processes outlined for any discovery of Human Remains . Where a Cultural Heritage Management Plan has not been prepared for the project, the Contractor will comply with the following if upon confirmation that the discovery consists of Aboriginal Human Remains: • VicRoads will report that discovery (including the particulars of the location and nature of the human remains) to Aboriginal Affairs Victoria through the Department of Sustainability and Environment's Emergency Co-ordination Centre (ph: 1300 888 544). • VicRoads will also notify the Secretary to the Department for Victorian Communities of the discovery as soon as is practicable, and will give the Secretary any additional details about the location and nature of the human remains that the Secretary reasonably requires. • Any such remains are not to be touched or otherwise interfered with, other than to safeguard them from further disturbance, and the media shall not be contacted. (d) Protection of Cultural Heritage

	The "No-go Zone" for protection of Cultural Heritage discovered during the work under the Contract shall meet the following requirements: • Temporary fencing a minimum of 1 metre beyond the limit of the Site, with minimal below-ground impact; • Signage indicating the presence of Cultural Heritage; and • Retained in-place for the duration of the construction period (until Practical Completion), or until removal of the Cultural Heritage from the Site. (e). Monitoring The Contractor shall undertake a visual assessment of the Site for Cultural Heritage during ground disturbing activities. The condition of heritage sites and protective measures at the sites shall be monitored at the following intervals: When construction activities are occurring in the vicinity of the sites: Daily At other times: At least every 7 days
SECTION 200 - FORMATION CONSTRUCTION	
100.6 CLEARING AND GRUBBING	The extent of clearing and grubbing shall be verified with the Superintendent. The Contractor shall clearly delineate the limits of the clearing and grubbing and shall be maintained for the duration of the Contract, unless otherwise directed in writing by the Superintendent. No construction plant or vehicles, including employee vehicles, shall travel outside the clearing limits except on access tracks clearly defined on the Contractors EMP. All clearing and grubbing shall be carried out by suitable experienced personnel employing appropriate procedures. The contractor should also note that clearing and grubbing includes the removal of all trees <100mm Diametre at Breast Height (DBH) as required to complete the specified works, and that these trees will not be listed in the Schedule of Drawings, Table 3- Vegetation removal.
100.7 REMOVAL OF NATIVE VEGETATION	Further to Contract specific Clause 100.1, the Contractor shall not remove native vegetation unless directed by the Superintendent, and works must be limited to the Limit of Works as defined in Table 4. The trees that are required to be removed are shown in the attached contract drawings and Table 3. Locations are approximate only and the Contractor shall verify all locations on site. The contractor should note that trees <100mm Diametre at Breast Height (DBH) are not listed in the attached contract drawings or Table 3. Any tree <100mm DBH that is required to be removed in order to complete part of the works activities on the contract drawings shall be removed. No separate payment will be made for this work. The Contractor shall comply with any relevant Fauna Management Plan and during vegetation removal shall observe any recommendations by a qualified zoologist as directed by the Superintendent. Trees are to be progressively lopped in accordance with safe tree lopping procedures and stumps ground out to 300mm below adjacent ground surface levels, backfilled and compacted with Type B common fill in maximum 150 mm layers. Trees shall not be felled on to the traffic lanes or sealed shoulders of the roadway or onto adjoining native vegetation. The highway shall not be closed to traffic for the purpose of felling trees across the road. The Contractor shall have in place suitable traffic management processes to allow vehicles to

	travel safely through the clearing / removal zone in accordance with the Traffic Management Plan submitted as per Clauses 100.5 and 100.8. All green timber and other suitable material generated by the tree removal and trimming and clearing operations is to be mulched. All surplus unmulchable material including dead timber shall be removed off site to a location approved by the Superintendent. Any unmulchable tree stumps not ground off below ground level may be used for fauna habitat subject to the approval of the Superintendent to retention and location. The Contractor shall remove the trees as specified and conduct works in general in such a way that all surrounding trees, other vegetation and adjacent structures and roadside fixtures remain undamaged. If any existing native vegetation to be retained is removed or damaged by the Contractor during the works, damages shall be applied and shall be deducted from the Contract Sum as calculated below. a) For trees and branches $P_D = 0.01 \times D \times \$200$ Where P_D is the amount of deduction per tree or branch damaged or removed. D is the diameter (mm) of the tree or branch measured 300mm above the base of the tree or branch b) For other vegetation $P_D = A \times \$200$ Where P_D is the amount of deduction for other vegetation damaged or removed. A is the area (m^2) of vegetation damaged or removed.
100.8 DISPOSAL LOCATIONS OF MEDIUM / LARGE TREES	4 medium/large (>500mm Diametre Breast Height (DBH)) trees at the front of Property No. 2704 Pyrenees Hwy are to be cut into 3m lengths and placed along the depression just inside the property line. All timber/branches (that isn't mulched) from the remaining medium/large trees (>500mm Diametre Breast Height (DBH)) are to be cut into 3m lengths and transported to the Newstead Landcare Group project site in Ramseys Lane approx 9km south of Newstead and tipped in piles within the site. Access restrictions mean that only a tipper can fit along the track. All other trees, after the tops are mulched, are to be cut into lengths and stockpiled for firewood for the community at a location to be determined by the Superintendent. The location will be within 5kms of the limits of the site. All costs associated with the disposal of these trees shall be included in Scheduled items 3.04 – 3.07 as appropriate.
100.9 TOPSOILING AND SEEDING	In all locations where works are to take place the Contractor shall strip and stockpile the topsoil in accordance with Section 204. Stockpiles shall be at locations agreed to by the Superintendent. All locations and disturbed areas shall be fully reinstated to the satisfaction of VicRoads: • The topsoiled areas shall be free of sealing aggregate, pavement material and/or other materials which may inhibit future grass mowing. • The contractor shall utilise topsoil that has come from existing worksites for site reinstatement. No extra payment will be made for the work. **HP The Contractor shall submit to the Superintendent for approval, 7 days prior to**

	undertaking any seeding works on site, a grass seed mix that shall be consistent with the existing native vegetation conservation values of the work site. • After topsoiling, supply and spread grass seed. Certified seed only shall be supplied. Seed purity shall be 98%, germination rate shall be 90% including fresh un-germinated seed. All seed supplied shall comply with the current Seeds Act of Victoria. • The grass seed mix is to consist of 75% sterile rye grass.

Appendix 3 – Construction plans and limits of works

This section includes the construction plans (20 pages).

vic roads

PYRENEES HIGHWAY - SECTION 2

10.90 to 15.00km

ROAD SAFETY TREATMENTS

13/10/2016

- \ \ \ \ **Limits of Works (LOW) – Marked on Plans**

NOTE 1: Limits of Works (LOW) = Is the distance in meters (m) from the edge of existing traffic lane (EOTL) at the designated road chainage (Ch). At each road (Ch) point, as marked, it denotes a change in the LOW as measured in meters from the EOTL.

NOTE 2: LOW – All areas of roadside / road reserve outside the marked LOW are NO GO ZONES until works completion. This includes un-marked areas where no works are indicated to occur on these plans. Areas excluded includes existing operational road stacksites, driveways and local side roads.

NOTE 3: NO GO ZONES are established directly adjacent to each worksite as marked on the Plans. All other areas of roadside / road reserve not within or adjoining worksites will remain undisturbed in accordance with NOTE 2.

Computer File: 2742amf0.dgn

Catalogue: Bendigo_Region

Project: Pyrenees

DRAWING No.761355

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VEGETATION CONTROLS

NO CONSTRUCTION ACTIVITY OR DISTURBANCE TO EXISTING VEGETATION BEYOND DESIGN TOE/TOP OF BATTER UNLESS SPECIFICALLY DIRECTED BY THE SUPERINTENDING OFFICER.

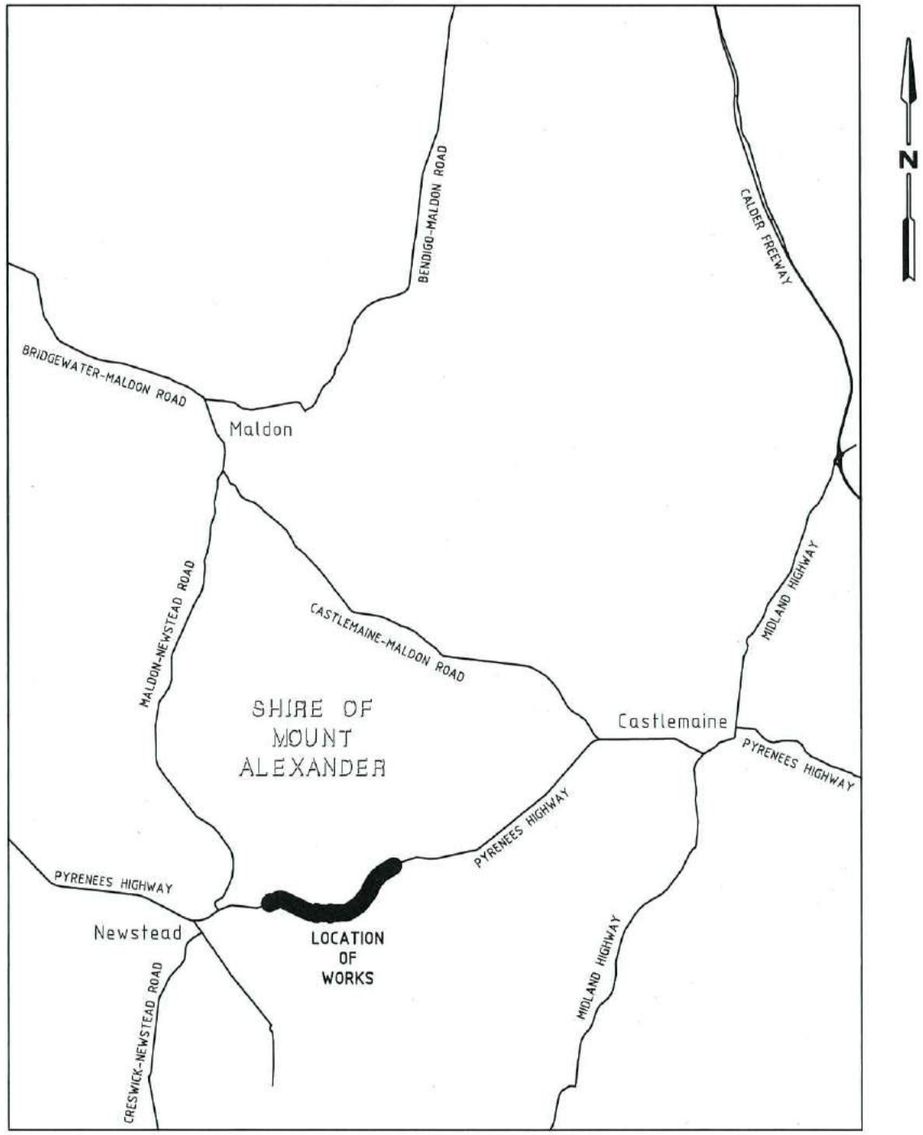
TREES LESS THAN 100mm DIAMETER AND LOCATED WITHIN 2.0m FROM FACE OF NEW SAFETY BARRIERS TO BE REMOVED

SIGNS, LINEMARKING & PAVEMENT DETAILS

a) PAVEMENT DETAILS FOR SHOULDER AND BELLMOUTH SEALING WORKS:
- SIZE 10 PRIMERSEAL
- 2 x 100mm LAYERS OF COMPACTED 20mm CLASS 1 CRUSHED ROCK.
- 1 x 75mm LAYER OF COMPACTED 20mm CLASS 3 CRUSHED ROCK

b) LINEMARK INTERSECTIONS AS PER VICROADS T.E.M, VOLUME 2, FIGURE 17.1

c) RELOCATE ALL SIGNS AS REQUIRED AND DIRECTED BY SUPERINTENDENT



LOCALITY PLAN
(NOT TO SCALE)

E				GENERAL NOTES
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C				
B				
A				
ISSUE	APP'D	DATE	AMENDMENT	

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amf1.dgn

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PYRENEES HIGHWAY - SECTION 2

ROAD SAFETY TREATMENTS
10.90 to 15.00km

TABLE OF CONTENTS, LOCALITY PLAN, & GENERAL NOTES

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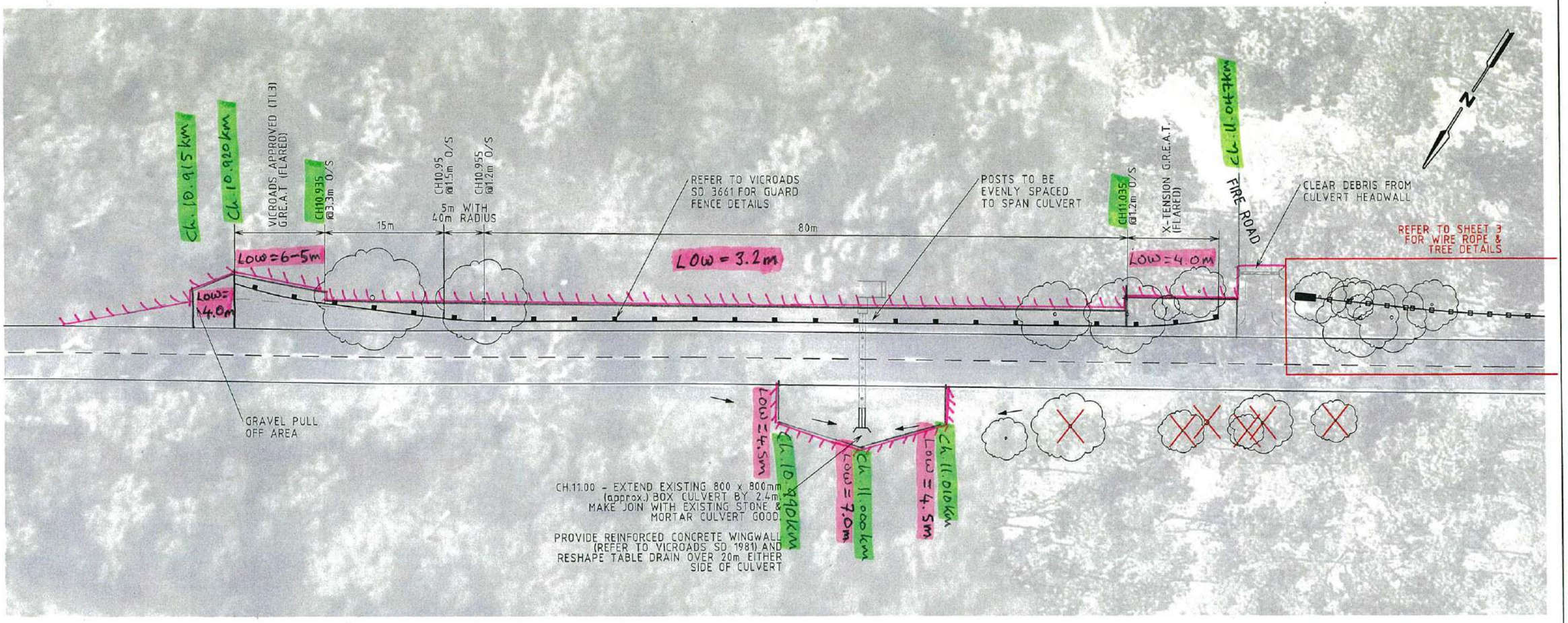

TREE REMOVAL SCHEDULE:
RHS:
- CH11.028: 4.5m O/S, 400mm DIA
- CH11.042: 5.0m O/S, 1 x 250 & 1 x 100mm DIA
- CH11.045: 3.7m O/S, STUMP
- CH11.050: 4.9m O/S, 200mm DIA
- CH11.052: 3.8m O/S, 350mm DIA
- CH11.061: 3.5m O/S, 1 x 250mm

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 11km POST.
2. ALL GUARD FENCE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE TO FACE OR RAILING.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILING.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
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DESIGNED A.Stanford (Total Property Developments) May 2015
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SCALE OF METRES
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PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE & OTHER WORKS
CH10.935 - 11.035

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
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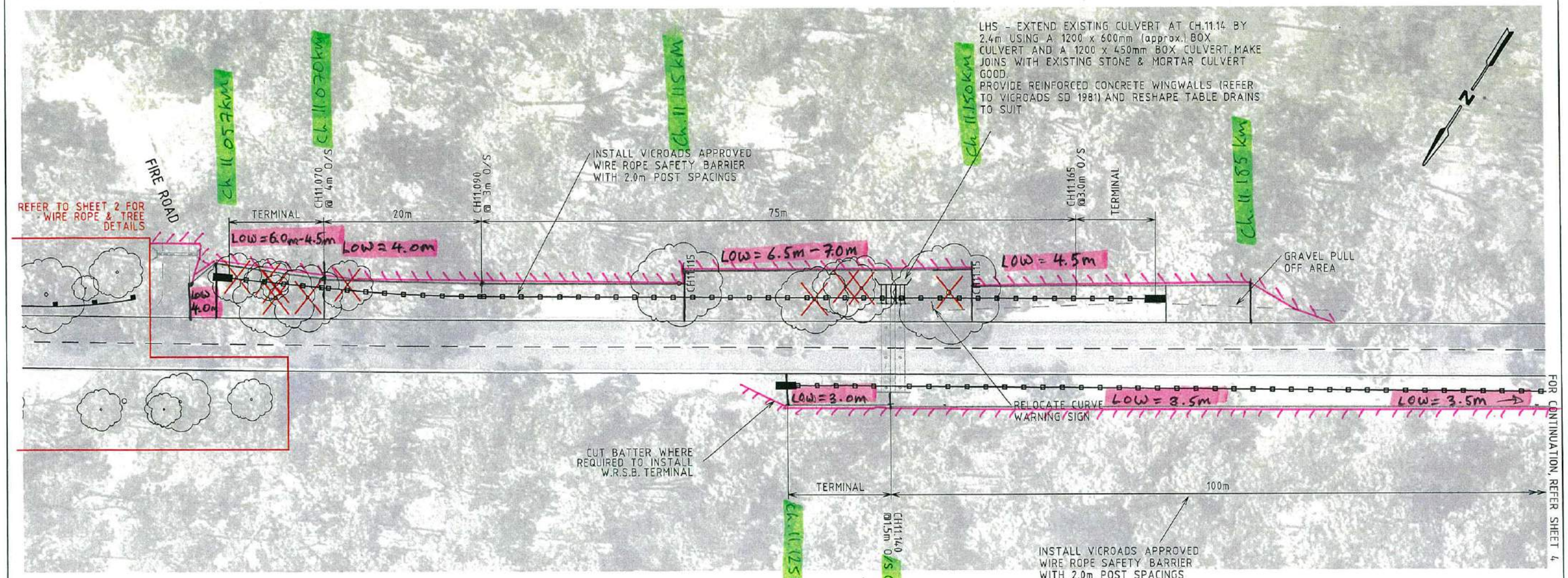

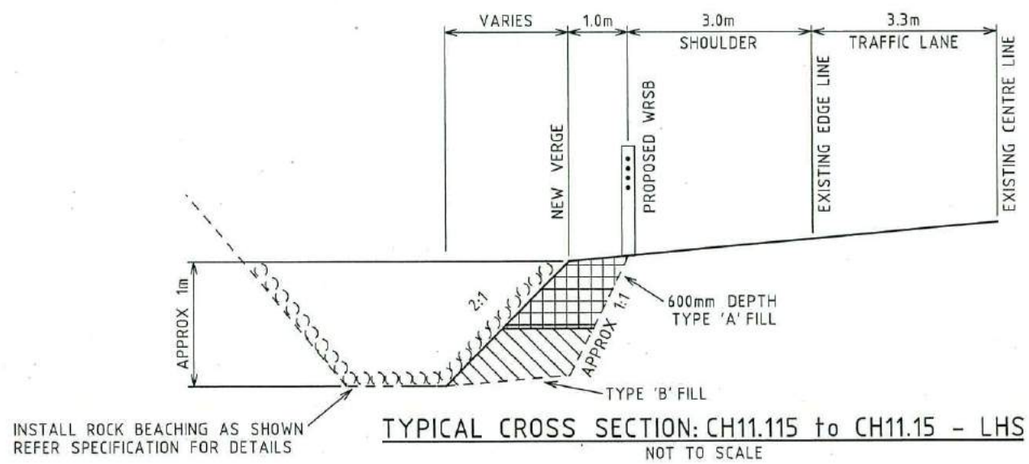

TYPICAL CROSS SECTION: CH11.115 to CH11.15 - LHS
NOT TO SCALE

TREE REMOVAL SCHEDULE:
LHS:
- CH11.059: 5.0mO/S, 3 x 300mm DIA
- CH11.063: 4.9m O/S, 250mm DIA (DEAD)
- CH11.064: 2.4m O/S, 450mm DIA & 3.9m O/S, 150mm DIA
- CH11.068: 2.5m O/S, 400mm DIA
- CH11.073: 4.2m O/S, 300mm DIA
- CH11.132: 2.6m O/S, 400mm DIA
- CH11.136: 4.2m O/S, 350mm DIA (DEAD)
- CH11.138: 4.0m O/S, FALLEN TREE
- CH11.149: 3.4m O/S, 600mm DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

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ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 11km POST.
2. ALL WIRE ROPE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE.
3. ALL WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 2.0m BEHIND PROPOSED WIRE ROPE SAFETY BARRIER.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
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DESIGNED
A.Stanford (Total Property Developments)
May 2015

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PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE SAFETY BARRIER & OTHER WORKS
CH11.065 - 11.165

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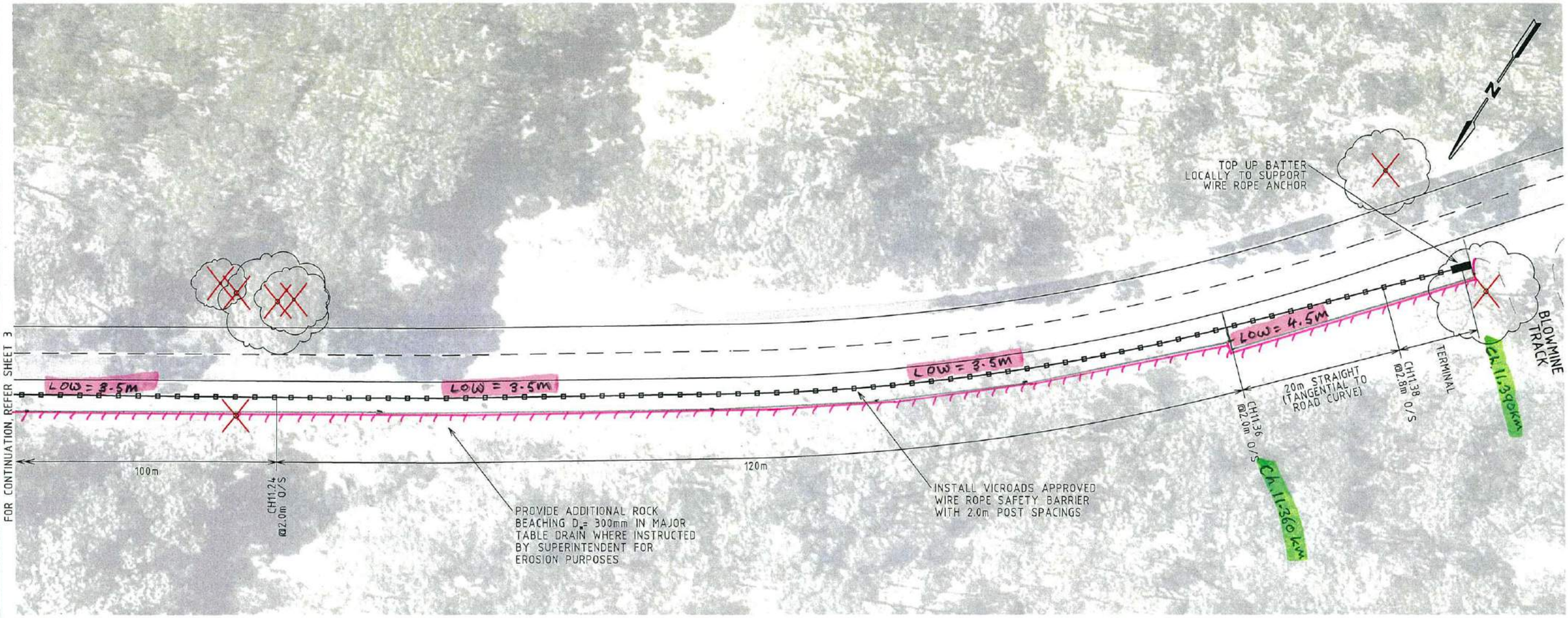

TREE REMOVAL SCHEDULE:

LHS:
- CH11.233: 5.3m O/S, 300mm DIA
- CH11.235: 4.0m O/S, STUMP
- CH11.240: 2.9m O/S, 700mm DIA
- CH11.242: 3.3m O/S, 400mm DIA
- CH11.385: 4.0m O/S, 500mm DIA

RHS:
- CH11.235: 4.0m O/S, STUMP
- CH11.392: 7.0m O/S, 800mm DIA

WARNING

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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 11km POST.
2. ALL WIRE ROPE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE.
3. ALL WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 2.0m BEHIND PROPOSED WIRE ROPE SAFETY BARRIER.

X DENOTES TREE FOR REMOVAL

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DESIGNED
A.Stanford (Total Property Developments)
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PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km

WIRE ROPE SAFETY BARRIER & TREE REMOVAL
CH11.22 - 11.38

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
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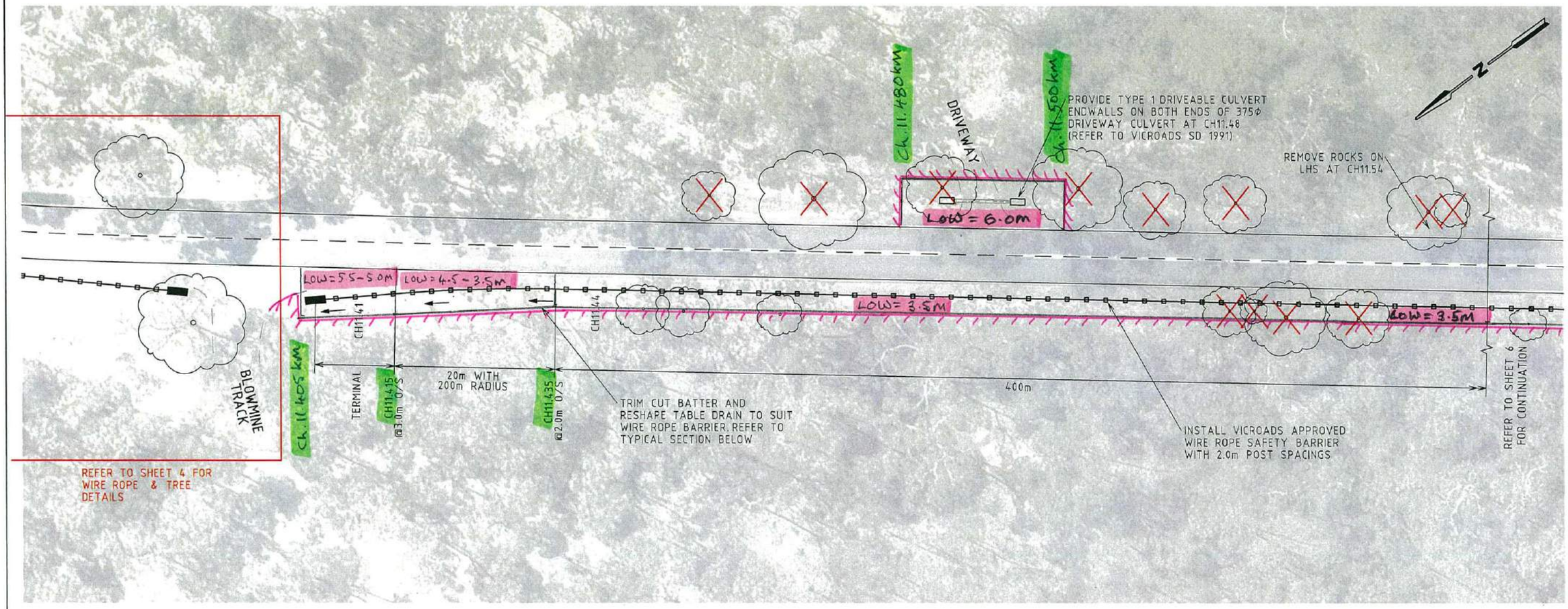

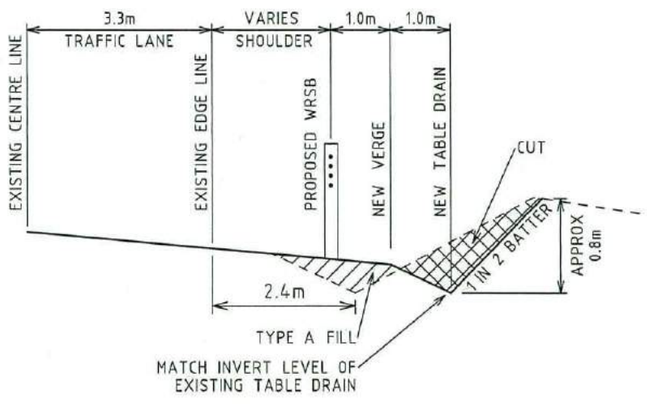

TYPICAL CROSS SECTION: CH11.41 to CH11.44 - RHS

NOT TO SCALE

TREE REMOVAL SCHEDULE:

LHS:
- CH11.454: 3.3m O/S, 300mm DIA
- CH11.467: 3.0m O/S, 600mm DIA
- CH11.485: 4.8m O/S, 400mm DIA
- CH.11.498: 4.8m O/S, 600mm DIA
- CH11.504: 2.6m O/S, 350mm DIA
- CH11.514: 3.6m O/S, 350mm DIA
- CH11.538: 3.0m O/S, 450mm DIA
- CH11.541: 3.4m O/S, 200mm DIA

RHS:
- CH11.513: 2.9m O/S, 2 x 300 & 2 x 150mm DIA
- CH11.516: 2.9m O/S, 150mm DIA
- CH11.520: 3.5m O/S, 450mm DIA
- CH11.529: 3.4m O/S, 350mm DIA

WARNING

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GENERAL NOTES
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2. ALL WIRE ROPE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE.
3. ALL WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 2.0m BEHIND PROPOSED WIRE ROPE SAFETY BARRIER.

X DENOTES TREE FOR REMOVAL

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A.Stanford (Total Property Developments)
May 2015

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PROJ: Pyrenees
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PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE, GUARD FENCE & OTHER WORKS
CH11.415 - 11.86 (SHEET 1 OF 3)

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		5 OF 19	761360	

TREE REMOVAL SCHEDULE:

LHS:

- CH.11.636: 3.3m O/S, 400mm DIA
- CH.11.669: 3.5m O/S, 300mm DIA
- CH.11.672: 4.2m O/S, 150mm DIA (DEAD)
- CH.11.686: 3.9m O/S, 500mm DIA
- CH.11.692: 5m O/S, 350mm DIA
- CH.11.698: 5m O/S, 300mm & 350 DIA
- CH.11.701: 5.7m O/S, 300mm DIA
- CH.11.703: 4m O/S, 400mm DIA
- CH.11.710: 5m O/S, 200mm DIA

RHS:

- CH11.550: 3.8m O/S, 200mm DIA
- CH11.571: 3.6m O/S, 1 x 300 & 1 x 250mm DIA
- CH11.632: 3.3m O/S, 200mm DIA
- CH11.680: 3.5m O/S, 400mm DIA
- CH11.709: 3.5m O/S, 250mm DIA
- CH11.711: 3.4m O/S, 300mm DIA

WARNING

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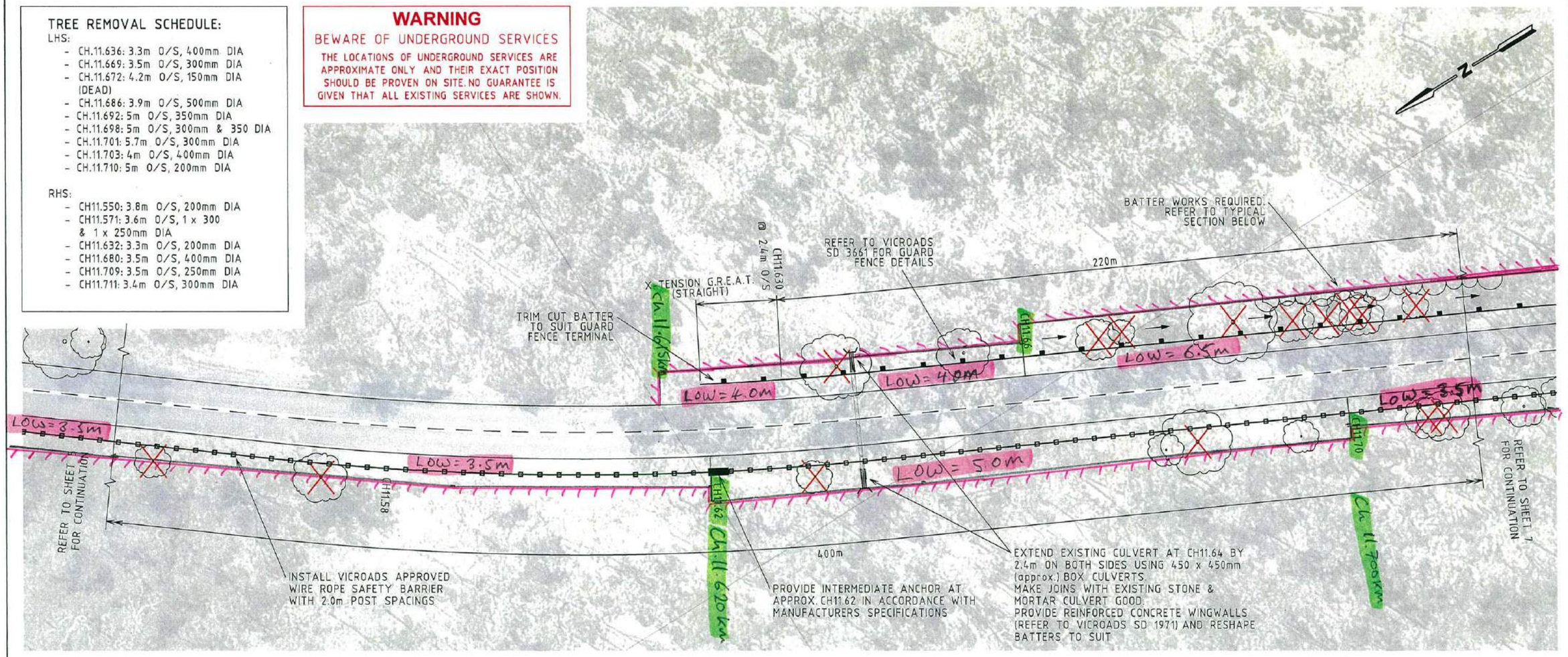
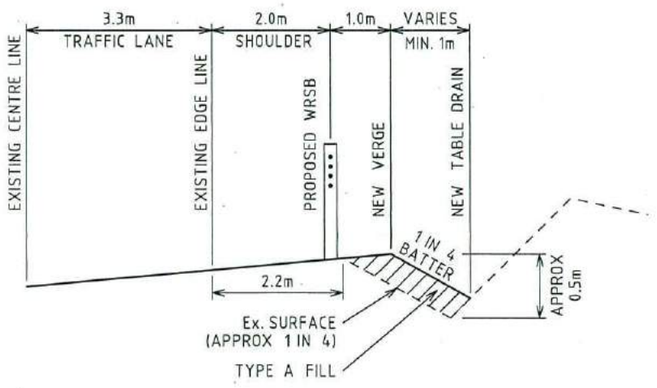
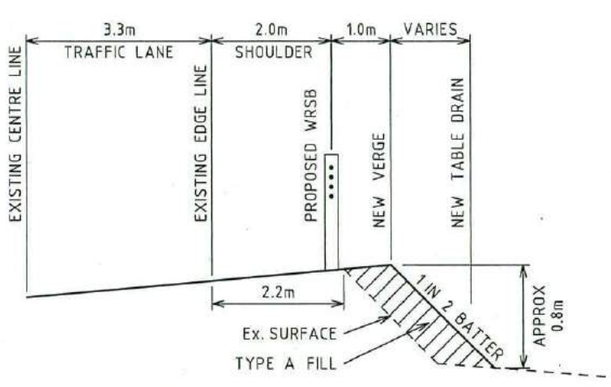




TYPICAL CROSS SECTION: CH11.58 to CH11.62 - RHS

NOT TO SCALE



TYPICAL CROSS SECTION: CH11.62 to CH11.70 - RHS

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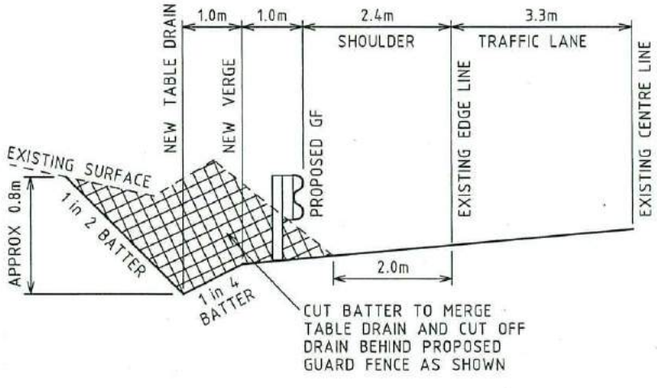

TYPICAL CROSS SECTION: CH11.66 to CH11.75 - LHS

NOT TO SCALE

ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES

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2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m AND WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS AND 2.0m BEHIND WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
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DESIGNED
A.Stanford (Total Property Developments)
May 2015

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PROJ: Pyrenees
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SCALE OF METRES
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PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE, GUARD FENCE & OTHER WORKS
CH11.415 - 11.86 (SHEET 2 OF 3)

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
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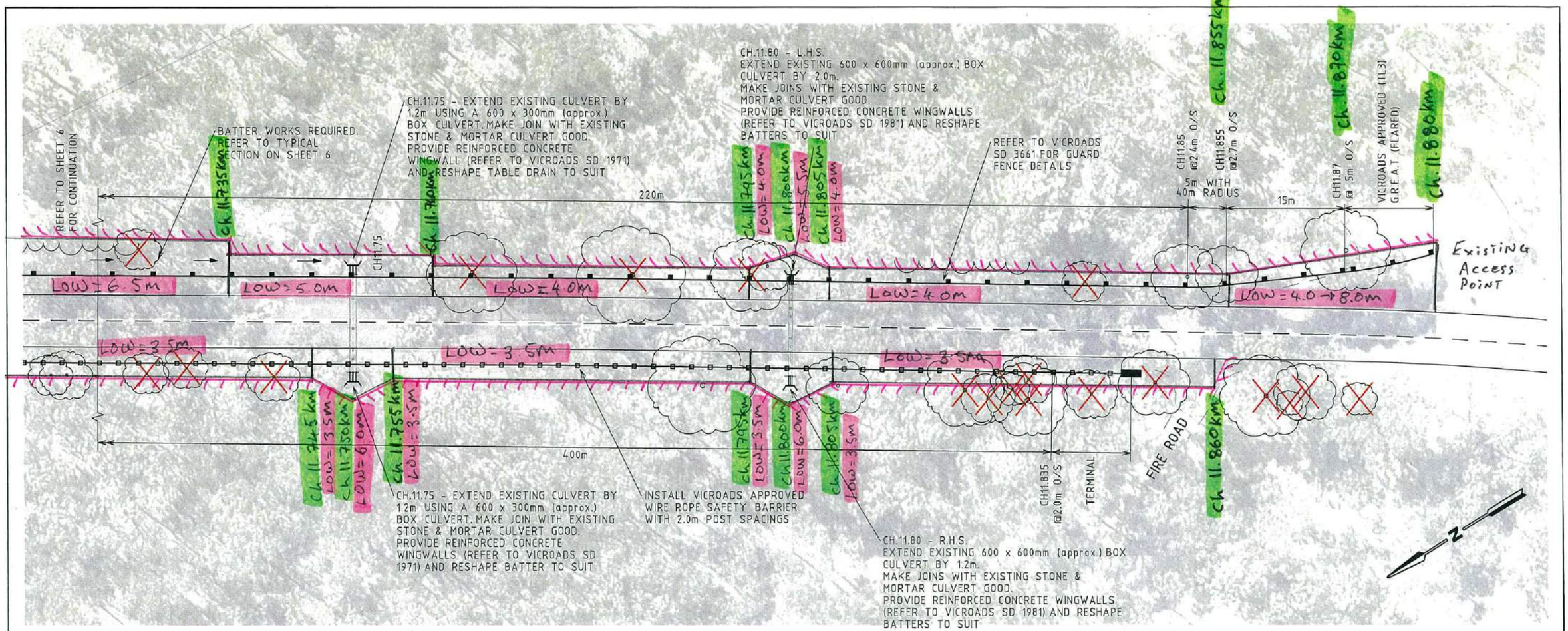

TREE REMOVAL SCHEDULE:

LHS:

- CH.11.722: 5m O/S, 300mm DIA
- CH.11.762: 2.8m O/S, 500mm DIA
- CH.11.782: 2.6m O/S, 600mm DIA
- CH.11.797: 2.8m O/S, 400mm DIA
- CH.11.837: 2.8m O/S, 250mm DIA

RHS:

- CH.11.721: 3.2m O/S, 250mm DIA
- CH.11.726: 2.5m O/S, 250mm DIA
- CH.11.737: 3.5m O/S, 300mm DIA
- CH.11.824: 4.2m O/S, 450mm DIA
- CH.11.827: 5.2m O/S, 300mm DIA
- CH.11.830: 4.1m O/S, 200mm DIA
- CH.11.832: 2.8m O/S, 300mm DIA & 5.2m O/S, 450mm DIA
- CH.11.840: 4.5m O/S, 300mm DIA
- CH.11.848: 2.9m O/S, 400mm DIA
- CH.11.862: 4.3m O/S, 500mm DIA
- CH.11.865: 5.3m O/S, 150mm DIA
- CH.11.867: 3.8m O/S, 350mm DIA
- CH.11.874: 4.6m O/S, 200mm DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

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3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m AND WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS AND 2.0m BEHIND WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
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DESIGNED
A.Stanford (Total Property Developments)
May 2015

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PROJ: Pyrenees
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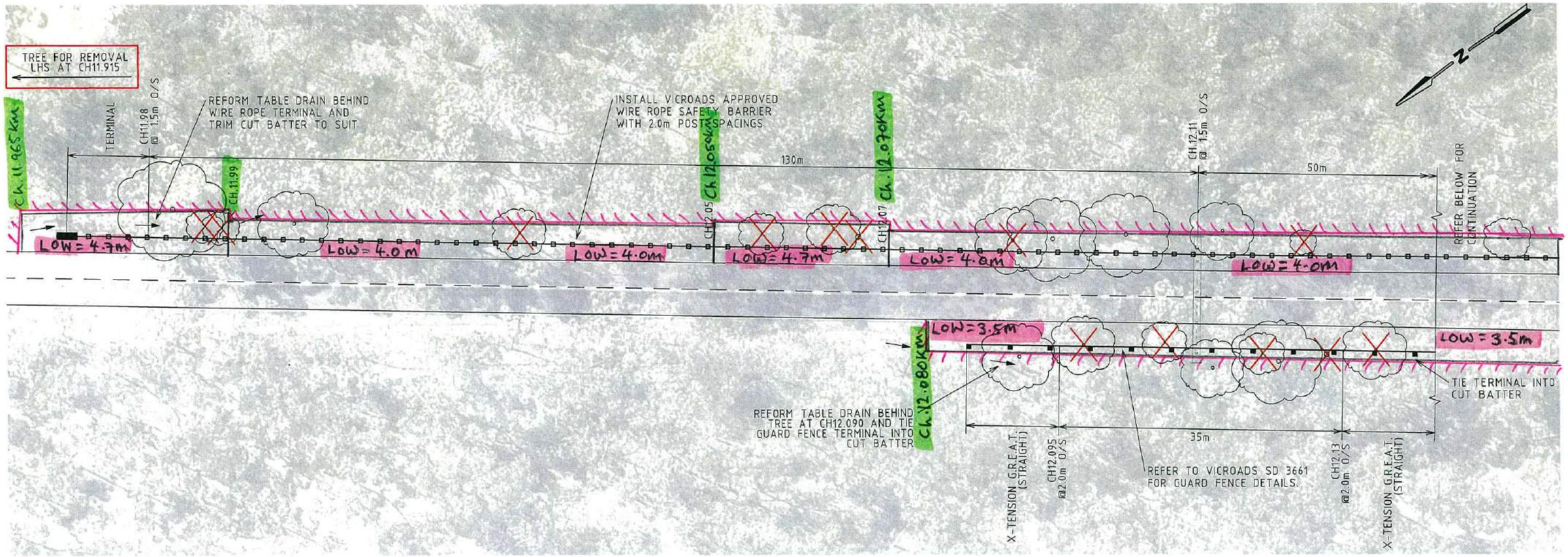
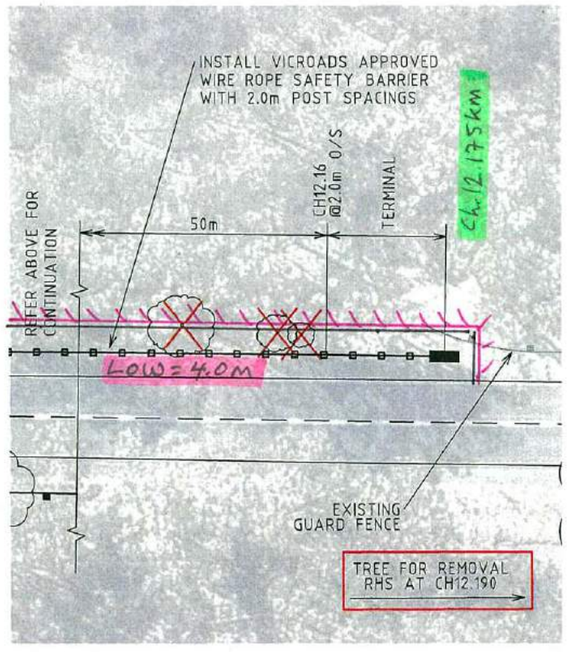
PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE, GUARD FENCE & OTHER WORKS
CH11.415 - 11.86 (SHEET 3 OF 3)

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		7 OF 19	761362	

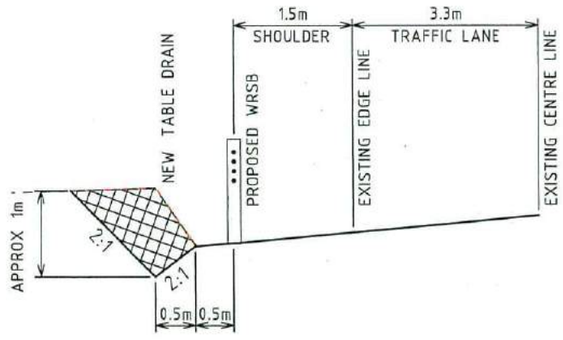




TYPICAL CROSS SECTION: CH.11.965 to CH.11.990 - LHS

TYPICAL CROSS SECTION: CH12.05 to CH12.07 - LHS

NOT TO SCALE



TREE REMOVAL SCHEDULE

LHS:

- CH11.915: 4.7m O/S, 300mm DIA
- CH11.987: 3.4m O/S, 200mm DIA
- CH11.989: 3.2m O/S, 200mm DIA
- CH12.026: 3.2m O/S, 300mm DIA
- CH12.056: 3.6m O/S, 250mm DIA
- CH12.065: 4.3m O/S, 2 x 300mm DIA
- CH12.068: 3.2m O/S, 2 x STUMPS
- CH12.087: 3.2m O/S, 400mm DIA
- CH12.123: 3.6m O/S, 150mm DIA
- CH12.148: 4.2m O/S, REMOVE 1 x 250mm, KEEP 1 x 350mm DIA
- CH12.156: 3.7m O/S, 150mm DIA
- CH12.158: 3.6m O/S, 100mm DIA

RHS:

- CH12.098: 2.6m O/S, 350mm DIA
- CH12.108: 2.2m O/S, 250mm DIA
- CH12.120: 3.4m O/S, 250mm DIA
- CH12.128: STUMP
- CH12.134: 2.6m O/S, 350mm DIA
- CH12.190: 3.5m O/S, 2 x 300mm DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ISSUE	APP'D	DATE	AMENDMENT
E			
D			
C			
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A			

GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 12km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m AND WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS AND 2.0m BEHIND WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 6282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

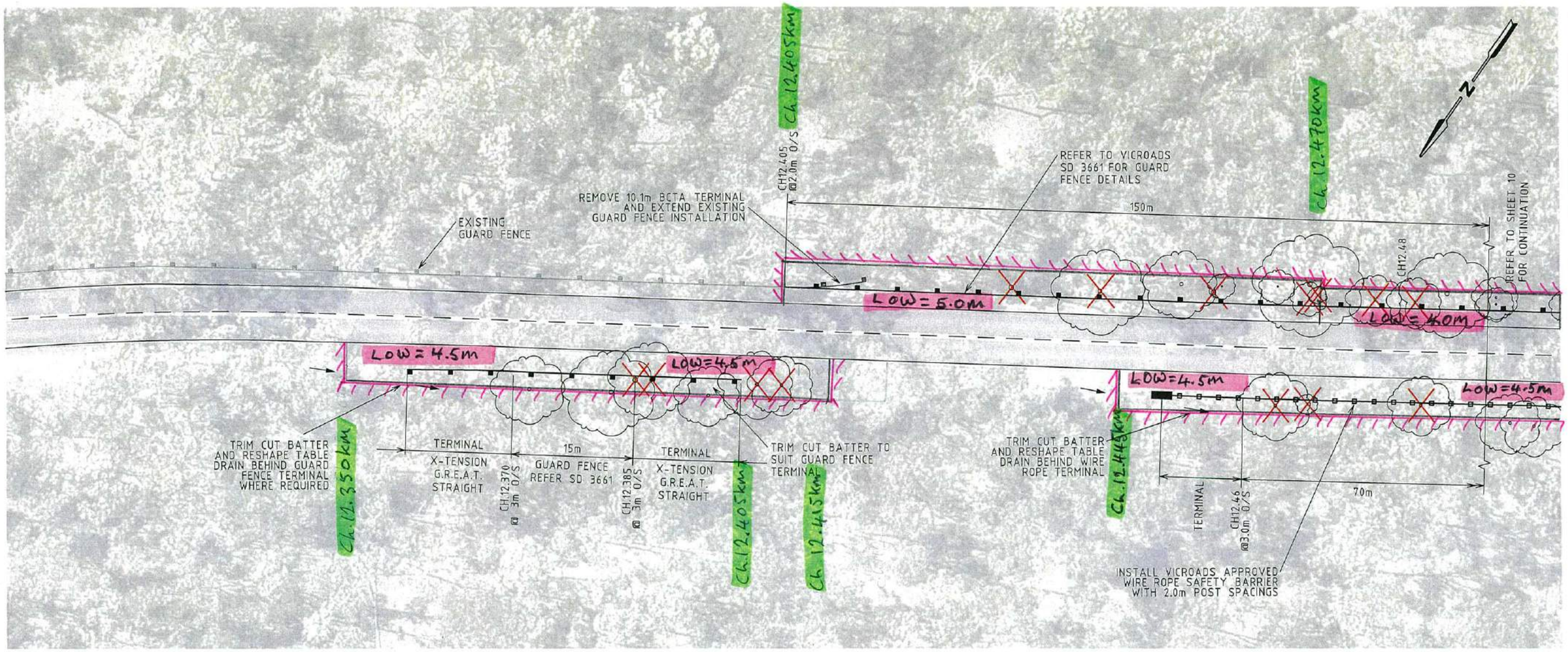
vicroads

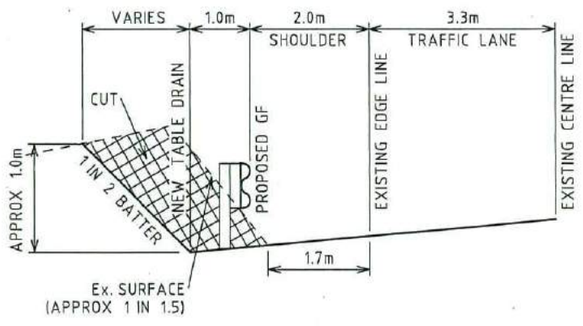
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr7.dgn

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE, GUARD FENCE & OTHER WORKS
CH11.98 - 12.16

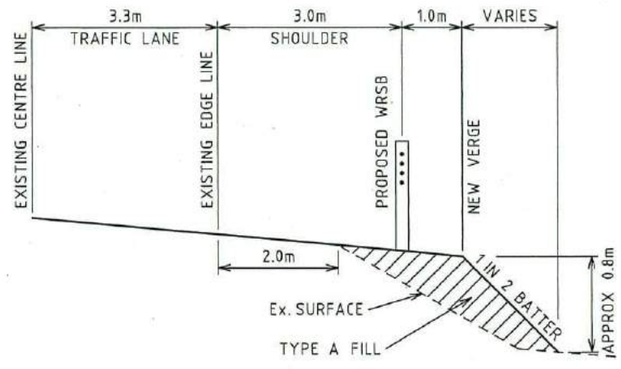
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		8 OF 19	761363	





TYPICAL CROSS SECTION: CH12.405 to CH12.48 - LHS

NOT TO SCALE



TYPICAL CROSS SECTION: CH12.46 to CH12.55 - RHS

NOT TO SCALE

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

TREE REMOVAL SCHEDULE:

LHS:

- CH12.431: 2.7m O/S, STUMP
- CH12.442: 2.7m O/S, 1 x 500mm, 1 x 300mm & 1 x 200mm DIA
- CH12.456: 3.0m O/S, STUMP
- CH12.468: REMOVE 2.8m O/S, 200mm & KEEP 4.4m O/S, 600mm DIA
- CH12.469: 3.3m O/S, 100mm DIA
- CH12.476: 2.8m O/S, 300mm DIA
- CH12.481: 2.6m O/S, 1 x 300mm & 1 x 100mm DIA

RHS:

- CH12.385: 3.2m O/S, STUMP
- CH12.387: 3.2m O/S, 450mm DIA
- CH12.400: 3.3m O/S, 400mm DIA
- CH12.403: 3.3m O/S, 500mm DIA
- CH12.464: 3.6m O/S, 400mm, & 1 x 300mm
- CH12.468: 3.4m O/S, 120mm DIA
- CH12.482: 3.1m O/S, 1 x 350mm & 1 x 120mm DIA

ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES

1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 12km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m AND WIRE ROPE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS AND 2.0m BEHIND WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED: A.Stanford (Total Property Developments) May 2015

APPROVED

CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr8.dgn

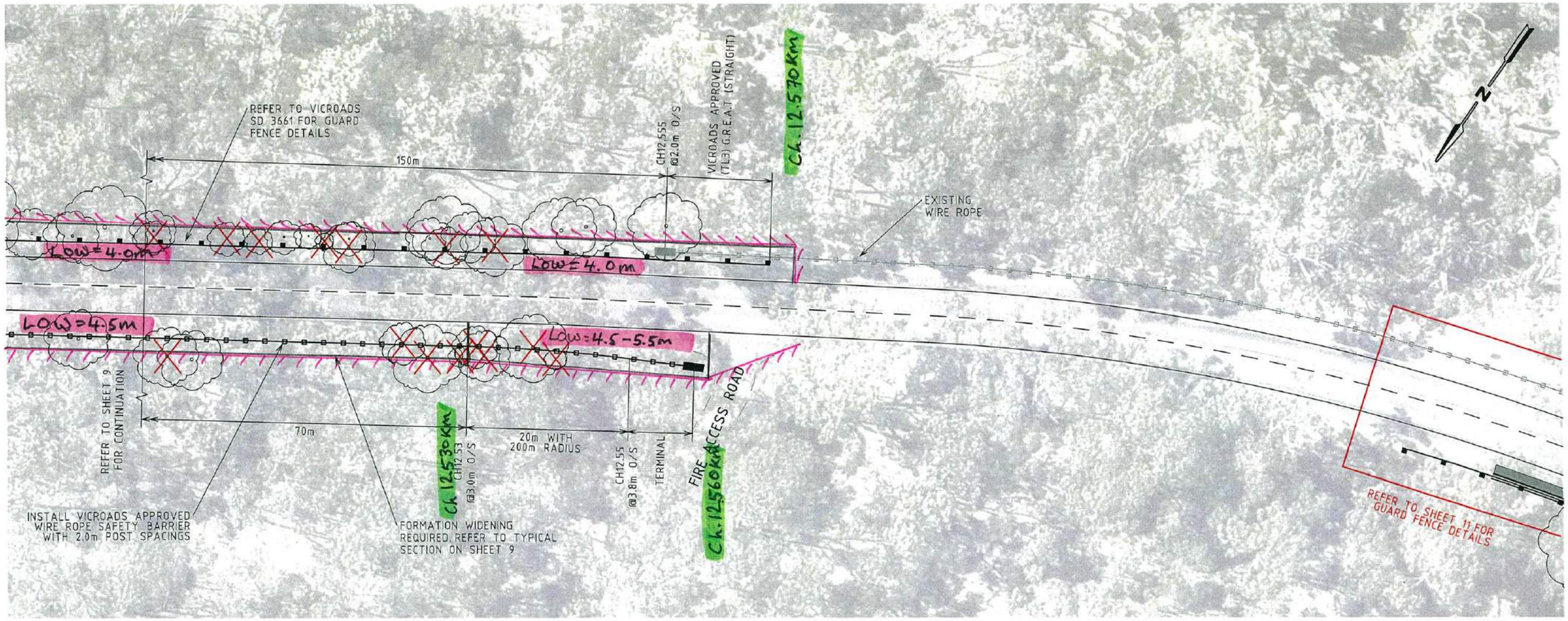
vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km

WIRE ROPE GUARD FENCE & TREE REMOVAL
CH12.36 - 12.555 (SHEET 1 OF 2)

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		9 OF 19	761364	



WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

TREE REMOVAL SCHEDULE:

LHS:

- CH12.491: REMOVE 2.7m O/S, 200mm, 3.5m O/S, 250mm DIA
- CH12.500: 2.8m O/S, 200mm DIA (DEAD)
- CH12.504: 2.6m O/S, 150mm DIA
- CH12.512: 2.9m O/S, 100mm DIA
- CH12.515: REMOVE 2.2m O/S, 300mm, DIA
- CH12.527: REMOVE 2.4m O/S, 250mm, DIA
- CH12.533: 2.7m O/S, 350mm DIA

RHS:

- CH12.494: 4.3m O/S, 300mm DIA
- CH12.522: 2.7m O/S, 250mm DIA
- CH12.525: 4.3m O/S, 2 x 400mm DIA
- CH12.529: 4.2m O/S, 120mm DIA
- CH12.531: 2.9m O/S, 250mm DIA
- CH12.532: 3.9m O/S, 300mm DIA
- CH12.538: 2.7m O/S, 400mm DIA
- CH12.541: 4.2m O/S, 120mm DIA

ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 12km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE.
3. ALL WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 2.0m BEHIND PROPOSED WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr9.dgn

vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km

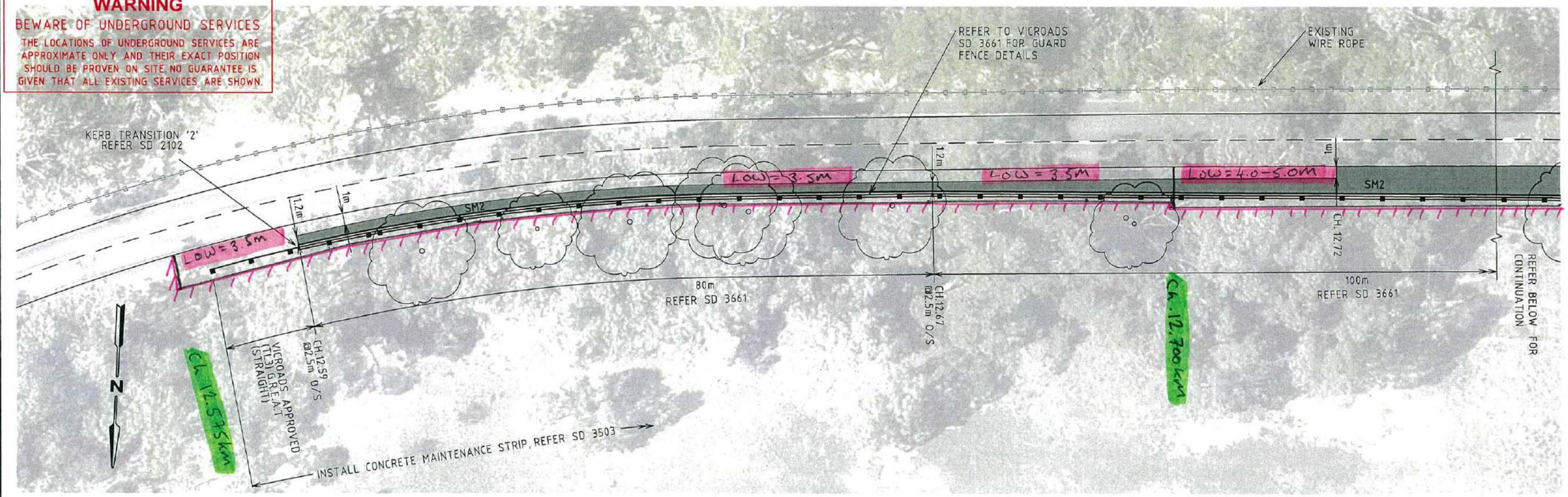
WIRE ROPE, GUARD FENCE & TREE REMOVAL
CH12.36 - 12.555 (SHEET 2 OF 2)

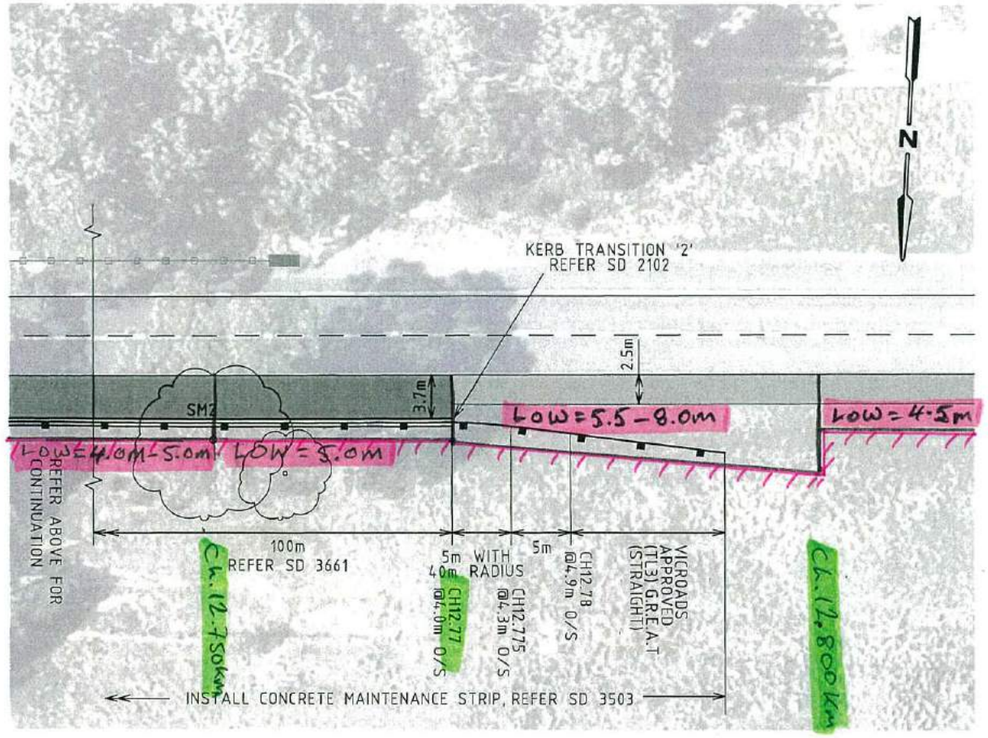
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		10 OF 19	761365	

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

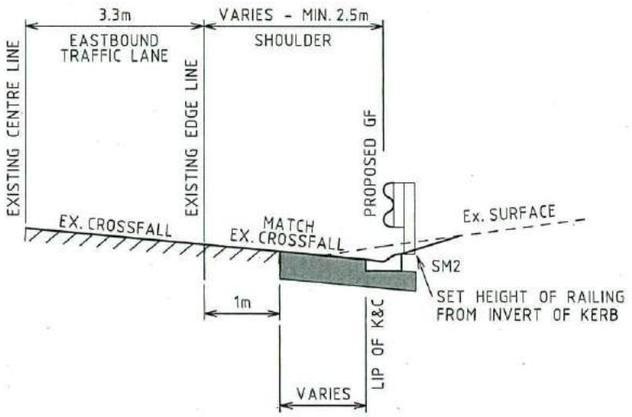




SHOULDER PAVEMENT DETAILS

SIZE 10 PRIMERSEAL
2 x 100mm LAYERS OF 20mm CLASS 1 CRUSHED ROCK
1 X 75mm LAYER OF 20mm CLASS 3 CRUSHED ROCK

CH.12.59 to 12.77

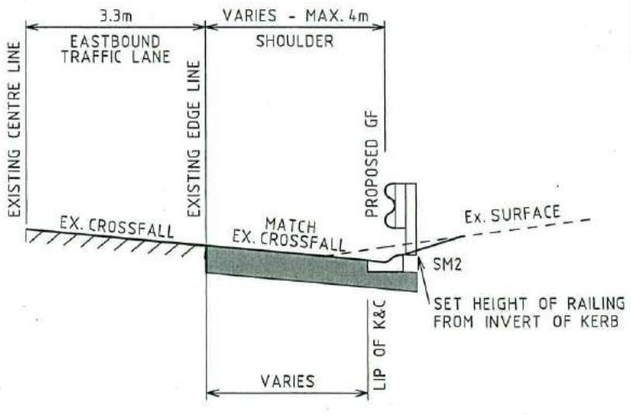


TYPICAL CROSS SECTION:
CH12.59 to CH12.72 - RHS

NOT TO SCALE

SHOULDER & BELLMOUTH PAVEMENT DETAILS

SIZE 10 PRIMERSEAL
2 x 100mm LAYERS OF 20mm CLASS 1 CRUSHED ROCK



TYPICAL CROSS SECTION:
CH12.72 to CH12.77 - RHS

NOT TO SCALE

ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 13km POST.
2. ALL GUARD FENCE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE TO FACE OR RAILING.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILING.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

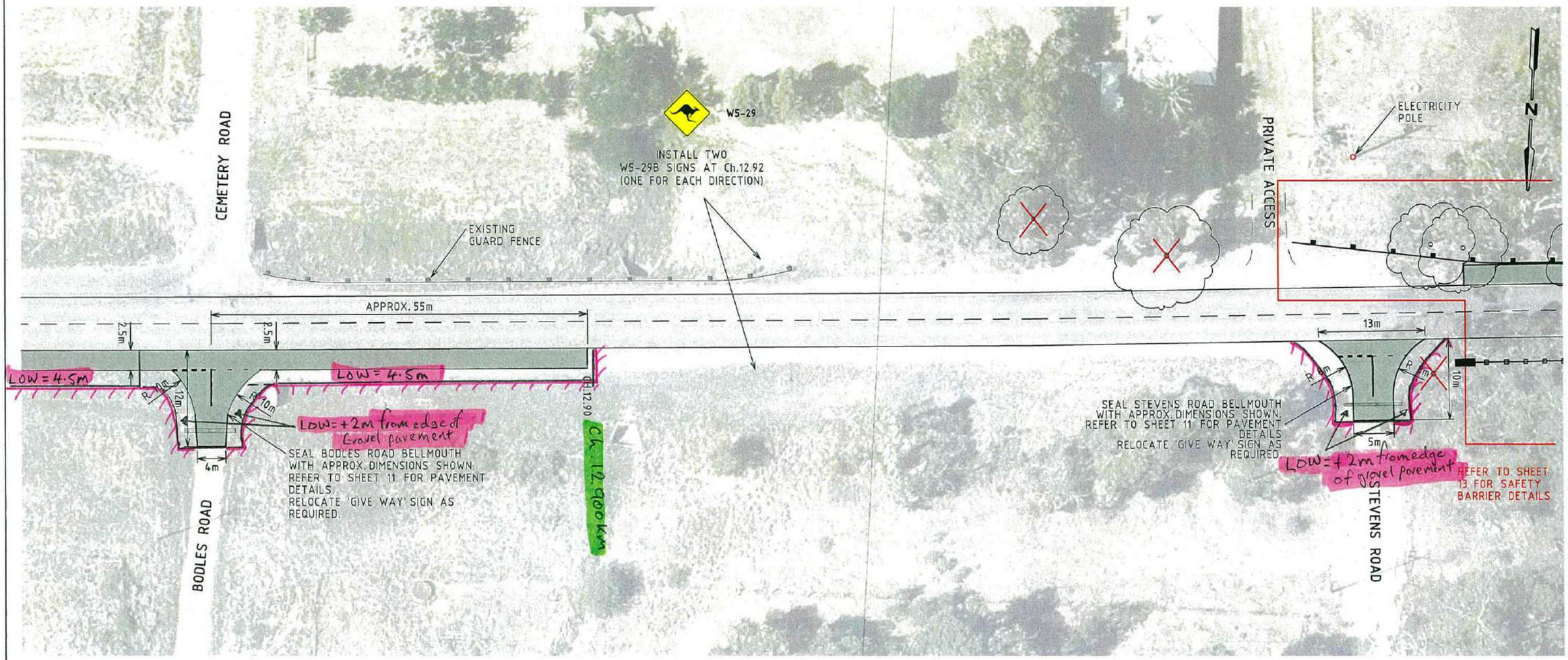
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr10.dgn

vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE INSTALLATION
CH12.58 - 12.79

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		11 OF 19	761366	



TREE REMOVAL SCHEDULE:

LHS:
- CH.12.947: 9m O/S, 300mm DEAD TREE
- CH.12.964: 4m O/S, 1m DIA

RHS:
- CH.12.996: 4m O/S, 2 x STUMPS

WARNING

BEWARE OF UNDERGROUND SERVICES

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ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 13km POST.
X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

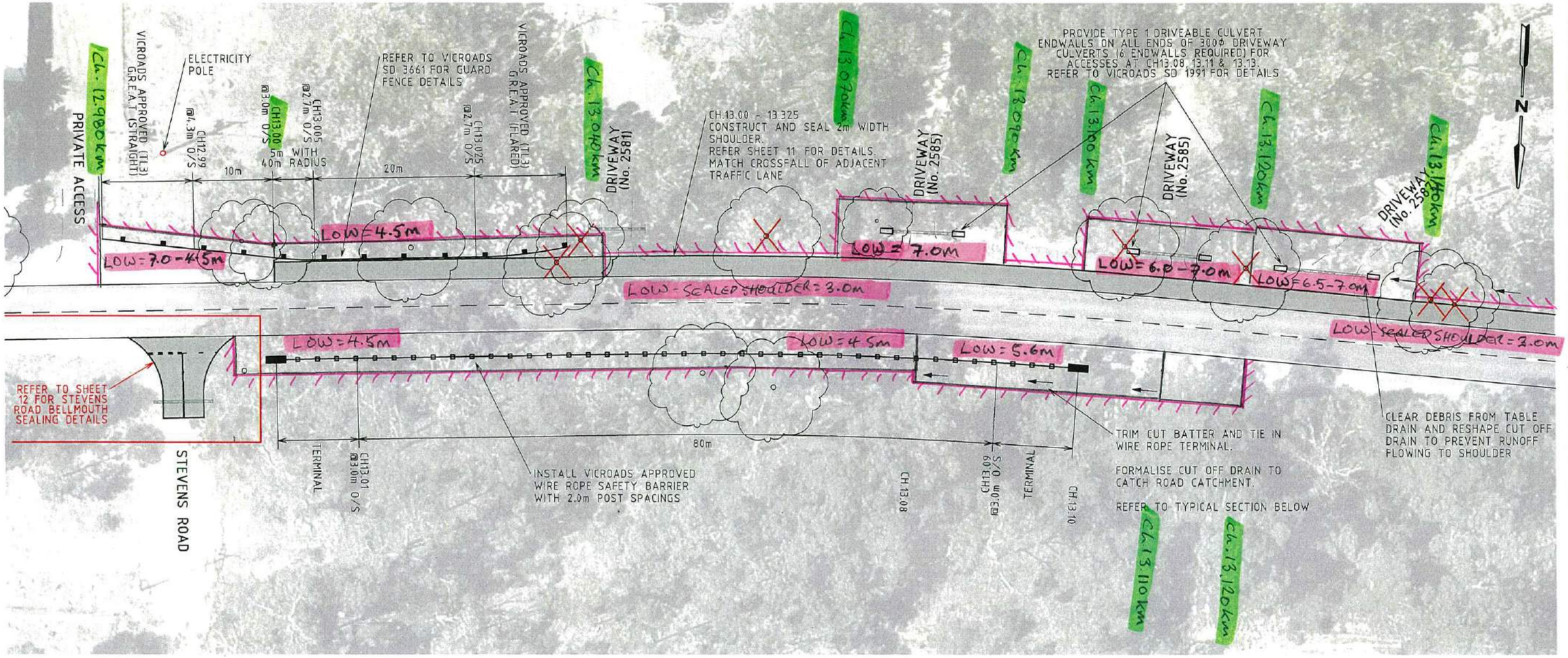
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr11.dgn

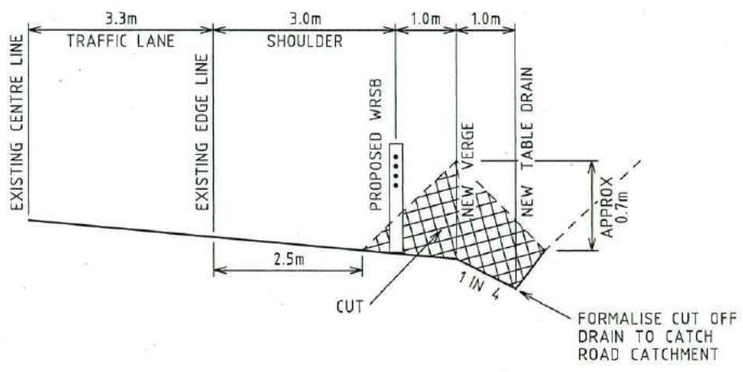
vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
BELLMOUTH SEALING & TREE REMOVAL
CH12.84 - 13.00

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		12 OF 19	761367	





TYPICAL CROSS SECTION: CH13.08 to CH13.10 - RHS

NOT TO SCALE

TREE REMOVAL SCHEDULE:

LHS:

- CH13.035: 1.6m O/S, 1 x 600mm & 1 x 500mm DIA
- CH13.038: 4.3m O/S, 500mm DIA
- CH13.061: 4.7m O/S, 700mm DIA
- CH13.105: 5.6m O/S, 600mm DIA
- CH13.120: 4.3m O/S, 700mm DIA
- CH13.143: 2.6m O/S, 900mm DIA
- CH13.146: 2.3m O/S, 500mm DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

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ISSUE	APP'D	DATE	AMENDMENT
E			
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GENERAL NOTES

1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 13km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m AND WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS AND 2.0m BEHIND WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7927
FAX (12) 8282 4755

DESIGNED: A.Stanford (Total Property Developments) May 2015

APPROVED

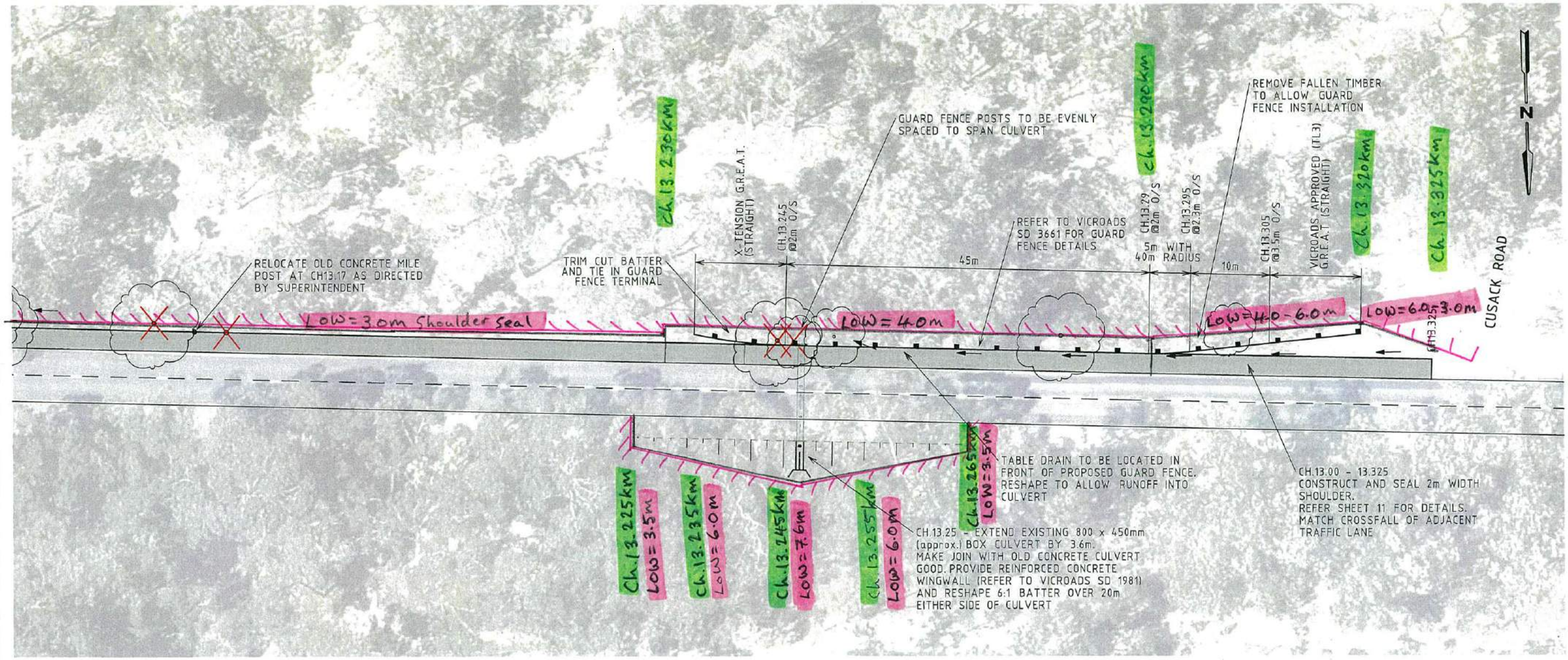
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr12.dgn

vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE, WIRE ROPE & OTHER WORKS
CH12.99 - 13.15

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		13 OF 19	761368	



TREE REMOVAL SCHEDULE:
- CH13.167: 3.1m O/S, 1 x 500mm & 1 x 300mm DIA
- CH13.176: GRIND STUMP ON BATTER
- CH13.244: 2.8m O/S, 500mm DIA
- CH13.246: 2.9m O/S, 300mm DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

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ISSUE	APP'D	DATE	AMENDMENT
E			
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 13km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND PROPOSED GUARD FENCE RAILING.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

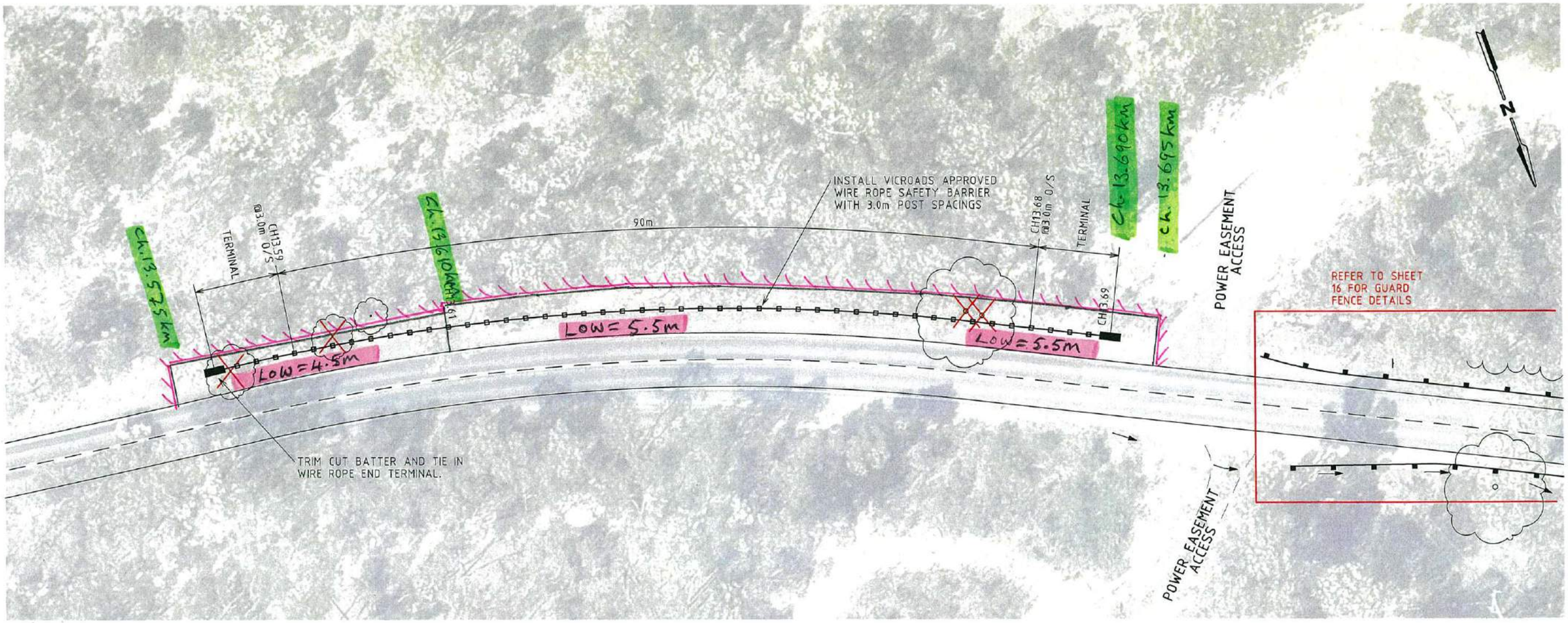
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr13.dgn

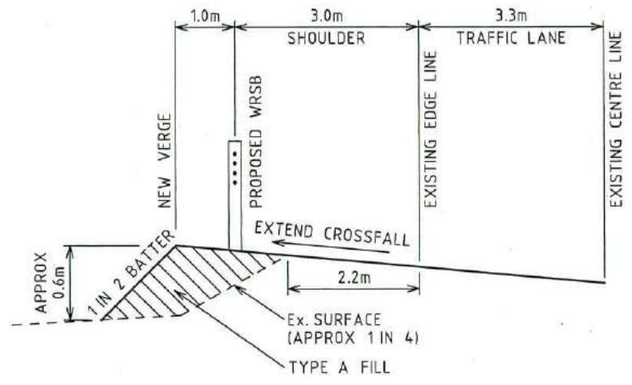
vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE & OTHER WORKS
CH13.17 - 13.325

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		14 OF 19	761369	





TYPICAL CROSS SECTION: CH13.61 to CH13.69 - LHS

NOT TO SCALE

TREE REMOVAL SCHEDULE:
- CH13.582: 2.4m O/S, 300mm DIA
- CH13.595: 4.0m O/S, 2 x 250mm DIA
- CH13.672: 3.9m O/S, 700mm DIA
- CH13.674: 3.6m O/S, 2 x STUMPS

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ISSUE	APP'D	DATE	AMENDMENT
E			
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 14km POST.
2. ALL WIRE ROPE OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE.
3. ALL WIRE ROPE POST SPACINGS ARE TO BE 2.0m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 2.0m BEHIND PROPOSED WIRE ROPE BARRIERS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 6282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015

APPROVED

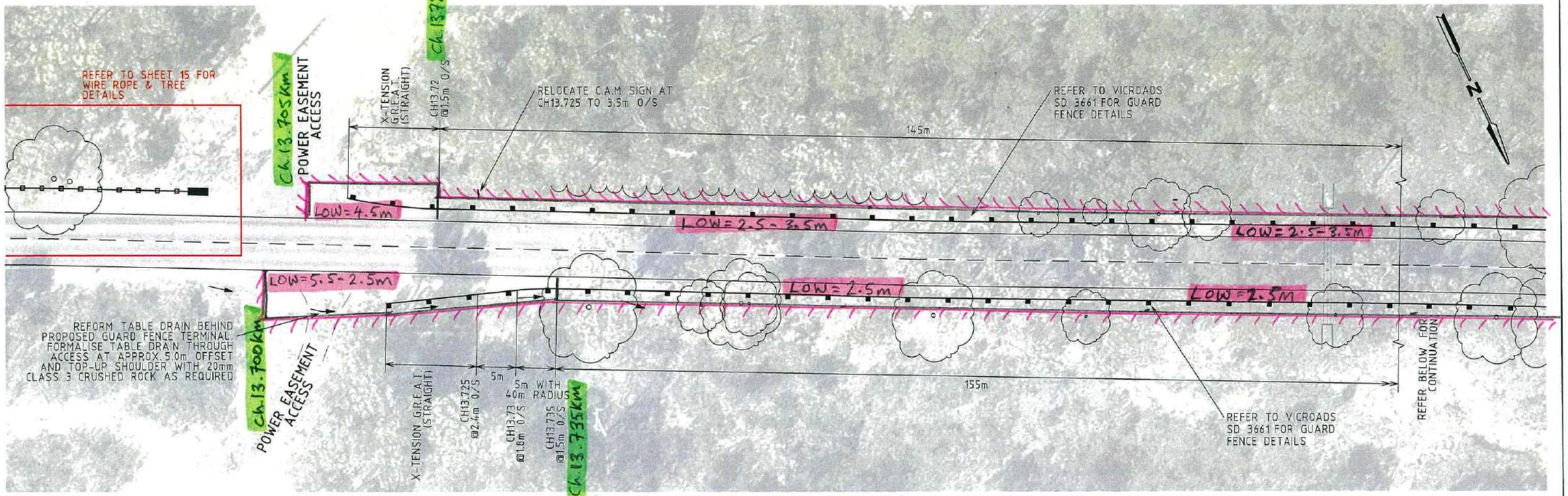
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr14.dgn

vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
WIRE ROPE SAFETY BARRIER & TREE REMOVAL
CH13.58 - 13.69

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		15 OF 19	761370	



TREE REMOVAL SCHEDULE:

LHS:
- CH13.915: 4.0m O/S, 2 x 100mm & 1 x STUMP

RHS:
- CH13.953: 2.6m O/S, 1.0m DIA

WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ISSUE	APP'D	DATE	AMENDMENT
E			
D			
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 14km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

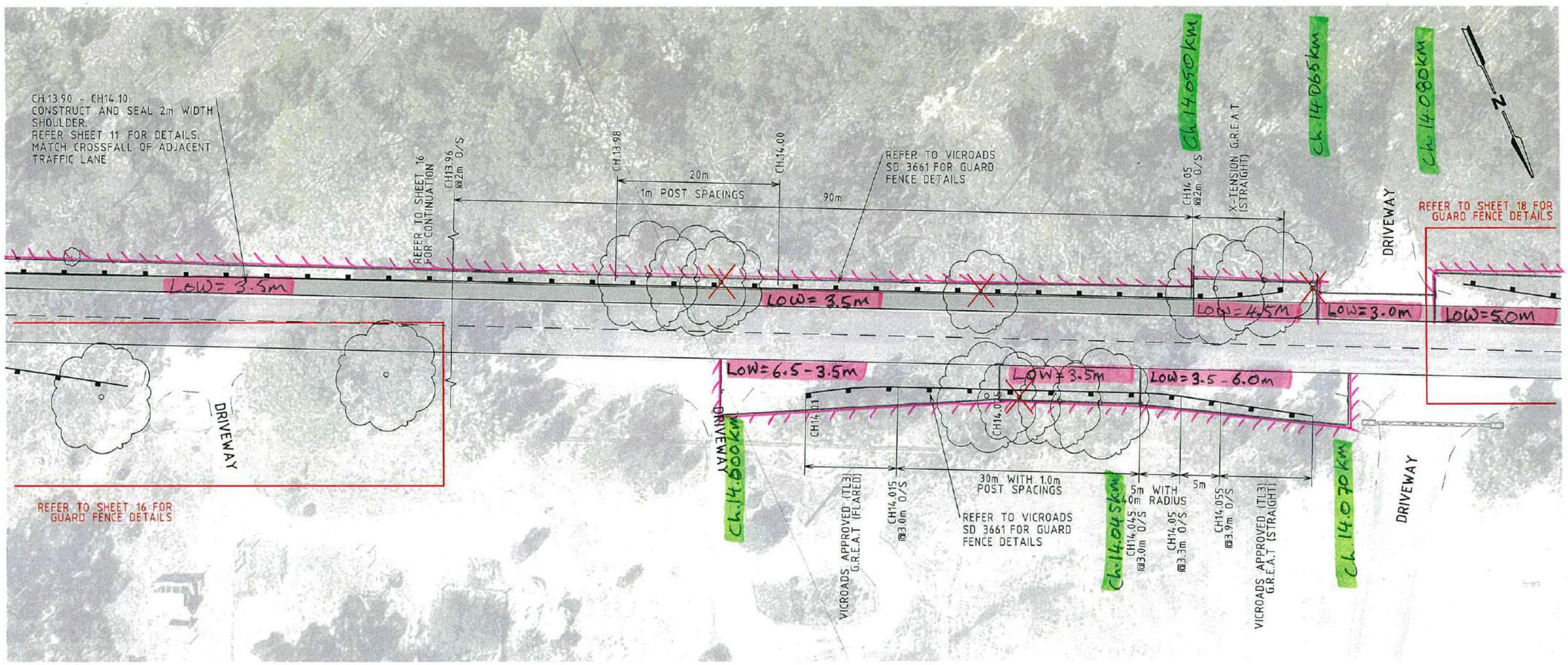
DESIGNED: A.Stanford (Total Property Developments) May 2015
APPROVED
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr15.dgn

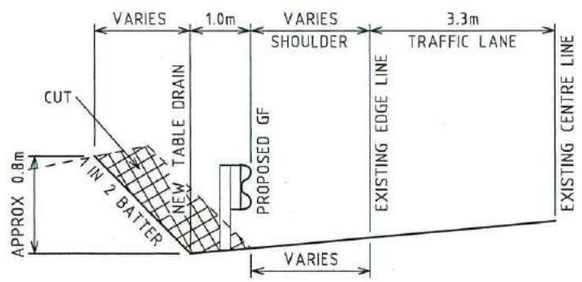
vicroads

SCALE OF METRES
HOR 0 5 10
VER

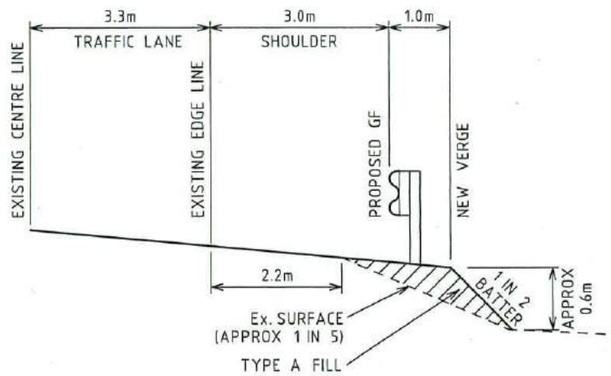
PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE, SHOULDER SEALING & TREE REMOVAL
CH13.72 - 14.065 (SHEET 1 OF 2)

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		16 OF 19	760371	





TYPICAL CROSS SECTION: CH13.90 to CH13.98 - LHS
NOT TO SCALE



TYPICAL CROSS SECTION: CH14.01 to CH14.025 - RHS
NOT TO SCALE

TREE REMOVAL SCHEDULE:
LHS:
- CH.13.993: 2.6m O/S, 500mm DIA
- CH.14.025: 2.3m O/S, 450mm DIA
- CH.14.065: 3.5m O/S, STUMP

RHS:
- CH.14.026: REMOVE FRONT BRANCH ONLY, 3.0m O/S, 600mm DIA

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

ISSUE	APP'D	DATE	AMENDMENT
E			
D			
C			
B			
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 14km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 6282 4755

DESIGNED
A.Stanford (Total Property Developments)
May 2015
APPROVED

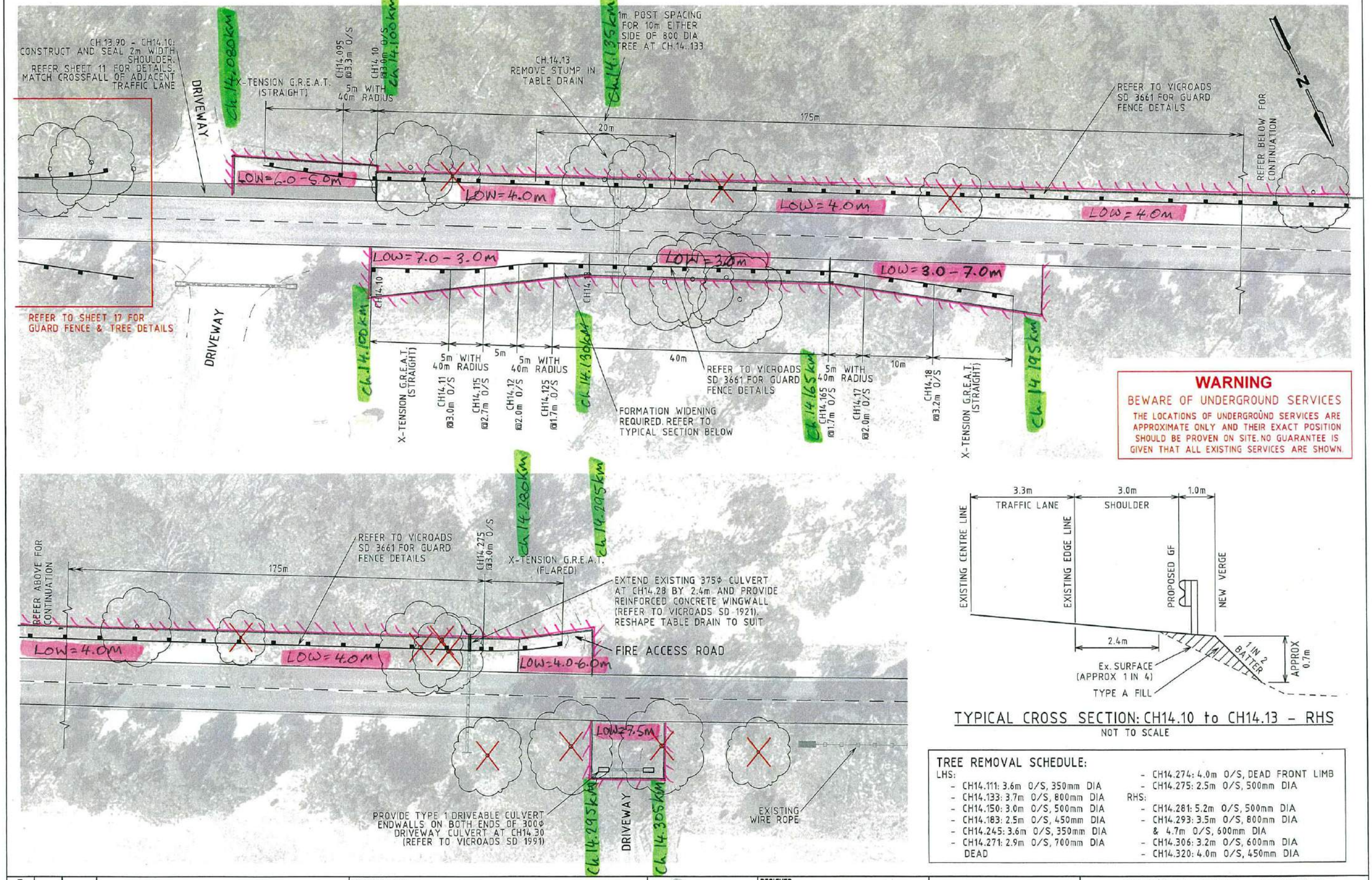
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr16.dgn

vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE, SHOULDER SEALING & TREE REMOVAL
CH13.72 - 14.065 (SHEET 1 OF 2)

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		17 OF 19	761372	



WARNING

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TYPICAL CROSS SECTION: CH14.10 to CH14.13 - RHS

NOT TO SCALE

TREE REMOVAL SCHEDULE:

LHS:
- CH14.111: 3.6m O/S, 350mm DIA
- CH14.133: 3.7m O/S, 800mm DIA
- CH14.150: 3.0m O/S, 500mm DIA
- CH14.183: 2.5m O/S, 450mm DIA
- CH14.245: 3.6m O/S, 350mm DIA
- CH14.271: 2.9m O/S, 700mm DIA DEAD
- CH14.274: 4.0m O/S, DEAD FRONT LIMB
- CH14.275: 2.5m O/S, 500mm DIA

RHS:
- CH14.281: 5.2m O/S, 500mm DIA
- CH14.293: 3.5m O/S, 800mm DIA & 4.7m O/S, 600mm DIA
- CH14.306: 3.2m O/S, 600mm DIA
- CH14.320: 4.0m O/S, 450mm DIA

ISSUE	APP'D	DATE	AMENDMENT
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C			
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GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 14km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED: A.Stanford (Total Property Developments) May 2015
APPROVED

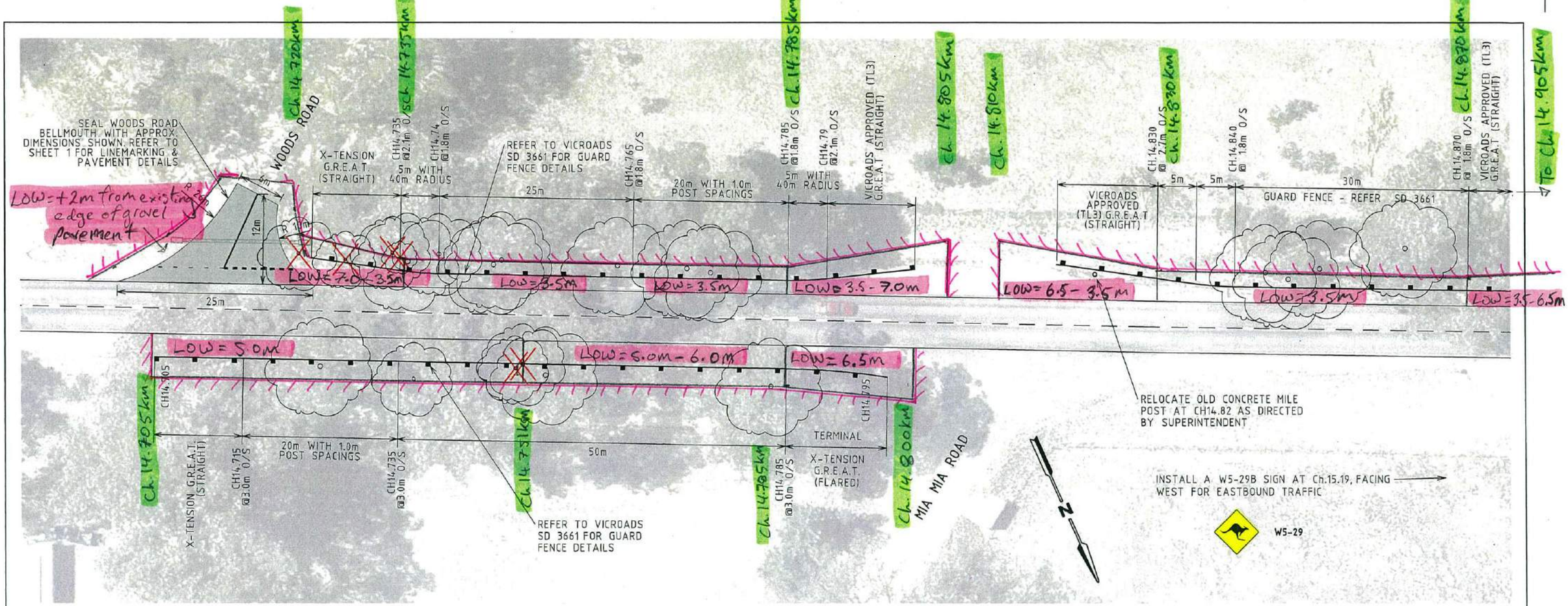
CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742anr17.dgn

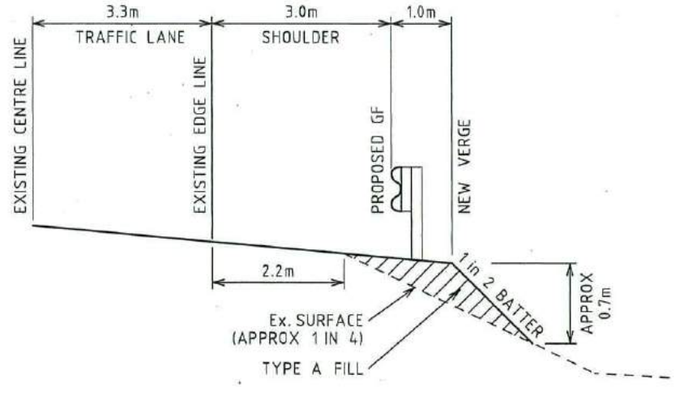
vicroads

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE & OTHER WORKS
CH14.09 - 14.32

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		18 OF 19	761373	





TYPICAL CROSS SECTION: CH14.705 to CH14.795 - RHS

NOT TO SCALE

TREE REMOVAL SCHEDULE:

LHS:
- CH14.722: 3.9m O/S, 450mm DIA
- CH14.728: 3.2m O/S, 1 x 350mm & 1 x STUMP
- CH14.734: 4.2m O/S, 450mm DIA
- CH14.735: 3.7m O/S, 200mm DIA (DEAD)

RHS:
- CH14.749: 3.4m O/S, 400mm DIA
- CH14.751: 2.8m O/S, 500mm DIA (DEAD)

WARNING

BEWARE OF UNDERGROUND SERVICES

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ISSUE	APP'D	DATE	AMENDMENT
E			
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A			

GENERAL NOTES
1. ALL CHAINAGES ON THIS SHEET RELEVANT TO 15km POST.
2. ALL BARRIER OFFSETS ARE FROM EDGELINE OF EXISTING TRAFFIC LANE, AND ARE TAKEN TO FACE OR RAILING FOR GUARD FENCE INSTALLATIONS.
3. ALL GUARD FENCE POST SPACINGS ARE TO BE 2.5m UNLESS NOTED OTHERWISE.
4. REMOVE ALL TREES < 100mm AND REGROWTH WITHIN 1.0m BEHIND GUARD FENCE RAILINGS.

X DENOTES TREE FOR REMOVAL

Total Property Developments
444 HARGREAVES STREET, BENDIGO
PHONE (03) 5443 7977
FAX (02) 8282 4755

DESIGNED: A.Stanford (Total Property Developments) May 2015
APPROVED

vicroads

CAT: Bendigo_Region
PROJ: Pyrenees
FILE: 2742amr18.dgn

SCALE OF METRES
HOR 0 5 10
VER

PYRENEES HIGHWAY - SECTION 2
ROAD SAFETY TREATMENTS
10.90 to 15.00km
GUARD FENCE & OTHER WORKS
CH14.705 - 14.85

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		19 OF 19	761374	

Appendix 4 – Victorian approvals

This appendix includes copies of:

- the letter from the Department of Environment, Land, Water and Planning advising that the proposed works meet the requirements of the memorandum of Understanding between the Department of Economic Development, Jobs, Transport & Resources (previously the Department of Transport) and the Department of Environment, Land, Water & Planning (previously the Department of Environment & Primary Industries (the MoU). The MoU details how the 'Road Safety' exemption under Clause 52.17-7 of the Victorian Planning Provisions is to be implemented.
- *Flora and Fauna Guarantee Act* 1988 permit no: 10007409, which provides approval for VicRoads and nominated contractors to take protected flora for minor improvement and road safety treatments, in accordance with the principals of the MoU.

Pyrenees Highway (Sec 2) Ch 10.90 – 15.00km Safer Road Infrastructure Project, Permit Exemption for Native Vegetation Removal

Dear Mr M. Kersting

The Environmental Advice and Approvals group is satisfied that works undertaken in accordance with the submitted project application (see below) meet the requirements of the Memorandum of Understanding between the Department of Economic Development, Jobs, Transport & Resources (previously Department of Transport) and the Department of Environment, Land, Water & Planning (previously Department of Environment & Primary Industries).

The requirements are administered under Clause 52.17 of the Victorian Planning Provisions and are set out in the VicRoads Native Vegetation Removal Guidelines (Feb 2009).

Name of Project	Pyrenees Highway (Sec 2) Ch 10.90 – 15.00km Safer Road Infrastructure Project, Permit Exemption for Native Vegetation Removal
Type of Works	Road safety infrastructure (wire rope barrier and guard fence), Culvert extensions, tree hazard removals
EVC's proposed for removal and conservation status of vegetation	Box Ironbark Forest (EVC 61)- Depleted Alluvial Terraces Herb-rich Woodland (EVC 67) – Endangered
Bioregion(s)	Goldfields
Area of native vegetation proposed for removal (hectares)	**Subject to threshold** = 0.1793ha (EVC 61) **Subject to threshold** = 0.0511ha (EVC 67) **Not Subject to threshold** = 0.7971ha (EVC 61) **Not Subject to threshold** = 0.2147 ha (EVC 67) **Maintenance regrowth** = NA 1.2422ha (excluding maintenance regrowth)
Scattered trees for removal (number)	**Subject to threshold:** 1 Large and 1 Small **Not subject to threshold:** 0
Trees for removal as part of patch (number)	**Subject to threshold:** 6 Large, 5 Med, 20 Small **Not subject to threshold:** 3 Large (1 dead), 3 Med, 95 Small (5 dead) **Total** = 9 Large (1 dead), 8 Med, 127 Small (5 dead)

Permit No: **10007409**
File No: **FF383357**

Department of Environment and Primary Industries

FLORA AND FAUNA GUARANTEE ACT 1988
PERMIT TO TAKE PROTECTED FLORA

Pursuant to the provisions of the **Flora and Fauna Guarantee Act 1988** permission is hereby granted to:

Gerry George
Director – Operation Services
VicRoadsLevel 6, 60 Denmark Street
Kew 3101

And Staff of VicRoads and nominated contractors acting under VicRoads direction in order to remove protected flora from public land/waters **(excluding Biosites)** reserves for which it manages / has operational responsibility for under the *Road Management Act 2004 "Road Management Plan" and "Code of Practice - Operational Responsibility for Public Roads"* for the purposes of conducting minor improvement works.

Permission is given subject to the following particular conditions:

Site-specific conditions

1. The permit holder is authorised to take protected flora for minor improvement and road safety treatments works in accordance with the principles of the Memorandum of Understanding (MoU) between the Department of Environment and Primary Industries (DEPI) and the Department of Transport (DoT) on the operation of the 'Road Safety' exemption under Clause 52.17-6 of the Victoria Planning Provisions and the VicRoads *Native Vegetation Removal Guidelines 2009*, as follows:

   Taxa: All taxa of protected flora identified in the agreed Contract Specifications or CEMPs, except for threatened taxa that are listed under S.10 or on Schedule 2 of the **Flora and Fauna Guarantee Act 1988 (**the Threatened List) or contained on or contained on DEPI's "Advisory List of Rare or Threatened Plants in Victoria – 2005" (the Advisory List) .

   Plant parts: Any.

   Quantity: Minimum necessary subject to Condition 2 and 3.

2. Prior to taking any taxa of protected flora, the permit holder is required to consult with the local DEPI Environment, Natural Resources and Fisheries regarding their proposed activities. Contact the DEPI Customer Service Centre on 136 186 and ask for the contact number for the Environment, Natural Resources and Fisheries of the nearest DEPI office where the works are to be undertaken.

3. Works should be designed so as to minimise impacts on areas of remnant native vegetation. Works are to be undertaken in accordance with the general works practices as described in the following listed VicRoads documents and the specific requirements stated in this permit:

   - VicRoads *Native Vegetation Removal Guidelines 2009;*
   - Contract Specification Section 176 – Environmental Management (Minor) or Section 177 – Environmental Management (Major);
   - VicRoads *Roadside Handbook 2006;*
   - VicRoads *Environmental Risk Management Guidelines 2012*
   - Documentation submitted to and approved by the DEPI in accordance with the DEPI/DoT MOU on the operation of the 'Road Safety' exemption under Clause 52.17-6 of the Victoria Planning Provisions

4. All work conditions and work locations / defined workzones where the taking of protected flora is permitted must be limited to those specifically recorded in documentation submitted to and approved by DEPI. Any variation requires written permission from DEPI. [NOTE: Documentation submitted shall include any drawings, lists submitted by VicRoads or as requested by the DEPI under the MoU].

5. All works must be limited to the approved location / define workzones as detailed within Condition 3. All other areas of road reserve adjoining these locations / defined workzones shall be clearly designated as 'No Go Zones' for the duration of the works.

.....

Bram Mason
Environment, Natural Resources and Fisheries, Regional Manager
(Delegate of the Secretary)

04 DEC 2014

.../2

7. Except with the written approval of the DEPI in accordance with Conditions 2 and 3, no entry to, or works, stockpiling, or spoil placement are to be undertaken/placed in or adjoining sites of national, state or regional floral and/ or faunal significance (Biosites). Where works adjoin unfenced sites of designated floral and/or faunal significance, temporary fencing and signage is to be installed along the boundary of the site closest to the works prior to the works commencing and identified as 'No Go Zones'. Such temporary fencing is to be maintained until the nearby works are completed.

8. Subject to Conditions 3, 6 and 7, vehicles and plant will operate from the existing road pavement and formation or within degraded areas, and / or cleared weed free areas where they exist.

9. This permit allows for the removal of protected flora for emergency works. The Environmental Research Coordinator is to be contacted as soon as practicable after the event, and a report of species removed must be supplied to DEPI within 30 days. DEPI will determine in consultation with VicRoads measures for revegetation/reinstating the site (if deemed necessary).

10. No stockpiling of rocks, soil or other material is permitted in areas of remnant native vegetation or any threatened species sites/areas. Stockpile areas are to be clearly designated and marked.

11. All works must prevent the spread of weeds and soil pathogens through the employment of appropriate hygiene practices. All vehicles, plant, earthmoving equipment, associated machinery and hand tools will be made free of soil, seeds and other plant material before being taken to the works site and again before being taken from the works site on completion of the project. This requirement includes moving equipment and material from one section of the road reserve to another or within worksite sections, especially where weed problems are known to exist. Any materials imported to a worksite shall also be weed and soil pathogen free.

12. In areas where works have removed native vegetation, the works areas shall be reinstated / revegetated with suitable indigenous species as appropriate and agreed with DEPI, so that the ground surface is stable, free draining and as near as practical to its pre-works condition. The Contractor shall undertake monitoring of any revegetated sites as well as monitor the presence of weeds, pests and diseases at intervals specified in the VicRoads contract Specifications.

13. If working in temporarily boggy / wet conditions, subject to Condition 3, appropriate low-impact vehicles / equipment for wet conditions are to be used, (i.e. wide-wheel based vehicles to reduce the potential for bogging).

14. Trees and branches shall be brought down in such a manner as to avoid damage to other trees, shrubs or ground vegetation outside the area being cleared or designated to be retained within the area being cleared. All pruning / tree trimming works must be undertaken in accordance with AS 4373-2007 "Pruning of Amenity Trees".

15. Fallen material is not to be left on site, unless subject to Condition 3, prior written approval has been given by DEPI, including method of material retention. Cut material is to be removed in a manner so as to limit damage to native ground vegetation.

16. In any work locations / defined workzones containing surface or excavated rocks that are disturbed as a result of works, they are to be taken away, unless subject to Condition 3, prior written approval has been given by the DEPI, including method of material retention on site.

17. Where excavation is to occur within or adjacent to any watercourse, (permanent or intermittent), all works will comply with the following EPA Publication's: EPA Publication No. 275 – Construction Techniques for Sediment Pollution Control, EPA Publication No. 960 – Doing It Right On Subdivisions, EPA Publication No. 480 – Environmental Guidelines for Major Construction sites, and EPA SEPP Waters of Victoria.

18. The permit holder(s) responsible for works must ensure that all staff, contractors and sub-contractors have received appropriate environmental training to make them aware of flora and fauna conservation requirements and their obligations in relation to the permit area. All contractors and sub-contractors must at all times have access to or carry a copy of the (contract/EMP/key VicRoads documents) and the specific requirements stated in this permit.

General Conditions

19. Provisions of the **Flora and Fauna Guarantee Act 1988** must be observed, except where exemption is specifically provided for in this permit.

20. The granting of this permit under the **Flora and Fauna Guarantee Act 1988** does not exempt the holder of a permit from the requirements of other Commonwealth and State legislation or policy.

21. The direction of any authorised officer of the Department of Environment and Primary Industries, in relation to this permit, must be promptly complied with. Powers of authorised officers are stated in S.57 of the Act.

22. Subject to Conditions 2 and 3, data will be collected on the type of works activity, species, number and / or area removed, dates of removal and localities. This will be collated by VicRoads Environmental Officers. An annual report will then be submitted detailing this in addition to the vegetation removed under the native vegetation removal exemption. More information relating to data collection is in Section 4.2 of the VicRoads *Native Vegetation Removal Guidelines 2009.*

.....

Bram Mason
Environment, Natural Resources and Fisheries, Regional Manager
(Delegate of the Secretary)
.../3

Department of Environment and Primary Industries

23. Where any listed on the FFG Threatened List or the Advisory List are identified, that were not previously identified in pre-works surveys, the exact location should be noted and reported to biodiversity.info@depi.vic.gov.au, as well as the relevant Biodiversity Officer of the Department of Environment and Primary Industries, at the earliest possible convenience.
24. Where a project involves more than one worker or a group activity, all work is to be under the direction of the permit holder(s) who shall be deemed responsible.
25. The permit or copy must be carried by any person acting under this authority whilst undertaking any work and shown on demand to any Authorised Officer of the Department of Environment and Primary Industries. All contractors working under the direction of the permit holder must have access to the permit or copy.
26. The rights granted by this permit are not transferable to other persons without the written consent of the Secretary, Department of Environment and Primary Industries, or his delegate.
27. Failure to comply with the terms and limitations of this permit may result in its cancellation and renders the permit holder liable to prosecution.

This permit shall, unless revoked, remain in force until **31 December 2017**.

.....

Bram Mason
Environment, Natural Resources and Fisheries, Regional Manager
(Delegate of the Secretary)

Date of issue: 4/12/14

I, the permit holder (as named above) have read and fully understand the conditions of this permit.

..... Date of signature: 17/12/14

Permit holder

** *This permit is only valid when signed and dated by the permit holder*

Appendix 5 – Fauna Management Protocols

Wildlife CSI

Wildlife Conservation Services International Pty Ltd

FAUNA MANAGEMENT PROTOCOL

PYRENEES HIGHWAY (SEC 2) SSRIP PROJECT, ROAD CHAINAGE 10-15KM

Fauna Conservation, Management & Research Consultants
PO Box 374, Woodend, Victoria 3442, Australia
Phone: +61 (0)3 5423 5282 Mobile: 0431 25 24 77
E-mail: peter@wildlifecsi.com.au
WEB: www.wildlifecsi.com.au
ABN: 29 121 459 390

Introduction

This Fauna Management Protocol has been prepared to manage and salvage any native fauna that may be impacted on by road safety improvement works on the Pyrenees Highway (Sec 2), chainage 10-15 km, Green Gully, Victoria, as recommended by Ecolinks Consulting (Biodiversity Assessment Pyrenees Highway, Green Gully report, August 2016).

In addition to the general fauna management protocol, management protocols have been prepared for two threatened species; Swift Parrot (EPBC Act & FFG Act) and the Brush-tailed Phascogale (FFG Act) (Appendix 3). As detailed in the Ecolinks (August 2016) *Biodiversity Assessment, Pyrenees Highway, Green Gully* report for VicRoads.

Fauna species identification data sheets are provided for the following threatened species, the Swift Parrot, Brush-tailed Phascogale and the Brown Treecreeper (FFG Act - Victorian Temperate Woodland Bird Community) in Appendix 4.

General

1. All native fauna in Victoria is protected by law (the Wildlife Act 1975). Permits and authorisations are required to handle and manage native fauna. Only qualified, experienced and authorised personnel are to handle and relocate native fauna.

2. A Wildlife Management Authorisation (see Appendix 1) is required from the Department of Environment, Land, Water and Planning (DELWP) to capture and relocate fauna affected by habitat removal works.

3. A qualified, experienced and authorised Zoologist/Wildlife Specialist should be engaged under this protocol.

Pre Construction

4. Contractor induction must be provided (see Appendix 2) and is to include this protocol and those outlined in Appendix 3 and other fauna management issues and obligations under the Wildlife Act and/or as required by DELWP, to not interfere with or harm fauna.

5. Artificial Hollows or nest boxes are to be considered and installed as an offset to the loss of natural hollows due to any hollow-bearing tree removal. Nest boxes should be installed at least 3 metres from ground level and entrance holes generally facing east (avoiding cold and hot weather from the south, west and north).

6. The following types of nest boxes are available Sugar Glider/Tuan, Common Brushtail Possum, Common Ringtail Possum, Feathertail Glider, Antechinus, insectivorous bat, Kookaburra, Duck, Owl, Parrot and pardalote.

During Construction (eg vegetation removal, earthworks)

7. The Zoologist/Wildlife Specialist is to be on site during the construction and the removal of vegetation and to inspect trees and ground litter/vegetation for fauna that may need to be relocated.

8. All possible options should be explored to successfully relocate fauna affected by the works.

9. All fauna requiring to be relocated will be relocated into adjacent suitable habitat as close as practical to the point of capture. Usually this is within 50 meters of the capture location, but no more than 100 meters unless authorised by the DELWP.

10. Depending on the fauna encountered and/or during construction or vegetation removal when fauna may become evident, the Zoologist/Wildlife Specialist will determine if capture and relocation is warranted, based on the best interests (animal welfare interests) of the animal concerned.

11. For any threatened species that are encountered, advice from the DELWP should be sought prior to relocation. Works may need to cease, pending advice from DELWP.

12. If the Zoologist/Wildlife Specialist determines that construction or tree removal is to cease so that fauna may be safely captured and relocated, the Zoologist/Wildlife Specialist is to liaise with the site manager and/or the appropriate contractor(s).

13. If elevated platforms are to be used to cut down trees, it is advised that the Zoologist/Wildlife Specialist inspect the hollows for fauna from the platform prior to removal. If fauna is resident in the hollow, follow step 16.

14. Once a tree or section of tree of interest is on the ground, Zoologist/Wildlife Specialist should inspect hollows, loose bark, fissures and nests for fauna.

15. Fauna is to be captured by the Zoologist/Wildlife Specialist either by hand, nets, capture poles, capture bags, blankets or towels. Captured fauna must immediately be covered and/or placed into a suitable container, to reduce stress and the risk of escape.

16. Fauna in hollows should be extracted by hand from the hollow. This may require cutting the entrance of the hollow with a chainsaw. Extreme care is advised. A portable inspection camera may be useful to see where the animal is in the hollow. If a chainsaw must be used to increase the entrance size, it is strongly recommended that a suitable plug (for example, several scrunched-up cloth capture bags or towels), be placed between the animal and the chainsaw. Care must be taken not to injure the animal during the extraction process. Firm but gentle pressure should be applied, to encourage the animal from the

hollow. The use of an inverted cloth capture bag is recommended if appropriate to the circumstance, so that when the animal is extracted, the bag can be pulled over the animal immediately.

17. Captured arboreal mammals should be placed into cloth capture bags.

18. If frogs are encountered and need to be translocated, they require specific attention to avoid disease transmission. The following hygiene protocol applies:

    a. Gloves (nitrile) should be worn at all times when handling frogs.
    b. Gloves need to be changed for each frog handled.
    c. Each frog must be housed individually in plastic zip lock bags.
    d. No plastic bag is to be re-used and must be disposed of after a single use.

    Bagged frogs must be kept in a cool quiet location and released into suitable habitat at the earliest opportunity.

19. Arboreal mammals captured are to be released into a suitable hollow or nest box within the identified release location as soon as is practical after capture.

20. If nocturnal fauna is required to be kept during the day, they will be kept in either standard pet carrying cages or ventilated cardboard/plastic animal boxes, or cloth capture bags. Captive fauna will be kept in cool and shaded conditions. Water will be provided if necessary. Zoologist/Wildlife Specialist is to regularly monitor captive fauna.

21. Reptiles and Frogs captured can be relocated as soon as is practical to the nearest suitable habitat for the species within the identified release site.

22. Snakes can only be captured by an experienced Zoologist/Wildlife Specialist or licensed snake handlers. All snakes are protected and are not to be harmed or interfered with. Any snakes disturbed by the development should only be captured and relocated if they present a potential threat to construction personnel or are likely to be harmed by the works. In most cases, snakes will attempt to move away from a disturbed area.

23. In the event that juvenile fauna is displaced and cannot be re-united with its parent(s), orphaned fauna must be deposited with an authorised wildlife shelter within the region for hand rearing.

24. In the event that fauna is injured during construction, the removal of trees, or during hand capture, the animal should initially be assessed and first aid rendered by experienced Zoologist/Wildlife Specialist and subsequently taken to a Veterinarian for further assessment and treatment and if necessary euthanasia. The DELWP must be advised of any euthanized wildlife should they wish to obtain the body.

25. After consultation with the veterinarian, injured fauna that requires recuperation and thus is unable to be immediately released must be deposited with an authorised wildlife shelter. Upon successful recuperation and rehabilitation, the animal is to be released into suitable habitat as close as is practical to the point of original capture.

26. Fauna killed by the works must be collected and offered to the Museum of Victoria and the DELWP notified.

27. At all times, the welfare of individual animals must be of utmost concern to all involved in this protocol.

28. All fauna observed, captured, relocated, injured or killed during the development must be recorded by the Zoologist/Wildlife Specialist. This data is to be supplied to the DELWP Wildlife Atlas Database by the consultant Zoologist/Wildlife Specialist.

Earthworks

29. The Zoologist/Wildlife Specialist is to inspect the site for vertebrates (and in some cases threatened invertebrates) on the day of earthworks. Vertebrates (and threatened invertebrates) that are encountered and in danger from the earthworks should be captured and translocated.

30. The Zoologist/Wildlife Specialist should observe the initial excavation/clearing of soil for vertebrates (and in some cases threatened invertebrates). If vertebrates (or threatened invertebrates) are encountered, the Zoologist/Wildlife Specialist should signal the plant operator to stop so that the animal can be captured and translocated.

Fauna Translocation

31. Fauna encountered during development works may require to be captured and translocated to a safe area. Translocated fauna does best if it is translocated within the individuals' home range and habitat. Thus if possible, translocation of fauna affected by the works should be adjacent to the capture point where practical, or say within 50 meters of the capture point, but no more than 100 meters from the capture point, unless authorised by the DELWP.

32. Fauna translocation can pose an issue with regards to the transmission of disease from one population to another. Disease transmission may not be an issue as long as the translocation distances are not significant and are likely to be within the same general population of a species. For frogs, hygiene protocols as outlined in 18 above are to be followed.

33. The method for translocation will depend on the species captured. *Table 1* lists the general recommended translocation methods for the potential animal groups that may be encountered. Depending on the species that may be encountered, particularly threatened species, more specific protocols may need

to be developed. The capture and translocation of larger vertebrate species such as koalas, macropods, and wombats and threatened invertebrates may require specific protocols and are not covered here.

Table 1: Translocation methods for fauna captured during development projects.

Animal Group	Time for release	Method
Frogs	As soon as practical after capture, during day light.	Translocate frogs into the same habitat type/structure as close as is practical to the point of capture. Release frogs into or near some form of cover to reduce the risk of predation. Ensure the frog moves off, is able to hide and appears to be safe from potential predators.
Reptiles	As soon as practical after capture, during day light.	Translocate reptiles into the same habitat type/structure as close as is practical to the point of capture. Release reptiles into or near some form of cover to reduce the risk of predation. Ensure the reptile moves off, is able to hide and appears to be safe from potential predators.
Birds	As soon as practical after capture, during day light.	Adult birds are unlikely to be directly impacted by the works. However, nestlings may be impacted directly by nest destruction/disturbance. As nestlings are still dependant, they will need to be reunited or of this is not possible, retained for hand rearing.
Mammals		
Echidna	As soon as practical after capture, during day light.	Hand capture and move to the translocation site and release. The Echidna is likely to "dig in". Observe the animal from a distance to ensure it moves off freely and away from any roads.
Tuan, gliders & Possums	As soon as practical after capture, during day light.	Translocate and release into installed artificial hollows (nest boxes). Two release methods can be used. 1. Place a temporary cover over the nest box entrance hole; undo capture bag; place capture bag and animal into nest box; slowly remove the capture bag from nest box; install nest box with animal in suitable tree; remove temporary cover over entrance hole. 2. With the animal in the capture bag, expose the nose and direct the animal into the entrance hole. This simulates the animal entering a hollow as it would normally. Once the nose is within the entrance, the rest of the capture bag can slowly be exposed. Animals will usually enter the box freely.

Post Construction

34. If practical, suitable woody debris (identified by experienced zoologist/Wildlife Specialist) should be retained to increase habitat diversity within the area. The woody debris should be placed to avoid disturbance or damage to other habitat features.

35. A fauna monitoring program for fauna translocated may be required.

Other Considerations

36. The use and parking of heavy plant and equipment should be restricted to within the Project boundary or cleared areas where possible, so as not to disturb ground vegetation and fauna. All plant and equipment should be clean to avoid the spread of weeds.

APPENDIX 1: Wildlife Management Authorisation

All wildlife in Victoria is protected under the Wildlife Act 1975. The capture and translocation of fauna associated with major road or land development projects requires a permit from the Department Environment, Land, Water and Planning (DELWP). This permit is known as a Wildlife Management Authorisation.

Wildlife Management Authorisations are issued to individuals pursuant to the provisions of the Wildlife Act 1975. They generally give permission to "…*live capture and relocate native fauna … to the nearest remnant habitat suitable for that species* …". There are usually several standard and perhaps specific conditions that will also need to be adhered to. These generally include the following:

- To notify the relevant regional Flora and Fauna Officer of DELWP prior to any relocation activities.
- Any traps used must be labelled with the permit number.
- Any threatened species encountered must be notified to DELWP.
- Within 30 days of the expiration of the permit, fauna data must be submitted to DELWP for incorporation into the Atlas of Victorian Wildlife.

APPENDIX 2: Induction for personnel involved in land development activities

To reduce the impact on fauna as a result of the proposed works a fauna monitoring, salvage and relocation plan (the **Fauna Management Plan**) has been prepared.

The following points are relevant to personnel involved in the construction works:

1. All native fauna in Victoria is protected by law (the Wildlife Act1975). Permits and authorisations are required to handle and manage native fauna. Only qualified, experienced and authorised personnel are to handle and relocate native fauna.

2. A qualified, experienced and authorised Zoologist/Wildlife Specialist will be engaged for this project to deal with affected fauna.

3. Depending on the fauna encountered and/or during vegetation removal when fauna may become evident, the Zoologist/ Wildlife Specialist will determine if capture and relocation is warranted, based on the best interests (animal welfare interests) of the animal concerned.

4. If the Zoologist/Wildlife Specialists determine that work is to cease so that fauna may be captured and relocated, the Zoologist/Wildlife Specialists will liaise with the site manager and/or the appropriate contractor(s).

5. If elevated platforms are to be used to cut down trees, it is advised that the Zoologist/Wildlife Specialist inspect the hollows for fauna from the platform prior to removal.

6. Once a tree or vegetation of interest is on the ground, the Zoologist/Wildlife Specialists will inspect hollows, loose bark, fissures and nests for fauna.

7. Snakes can only be captured by the Zoologist/Wildlife Specialist or licensed handlers. All snakes are protected and are not to be harmed or interfered with. Any snake disturbed by the clearing should only be captured and relocated if they present a potential threat to construction personnel or are likely to be harmed by the works. In most cases, snakes will attempt to move away from a disturbed area.

8. At all times, the welfare of individual animals must be of utmost concern to all involved in this project.

9. All fauna observed, injured or killed during the vegetation removal and other works must be reported to the Zoologist/Wildlife Specialist and recorded.

10. If practical, suitable woody debris (identified by experienced zoologist/Wildlife Specialist) should be retained to increase habitat diversity within the area is possible and practical. The woody debris should be placed to avoid disturbance or damage to other habitat features.

11. The use and parking of heavy plant and equipment should be restricted to within the Project boundary or cleared areas where possible, so as not to disturb ground vegetation and fauna. All plant and equipment should be clean to avoid the spread of weeds.

12. Specific protocols for two threatened species, the Swift Parrot and the Brush-tailed Phascogale have been prepared. Fauna Data Sheets for these species are provided to contractors for information, including for the Brown Treecreeper. If these species in particular are encountered by contractors they must be reported to the site supervisor, Vic Roads or the on-site zoologist.

APPENDIX 3:

SWIFT PARROT AND BRUSH-TAILED PHASCOGALE FAUNA MANAGEMENT PROTOCOL

PRE-WORKS, TREE REMOVAL AND CONSTRUCTION PHASE

SWIFT PARROT

If tree works are proposed to occur during the period when Swift Parrots are in Victoria (March - September), then the following measures must be implemented with regard to the Project area:

1. Undertake a pre-start inspection of the study area with a qualified zoologist to determine if:
    a. Eucalypts within and directly adjoining the project area are flowering (nectar/food source present);
    b. Swift Parrots are utilising the project area and/or areas directly adjoining the Project area in liaison with the DELWP;
    c. Eucalypts are not flowering and Swift parrots are not present proceed to 2 or proceed to 3 if Eucalypts are flowering and Swift parrots are present.
2. If Eucalypts are not flowering and Swift parrots are not present, works can proceed subject to the following:
    d. Daily pre-start checks are undertaken by a qualified zoologist to monitor the Project area and works to confirm presence / absence of the Swift Parrot;
    e. If daily pre-start checks confirm that Swift Parrots are present and utilising parts of the project area then follow mitigation options 3 f, g and h must be followed
3. If Eucalypts are flowering and Swift parrots are present, works can proceed with caution subject to the following:
    f. Undertake daily pre-start checks with a qualified zoologist, if Swift Parrots are present and foraging on trees proposed for removal / or are sighted in a section of Project area, then follow g and h;
    g. Commence works within another part of the project area where Swift Parrots are not foraging / present, provide a minimum buffer of 200m - 300m from sighted Swift Parrot location;
    h. Zoologist to monitor Swift parrot activity with regard to the operation of works over the course of the works period and tree removal works in the project area. If it is determined that works are impacting on Swift Parrot foraging then consider either increasing the works area buffer and / or shifting works to another section of

the project area. This would include liaison with the DELWP as required.

If tree works are proposed to occur during outside of the period when Swift Parrots are in Victoria, then works can proceed in accordance with the normal operational requirements of this Fauna Management Plan/Protocol.

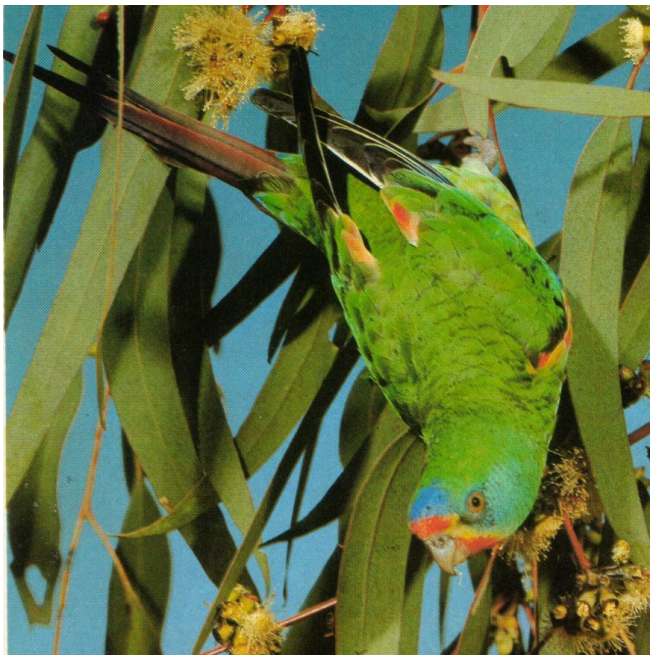
BRUSH-TAILDED PHASCOGALE

Undertake the following with regard to minimising impacts to Brush-tailed Phascogale in relation to the nine identified hollow bearing trees within the project area with a qualified zoologist as follows:

1. During the breeding season, a qualified zoologist to undertake a pre-start inspection of the tree(s) proposed to be removed. If being used for breeding purposes - tree is to be retained until finish of breeding season and/or tree has been vacated and re-checked as part of this Fauna Management Plan/protocol prior to removal works occurring. Liaise with DELWP as required; and
2. If during breeding season, tree is not being utilised for breeding purposes - remove the tree in accordance with a Fauna Management Plan/Protocol.
3. Non-breeding season, check trees and manage tree removal works in accordance with this Fauna Management Plan/protocol.

APPENDIX 4:

Species data sheet: SWIFT PARROT



Description

A medium sized bird, up to 245 mm. Generally green. The face is red with yellow margins and the crown is blue. Shoulders and underwing coverts are red. Central tail feathers dull brown-red tipped with blue.

Habitat

Swift Parrots migrate to Victoria in Autumn from their breeding sites in Tasmania. In Victoria they mainly occur in box-ironbark forests, particularly where Red Ironbark is well represented. They feed on winter flowering plants, particularly Grey Box, Red Ironbark, Yellow Gum, White Box and Mugga Ironbark (far north-east Victoria). As the parrots arrive, the Grey Box is in flower.

Diet

Nectar of eucalypts; sugary exudates from insects.

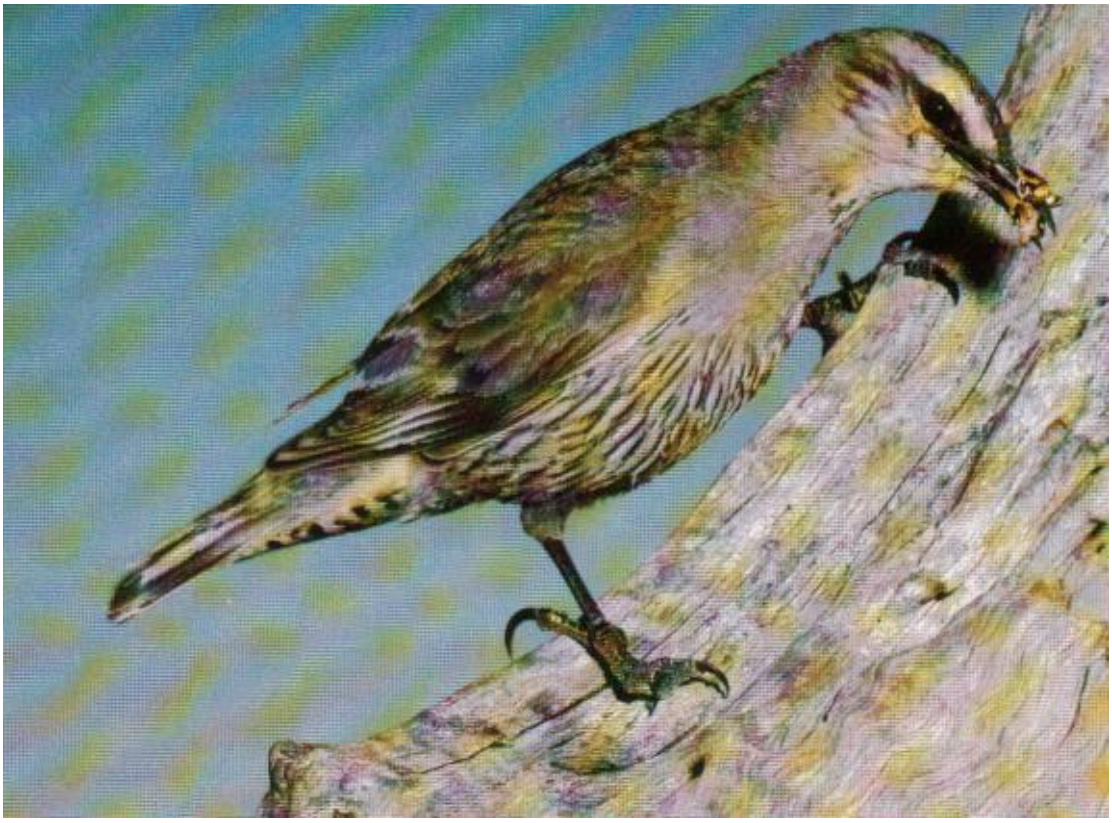
Breeding

Breeds late September to early January in Tasmania.

Conservation

Federally listed under the EPBC Act as Endangered; threatened species listed under the Victorian FFG Act; in Vic it is Endangered.

Species data sheet: BROWN TREECREEPER



Identification

Males and females similar. Grey-brown above, tending to grey on crown; pale buff eyebrow line; breast and belly streaked dull white and dark brown; eye dark brown; bill black; legs dark. Size: 150-185mm.

Habitat

Lowland dry woodlands and wooded farmlands, particularly those dominated by River Red Gum or Yellow Gum in northern Victoria. They probe for insects on tree trunks as well as the ground litter layer.

Nesting

They use hollows for nests. They breed between August and January.

Conservation

The Brown Treecreeper belongs to a community of bird species, the Victorian Temperate-woodland Bird Community. This community has been classified as threatened under the *Flora and Fauna Guarantee Act 1988*.

Species data sheet: Brush-tailed Phascogale or Tuan

Description

A carnivorous marsupial, with grey fur with a black bushy tail. It has a pointed snout. Head body length: 180-230mm Males, 160-190mm Females; Tail length: 175-220mm Males, 170-210mm females; Weight: 175-235g Males, 110-190g Females.

Habitat

Dry forest and woodland, especially box ironbark and stringybark forests. Tree hollows are required for den sites. Preferred hollows are small, approximately 30-40mm in diameter.

Diet

Insects primarily, but can also take baby birds.

Breeding

Births occur in June, July, August

Conservation

The Tuan is a Threatened Species in Victoria and considered Vulnerable. It is also a listed threatened species on the Flora and Fauna Guarantee Act.

Appendix 6 – Proposed conditions

Construction Plans

1. The construction of the VicRoads "Pyrenees Road Safety Program Project" must be in accordance with the following plans:

   a) *"VicRoads Pyrenees Highway – Section 2 Road Safety Treatments Plans, Drawing No.s 761355 – 761374 (Dated May 2016, Approved 11 October 2016)".*

   b) *Construction Limits of Works Plan dated 13 October 2016 - VicRoads Pyrenees Highway – Section 2 Road Safety Treatments Plans, Drawing No.s 761355 - 761374, (Dated May 2016, Approved 11 October 2016) ".*

Offsets

2. Prior to commencement of Works and removal of native vegetation approved for this Project, an Offset Strategy and Offset Management Plan to the satisfaction of the Commonwealth Department of Energy and Environment (DOEE) must be submitted to and approved by the DOEE. When approved this "Strategy" and "Plan" will be endorsed and form part of the approval of this Controlled Action.

3. When approved, the endorsed Offset Strategy and Offset Management Plan for the Pyrenees Highway Road Safety Program Project must be implemented within 12 months of the Commencement of works associated with the construction unless otherwise specified in the approved "Strategy" or "Plan".

Fauna Management

4. All wildlife encountered in the construction of the VicRoads "Pyrenees Road Safety Program Project" or in tree removal activities must be managed in accordance with the following protocol:

   c) "Wildlife CSI (2016) *Fauna Management Protocol, Pyrenees Hwy (Sec2), chainage 10-15km".*

Site Inductions

5. Prior to commencement of works a site induction must be undertaken by VicRoads of all contractors and any sub-contractors engaged in the construction works within the road reserve of the Project area. This induction must include all works engineers, crews, contractors, sub-contractors and plant operators and address all site specific environmental conditions and requirements, permits and legal approvals for this Project. Copies of these Project environmental conditions and requirements, permits and legal approvals must be available on the Project works site.

Environmental Management

6. Environmental management / protection measures must include, but not be limited to:

   a) Prior to the commencement of any construction works or native vegetation removal, the boundary of the construction / Limits of Works zones as detailed in the endorsed "Construction Limits of Works Plan" must be clearly marked and the Limits of Works zones temporary delineated with timber pegs and rope bunting until Project completion. All other areas of road reserve including adjoining trees / native vegetation outside of the temporary fencing / construction Limits of Works zone(s) will be 'No Go Zones' for the duration of works.

   b) Prior to the commencement of any construction works or native vegetation removal, all trees approved for removal must be clearly marked with high visibility paint. Any trees identified with faunal habitat values must be clearly marked with a "H" and managed in accordance with the "Wildlife CSI (2016) *Fauna Management Protocol, Pyrenees Hwy (Sec2), chainage 10-15km*".

b). To prevent damage to adjoining trees / native vegetation, no machinery or associated equipment, vehicles, construction materials, stacksites, vehicle storage areas, spoil, fill material etc... is permitted outside of the approved construction Limits of Works .

c). No truck, vehicle or plant turning areas, entry points, parking areas and temporary stack sites are to be established in No Go zones or in areas outside the approved "Construction Limits of Works" or on any areas of native vegetation. These areas must be restricted to within the "Construction Limits of Works", existing active stacksites, the road pavement of the Pyrenees Hwy or existing driveways and side roads.

d). No temporary or permanent vehicular / plant access points shall be conducted through the road reserve or adjoining areas of native vegetation to access the "Construction Limits of Works". The existing Pyrenees Hwy road pavement, driveways, local side roads along the road route length shall be used for this purpose.

e). The Project Construction Environmental Management Plan (CEMP) must include the installation of appropriate site mitigation measures and controls commensurate with site risk(s) associated with construction activities and site disturbance within the Project "Construction Limits of Works" to control stormwater runoff, site drainage and prevent sedimentation and erosion of adjoining waterways and areas of native vegetation. All site mitigation measures and controls installed, at a minimum, must be in accordance with the Victorian Environmental Protection Authority (EPA) *Environmental Guidelines for Major Construction Sites* (EPA 1996) and the EPA's *Construction Techniques for Sediment Pollution Control* (EPA 1991). All measures and controls installed must be maintained and retained in place until all areas of construction works disturbance have stabilised satisfactorily.

f). Minimising dust emissions during construction activities in accordance with the Victorian Environmental Protection Authority (EPA) *Environmental Guidelines for Major Construction Sites* (EPA 1996).

g). Any excess materials and spoil from the construction works must not be disposed of or spread outside of the "Construction Limits of Works" or within the road reserve / adjoining areas and must be removed from site.

7. Protect and minimise impacts on existing native vegetation / trees in the road reserve by:

a). All works must comply with Australian Standard (AS) 4970-2009 "*Protection of Trees on Development Sites*" to protect and minimise impacts of the works on native and plantation trees, including risk of tree root damage and / or tree destabilisation, during works.

b). Where there is a risk of damaging tree roots or tree destabilisation during works further advice shall be sought from a qualified arborist.

8. Preventing the spread of weeds and soil pathogens:

a). Prior to entering onto the road reserve, during, and on completion of works all construction and maintenance equipment, earthmoving equipment and associated machinery must be made free of soil, seed and plant materials.

b). Any noxious or environmental weeds that identified by the Roads Corporation as having been spread or imported onto the road reserve as a result of the works / site reinstatement shall be managed, treated or eradicated for a 24 month period following completion of all relevant Construction works and site remediation activities.

a). Any excavated material, including topsoil, taken from the works site to be returned later must be stored on a clean site free of weeds and not in areas of native vegetation.

9. All works are to be monitored and inspected by the Roads Corporation to ensure compliance, at all stages of Construction works, with all specified Project environmental conditions and requirements, permits and

legal approvals for the Project construction works. Any breaches must be reported to the DOEE and the DELWP within a time period of not exceeding greater than 48 hrs.

10. In completing the works, all Construction site rehabilitation measures must reinstate all disturbed areas of the road reserve affected by Construction works within the "Construction Limits of Works" to the standard before the works were commenced to the satisfaction of the DOEE. This shall include provision of a site monitoring report within two (2) months and a second report within twelve (12) months of works construction completion.

Appendix 6 – Proposed conditions

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3. When approved, the endorsed Offset Strategy and Offset Management Plan for the Pyrenees Highway Road Safety Program Project must be implemented within 12 months of the Commencement of works associated with the construction unless otherwise specified in the approved "Strategy" or "Plan".

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4. All wildlife encountered in the construction of the VicRoads "Pyrenees Road Safety Program Project" or in tree removal activities must be managed in accordance with the following protocol:

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Site Inductions

5. Prior to commencement of works a site induction must be undertaken by VicRoads of all contractors and any sub-contractors engaged in the construction works within the road reserve of the Project area. This induction must include all works engineers, crews, contractors, sub-contractors and plant operators and address all site specific environmental conditions and requirements, permits and legal approvals for this Project. Copies of these Project environmental conditions and requirements, permits and legal approvals must be available on the Project works site.

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   a) Prior to the commencement of any construction works or native vegetation removal, the boundary of the construction / Limits of Works zones as detailed in the endorsed "Construction Limits of Works Plan" must be clearly marked and the Limits of Works zones temporary delineated with timber pegs and rope bunting until Project completion. All other areas of road reserve including adjoining trees / native vegetation outside of the temporary fencing / construction Limits of Works zone(s) will be 'No Go Zones' for the duration of works.

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b). To prevent damage to adjoining trees / native vegetation, no machinery or associated equipment, vehicles, construction materials, stacksites, vehicle storage areas, spoil, fill material etc... is permitted outside of the approved construction Limits of Works .

c). No truck, vehicle or plant turning areas, entry points, parking areas and temporary stack sites are to be established in No Go zones or in areas outside the approved "Construction Limits of Works" or on any areas of native vegetation. These areas must be restricted to within the "Construction Limits of Works", existing active stacksites, the road pavement of the Pyrenees Hwy or existing driveways and side roads.

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g). Any excess materials and spoil from the construction works must not be disposed of or spread outside of the "Construction Limits of Works" or within the road reserve / adjoining areas and must be removed from site.

7. Protect and minimise impacts on existing native vegetation / trees in the road reserve by:

a). All works must comply with Australian Standard (AS) 4970-2009 "*Protection of Trees on Development Sites*" to protect and minimise impacts of the works on native and plantation trees, including risk of tree root damage and / or tree destabilisation, during works.

b). Where there is a risk of damaging tree roots or tree destabilisation during works further advice shall be sought from a qualified arborist.

8. Preventing the spread of weeds and soil pathogens:

a). Prior to entering onto the road reserve, during, and on completion of works all construction and maintenance equipment, earthmoving equipment and associated machinery must be made free of soil, seed and plant materials.

b). Any noxious or environmental weeds that identified by the Roads Corporation as having been spread or imported onto the road reserve as a result of the works / site reinstatement shall be managed, treated or eradicated for a 24 month period following completion of all relevant Construction works and site remediation activities.

a). Any excavated material, including topsoil, taken from the works site to be returned later must be stored on a clean site free of weeds and not in areas of native vegetation.

9. All works are to be monitored and inspected by the Roads Corporation to ensure compliance, at all stages of Construction works, with all specified Project environmental conditions and requirements, permits and

legal approvals for the Project construction works. Any breaches must be reported to the DOEE and the DELWP within a time period of not exceeding greater than 48 hrs.

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