### REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

### REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

**It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.**

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

* Mark relevant boxes by changing the font colour of the ‘cross’ to black and provide additional information and explanation where requested.
* As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
* Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
* Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:

- a brief description of potential changes or risks to environmental assets resulting from the project;

- available information on the likelihood and significance of such changes;

- the sources and accuracy of this information, and associated uncertainties.

* Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
* A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB as they will be published on the Department’s website.**
* A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
* The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address Couriers

**Minister for Planning Minister for Planning**

**GPO Box 2392 Level 20, 1 Spring Street**

**MELBOURNE VIC 3001 MELBOURNE VIC 3001**

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to [ees.referrals@delwp.vic.gov.au](mailto:ees.referrals@delwp.vic.gov.au) is required. This will assist the timely processing of a referral.

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**PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION**

**1. Information on proponent and person making Referral**

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| **Name of Proponent:** | **Melbourne Metro Rail Authority** |
| **Authorised person for proponent:** | Evan Tattersall |
| **Position:** | Chief Executive Officer – Melbourne Metro Rail Authority |
| **Postal address:** | Level 12, 121 Exhibition Street, Melbourne 3000 |
| **Email address:** | [evan.tattersall@melbournemetro.vic.gov.au](mailto:evan.tattersall@melbournemetro.vic.gov.au) |
| **Phone number:** | (03) 9027 5750 |
| **Facsimile number:** | n/a |
| **Person who prepared Referral:** | Marisa Feher |
| **Position:** | Environment Manager – Ballarat Line Upgrade |
| **Organisation:** | Melbourne Metro Rail Authority |
| **Postal address:** | Level 6, 121 Exhibition Street, Melbourne 3000 |
| **Email address:** | [Marisa.Feher@melbournemetro.vic.gov.au](mailto:Marisa.Feher@melbournemetro.vic.gov.au) |
| **Phone number:** | 0418 470 517 |
| **Facsimile number:** | n/a |
| **Available industry & environmental expertise:** (areas of ‘in-house’ expertise & consultancy firms engaged for project) | The Melbourne Metro Rail Authority (MMRA) has extensive ‘in-house’ expertise in rail planning, planning and environmental management.  The Aurecon Jacobs Mott MacDonald Joint Venture (the AJM JV) provides technical advisory services to the MMRA, including investigation and assessment of various matters to inform this referral in planning, hydrology, ecology, noise and greenhouse gas and the development of the project design.  Biosis has provided specialist advice on cultural and historic heritage. Ecology and Heritage Partners has provided specialist advice on ecology for part of the Ballarat Line Upgrade. Golder Associates has provided specialist advice on geotechnical services. |

**2. Project – brief outline**

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| **Project title: Ballarat Line Upgrade** |
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| **Project location:** (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context) |
| The Ballarat Line Upgrade is located at five discrete locations (elements) between Deer Park West, in Melbourne’s outer western suburbs and Warrenheip, outside Ballarat:   * Element 1 – Deer Park West to Melton * Element 2 – Bacchus Marsh / Maddingley * Element 3 – Ballan * Element 4 – Spreadeagle * Element 5 – Warrenheip   Refer to **Attachment 1a** for detailed maps of the project area and **Attachment 1f** for bounding coordinates of the project. |
| **Short project description** (few sentences)**:** |
| The Ballarat Line Upgrade comprises a series of rail and station upgrades to the existing Ballarat railway line between Deer Park West, in Melbourne’s outer western suburbs and Warrenheip, outside Ballarat to improve transport services. The rail and station upgrades involve the duplication of track and the installation of passing loops, station upgrades, new stabling facilities and associated works.  The Ballarat Line Upgrade is being delivered by the MMRA, an administrative office established under the *Public Administration Act 2004* in relation to the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). |

**3. Project description**

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| **Aim/objectives of the project** (what is its purpose / intended to achieve?):  The Ballarat Line Upgrade will improve services on the Ballarat rail line between Deer Park West and Ballarat through a selection of railway upgrades that will deliver the following benefits:   * **Increased number of services on the Ballarat line**: To address future population growth on the Ballarat line, additional services will be added to cater for growing patronage. * **Increased consistency and reliability in service provision**: Railway upgrades will provide a strong foundation for further expansion of capacity in the future and passengers will experience more reliable and consistent services.   The Ballarat Line Upgrade is key project to support DEDJTR to achieve sustained jobs and economic growth; including building more liveable and productive cities and regions through transport, infrastructure, land use planning and creative investments. The Ballarat Line Upgrade supports DEDJTR achieve this objective through:   * Creating employment opportunities through the development and funding of a large infrastructure project * Providing training opportunities within the project to contribute to developing a highly skilled workforce * Positively influencing on Victoria’s economy through funding a major infrastructure project, including procurement of goods and services * Improving access to jobs for regional Victorians and access to workers for business and industry through improvement in efficiency and reliability of transport services * Providing better transport services that will attract increased visitors and deliver an improved experience for those who visit and reside in regional Victoria.   Upon completion, the Ballarat Line Upgrade will increase service provision on the Ballarat line (with two additional services in the morning and afternoon peaks), improve punctuality to target levels and provide capacity for a 40 minute all day, off-peak frequency along the corridor (west of Bacchus Marsh) increasing from the current 60 minute frequency. The duplication of the track between Deer Park West and Melton also provides the basis for the future electrification of the rail line. |
| **Background/rationale of project** (describe the context / basis for the proposal, eg. for siting):  Patronage on the Ballarat rail line grew by 145% between 2006 and 2015 due to a number of factors including urban development at places such as Rockbank, Bacchus Marsh, and Melton, and the strength of the Melbourne CBD as a centre of employment. The Ballarat rail service is now the second busiest regional service in Victoria behind Geelong.  To facilitate higher patronage levels and improve punctuality on the Ballarat rail line, the Ballarat Line Upgrade will duplicate track and install new passing loops to increase the number of opportunities for trains to pass each other on the existing rail line.  The project was announced in the 2016-17 State Budget which provided $518 million to deliver the project as part of the Victorian Government’s *Regional Network Development Plan* (RNDP). Those consulted through the RNDP stakeholder consultation process expressed that more frequent services would improve comfort levels and provide more frequent services for the current timetable, particularly in the outbound direction.  The Ballarat Line Upgrade is consistent with Victorian Government policies *Trains, Trams, Jobs 2015-2025* (2015) and *Getting on with it* (2015), which highlight the need for a modern, reliable and efficient transport system. The project is supported by the metropolitan planning strategy *Plan Melbourne 2017-2050.*  The project:   * Addresses the key strategic priorities of the *Regional Network Development Plan.* * Has been developed having regard to the transport system objectives and decision-making principles set out in the *Transport Integration Act 2010*. * Encourages economic participation in regional Victoria. * Enables the continued and improved accessibility and movement of Victorians to key activity centres along the Ballarat rail line.   Construction of the project will be delivered by MMRA on behalf of the State of Victoria and the alliance contracting partner, referred to as the delivery partner in this referral document.  Operational responsibility will then be handed over to V/line, who currently has responsibility for operation of the existing Ballarat rail line. |
| **Main components of the project** (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):  The new railway and station upgrades in the five elements are predominantly located in the railway corridor within the existing VicTrack rail reserve and broadly include:   * Duplication of approximately 18km of track between Deer Park West and Melton * Installation of passing loops at Ballan and Spreadeagle * Station upgrades at Rockbank, Bacchus Marsh and Ballan * New stabling facilities at Maddingley (Kerrs Road) * Decommissioning of the Bungaree loop * Duplication of approximately 3 km of the track at Warrenheip.   The existing rail infrastructure will remain in place while the upgrade works are completed. The works within the five elements are described in Table 2.  **Table 2: Ballarat Line Upgrade Scope by Element**   | **Element** | **Scope of work for the new railway and station upgrades** | **Use and location of the secondary construction areas1** | | --- | --- | --- | | Element 1: Deer Park West and Melton | * Duplicate approximately 18 km of rail line between Deer Park West and to the west of Melton station * Rebuild platforms at Rockbank station, provision of a pedestrian link between platforms, and a new sealed car park * Site preparation works for a future station at Toolern, including raised tracks and pedestrian infrastructure | * #DM01 Laydown (0.47 ha) * #DM02 Access (0.20 ha) * #DM03 Laydown (1.79 ha) * #DM04 Rock crushing site (2.52 ha) * #DM05 Laydown area for stock pile (0.23 ha) * #DM06 Laydown (0.43 ha) * #DM07 Laydown and site office compound (9.89 ha) * #DM08 Laydown and site office compound (2.61 ha) * #DM09 Laydown area for stockpiles (0.72 ha) * #DM11 Laydown (5.30 ha) * #DM12 Laydown (0.87 ha) * #DM13 Laydown area across Toolern Creek (0.14 ha) * #DM14 Laydown area (0.40 ha) * #DM15 Turnout preassembly pad (0.23 ha)2 * #DM18 Laydown area and stabling facilities (0.54 ha)2 * #DM19 Layout area (0.39 ha)2 * #DM20 Laydown area (0.07 ha) * #DM22 Laydown area (0.76 ha)2 * #DM23 Turnout preassembly pad (0.20 ha)2 | | Element 2: Bacchus Marsh Second Platform / Maddingley Stabling | * Remove all overnight stabling facilities at Bacchus Marsh * Construct a second platform at Bacchus Marsh station and provide a pedestrian link between original and new platforms * Construct a new sealed carpark on the southern side of Bacchus Marsh station * Construct a six road stabling yard at Maddingley (Kerrs Road), with driver facilities within the existing rail reserve | * #BM01 Construction pad for turnout preassembly (0.15 ha)2 * #BM02 Construction pad for turnout preassembly (0.15 ha)2 * #BM03 Site compound and high value stock storage (0.65 ha)2 * #BM04 Laydown area (0.17 ha)2 * #BM05 Turnout preassembly pad (0.18 ha)2 * #BM06 Stabling Amenities and temporary site compound (0.27 ha)2 * #BM07 Stabling Amenities and temporary site compound (1.64 ha) * #BM08 Laydown area (0.26 ha)2 * #BM09 Stabling amenities and temporary site compound (1.31 ha)2 | | Element 3: Ballan Loop | * Construct a 5 km long crossing loop at Ballan approximately 5km of crossing loop situated either  ·    from Ingliston Road to approximately 2 km west of Ballan station OR;  ·    from Ballan station to just west of the East Moorabool River crossing * Construct a new platform at Ballan station and new pedestrian link between the new and original platforms | * #BP01 Laydown area(0.17 ha) * #BP02 Laydown area and turnout preassembly pad (0.18 ha)2 * #BP03 Potential bridge construction area on former track formation (1.93 ha)2 * #BP04 Turnout preassembly area, site compound, high value shock items and bulk materials (1.44 ha)2 * #BP05 Station construction laydown area (0.20 ha)2 * #BP06 Laydown area (0.09 ha)2 * #BP07 Laydown area (0.09 ha)2 * #BP08 Laydown area (0.20 ha) * #BP09 Laydown area (0.27 ha) * #BP10 Laydown area (0.19 ha) * #BP11 Laydown area (1.02 ha) * #BP12 New haul road (1.13 ha) * #BP13 Bulk material laydown road access (0.49 ha) | | Element 4: Spreadeagle (new Bungaree) Loop | * Construct a new 4 km crossing loop between West Moorabool River and Old Melbourne Road * Widen two roads over rail bridges at Peerewerrh and Spreadeagle Roads * Decommission the Bungaree loop including the removal on infrastructure at level crossings and the turnouts at each end of the loop to prevent trains entering the loop | * #SP01 Turnout preassembly pad (0.33 ha)2 * #SP02 Laydown area (1.60 ha) * #SP03 New Haul Road (0.97 ha)2 * #SP04 Laydown area (0.32 ha) * #SP05 Construction and bulk material laydown (0.31 ha) * #SP06 Turnout preassembly pad (0.33 ha)2 * #SP07 Turnout preassembly pad (0.24 ha)2 | | Element 5: Warrenheip Duplication | * Duplicate approximately 3 km of rail line east of Warrenheip Road, Warrenheip | * #WD01 Laydown area (0.28 ha) * #WD02 Turnout area preassembly pad (0.75 ha) * #WD03 New haul road for future maintenance access (3.67 ha) * #WD04 Construction and bulk material laydown (1.09 ha) * #WD05 Culvert construction laydown area (0.99 ha) * #WD06 Former Warrenheip yard site compound and bulk storage yard (2.52 ha) |   1Areas identified are approximate only and with a number located within the rail corridor.  2 Indicates secondary construction area located inside rail corridor.  Maps of the indicative locations of each element and potential secondary construction areas are included in **Attachment 1a** with a key feature map is included in **Attachment 1b.** |
| **Ancillary components of the project** (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):  To support safe construction in a live rail environment, a number of temporary secondary construction areas are required within and adjacent to the rail corridor. Site selection for the secondary construction areas prioritised VicTrack land currently used for railway activities in the existing railway corridor. Where there were no suitable sites within the rail corridor, potential secondary construction areas were evaluated using a set of criteria including desktop ecological assessments which assessed the potential presence of significant habitat and listed flora and fauna species. Other evaluation criteria included accessibility, practicality, safety, land ownership and the potential presence of significant habitat and listed flora and fauna species. As a result of the evaluation process, the potential secondary construction areas are located in:   * Vacant and/or leased VicTrack land * VicRoads road reserves and VicRoads vacant land adjacent to the rail corridor * Portions of up to 16 privately owned properties that are currently used as farm access tracks, farming activities such as animal grazing and holding.   The indicative locations of the potential secondary construction areas for the project are shown in **Attachment 1a**. The secondary construction areas will be returned to their original purpose unless the landowner specifically requests the MMRA to leave the area in the condition it was used for by the MMRA. This may be the case when land used for haul roads remain an access track on the request of the landholder. |
| **Key construction activities:**  Construction and other associated activities will occur within the rail corridor and the secondary construction areas. It is not expected that the entire corridor will be required to support construction activities and the extent of these activities will be refined by the delivery partner through the detailed design and construction program development.  The following key construction activities will be undertaken:   * Preparatory works may be undertaken across all five project elements in accordance with the proposed Planning Scheme Amendment. These works could include the establishment of temporary laydown areas, delineation fencing along the existing corridor, construction of temporary site access roads, and the localised relocation and/or protection of utilities; namely, the protection or relocation of power cables where they are sited in the alignment of new track work, or need to be repositioned to meet with current regulations. There may also be a requirement to remove trees / clearing and grubbing for the preparatory works, which may include areas of native vegetation. Only vegetation that does not require a planning permit is able to be removed in preparatory works. * Passing loops (Ballan and Spreadeagle) and rail duplication (Deer Park West to Melton and Warrenheip) including vegetation clearing, preparation of secondary construction areas with laydowns, haul roads and temporary site offices / compounds established. excavation and construction of rail formation to the desired grade (including reshaping of the site to control surface water flow and construction of main drainage), and for ballasting and tamping new track. * Structural works for bridge duplications at Toolern Creek and the Bostock Reservoir. * Works at Bacchus Marsh, Rockbank and Ballan stations including the decommissioning and relocation of existing siding at Bacchus Marsh station, construction and erection of footbridges, construction or extensions of platforms (including stairs, ramps and lift shafts), building service utility connections (including water and sewerage) and installation of lighting and CCTV. Station works will include signalling works such as testing and commissioning. * New car parking involving excavation and capping, installation of stormwater drainage, and works for pavement, kerbs, signage, linemarking and landscaping. * Maddingley (Kerrs Road) stabling facility including vegetation clearing within the VicTrack boundary, preparation of secondary construction areas. Earthworks and excavation for the stabling yard facility, as well as the placing of CSR utilities on either side of the facility. The stabling facility works will include the construction of six stabling roads, perimeter fencing and train gate, staff facilities and car parking, and retaining walls within the VicTrack boundary. The stabling facility works include installation of new signalling including testing and commissioning. * All track works will require signalling works including testing and commissioning. * Level crossing upgrades will be required at road intersections, as required, for rail duplication. * Associated ancillary infrastructure and road works. * Localised management of soils, where it is to be disturbed or removed from the project area, will be undertaken in accordance with EPA regulations. Construction within the project area will involve limited excavation and minimal likely contact with groundwater. Contamination findings to date indicate typical rail related contaminants (metals, hydrocarbons, pesticides,) exist locally, however, at the concentration detected, it is unlikely to demonstrate a risk to human health. * Disruption to train services during construction will not be extensive as the works can be undertaken adjacent to the existing rail line. When required, occupation of the existing rail line will occur on weekends and at nights. Occupations will only occur when required on weekends or overnights with works predominantly occurring during normal working hours. * Site re-establishment and clean up generally consists of removal of unused construction materials and waste, landscaping earthworks and planting. This stage is subject to seasonal and weather conditions and will be undertaken at the first appropriate opportunity following completion of heavy construction activities to remove construction site hazards, and prevent re-growth of weeds and undesirable species. |
| **Key operational activities**  The rail and station upgrades are located in the existing rail reserve. The rail reserve was established in the 1860s and has been disturbed for over a century by railway related activities. The scope of the project includes operation of the rail and station upgrades following construction. The MMRA is responsible for delivery of construction of the project, with operational responsibility then handed over to V/Line. V/Line currently has responsibility for operation of the existing Ballarat rail line, and will operate the new infrastructure delivered by the project including upgraded stations, new track and additional train services consistent with its existing practices. |
| **Key decommissioning activities** (if applicable):  No infrastructure removal or further decommissioning works are required for the closure of the Bungaree passing loop. |
| **Is the project an element or stage in a larger project?**  🗙 No 🗙 Yes |
| **Is the project related to any other past, current or mooted proposals in the region?**  🗙 No 🗙Yes  The project is a stand-alone improvement works package at five locations along the rail corridor. |

**4. Project alternatives**

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| **Brief description of key alternatives considered to date** (eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans):  The Ballarat Line Upgrade will increase the capacity and frequency of rail services to address the social and economic drivers identified in Section 3. This requires duplication of track in some locations and additional rail related infrastructure, including stations and stabling. The most appropriate location for these works is within the existing rail corridor, adjacent to the existing Ballarat rail line and infrastructure. Given these physical constraints, no alternatives were considered for the main project works adjacent to the existing Ballarat line infrastructure.  Alternative locations for temporary secondary construction areas were considered during the project design phase to facilitate the safe construction of the rail and stations upgrades. Site selection for the secondary construction areas prioritised VicTrack land currently used for railway activities in the existing railway corridor. Where there were no suitable sites within the rail corridor, potential secondary construction areas were evaluated using a set of criteria including:   * Planning and environmental considerations (ecological investigations, presence of planning overlays) * Outcomes of consultation with private land owners * Accessibility * Practicality (from a construction perspective) * Program efficiency * Minimisation of disruptions during occupations * Safety.   As a result of the evaluation process, the potential secondary construction areas are located in:   * Vacant and/or leased VicTrack land * VicRoads road reserves and VicRoads vacant land adjacent to the rail corridor * Portions of up to 16 privately owned properties that are currently used as farm access tracks, farming activities such as animal grazing and holding.   The areas have been located to ensure the delivery partner can set up multiple work sites to conduct works concurrently, safely and efficiently. Consideration has been given to traffic management requirements; public and community interfaces (particularly around level crossings and stations); and inclement weather in the wet season. |
| **Brief description of key alternatives to be further investigated** (if known)**:** |
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| No alternatives are under investigation. |

**5. Proposed exclusions**

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| **Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:** |
| There are no further stages that have been excluded from this project.  At the time of preparing this referral temporary secondary construction areas have been selected to ensure that safe construction on a live rail line can occur. The delivery partner will select from the selected secondary construction areas and the final number and location will be confirmed as the design is further refined and may reduce. The requirement for construction access tracks will also be confirmed by the delivery partner when secondary construction areas are selected. As such, the need and location of the construction site access tracks are not included in this referral.  Any additional access tracks are not anticipated to involve the removal of native vegetation or other environmental impacts and construction of these tracks will be carried out by the delivery partner in accordance with an approved Construction Environmental Management Plan (CEMP). |
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**6. Project implementation**

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| **Implementing organisation** (ultimately responsible for project, ie. not contractor)**:**  The project is being undertaken by the MMRA, an administrative office established under the *Public Administration Act 2004* in relation to the DEDJTR. The MMRA is responsible for the delivery of the Ballarat Line Upgrade on behalf of the Victorian Government. |
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| **Implementation timeframe:**  The proposed timeline is provided in Table 2 and includes the estimated start date of construction and commencement of operations. These timeframes are indicative only and may be subject to change once the Alliance delivery partner has been selected. Preparatory works may be undertaken in September 2017 subject to commercial agreement with the contractor.  **Table 3 – Ballarat Line Upgrade indicative timeframes**   | Date | Approval milestones | | --- | --- | | July – December 2017 | Award Alliance contracting partner contract | | January 2018 | Commence construction | | 2019 | Expected completion of construction | | 2019 | Commence operation | |
| **Proposed staging (if applicable):**  The staging of construction will be determined by the MMRA in consultation with the delivery partner. Works may or may not occur concurrently. |

**7. Description of proposed site or area of investigation**

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| **Has a preferred site for the project been selected?** |
| 🗙 No 🗙Yes If no, please describe area for investigation. |
| If yes, please describe the preferred site in the next items (if practicable). |
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| **General description of preferred site,** (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint): |
| **Project area and surrounding land** |
| The project area, as shown in red at **Attachment 1a**, stretches from the outer suburbs of Melbourne in Deer Park West to Warrenheip, on the outskirts of Ballarat. The project area is predominantly located within the existing rail corridor. All permanent infrastructure (rail works and station upgrades) will be located in the project area.  A series of temporary secondary construction areas have been identified to support construction activities in a live rail environment. These are located either within or outside the project area. Secondary construction areas located outside the project area are shown in blue at **Appendix 1a.**  Together, the project area and secondary construction areas comprise the land that is the subject of this referral (‘area of investigation’).  The rail corridor was established in the 1860s and has been disturbed for over a century by railway related activities. The rail line between Deer Park West and Melton South is located within the Urban Growth Boundary and traverses current and future Precinct Structure Plan areas designated for urban development. These areas include Toolern and Rockbank, which have been developed around the Ballarat rail line. It is anticipated that these areas will continue to develop in accordance with current and developing strategic planning objectives.    **Topography, landform, geology and soils**  The terrain within the five Elements is generally flat agricultural land with no ridges or crests and passes through several regional towns including Melton, Bacchus Marsh, Ballan, Dunnstown and Warrenheip. There are no identified landscape values of regional or State significance in or adjacent to the project area.  The project is predominantly underlain by the Newer Volcanics basalt, with Quaternary swamp and alluvial deposits observed to locally overlie the basalt. At Bacchus Marsh the station area is underlain by Quaternary Recent Alluvial deposits (Qra), typically comprised of clay, silt, sand and gravel. At the Maddingley stabling site, the alignment is underlain by Quaternary high level terrace deposits (Qpt) made up of silt, sand and gravel.  The rail corridor has been held by VicTrack since its inception. The area may have been subjected to historical filling, using unknown sources of fill.  **Surface water, groundwater and drainage**  The project is located within the jurisdiction of the Port Philip and Westernport Catchment Management Authority and the Corangamite Catchment Management Authority (western sections of the line in the Moorabool River catchment). Melbourne Water is the relevant delegated Floodplain Management authority for the Port Phillip and Westernport Catchment region.  There are two main waterways intersecting the project area which are crossed by large bridges. They are Toolern Creek (located in Element 1) and the Bostock Reservoir (Element 3). There are 29 streams and waterways intersecting the railway in the project area, including farm dams and drainage lines which cross through the rail corridor via 25 culverts and four small bridges (AJM JV (2017g). A further 15 culverts have been identified that drain catchments too minor to be captured on topographic mapping.  The project area is not subject to any Flooding Overlays in the Melton or Moorabool Planning Schemes. Investigations did not find evidence of historic flooding in the project area. Flood flows that could be generated from the relatively small catchments of the waterways within the project area are relatively minor (AJM JV 2017g). Discussions with Melbourne Water and the Corangamite Catchment Management Authority are ongoing.  **Vegetation cover**  In general, vegetation within the rail corridor is dominated by exotic pasture grasses, with scattered native species, and native grassland patches which have been intermittently cleared and largely disturbed due to the continued use as a rail corridor. Land adjacent to the rail corridor is predominantly used for farming and is generally devoid of native vegetation. The secondary construction areas that are located outside of the railway corridor are mostly sited in heavily disturbed farming land. The quality and floristic composition of native grassland patches present in the corridor vary according to disturbance and clearing regimes. Overall, the quality of the native grasslands is low, given that they are fragmented, isolated, and dominated my introduced species.  Areas not supporting remnant native vegetation have a high cover (>90%) of exotic grass species, many of which have been direct-seeded for use as pasture. |
| **Site area** (if known): |
| The project area, as shown in red at **Attachment 1a**, covers approximately 201 ha.  Secondary construction areas located outside the project area, as shown in blue at **Appendix 1a**, covers approximately 36 ha.  The total area of investigation is 237 ha. |
| **Route length** (for linear infrastructure):  The following table sets out the route length in each element.  **Table 4 – Route Length In Each Element**   |  |  | | --- | --- | | **Element** | **Approximate Length (km)** | | Element 1 – Deer Park West to Melton | 18 | | Element 2a – Bacchus Marsh Station | 1 | | Element 2b – Maddingley Stabling | 2 | | Element 3 – Ballan Loop | 5 | | Element 4 – Spreadeagle Loop | 4 | | Element 5 – Warrenheip Duplication | 3.5 | |
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| **Current land use and development:** |
| The project area is located predominately in the existing VicTrack rail corridor which has been used as a rail line for over a century. Land outside the railway corridor to be utilised for secondary construction areas are mostly sited in heavily disturbed farming land.  The landscape adjacent to the rail corridor changes from emerging residential areas in the east through extensive agricultural areas and regional towns further west, and as such land parcels directly adjacent to the alignment are predominantly used for residential and farming purposes. Land within Melbourne’s Urban Growth Boundary is a characterised by residential development at Caroline Springs and Melton separated by an area of undeveloped land at Rockbank. |
| **Description of local setting** (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):  The Ballarat Line Upgrade is located in an existing VicTrack rail corridor that reflects this railway use. Land in the rail corridor has been substantially modified over the last 100 years due to use as an active rail line.  Descriptions of the local setting for each element is provided as follows.  **Element 1: Deer Park West and Melton**  The majority of land to the north and south of the alignment, between Deer Park West and Melton, is used for agriculture, horse agistment and rural living. The Rockbank township, bound by the Western Freeway, rail corridor and Leakes Road and Troups Road North, contains residential development. New subdivisions are currently being developed in the Rockbank area north of the Western Freeway at Woodlea Estate and south of the rail alignment at Atherstone Estate.  A number of industrial uses are located at the western end of the element, generally bound by Mount Cottrell Road, the Western Freeway, Toolern Creek and the rail corridor. These include pre-cast concrete manufacturers, an abattoir and a commercial recycling facility. There is also a commercial racing facility and associated leisure facilities and golf driving range at the intersection of Ferris Road and the Western Freeway.  The transport network of the area is characterised by the Melbourne – Ballarat rail line and Western Freeway which traverse the area in an east – west movement branching from Melbourne towards Melton. Greigs Road is the other dominate east–west road in the immediate area. Ferris, Mount Cottrell, Paynes, Leakes and Hopkins Roads carry road traffic north–south through the region. The Ravenhall Quarry is located to the south of the project area.  **Element 2: Bacchus Marsh Second Platform / Maddingley Stabling**  Land immediately to the south of Bacchus Marsh station has been developed for low density residential purposes. The Parawan/Bacchus Marsh – Geelong Road bisects this residential area. South of this residential area is the recently constructed Bacchus Marsh Grammar School and a large tract of vacant undeveloped land associated with the Maddingley Mine.  On the northern side of the rail corridor, the project area includes the Bacchus Marsh station and car park which are located within the VicTrack corridor. North of Station Street, land is used for a variety of purposes including low density residential, Bacchus Marsh College and Leisure Centre, Maddingley Park, a light industrial estate, intensive agriculture and rural residential living.  Properties surrounding the stabling facility site in Maddingley are used for a variety of purposes, including manufacturing facilities along Kerrs Road and Rowsley Station Road, agricultural uses to the immediate east across the rail corridor and a drainage reserve immediately west. Residential properties in Maddingley are located approximately 700 m north of the stabling facility site.  **Element 3: Ballan Loop**  Land to the south of the rail corridor is used for agriculture. The Bostock Reservoir is located at the western end of the Ballan Loop works, which is used for water catchment purposes. Land within this area is sparsely populated.  Land to the north of the proposed Ballan Loop is used for a combination of rural living and low density residential, with a small reserve located adjacent to the rail corridor. Beyond this residential area is the Ballan township, which includes the town centre surrounded by low density residential uses.  **Element 4: Spreadeagle (new Bungaree) Loop**  Land uses within this area are predominantly agricultural, with single residential dwellings. Some smaller parcels of land are located along arterial roads. Land adjacent to the Spreadeagle Loop is zoned for farming purposes, except for a tract of land associated with the Lal Lal Reservoir. Old Melbourne Road traverses this area in a general east-west pattern.  **Element 5: Warrenheip Duplication**  The land north and south of this element is used for rural residential living or intensive agricultural pursuits. Land further west in the City of Ballarat remains relatively un-cleared and is zoned for rural living. |
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| **Planning context** (eg. strategic planning, zoning & overlays, management plans): |
| The Ballarat Line Upgrade is located within two municipalities, the City of Melton and the Shire of Moorabool. The land required for the rail and station upgrades is located within the rail corridor in Public Use Zone 4 – Transport, pursuant to the Melton and Moorabool Planning Schemes.  MMRA will be requesting the Victorian Minister for Planning to approve Planning Scheme Amendment GC69 to the Moorabool and Melton Planning Schemes. The Planning Scheme Amendment provides for an Incorporated Document that will regulate the use and development of land for the project.  **State Policy Context**  Transport Integration Act 2010  The *Transport Integration Act 2010* outlines the vision for transport in Victoria, which is “to  have an integrated and sustainable transport system that contributes to an inclusive, prosperous  and environmentally responsible state.” [s.6]. The Act requires decision makers to have regard to  the promotion of inclusive, prosperous and environmentally responsible transport. It requires all  Victorian transport agencies to work towards an integrated and sustainable transport system.  The project is expected to have a positive impact on the transport system as defined in Section 3 of the Act.  Plan Melbourne 2017-2050  *Plan Melbourne 2017-2050* is the metropolitan planning strategy developed to guide Melbourne’s growth to 2050. The Plan sets out a vision for the future and provides a blueprint that will shape how people in greater Melbourne will live and work over the next 40 years, and contains policies and strategies that address transport, housing, economic development, and the environment across Melbourne.  The Plan supports the Ballarat Line Upgrade and classifies it as a ‘committed and potential’ improvement to the transport infrastructure network. The recommendation to proceed with the project is further stated Outcome 3: Innovations Underway of the in the associated 5-year Plan Melbourne Implementation Plan, as the duplication has a budget of $518.4 million (the third largest budget allocation of the infrastructure projects). The Ballarat Line Upgrade is shown as a component of the *Regional Network Development Plan* as a long term transport investment for Regional Victoria.  Precinct Structure Plans  The following Precinct Structure Plans (PSP) in the City of Melton include land directly adjoining the Ballarat rail line:   * Toolern PSP * Rockbank PSP * Paynes Road PSP * Mt Atkinson PSP (awaiting approval)   Land adjacent to the rail alignment in these PSPs is designated for a combination of residential and commercial purposes, with pockets of mixed use high density development around proposed activity centres. These centres are anchored around train stations such as the Toolern (proposed) and Rockbank (existing). These PSPs considered the railway in their planning, generally demonstrated through the concentration of high density development along the transport corridor and the desire to maximise development opportunities in relation to proximity to the railway and support its ongoing use and development.  Land close to the Ballarat rail line which is identified for future urban development is typically designated a ‘railway noise amenity area’. The Melton Planning Scheme and the PSPs require an acoustic assessment report to be completed which places the onus for noise attenuation on those developing land adjacent to the Ballarat rail line (the agent of change), ensuring operations along the rail corridor are not compromised.  There are no PSPs of relevance in the Shire of Moorabool.  Melbourne Strategic Assessment Program  In June 2009, the Victorian Government entered into an agreement with the Commonwealth Government to conduct a strategic assessment of the potential impact of the Program ‘Delivering Melbourne’s newest sustainable communities’ on Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), otherwise known as the Melbourne Strategic Assessment (MSA).  The MSA includes a commitment to develop and implement a Biodiversity Conservation Strategy for Melbourne’s growth areas which would inform the preparation of Growth Corridor Plans and PSPs during all stages of future development.  The rail upgraded between Deer Park West and Toolern Creek in Melton West lie within the MSA area and fall within the definition of ‘actions associated within the urban development in the western growth corridor (Melton and Wyndham)’. Such actions have already been assessed and approved under an EPBC Act S146B decision and when undertaken in compliance with that approval, do not require separate referral, assessment or approvals under the EPBC Act.  State Planning Policy Framework  The State Planning Policy Framework (SPPF) forms part of every planning scheme in Victoria. It provides the State-wide planning policies to be considered in town planning decisions.  At an overarching level, the SPPF seeks to ensure that the needs of existing and future communities are properly planned having regard to factors ranging from the provision of appropriately zoned and located land, to understanding and minimising environmental impacts.  Policies of particular relevance to the project include:   * Clause 11 Settlement   + 11.02-1 Supply of urban land   + 11.02-2 Structure planning   + 11.03-1 Activity centre network * Clause 12 Environmental and Landscape Values   + 12.01-1 Protection of biodiversity   + 12.01-2 Native vegetation management   + 12.04-1 Environmentally sensitive areas   + 12.05-1 River Corridors * Clause 13 Environmental Risks   + 13.04 Noise and Air * Clause 14 Natural Resource Management   + 14.02-1 Catchment planning and management   + 14.02-2 Water quality * Clause 15 Built Environment and Heritage   + 15.01-4 Design for safety   + 15.02-1 Energy and resource efficiency   + 15.03-1 Heritage conservation   + 15.03-2 Aboriginal cultural heritage * Clause 17 Economic Development   + 17.01-1 Business   + 17.03-1 Facilitating tourism * Clause 18 Transport   + 18.01-1 Land use and transport planning   + 18.01-2 Transport system   **Local Policy Context**  Local Planning Policy Framework  The Local Planning Policy Framework (LPPF) outlines the local planning policies to be considered  in town planning decisions and must be consistent with State policy. The project is located  within the City of Melton and the Shire of Moorabool. The following local policies are relevant to the project:  Melton LPPF   * Clause 22.04 Urban Development Policy * Clause 22.07 Transport and Movement Policy   Moorabool LPPF   * Clause 21.02 Natural Environment * Clause 21.05 Development and Community Infrastructure * Clause 21.06 Heritage   Zones and Overlays  As previously described, land adjacent to the project area is predominantly zoned for farming, residential or future urban growth.  Tables 5 and 6 below show zones and overlays that apply to the project area where the project infrastructure is to be developed. An assessment of the zones and overlays for the entire project area has been prepared by AJM JV to support the request for Planning Scheme Amendment GC69 to the Melton and Moorabool Planning Schemes.  Maps of the planning zones and overlays associated with the project area are included at **Attachment 1c** and **Attachment 1d**.  **Table 5: Zones in the Project Area**   | **Zone / Planning Scheme** | **Comments** | | --- | --- | | **Melton Planning Scheme** | | | Public Use Zone 4 – Transport (PUZ4) | Identifies land for transport (railway lines).  Zone applies to the whole of the rail corridor. | | Road Zone, Category 1 (RDZ1) (Hopkins Road) | Identifies land for significant existing or future roads.  Zone applies to land in Element 1. | | **Moorabool Planning Scheme** | | | Public Use Zone 4 – Transport (PUZ4) | Identifies land for transport (railway lines).  Zone provisions apply to rail corridor in all project Elements in Moorabool. | | Road Zone, Category 1 (RDZ1) (Parawan Road, Geelong-Ballan Road) | Identifies land for significant existing or future roads.  Zone applies to land in Element 2. | | Road Zone, Category 2 (RDZ2) (Station Street) | Identifies land for significant existing or future roads.  Zone applies to land in Element 2. |   **Table 6: Overlays in the Project Area**   |  |  | | --- | --- | | **Overlay / Planning Scheme** | **Comments** | | **Melton Planning Scheme** | | | Environmental Significance Overlay (Schedule 1 – Remnant Woodlands, Open Forests and Grasslands) (ESO1) | Identifies remnant woodlands, open forest and grassland.  Overlay applies to land in Element 1. | | Public Acquisition Overlay – Schedule 1 (PAO1) | Identifies land to be acquired and the relevant acquiring authority (VicRoads).  Overlay applies to land in Element 1. | | Heritage Overlay (HO93 – Melton South Railway Station, Brooklyn Road) | Applies heritage controls to the Melton South station within Element 1. | | **Moorabool Planning Scheme** | | | Design and Development Overlay (Schedule 2 –Visual Amenity and Building Design) (DDO2) | Places visual amenity and building design requirements on certain development types.  Overlay applies to land in Element 2. | | Environmental Significance Overlay (Schedule 1 – Proclaimed Water Catchment Areas) (ESO1) | Identifies land within proclaimed water catchment areas.  Overlay applies to land in Element 4 and 5. | | Heritage Overlay (HO168 – Bacchus Marsh Railway Station, Station Street) | Applies heritage controls to the Bacchus Marsh station in Element 2. | | Heritage Overlay (HO18 – Railway Station, Atkinson Street) | Applies heritage controls to the Ballan station in Element 3. |   Summary  Relevant state and local policies and planning controls support improved transport outcomes and connectivity between regional Victoria and metropolitan Melbourne. The Ballarat Line Upgrade will enable existing and future services to deliver the objectives of the Melton and Moorabool Planning Schemes as well as the SPPF.  Planning approval for the project will be sought via an amendment to the Melton and Moorabool Planning Schemes to include an Incorporated Document into Clause 52.03 (Specific Sites and Exclusions). This process will enable a coordinated approach to the consideration of environmental and heritage and the application of a single control over the whole project area. |
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| **Local government area(s):** |
| City of Melton and Shire of Moorabool. |

**8. Existing environment**

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| **Overview of key environmental assets/sensitivities in project area and vicinity** (cf. general description of project site/study area under section 7)**:** |
| The project is predominantly located in an existing VicTrack rail corridor and has been substantially modified over the last 100 years due to its time as an active rail line.  The land use between Deer Park West and Warrenheip changes from emerging residential areas in the east through extensive agricultural areas and regional settlements further west. As such, land uses directly adjacent to the alignment are predominantly used for residential and farming purposes. New residential and commercial centres will occur in Rockbank and Toolern as the Precinct Structure Plans for these areas are developed. The rail line does not pass through identified significant landscapes.  The proximity of residential areas to the rail line have been assessed for any potential noise impacts from both the Maddingley stabling yard and the operation of additional trains along the whole alignment.  Part of the Ballarat Line Upgrade involves rail upgrades located between Deer Park West and Toolern Creek in Melton West. These works lie within the MSA area and fall within the definition of *‘actions associated within the urban development in the western growth corridor (Melton and Wyndham)’*. Such actions have already been assessed and approved under an EPBC Act S146B decision and when undertaken in compliance with that approval, do not require separate referral, assessment or approvals under the EPBC Act.  The MMRA intends to undertake works in the MSA project area in accordance with the conditions of the EPBC Act S146B decision and associated requirements. The remaining four elements are located outside of the MSA project area and do not fall within the scope of S146B decision.  Therefore, the subject of the EPBC referral was limited to works outside of the MSA area. The subject of this referral includes works both in and outside the MSA area.  Key environmental assets identified in the project area include:   * Native vegetation * Matters of National Environmental Significance * Native Fauna * Aboriginal cultural heritage * Historic heritage * Waterways   **Native Vegetation**: Approximately 29 ha of time-stamped or field surveyed native vegetation is present within the project area. Time-stamped data suggests that this native vegetation is dominated by Ecological Vegetation Classes (EVCs) listed as Endangered by DELWP. Field assessment has identified that approximately 0.19 ha of this native vegetation qualifies as the *Flora and Fauna Guarantee Act 1988* (FFG Act) listed community Western (Basalt) Plains Grassland. Scattered indigenous trees are also present within the project area.  **Matters of National Environmental Significance:** Approximately 0.25 ha of the native vegetation within Elements 1 and 3 meets the threshold criteria for the EPBC Act-listed Natural Temperate Grassland of the Victoria Volcanic Plains (NTGVVP). Additionally, three EPBC Act-listed species are present, including Spiny rice flower and Large-fruited groundsel in Element 1 and Matted Flax-lily in Element 2 and Element 3.  **Native Fauna:** The project area includes potentially suitable habitat for listed faunal species, although ecological assessments have concluded that these species are considered highly unlikely to make significant use of the project area. A number of protected fauna species listed under the FFG-act were identified within the project area.  Further information about native vegetation and flora and fauna is provided in Section 12. |
| **Aboriginal cultural heritage**  Parts of the project are located in areas of cultural heritage sensitivity due to the presence of a number of registered cultural heritage places and named waterways as defined in the *Aboriginal Heritage Regulations 2007*. These places are generally concentrated Element 1 (Deer Park to Melton), Element 4 (Spreadeagle Loop) and Element 5 (Warrenheip). |
| **Historic heritage**  There are two sites on the Victorian Heritage Inventory within the project area:   * Cobbled Roadway, Greigs Road (H7822-2334). * Rockbank Station and Ward’s Chaffmill Site (H7822-2356)   No places listed on the Victorian Heritage Register are located in the project area.  Ballan and Bacchus Marsh stations are listed in the Schedule to the Heritage Overlay of the Moorabool Planning Scheme. Melton South listed in the Schedule to the Heritage Overlay of the Melton Planning Scheme.  Further information about Historic Heritage is provided in Section 15.  **Waterways**  Works for the Ballarat Line Upgrade cross two main waterways and 29 smaller waterways and drainage lines. The two main waterways are:   * Toolern Creek at Melton, which has a catchment area of around 90 km2 * Upper Reach of the Bostock Reservoir (East Branch of the Moorabool River) that also has a catchment area of around 90km2.   The project passes close to, but does not cross, a number of other waterways. These are:   * Arnolds Creek at Melton. This runs parallel to the west side of the line immediately to the west of Melton station * The Werribee River and its Maddingley Park Drain tributary at Bacchus Marsh. The Werribee River floodplain is to the north of Bacchus Marsh station. The Maddingley Park Drain runs parallel to the west side of the existing line on the Ballarat side of Bacchus Marsh station * Dog Trap Gully (south of Bacchus Marsh), the West Branch of the Moorabool River, and Lal Lal Creek. The proposed rail duplication terminates immediately adjacent to the existing bridges across these creeks.   Further information about the waterways and drainage lines are provided in Section 13. |
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**9. Land availability and control**

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| **Is the proposal on, or partly on, Crown land?** |
| 🗙 No 🗙Yes If yes, please provide details. |
| All land in the rail corridor is held by VicTrack on behalf of the Victorian Government. |
| **Current land tenure** (provide plan, if practicable):  The project will be predominantly undertaken within the VicTrack rail corridor and managed by V/Line. Roads are managed by either VicRoads or the local Council. Up to 27 private property parcels owned by 17 land owners adjacent to the rail corridor will be partially utilised for temporary construction purposes for the project. These properties are located at: Maddingley, Ballan, Truganina, Melton South, Dunnstown, Warrenheip, Millbrook, Brookfield and Thornhill Park.  No private land is expected to be permanently acquired by the project. The current concept design contains all permanent project infrastructure within the rail corridor and adjoining roads.  Access and temporary construction activities may be required on the surrounding road network for which VicRoads, the City of Melton and the Shire of Moorabool are the road management authorities under the *Road Management Act 2004*. |
| **Intended land tenure** (tenure over or access to project land): |
| VicTrack will retain its ‘ownership’ of the rail reserve. There are six VicTrack leases in the project area and two privately owned properties in the VicTrack land. The affected tenants and private land owners have been consulted and access arrangements are being agreed.    The surrounding road network is managed by VicRoads or the relevant Council and approvals will be sought as required under the *Road Management Act 2004* and *Major Transport Projects Facilitation Act 2009*.  It is expected that the temporary use of secondary construction areas within privately owned land will be negotiated with the relevant landowner or obtained under the *Major Transport Projects Facilitation Act 2009* and *Land Acquisition and Compensation Act 1986*, if required. |
| **Other interests in affected land** (eg. easements, native title claims): |
| The project area does not intersect with any known native title claims.  The project area interfaces with the following infrastructure:   * Existing roads (at grade separated rail crossings) * Easements for overhead power transmission lines * Drainage structures and overland flow paths * Utilities. |

**10. Required approvals**

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| **State and Commonwealth approvals required for project components** (if known): |
| **Commonwealth**  The project (other than the elements of the project located in the MSA area) has been referred to the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* for a decision on whether the Ballarat Line Upgrade is a ‘controlled action’ and requires further assessment and approval. The Ballarat Line Upgrade EPBC referral was made on the basis of potential impacts to the EPBC Act-listed threatened species and listed ecological communities, but concluded that the project will not have a significant impact on any matter protected under the EPBC Act.  A decision has not been made on the EPBC referral at time of the writing of this referral.  **State**  The Ballarat Line Upgrade affects land in the City of Melton and the Shire of Moorabool in and in proximity to the railway corridor. A Planning Scheme Amendment GC69 will be sought to allow for the use and development of land for the Ballarat Line Upgrade under the Melton and Moorabool Planning Schemes. This approach will introduce a project-specific planning tool, an Incorporated Document, into the Melton and Moorabool Planning Schemes that allows planning controls for the project to be addressed in a streamlined and timely manner.  In the absence of the Planning Scheme Amendment, a number of planning permit triggers for use and development within the project area (including secondary construction areas) would apply. These include, but are not limited to:   * Buildings and works in the Heritage Overlay at Melton South, Ballan and Bacchus Marsh railway stations. * Buildings and works and vegetation removal in the Environmental Significance Overlay at various locations in both municipalities. * Removal of native vegetation in the rail corridor. * Use of land for construction purposes and/or to store machinery and vehicles in various zones adjacent to the rail corridor (Secondary Construction Areas only).   Further information regarding the Planning Scheme Amendment is provided in *Ballarat Line Upgrade – Strategic Assessment of Draft Planning Scheme Amendment GC69* (MMRA, 2017).  It is proposed that the Ballarat Line Upgrade will be declared a transport project to which the *Major Transport Projects Facilitation Act 2009* (other than Parts 3 and 8) applies. Following declaration of the project by the Premier and subsequent designation of the project area by the Minister for Planning, the project delivery powers under the *Major Transport Projects Facilitation Act 2009* will enable the effective and efficient delivery of the Ballarat Line Upgrade after it has received all applicable environmental, statutory planning, heritage and other approvals.  In addition, the delivery of the Ballarat Line Upgrade requires approvals/consents in accordance with the following Acts:   * Three Cultural Heritage Management Plans under the *Aboriginal Heritage Act 2006* * A Permit to Take under the *Flora and Fauna Guarantee Act 1988* * Consent to carry out works to a site listed on the Victorian Heritage Inventory under the *Heritage Act 1995* * Works within and the occupation of roads under the *Road Management Act 2004* and *Major Transport Facilitation Act 2009* * Waters on Waterways Permit under the *Water Act 1989* |
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| **Have any applications for approval been lodged?** |
| 🗙 No 🗙Yes If yes, please provide details. |
| A referral has been lodged with the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (Referral Number 2017/7980).  A request to amend the Melton and Moorabool Planning Schemes to include an Incorporated Document into Clause 52.03 (Specific Sites and Exclusions) of each planning scheme via section 20(4) of the *Planning and Environment Act 1987* has been lodged with the Minister for Planning (Amendment GC69).  It is anticipated that a project proposal under the *Major Transport Projects Facilitation Act 2009* will be submitted in August 2017. |
| **Approval agency consultation** (agencies with whom the proposal has been discussed): |
| Consultation has been undertaken with the following approval agencies:   * Aboriginal Victoria * City of Melton * Shire of Moorabool * Commonwealth Department of the Environment * Department of Economic Development, Jobs, Transport and Resources * Department of Environment, Land, Water and Planning * Heritage Victoria * Melbourne Water * Corangamite Catchment Management Authority * Central Highlands Water * Public Transport Victoria * Registered Aboriginal Parties   + Wathaurong Aboriginal Corporation (Wautharung)   + Wurundjeri Tribe Land Compensation and Cultural Heritage Council (Wurundjeri) * Environment Protection Authority * VicRoads * VicTrack. |
| V/Line were also consulted as the lessee of the VicTrack land. Further information is provided in section 20. |

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

**11. Potentially significant environmental effects**

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| **Overview of potentially significant environmental effects** (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties): |
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| The nature and extent of potential native vegetation removal for the project has been assessed in a series of ecological investigations (Attachments 2 – 5) and in accordance with relevant policies and Guidelines. On the basis of these investigations, it has been concluded that native vegetation removal for the project is not likely to have a significant environmental effect, given vegetation to be removed is of low quality within a modified setting, and does not provide significant habitat to listed species. Patches outside of the MSA comprising Commonwealth-listed vegetation (described in Section 12) will be avoided by the project through the implementation of EPRs, including fencing and signing of exclusion zones. Unavoidable impacts to native vegetation outside of the MSA area will include the securing of offsets under the Guidelines.  The ‘*Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978’* (“*the Ministerial Guidelines*” DSE, 2006) states that the proposed clearing of 10 or more hectares of native vegetation from an area that is of an EVC identified as endangered has the potential to result in a significant environmental effect.  The construction of the Ballarat Line Upgrade will potentially impact 10 or more ha of native vegetation (predominantly Plains Grassland). This vegetation has been characterised as of low quality and unlikely to provide significant fauna habitat, due to the fragmented condition of the patches which are scattered throughout a highly modified rail corridor setting. Ecological investigations relevant to the project are documented in Section 12.  The overview of potentially significant environmental effects presented in this section is provided with consideration to the following factors, as outlined by the Ministerial Guidelines:   * **potential magnitude, extent and duration of adverse effects on environmental assets** in the short, medium and longer term, as a result of the development, operation and where relevant, decommissioning of a project * **significance of the environmental assets affected**, in relation to: – character of the potentially affected environmental assets – geographic occurrence of the environmental assets – values or importance of the environmental assets, based on expert knowledge, relevant policy and evidence of social values * **potential for more extended adverse effects in space and time**, as a result of interactions of different effects and environmental processes affecting environmental assets. The identification of potential significant effects does not indicate that an EES will necessarily be required. Other factors, including the likelihood of such effects, will be taken into account in the Minister’s decision in response to a referral.   These factors are discussed in detail below.  **Potential magnitude, extent and duration of adverse effects on environmental assets**  Native vegetation removed within the rail corridor will be permanent, however the temporary utilisation of secondary construction areas is highly unlikely to result in a permanent impact to native vegetation. In accordance with state and local native vegetation policies relevant to the project; avoidance, minimisation, and mitigation will be applied during the construction phase to ensure native vegetation is retained where possible.  The following conditions in the project’s Planning Scheme Amendment Incorporated Document address these native vegetation requirements (particularly with respect to Clause 52.16 and Clause 52.17 of the Melton and Moorabool Planning Schemes), and the consultation that has occurred to date with DELWP’s native vegetation team, Melton Council and Moorabool Shire. Detailed ecological surveys have been undertaken (Attachments 2 – 5), and are ongoing to ensure that these conditions can be satisfied prior to the commencement of construction.   * Details of the proposed removal, destruction or lopping of native vegetation necessary for the construction of the Project must be prepared in accordance with the Permitted clearing of native vegetation - Biodiversity assessment guidelines (Department of Environment and Primary Industries, September 2013), to the satisfaction of the Secretary to DELWP, except as otherwise agreed by the Secretary to DELWP. * Native vegetation offsets must be provided in accordance with the Permitted clearing of native vegetation - Biodiversity assessment guidelines (Department of Environment and Primary Industries, September 2013), except as otherwise agreed by the Secretary to DELWP.   The maximum extent of native vegetation removal which may be required during construction of the Ballarat Line Upgrade is as follows:   * 20.94 ha of modelled time-stamped native vegetation within the BCS. This data set is based on ‘DSE estimated data’ (Biodiversity Interactive Map, DELWP, 2017). Approximately 50% of this vegetation is modelled within secondary construction areas and is, therefore, highly unlikely to be permanently lost. * 6.03 ha of time-stamped native vegetation within the Toolern NVPP. This time-stamped native vegetation data set is derived from field surveys conducted for the NVPP in 2008. Approximately 8% of this vegetation is modelled within secondary construction areas and is, therefore, highly unlikely to be permanently lost. * 2.68 ha of field surveyed native vegetation located outside of the MSA area. This native vegetation data is derived from field assessments undertaken in 2016 and 2017. Approximately 8% of this vegetation is modelled within secondary construction areas and is, therefore, highly unlikely to be permanently lost.   There are uncertainties as to the true extent of native vegetation given that time-stamped data within the BCS section of the rail corridor is derived from DSE estimated data (as indicated by “pixilation” of the spatial layer within the project area). Mapping was not undertaken by DELWP in the rail corridor due to site access restrictions and subsequent extents reported are provided as ‘estimates’ in the resulting data.  It is considered the DEWLP mapping of native vegetation substantially over represents the extent of the EVC, Plains Grassland, within the operational rail corridor. To quantify these uncertainties, a desktop review of recent aerial imagery (DELWP, 2016) was carried out in select sections of the project area to identify obvious inconsistencies between the time-stamped extent of native vegetation and the actual current extent of native vegetation within the BCS portion of the project area. The aim of the review was to enable comment to be made as to the actual on ground adverse effect the project is likely to have on native vegetation. The results of this review suggest that DSE-estimated data appears to overestimate the current extent of native vegetation by approximately 30 - 50%. The below examples provide a demonstration of this overestimation:  **Significance of the environmental assets affected**.  The majority of remnant native vegetation patches within the project area remain as disturbed and modified examples of their respective EVC (predominantly Plains Grassland). It is likely these areas have been modified through the original development and ongoing maintenance of the operational rail corridor and do not represent high quality examples the EVC’s given the small size, isolated nature and high weed densities observed throughout the surveyed portions of the project area (refer to Attachments 2 – 5).  Due to the ‘endangered’ conservation status assigned by DELWP to the EVCs known to occur within the project area, their conservation significance is high. The criteria implemented by DELWP in assigning an endangered status to an EVC is as follows:   * Contracted to less than 10% of former range; or * Less than 10% pre-European extent remains; or * Combination of depletion, degradation, current threats and rarity is comparable overall to the above: * 10 to 30% pre-European extent remains and severely degraded over a majority of this area; or * naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or * rare EVC cleared and/or moderately degraded over a majority of former area.   Plains Grasslands is the predominant EVC within the project area. Plains Grasslands are confined to the Victorian Volcanic Plain bioregion. Historical land use change (the cessation of seasonal fire regimes and the introduction of grazing and exotic pasture and more recently the expansion of Melbourne) have had a dramatic impact on this community, resulting in less than 5% of the original vegetation distribution remaining (DSE, 2005). Of the remaining extent, large areas have been incorporated into the conservation areas of the MSA and other areas have been included in the proposed Western Grassland Reserve.  State based modelling of Victorian EVCs was last undertaken in 2005, and a great deal of environmental change has occurred to grassland extents in the time since the last comprehensive assessment. Therefore, the current extents of EVCs are difficult to quantify. The total original (pre 1750) extent of the Plains Grassland EVC is 256,457 ha. In 2005, the EVC was estimated to cover approximately 65,244 ha (3.9% of original extent).  The maximum extent of removal that could occur for the Ballarat Line Upgrade for the Plains Grassland EVC is approximately 24.5 ha (including secondary conservation areas). This would constitute a loss of 0.04% of the remaining extent of this EVC. It is known that the actual extent of on-ground removal of this community will be less than 24.5 ha, due to the overestimation of the actual on-ground extent of this community by time-stamped data, and the implementation of avoidance and minimisation measures through design and implementation of on-ground protection measures, including exclusion fencing.  The character of the EVCs identified within the project area has been significantly affected by past clearing and ongoing disturbance activities. This has resulted in the EVCs occurring generally as small, isolated, and fragmented patches with high weed cover and low quality scores (as measured by the Habitat Hectare scores). Section 12 discusses the highly unlikely potential for State or Commonwealth-listed flora and fauna species making significant use of potentially suitable habitat within the project area.  With consideration to the above, and the information provided in Section 12, it is not likely that the environmental assets identified within the project area are of significance.  **Potential for more extended adverse effects in space and time**  Given that the Ballarat Line Upgrade works will provide an enhancement to an already existing and operational rail corridor, the project is not likely to have the potential to introduce extended adverse environmental effects.  Native vegetation removal within the rail corridor will be permanent; however, the utilisation of secondary construction areas will be temporary. Mitigation measures and best practice construction methodologies will be documented in the projects CEMP and will ensure the potential for extended adverse effects will be minimised. |

**12. Native vegetation, flora and fauna**

Native vegetation

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| **Is any native vegetation likely to be cleared or otherwise affected by the project?**  🗙 NYD 🗙 No 🗙 Yes If yes, answer the following questions and attach details. |
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| **What investigation of native vegetation in the project area has been done?** (briefly describe) |
| Four ecological reports have been prepared to describe the existing conditions of the project area:   * AJM JV (2017a) *Ballarat Line Upgrade – Summary of Ecological Results for the Ballarat Line Upgrade* * AJM JV (2017b) *Ballarat Line Upgrade – Ecology Assessment Additional Areas* * AJM JV (2017c) *Ballarat Line Upgrade – Ecology Assessment Secondary Construction Areas* * Ecology and Heritage Partners (2017d) *–* *Existing Ecological Conditions Report, Ballarat Line Upgrade*   As described in these reports and summarised below, desktop and field investigations were undertaken to determine extent of native vegetation, and the potential for listed flora and fauna species to occur within the rail corridor and secondary construction areas.  **Desktop assessment**  DELWP biodiversity mapping, time-stamped data, and previous ecological assessments were reviewed to provide information on the potential for threatened flora and fauna species and vegetation communities to occur both within and outside of the MSA portions of the project area. A complete list of desktop resources is provided in *Summary of Ecological Results for the Ballarat Line Upgrade* (AJM JV 2017a).  **Field assessments**  Field assessment of the project area was undertaken in 2016 and 2017 to determine the presence of native vegetation, scattered trees and the potential for threatened flora and fauna species.  Native vegetation and scattered tree assessments were undertaken in all sections of the project area, except the area covered by the BCS. These assessments were conducted in accordance with the *Vegetation Quality Assessment Manual* (V1.3) (DSE, 2004), and included Habitat Hectare assessments of native vegetation patches. Dates for field assessments for each of the reports are provided in Table 7.  **Table 7 Dates of field assessment completed for the Ballarat Line Upgrade1**   |  |  |  | | --- | --- | --- | | Assessment Report | Dates of Field Survey | Area Assessed | | Ecology and Heritage Partners (2017d) *Existing Ecological Conditions Report, Ballarat Line Upgrade* | 18, 19 October 2016  2, 3, 7, 9 November 2016 | The preliminary project area as defined in January 2017, including the Toolern PSP section of the project area2. | | AJM JV (2017b) *Ballarat Line Upgrade – Ecology Assessment Additional Areas* | 29 and 31 March and 7 April 2017 | Maddingley (Kerrs Road) Stabling  Ballan Loop  Warrenheip Duplication | | AJM JV (2017c) *Ballarat Line Upgrade – Ecology Assessment Secondary Construction Areas* | 2, 6 June 2017 | Secondary Construction Areas identified through desktop assessment as requiring field validation. |   *1 Excludes targeted survey dates (refer to Table 8)*  *2 Results of the Toolern PSP field assessment are not presented in the ecological reports, given that DELWP has advised that offset calculations are to be based on time-stamped NVPP data. These results are available upon request as a GIS shape file.* |
| **What is the maximum area of native vegetation that may need to be cleared?**  🗙 NYD Estimated area 29.65 ha  Due to the confirmed unreliability of the time-stamped data in reflecting the actual extent of native vegetation within the project area, the maximum area of native vegetation that may need to be cleared is an approximate only. Accounting for all of the project area components (rail corridor and secondary construction areas), the total area of field-mapped and DSE-estimated native vegetation is 29.65 ha. The actual extent of native vegetation associated with the project will be less than 29.65 ha for the following reasons:   * The extent of native vegetation mapped within the MSA has been based on the time-stamped dataset that was derived from ‘DSA estimated data.’ It is known that due to access restrictions of the rail corridor the data was not verified by ground survey. Through a review of aerial photography (DELWP, 2016) and knowledge of the area it is known that the extent of native vegetation within the project area is significantly less than that mapped within the time-stamped data-set. Time stamped data accounts for 20.94 ha of the 29.65 ha of native vegetation proposed to be removed. * Once the preferred contractor is secured detailed design decisions will be made, and where possible the removal of native vegetation will be avoided and minimised through definition of the Construction Corridor within the Project Area and use of alternate construction methodologies where feasible that reduce the extent of native vegetation removal required. * Fifty-five (55) potential secondary construction areas have been identified. It is unlikely that the preferred contractor will require all 55 of these areas, and for those used it is likely they will not disturb the full extent of the area identified. Wherever possible, the actual extent of native vegetation on ground will be avoided through the placement of exclusion fencing. Mapped native vegetation within the secondary construction areas accounts for 18.31 ha of the 29.65 ha of native vegetation proposed to be removed. This area is likely to be significantly reduced through the reduction in secondary construction areas used and the implementation of EPRs to avoid impacts to native vegetation.   **How much of this clearing would be authorised under a Forest Management Plan or Fire**  **Protection Plan?**  🗙 N/A ………………………. approx. percent (if applicable) |
| **Which Ecological Vegetation Classes may be affected?** (if not authorised as above)  🗙 NYD  Preliminary/detailed assessment completed. If assessed, please list. |
| The Ecological Vegetation Classes likely to be affected by the Ballarat Line Upgrade includes predominantly Plains Grassland (EVC 132), and Plains Grassy Woodland (EVC 55), Plains Woodland (EVC 803), Plains Grassy Wetland (EVC 125), Tall Marsh (EVC 821), and Creekline Grass Woodland (EVC 68), all of which are listed as endangered under the DELWP Native Vegetation Management Framework. The occurrences of these EVCs within the project area are generally characterised as low quality, given their small, fragmented, and isolated condition (AJM JV 2017a).  Table 8 provides the extent of these endangered EVC-classified areas of native vegetation within each project element, per bioregion and relevant strategy framework. Element 1 is separated into three sub-elements (listed below), and Elements 2 to 5 are located outside the MSA area, as shown in **Attachment 1e**.   * Element 1a: Within the MSA area and subject to the *Biodiversity Conservation Strategy for Melbourne’s Growth Corridors* (DEPI, 2013; ‘BCS’) * Element 1b: Within the MSA area and subject to the Toolern Native Vegetation Precinct Plan (Melbourne Planning Authority, 2015; ‘NVPP’) * Element 1c: Outside the MSA area and subject to the *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (DEPI, 2013; the ‘Guidelines’).   **Table 8 Potential native vegetation (as EVC) impacts for Ballarat Line Upgrade**   | Element | EVC | Bioregion | Area | | Relevant Strategy | | --- | --- | --- | --- | --- | --- | | MSA (ha) | Non-MSA (ha) | | **Element 1a** Duplication between Deer Park West and Melton (Inside the MSA) | 132 Plains Grassland | VVP | 10.277 |  | BCS | | **Element 1a** Secondary construction areas | 132 Plains Grassland | VVP | 10.664 |  | BCS | | **Element 1b** Duplication between Deer Park West and Melton (Inside the MSA: Inside the Toolern PSP) | 132 Plains Grassland | VVP | 3.364 |  | NVPP | | 55 Plains Grassy Woodland | VVP | 0.001 |  | NVPP | | 803 Plains Woodland | VVP | 2.192 |  | NVPP | | **Element 1b** Secondary construction areas | 68 Creekline Grass Woodland | VVP | 0.475 |  | NVPP | | **Element 1c** Duplication between Deer Park West and Melton (outside the MSA) | 68 Creekline Grassy Woodland | VVP |  | 0.013 | Guidelines | | 55 Plains Grassy Woodland | VVP |  | 0.020 | Guidelines | | 803 Plains Woodland | VVP |  | 0.065 | Guidelines | | **Element 1c** Secondary construction areas | 68 Creekline Grassy Woodland | VVP |  | 0.043 | Guidelines | | 803 Plains Woodland | VVP |  | 0.001 | Guidelines | | **Element 2** Bacchus Marsh Second Platform / Maddingley Stabling Yard | 803 Plains Woodland | VVP |  | 0.060 | Guidelines | | 55 Plains Grassy Woodland | VVP |  | 0.023 | Guidelines | | **Element 2** Secondary construction areas | 55 Plains Grassy Woodland | VVP |  | 0.112 | Guidelines | | 803 Plains Woodland | VVP |  | 0.130 | Guidelines | | **Element 3** Ballan Loop | 132 Plains Grassland | VVP |  | 0.142 | Guidelines | | 55 Plains Grassy Woodland | VVP |  | 1.623 | Guidelines | | **Element 3** Secondary construction areas | 55 Plains Grassy Woodland | VVP |  | 0.214 | Guidelines | | **Element 4** Spreadeagle (new Bungaree) Loop | 55 Plains Grassy Woodland | VVP |  | 0.117 | Guidelines | | 821 Tall Marsh | VVP |  | 0.020 | Guidelines | | **Element 5** Warrenheip duplication | 132 Plains Grassland | VVP |  | 0.050 | Guidelines | | 55 Plains Grassy Woodland | CVU |  | 0.019 | Guidelines | | **Element 5** Secondary construction areas | 125 Plains Grassy Wetland | VVP |  | 0.025 | Guidelines | | **Total Inside the MSA** (endangered / very high conservation significance) |  |  | **26.973** |  |  | | **Total Outside the MSA** (endangered) |  |  |  | **2.679** |  | | **Total** (Inside and Outside MSA) |  |  |  |  | **29.652** |   *1 – DSE-Estimated time-stamped data*  The 26.97 ha of potentially impacted native vegetation inside the MSA area comprises 20.94 ha subject to the BCS and 6.03 ha subject to the Toolern NVPP. The project is also likely to impact up to 81 scattered trees recorded within the project area during field assessments.  The clearing of all native vegetation for the project will be undertaken in accordance with the project Construction Environmental Management Plan and associated sub plans.  **Have potential vegetation offsets been identified as yet?** |
| 🗙 NYD 🗙 Yes If yes, please briefly describe. |
| Offsets will be sought where the removal of native vegetation cannot be avoided in accordance with relevant policy and guidelines.  A maximum total of 20.94 ha of time-stamped native vegetation is required to be offset in accordance with the BCS through securing habitat compensation obligations. Fees are calculated by DELWP per hectare for native vegetation and modelled habitat.  The 6.03 ha of time-stamped native vegetation that is subject to the Toolern NVPP comprises 6.01 ha of native vegetation ‘to be retained’ or ‘to be protected’ and 0.02ha ‘to be removed’. Habitat Compensation Obligations apply under the NVPP for the 0.02 ha of vegetation marked ‘to be removed’. The 6.01 ha of vegetation ‘to be retained’ or ‘to be protected’ will need to be offset in accordance with the Guidelines.  A maximum total of 2.68 ha of impacted native vegetation outside the MSA area is required to be offset in accordance with the Guidelines.  Up to 81 scattered trees may be impacted by works within the project area and will require offsets in accordance with the Guidelines. The number of impacted trees will be re-assessed once the final design has been confirmed by the delivery partner.  The final extent of native vegetation offsets to be secured in accordance with State requirements will occur in consultation with DELWP through the payment of specified habitat compensation obligations and sourcing of offsets through a registered broker where required. |
| **Other information/comments?** (eg. accuracy of information) |
| n/a |
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NYD = not yet determined

Flora and fauna

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| **What investigations of flora and fauna in the project area have been done?**  (provide overview here and attach details of method and results of any surveys for the project & describe their accuracy) |
| As with native vegetation, four ecological reports have been prepared to describe the existing flora and fauna of the project area:   * AJM JV (2017a) *Ballarat Line Upgrade – Summary of Ecological Results for the Ballarat Line Upgrade* * *AJM* JV (2017b) *Ballarat Line Upgrade – Ecology Assessment Additional Areas* * AJM *JV* (2017c) *Ballarat Line Upgrade – Ecology Assessment Secondary Construction Areas* * *Ecology* and Heritage Partners (2017d) *Existing Ecological Conditions Report, Ballarat Line Upgrade*   The following desktop and field investigations were undertaken in preparing the above reports to determine existing flora and fauna.    **Desktop assessment**  For areas subject to the MSA, biodiversity mapping (DELWP) was reviewed to provide information on threatened flora and fauna species, and vegetation communities modelled by the time-stamped dataset. The Habitat Compensation Obligations dataset was used to identify potential habitat for the following species within areas subject to the MSA and estimate offsets required for the removal of potential habitat:   * Growling Grass Frog (*Litoria raniformis*) * Golden Sun Moth (*Synemon plana*) * Spiny Rice Flower (*Pimelea spinescens* subsp. *spinescens*) * Matted Flax-lily (*Dianella amoena*)   For areas outside the MSA area, a review of the following DELWP and Commonwealth Department of Environment and Energy (DoEE) databases was undertaken to provide information on threatened flora and fauna species and vegetation communities within 10 km of the project area:   * Biodiversity mapping (DELWP): large scale mapping and classification of native vegetation across Victoria * Victorian Biodiversity Atlas (DELWP). Historical records of flora and fauna species from across Victoria updated as surveys are conducted across the state * Protected Matters Search Tool (DoEE). The Protected Matters Search Tool (PMST) highlights matters of National Environmental Significance relevant to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)likely to occur within an area * Previous ecological or other relevant assessments of the project area.   **Field assessments**  Field assessments were undertaken for the project area to determine the potential for threatened flora and fauna species. The potential presence of threatened species was assessed by walking over the project site and recording incidental sightings of flora and fauna, any sign of fauna utilisation of the project site (e.g. scats, tracks, etc.) and undertaking a brief assessment of habitat available within the project area.  Noxious species, as defined under the *Catchment and Land Protection Act 1994*, were recorded across the project area. Dates of these field assessment are provided in Table 7.  The need for targeted surveys was determined based on the combined results of the desktop assessment and field assessments. Targeted flora and fauna surveys were completed for species identified as having a low to high likelihood of presence within the project area, as defined within EHP (2017d).  Field-verified areas of suitable habitat were the focus of targeted surveys. Targeted assessments were completed in accordance with the relevant Significant Impact Guidelines where available. The type, extent and timing of targeted field assessments completed within the project area is summarised in Table 9.  **Table 9 – Terrestrial and aquatic surveys undertaken for the Ballarat Line Upgrade**   |  |  |  | | --- | --- | --- | | **Survey type** | | **Dates** | | Targeted Flora Surveys | Spiny Rice-flower Survey (Winter) | 23, 24 and 25 August 2016, 2 and 6 June 2017 | | Flora species with known, high, or moderate likelihood of occurrence (including Matted Flax-lily and Large-fruit Groundsel Survey) (spring/summer) | 17, 21 November, 15, 20, 22 December 2016 | | Targeted Fauna Surveys | Striped Legless Lizard Survey | 14, 21 October 4, 11, 18, 21 November 2016 | | Growling Grass Frog survey | 20 December 2016, 11 January 2017 | | Golden Sun Moth Survey | 19, 23 December 2016, 6, 17 January 2017 | | Aquatic Surveys | 8, 9, 10 February, 2017 | |
| **Have any threatened or migratory species or listed communities been recorded from the local area?**  🗙 NYD 🗙 No 🗙 Yes If yes, please:   * List species/communities recorded in recent surveys and/or past observations. |
| * Indicate which of these have been recorded from the project site or nearby. |
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| The PMST identified the following listed ecological values as having the potential to occur within the project area:   * Three EPBC Act-listed ecological communities as being highly likely to occur within the project area * Four EPBC Act-listed flora species as having a moderate or high likelihood of occurrence within the project area * Seven EPBC Act-listed fauna species as having a low to high likelihood of being present within the project area.   The Victorian Biodiversity Atlas identified the following ecological values as having the potential to occur within the project area:   * 15 state-list threatened flora species as having a moderate or high likelihood of occurrence within the project area, or recent known presence (within 10 years)      * 14 state-listed threatened fauna species as having a moderate or high likelihood of being present within the project area or as known to recently occur within the project area (within 10 years).   A complete list of potentially affected species identified in desktop assessment for the project is provided at Attachment 5. |
| **If known, what threatening processes affecting these species or communities may be exacerbated by the project?** (eg. loss or fragmentation of habitats) Please describe briefly.  Of the Potentially Threatening Processes listed under the *Flora and Fauna Guarantee Act 1988*, threatening processes relevant to the project include:   * Habitat fragmentation as a threatening process for fauna in Victoria * Invasion of native vegetation by Blackberry *Rubus fruticosus L. agg*. * Invasion of native vegetation by ‘environmental weeds’ * The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.   **Habitat fragmentation**  Habitat within the rail corridor has been substantially modified due to its long use as an active rail line and intermittent maintenance clearing of vegetation throughout the corridor. Native vegetation within the project area comprises small, degraded patches that are already highly fragmented. It is considered unlikely that the vegetation provides habitat for listed fauna species given targeted assessments undertaken for a range of threatened fauna species did not detect any listed fauna species and that the project area is highly disturbed.  Fauna species identified as occurring within the project area (EHP, 2017) are generalist species for which ample, alternative habitat is available outside of the project area. The project area is already an active rail corridor subject to a high level of disturbance. It is not considered that the project will result in a significant increase in habitat fragmentation for fauna that persist within the project area.  **Invasion of weed species**  A project CEMP and EPRs will ensure appropriate biosecurity protocols are implemented to prevent the spread and establishment of pest and diseases as a result proposed works. Through the implementation of the EPRs it is considered unlikely the project will result in a significant increase in the extent of environmental weeds or *Phytophthora cinnamomi*. |
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| **Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?**  🗙 NYD 🗙 No 🗙 Yes If yes, please:   * List these species/communities: |
| * Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable. |
| This section provides an assessment of the following categories of flora and fauna species and ecological communities potentially impacted by the project:   * EPBC Act-listed ecological communities * EPBC Act-listed flora species * EPBC Act-listed fauna species * State-listed ecological communities * State-listed threatened flora * State-listed threatened fauna   **EPBC Act-listed ecological communities**  Two patches of the threatened ecological community, Natural Temperate Grasslands of the Victorian Volcanic Plain (NTGVVP) were identified in Element 1:   * 0.13 ha southwest of Melton station, at the western extent of the carpark * 0.07 ha north of secondary construction area DM23, at the western end of Torrington Circuit, Melton South.   These patches of NTGVVP will not be directly or indirectly impacted during the construction or operation of the project. These areas will be fenced and clearly marked on all maps and construction drawings as a ‘No Go’ area. These mitigation measures will form part of the project EPR.  No other threatened ecological communities listed under the EPBC Act were identified. The ecological assessments have therefore determined there will be no impact to EPBC-listed threatened ecological communities as a result of the project.  **EPBC Act-listed flora species**  A desktop study for project area identified four EPBC listed species with known, high or moderate likelihood of occurrence:   * Matted Flax-lily * Small Golden moths * Spiny rice flower * Large Fruit Groundsel   Field surveys were undertaken which identified the extent of potentially suitable habitat for threatened flora and informed the need, location, and timing for further targeted flora surveys.  Targeted surveys were undertaken for the four species, within the identified potentially suitable habitat within the project area. Potentially suitable habitat included native vegetation patches mapped during the initial field survey, and included an additional focus on fence lines and beneath trees. Targeted surveys confirmed the presence of one nationally listed species; the endangered Matted Flax-lily. None of the remaining threatened flora species were identified, despite surveys being undertaken during the appropriate survey seasons.  **Matted Flax-lily**  Targeted surveys identified four clumps of Matted Flax-lily:   * two clumps located within Element 2 * two clumps located within Element 3.   These clumps of Matted Flax-lily will not be directly or indirectly impacted during the construction of the project. The areas where these patches are located will be fenced with high visibility mesh bunting or temporary construction fencing (including erosion fencing if necessary) and clearly marked on all maps and construction drawings as a ‘No Go’ areas. Additionally, the southern extent of the project footprint on the south side of Ballan Station (Element 3) has been altered to avoid or Matted Flax-lily at this location. Therefore only three of the four clumps occur within the project area. Mitigation measures to ensure avoidance of direct and indirect impacts to this species will be included as an Environmental Performance Requirements.  **Small Golden Moths**  Surveys undertaken during October 2016 did not detect the small Golden Moths (*Diuris basaltica*). Targeted surveys undertaken during November and December 2016 did not detect the species. As there are no records of this species in the study area and potential habitat is low quality, small and fragmented, the species is unlikely to be present and therefore the project will not have a significant impact on the species. Based on the following the project is not expected to have any direct or indirect impacts on the species.  **Spiny Rice Flower**  Field assessments identified 194 individuals of the nationally-listed Spiny Rice-flower (*Pimelea spinescens subsp. Spinescens)* within Element 1a inside the MSA area. It is anticipated that approximately 145 of these individuals will require removal. In accordance with the relevant strategy (BCS), a salvage and translocation plan will be prepared for the species to be approved by DELWP prior to commencement of works. This constitutes a loss of approximately 0.1% of the known community. This loss is not expected to be a long term loss of a threatened population and therefore is not considered a significant environmental effect.  **Large-fruit Groundsel**  Thirty three individual of the nationally-listed Large-fruited Groundsel (*Senecio macrocarpus*) were identified within Element 1a inside the MSA area during targeted surveys and 22 of the 33 individuals will be impacted by the project. Twenty two individuals will require removal. In accordance with the relevant strategy (BCS), a salvage and translocation plan will be prepared for the species to be approved by DELWP prior to commencement of works. This constitutes a loss of approximately 0.5% of the known community. This loss is not expected to be a long term loss of a threatened population and therefore is not considered significant environmental effect.  Individual plants not planned for removal will be protected through the implementation of EPRs, and will include:   * fencing with high visibility mesh bunting or temporary construction fencing (including erosion fencing if necessary) * clearly marking the location of individuals plants on all maps and construction drawings as a ‘No Go’ areas.   **EPBC Act-listed fauna species**  A desktop study identified seven EPBC listed species with high, moderate, or low likelihood of occurrence (Table 11). Field surveys were undertaken which identified the extent of potentially suitable habitat for threatened fauna and informed the need, location, and timing for further targeted flora surveys  Targeted surveys within potentially suitable habitat were conducted for four species:   * Dwarf Galaxias * Golden Sun Moth * Growling Grass Frog * Striped Legless Lizard.   In addition, Growling Grass Frog surveys were also undertaken in waterbodies in close proximity to the project. The targeted surveys did not identify the presence of any EPBC listed fauna species despite surveys being undertaken in accordance with survey guidelines, in areas of potentially suitable habitat.  On the basis of these results, it is considered highly unlikely that any of the species listed in Table 10 will be impacted by the project. Therefore no significant impact is predicted to any listed threatened fauna species as a result of the project. Table 10 provides a summary of the results of the desktop assessment, and conclusions drawn with regards to likelihood of potential impacts.  A project CEMP and Environmental Performance Requirements will ensure avoidance of potential indirect impacts to fauna species through:   * best practice sedimentation and pollution control measures to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996) * tree protection measures to enable the retention of trees where possible north of Kerrs Road in Maddingley, prioritising the retention of identified habitat trees. Where clearing of vegetation is required, it must be completed outside of the foraging season of the Swift Parrot in Victoria (May through to August) * Staff site inductions of the importance of sensitive environmental areas, and activities which are prohibited from these areas (No-Go areas). * Habitat Zones (areas of sensitivity) to be included as a mapping overlay on any construction plans * Ensure that the induction of all contract staff addresses the identification of all significant environmental issues, including flora and fauna, and informs them of all relevant protective measures and obligations while undertaking construction activities.   **Table 10 – Summary of assessment results and conclusions for flora species identified during the desktop assessment as having a high to low likelihood of occurrence within the project area**   | Common Name | Scientific Name | ELEMENTS targeted surveys | Results | Likelihood of Potential Impacts | | --- | --- | --- | --- | --- | | Dwarf Galaxias | *Galaxiella pusilla* | 1, 3 | **Not recorded -** No Dwarf Galaxias were identified.  There are no records of Dwarf Galaxias within 10 kilometers of the study area, and targeted surveys undertaken during February 2017 did not detect the species.  Targeted surveys were undertaken in accordance with existing survey guidelines. | **Low Risk -** It is considered highly unlikely that Dwarf Galaxias occurs in Toolern creek or upstream of the Bostock Reservoir. It is possible that Dwarf Galaxias are present elsewhere within the Bostock Reservoir waterway where potentially suitable habitat is available.  Given the low likelihood of the species occurring in these waterbodies it is highly unlikely that the project will impact Dwarf Galaxias. For any proposed works that may occur within or in the vicinity of these waterbodies, specific Environmental Performance Requirements (EPRs) will be included in the EMF. | | Golden Sun Moth | *Synemon plana* | 1, 2, 3 | **Not recorded -** No Golden Sun Moth were detected, and the species has not previously been recorded within the project area.  Habitat within the project area is of low quality, being small and fragmented and interspersed with less desirable pasture species.  Targeted surveys were undertaken in accordance with existing survey guidelines. | **Low Risk -** As there are no records of this species in the project area and potential habitat is low quality, small and fragmented, the species is unlikely to be present and therefore the project will not have a significant impact on the species. | | Grey-headed Flying-fox | *Pteropus poliocephalus* | None | This species is likely to fly over much of the alignment, whilst foraging. However the species roosts in large camps, with permanent camps located at Yarra Bend and Dowell Creek near Mallacoota. The referred project area does not contain significant habitat for this species. | **Low Risk -** As significant habitat for this species is not present within the project area and the project area is remote from recorded camp sites, the species is unlikely to be present and therefore the project will not have a significant impact on the species. | | Growling Grass Frog | *Litoria raniformis* | 1, 3, 5 | **Not recorded -** No evidence of Growling Grass Frog (adults, juveniles and tadpoles) was detected during the targeted nocturnal surveys or heard calling during auditory surveys adjacent and in proximity to the project area. | **Low Risk -** Given the extensive nature of targeted surveys across all areas likely to be directly or indirectly impacted by the project, low likelihood the project area provides permanent and/or important habitat for the species, the project will not result in a significant impact to the species. | | Striped Legless Lizard | *Delma impar* | 1 | **Not recorded** - No Striped Legless Lizards were detected within the project area.  Six locally common reptile species; Eastern Brown Snake *Pseudonaja textilis*, Little Whip Snake *Rhinoplocephalus flagellum*, Blue-tongue Lizard *Tiliqua scincoides scincoides*, Bougainvillii’s Skink Lerista bougainvillii, Eastern Three-lined Skink *Bassiana duperreyi*, Southern Grass Skink *Pseudemoia entrecasteauxii*, one unidentified skink, and one introduced mammal species (House Mouse *Mus musculus*) were recorded under tiles during the tile checks. | **Low Risk -** Suitable habitat for the species was only identified within the MSA area. Targeted surveys were completed to inform potential Salvage and Translocation Requirements. DELWP has recently conducted an evaluation which outlines salvage and translocation of the Striped Legless Lizard (SLL) is not a feasible activity under the program. Salvage of SLL has been suspended pending the finalisation of the evaluation.  The Striped Legless Lizards is unlikely to be present outside of MSA. Grassland identified outside of the MSA area is considered unsuitable to support a significant population of the SLL. | | Swift Parrot | *Lathamus discolor* | 1, 3 | This species is migratory, breeding in Tasmania in spring and then moving to mainland Australia in autumn for the non-breeding season. Large Yellow Gum and Grey Box recorded at Kerrs Road, Maddingley provide suitable feeding trees for the parrot. Golden Wattle, also a favoured species of the Parrot was also identified within the area.  Two annual censuses (May and August) are conducted for Swift Parrot across eastern Australia. Based on the results of these censuses the surrounding area has not been utilised by the Swift Parrot as key habitat in recent years. Rather the trees present may be used occasionally by the species; it is known that the species disperses widely on the mainland, as they follow the blossoming of various Eucalypt species. | **Low Risk -** As this area is unlikely to be a significant feeding ground for the species, the minor removal of vegetation associated with the referred project area will not constitute a significant impact under the EPBC Act.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the CEMP. |   **State-listed ecological communities**  Assessments for the presence of threatened ecological communities listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) were completed throughout the project area outside of the MSA.  Eight patches (0.19 ha) of Western (Basalt) Plains Grassland Community will be impacted by the project. A Permit to Take will be obtained from DELWP for the removal of this community from public land. It is not considered that the removal of 0.19 ha of this community constitutes ‘a potential loss of a significant area of a listed ecological community’.  **State-listed threatened flora**  A search of records from 10 km surrounding the project area of the Victorian Biodiversity Atlas (DEPI, 2014b) was completed returned 109 state-listd species as potentially occurring within the project area (refer to Appendix 2.3 in EHP, 2017).  Of these 109 state listed species, the desktop assessment completed by EHP, (2017) identified 15 species as having a moderate or high likelihood of occurrence within the project area, or recent known presence (within 10 years).. Targeted flora surveys were completed in Winter and Spring/Summer to determine the presence of listed flora species within the project.  A number of species protected under the FFG Act or threatened species advisory lists (VicAdv) were identified during field assessment within the project area. The location of threatened and protected flora species and implications of the presence of these species is listed in Table 11. No other threatened flora species were identified.  Table 11 – Threatened flora species identified within the project area and implications of presence   | Flora species | Conservation listing | Location identified | Implication of presence | | --- | --- | --- | --- | | Matted Flax-lily | **EPBC**  Endangered  **FFG**  Listed  **VicAdv**  Endangered | Three clumps of Matted Flax-lily are present within the project area:   * One clump located within SCA BM-09 in Element 2 * Two clumps located on the northern side of the rail, to the west of Geelong-Ballan Road in Element 3. | **Not impacted.** Identified individuals are outside of the construction footprint of the project. Specific Environmental Performance Requirements (EPRs) will be included in the Environmental Management Framework including fencing the location and signing it as a No Go area. | | Slender Onion-orchid (*Microtis parviflora*) | **FFG**  Protected | Five patches of approximately 20 Slender Onion-orchids were recorded in Element 5 – Spreadeagle loop. | **To be impacted.** A Permit to Take will need to be obtained from DELWP for the removal of these species from public land. Given this is a locally common species the removal of five patches is not considered significant. | | Cotton Fireweed (*Senecio quadridentatus*) | **FFG**  Protected | One patch of approximately 20 Cotton Fireweed plants was also recorded in Element 5 – Spreadeagle loop, and an additional individual was recorded in Element 6 – Warrenheip Duplication. | **To be impacted.** A Permit to Take will need to be obtained from DELWP for the removal of these species from public land. Given this is a locally common species the removal of one patch is not considered significant. | | Acacias including Gold-dust Wattle (*Acacia acinacea*), Wirilda (*A. provincialis*)*,* Golden wattle(*A. pycnantha*) | **FFG**  Protected | Located within patch of native vegetation to the north of Kerrs Road (Element 2). | **To be impacted.** A Permit to Take will need to be obtained from DELWP for the removal of these species from public land. Given these are locally common species the removal of one patch is not considered significant. | | Fragrant Saltbush (*Rhagodia parabolica*) | **Vic Adv**  Rare | Located within patch of native vegetation to the north of Kerrs Road (Element 2). | **To be impacted.** No legislative implications. Given this is a locally common species the removal of one patch is not considered significant. |   **State-listed threatened fauna**  A search of records from 10 km surrounding the project area of the Victorian Biodiversity Atlas (DEPI, 2014a) Tool returned 79 state listed threatened species as potentially occurring within the project area. The desktop assessment completed by EHP, (2017) identified fourteen species as having a low to high likelihood of being present within the project area, or as known to recently occur within the project area (within 10 years). The likely presence of each these 14 species within the project area and potential impact to each of these species is discussed in Table 12.  As a result of the low likelihood of threatened fauna species persisting within project area and the implementation of EPRs to minimise the impact to potential habitat, it is considered highly unlikely that the project will have a significant impact on any state listed threatened fauna species.  **Table 12 – Summary of assessment results and conclusions for state-listed fauna species identified during the desktop assessment as having a high to low likelihood of occurrence within the project area**   | Common Name | Scientific Name | Conservation Status | | Likelihood of Potential Impacts | | --- | --- | --- | --- | --- | | FFG | VicAdv | | Black Falcon | *Falco subniger* | - | Vulnerable | **Low Risk.** Tree habitats suitable for this species are limited and highly fragmented within the project area. Species may flyover and forage within the project area but is unlikely to be a resident within the project area.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the Construction Environmental Management Plan. | | Brown Toadlet | *Pseudophryne bibronii* | Listed | Endangered | **Low Risk.** This species prefers damp habitat with ample leaf litter and logs. Log habitats have not been retained within the project area. Much of the understorey is highly degraded and subject to regular disturbance. It is considered unlikely that this species persists within the project area. | | Diamond Firetail | *Stagonopleura guttata* | Listed | Near Threatened | **Low Risk.** Tree habitats suitable for this species are limited and highly fragmented within the project area. Species may flyover and forage within the project area but is unlikely to be a resident within the project area.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the Construction Environmental Management Plan. | | Dwarf Galaxias | *Galaxiella pusilla* | Listed | Endangered | **Low Risk -** Discussed in Table 10 | | Golden Sun Moth | *Synemon plana* | Listed | Critically Endangered | **Low Risk -** Discussed in Table 10 | | Grey-headed Flying-fox | *Pteropus poliocephalus* | Listed | Vulnerable | **Low Risk -** Discussed in Table 10 | | Growling Grass Frog | *Litoria raniformis* | Listed | Endangered | **Low Risk -** Discussed in Table 10 | | Hooded Robin | *Melanodryas cucullata cucullata* | Listed | Near Threatened | **Low Risk.** Tree habitats suitable for this species are limited and highly fragmented within the project area. Species may flyover and forage within the project area but is unlikely to be a resident within the project area.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the CEMP. | | Masked Owl | *Tyto novaehollandiae novaehollandiae* | Listed | Endangered | **Low Risk.** Tree habitats suitable for this species are limited and highly fragmented within the project area. Species may flyover and forage within the project area but is unlikely to be a resident within the project area.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the CEMP. | | Plains-wanderer | *Pedionomus torquatus* | Listed | Critically Endangered | **Low Risk -** Discussed in Table 10 | | Striped Legless Lizard | *Delma impar* | Listed | Endangered | **Low Risk -** Discussed in Table 10 | | Swift Parrot | *Lathamus discolor* | Listed | Endangered | **Low Risk -** Discussed in Table 10 | | Tussock Skink | *Pseudemoia pagenstecheri* | - | Vulnerable | **Low Risk -** Suitable habitat for the species was only identified within the MSA area. Tile surveys were completed to inform potential Salvage and Translocation Requirements. This species was not identified during tile surveys.  Grassland patches outside of the MSA are degraded and fragmented and considered unsuitable to support a significant population of the Tussock Skink | | Yellow-bellied Sheathtail Bat | *Saccolaimus flaviventris* | Listed | Data Deficient | **Risk.** Tree habitats suitable for this species are limited and highly fragmented within the project area. Species may flyover and forage within the project area but is unlikely to be a resident within the project area.  Clearing of vegetation (namely trees) will be minimised, where possible. Should habitat trees require removal, pre-clearance fauna assessments will be completed by a qualified spotter/handler. This requirement will be reflected in the EPRs and the CEMP. | |
| **Is mitigation of potential effects on indigenous flora and fauna proposed?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe.  A project CEMP and EPRs will ensure avoidance of potential indirect impacts to indigenous flora and fauna species through:   * Applying best practice sedimentation and pollution control measures to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996) * Implementing tree protection measures to enable the retention of trees where possible north of Kerrs Road in Maddingley, prioritising the retention of identified habitat trees. Where clearing of vegetation is required, it must be completed outside of the foraging season of the Swift Parrot in Victoria (May through to August) * Undertaking staff site inductions of the importance of sensitive environmental areas, and activities which are prohibited from these areas (No-Go areas) * Signing and fencing along the south edge of the referred project area at Ballan station (Element 3) and along the rail corridor west of Ballan station on the north side (Element 3), to avoid the patches of NTGVVP community and Matted Flax-lily * Pre-clearance surveys in areas of identified native vegetation including areas in the MSA to avoid locations of Matted Flax-lily * Habitat Zones (areas of sensitivity) as a mapping overlay on any construction plans * Siting works during construction within the rail corridor to avoid native vegetation and habitat to the greatest extent possible, acknowledging siting opportunities are limited to the width of the rail corridor * Ensuring that the induction of all contract staff addresses the identification of all significant environmental issues, including flora and fauna, and informs them of all relevant protective measures and obligations while undertaking construction activities * Implementing a Tree Management Plan, where necessary, in accordance with AS4970-2009.   Protection of Trees on Development Sites in consultation with key stakeholders. |
| **Other information/comments?** (eg. accuracy of information)  n/a |
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**13. Water environments**

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| **Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?**  🗙 NYD 🗙 No 🗙 Yes If yes, indicate approximate volume and likely source. |
| Construction and operation of the project will not require significant volumes of freshwater. |
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| **Will the project discharge waste water or runoff to water environments?**  🗙NYD 🗙 No 🗙 Yes If yes, specify types of discharges and which environments. |
| Construction of the project will not require significant discharge of wastewater or runoff to water environments. Pre-cast components will be utilised in to avoid on-site pouring where construction is occurring at or in proximity to waterways including the Toolern Creek. A CEMP will be developed by the delivery partner in accordance with the project EPRs which will manage:   * Requirements of any Works on Waterways Permits and SEPP (Waters of Victoria) * Guidelines and practices such as the EPA Publication 480, *Environmental Guidelines for Major Construction Sites* in particular:   + Erosion and sediment control   + Management of contaminated stormwater   + Procedures for working in waterways and floodplains.   Operation of the Ballarat Line Upgrade will not result in discharge of waste water to the environment. Runoff from impermeable areas, such as car parks and building roofs, will be managed through Water Sensitive Urban Design (WSUD). |
| **Are any waterways, wetlands, estuaries or marine environments likely to be affected?**  🗙 NYD 🗙 No 🗙 Yes If yes, specify which water environments, answer the following questions and attach any relevant details. |
| The project will cross 31 waterways/drainage lines with upstream catchment areas that are significant enough to be discernible from topographic maps with five and ten metre contours. If in water works are proposed for construction activities at Toolern Creek, best practice EPRs will be implemented to prevent sedimentation release and ensure the potential for downstream impacts are minimised. Therefore, there is not expected to be any downstream effects on the health or biodiversity of ecosystems arising from the project (refer also to AJM 2017a).  There are two main waterways Toolern Creek in Element 1 and the Bostock Reservoir in Element 3 which have catchment areas larger than 5 km2. Both these waterways have catchment areas of approximately 90 km2. The existing rail line crosses both of these waterways via large bridges. Of the remaining 29 smaller waterways, 25 pass under the rail line through culverts and four through small bridges between Deer Park and Melton. A further 15 culverts have been identified. These culverts drain catchments that are too small to be able to be delineated from topographic maps with five and ten metre contours.  Therefore, in total the project crosses:   * Two larger bridges crossing the Toolern Creek and Bostock Reservoir respectively * Four smaller bridges crossing waterways between Deer Park and Melton * Forty culverts draining smaller waterways and catchments.   The proposed works also pass close to, but do not cross, a number of other waterways including:   * Arnolds Creek at Melton in Element 1 which runs parallel to the west side of the line immediately to the west of Melton station. * The Werribee River and its Maddingley Park Drain tributary at Bacchus Marsh. The Werribee River floodplain is to the north of Bacchus Marsh station. The Maddingley Park Drain runs parallel to the west side of the existing line on the Ballarat side of Bacchus Marsh station. * The proposed works terminate immediately adjacent to existing bridges across Dog Trap Gully (south of Bacchus Marsh), the West Branch of the Moorabool River, and Lal Lal Creek.   The catchments of Toolern Creek and the upper reach of the Bostock Reservoir, will be protected by ensuring bridges are designed to be located well above the 1% Average Exceedance Probability (AEP) flood event level.  The final design of the project may include minor bridges and culverts. It is unlikely that a lack of flood capacity at any of these crossings will present a major flood risk to any adjacent property or infrastructure. Consultation with Melbourne Water, Melton Council and Moorabool Shire has not unearthed any evidence of major flooding issues (historic erosion or overtopping) along any parts of the existing rail line. The project will not interfere with flood flows.  The environmental impacts of the project will be managed through the preparation of an Environmental Management Framework (EMF), including EPRs, and a CEMP. This management approach is discussed in detail in section 18 below. The CEMP will include:   * Requirements of any Works on Waterways Permits and SEPP (Waters of Victoria) * Guidelines and practices such as the EPA Publication 480, *Environmental Guidelines for Major Construction Sites* in particular:   + Erosion and sediment control   + Management of contaminated stormwater   + Procedures for working in waterways and floodplains. |
| **Are any of these water environments likely to support threatened or migratory species?**  🗙 NYD 🗙 No 🗙 Yes If yes, specify which water environments. |
| Ecological investigations undertaken for the project included a targeted aquatic survey at Toolern Creek at Melton and upstream of Bostock Reservoir. The desktop assessment indicated potential habitat for the EPBC Act-list Dwarf Galaxias and Growling Grass Frog at both these sites.  Dwarf Galaxias was not detected during targeted field assessments at either site. It is very unlikely that this species will occur in Toolern Creek, as no other native species were observed. The creek is situated in a residential area and is subject to poor water quality.  The site upstream of Bostock Reservoir receives flows from an agricultural landscape, and two native fish species (Flathead Gudgeon and Maribyrnong Galaxias) were identified at this site, along with abundant numbers of Eastern Gambusia. There is a low likelihood of Dwarf Galaxias occurring in these waters.  No permanent and/or important habitat for the Growling Grass Frog was detected at either location. |
| **Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?**  🗙 NYD 🗙 No 🗙 Yes If yes, please specify. |
| As reported by the Protected Matters Search Tool (PMST), the project area is located upstream (29 km north) of the catchment for the Ramsar wetland, Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Wetland Site. |
| **Could the project affect streamflows?**  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe implications for streamflows. |
| Preliminary investigations have indicated that the undersides of the decks of both existing bridges are likely to be well above existing 1% AEP flood levels, and are also likely to be above 1% AEP flood levels including allowance for future climate change.  The preliminary design proposes that the decks of the duplicated bridges be built at or above the deck levels of the existing bridges. Duplicated bridges are proposed to include fewer piers than the existing bridges and any new piers be aligned with the existing piers to minimise any additional obstruction of flood flows.    The final design of the Ballarat Line Upgrade may include minor bridges and culverts that are stretched to capacity in a 1% AEP flood event (including allowance for climate change). However, given the lack of any evidence of historic flooding along the line, and the relatively minor nature of flood flows that could be generated from these relatively small catchments, it is unlikely that lack of flood capacity at any of these crossings will present a major flood risk to any adjacent properties or infrastructure (AJMJV, 2017g)  Consultation has been undertaken with Melbourne Water and the Corangamite Catchment Management Authority to ensure that their present and future requirements (i.e. future drainage schemes to cater for urban development adjacent to the Ballarat Line Upgrade) are captured in the final design of the project (AJMJV, 2017g). |
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| **Could regional groundwater resources be affected by the project?**  🗙 NYD 🗙 No 🗙 Yes If yes, describe in what way.  The Ballarat Line Upgrade is predominantly underlain by the Newer Volcanics basalt, which is expected to be the primary upper aquifer. Depth to water is generally expected to vary between 5-15 m below ground level with shallower groundwater or perched water likely to be present in some areas near the Spreadeagle Passing Loop or Warrenheip.  The beneficial use of, and ecosystems that rely on, the regional groundwater resources is unlikely to be impacted by the project as there are no major excavations or new cuttings proposed.  There was no groundwater inflow observed from the existing cuttings at Warrenheip. |
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| **Could environmental values (beneficial uses) of water environments be affected?**  🗙 NYD 🗙 No 🗙 Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies) |
| The two main waterways and neighbouring water bodies provide a level of habitat for fringing vegetation and aquatic species. The section of Toolern Creek within the referred project area is highly modified. The banks are dominated by exotic grasses, overshadowed by scattered native and exotic trees. The creek provides habitat for several native fish, frogs and waterbird species, although the overall habitat quality within and directly adjacent to the study area is considered low. An aquatic survey of the creek was completed, utilising dip netting and baited fish traps. No significant species were identified (EHP, 2017d).  The railway line crosses the Bostock Reservoir and the creek that drains into Bostock Reservoir. There is little riparian overstorey on the creek which passes through an agricultural area prior to discharging into Bostock Reservoir immediately downstream of the site. Riparian vegetation includes pasture species and weed species (i.e. blackberries) with sedges (*Carex sp, Cyperus sp.*) and rushes (*Juncus sp.)* present on the margins of the creek. Instream vegetation includes extensive stands of emergent species (*sedges Eleocharis sp., Cumbungi Typha sp., and Knotweed Persicaria sp.*) around the margins of the creek and a small cover of instream vegetation (*Parrots feather Myriophyllum sp., Arrowgrass Triglochin sp., and invasive Waterweed Elodea sp.*). Several common frog species were heard calling from these waterbodies including Common Froglet, Easter Banjo Frog, and Southern Brown Tree Frog (EHP, 2017d).  During construction, works will be required to comply with SEPP (Waters of Victoria) for the protection of beneficial uses of waterbodies. The delivery partner will be required to undertake construction works in accordance with the project EPRs. This will include the requirement to develop and implement a CEMP and associated sub-plans to address identified environmental risks to water quality and streamflows. The CEMP will contain requirements for monitoring and reporting any construction related impacts to waterbodies. |
| **Could aquatic, estuarine or marine ecosystems be affected by the project?**  🗙 NYD 🗙 No 🗙 Yes If yes, describe in what way. |
| Ecological assessments undertaken for the project did not identify any potential significant effects on aquatic, estuarine or marine ecosystems (EHP, 2017d). |
| **Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?**  🗙 No 🗙 Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable. |
| Ecological assessments undertaken for the project did not identify any potential significant effects on aquatic, estuarine or marine ecosystems (EHP, 2017d). |
| **Is mitigation of potential effects on water environments proposed?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| The CEMP to be developed by the delivery partner will manage construction activities in accordance with EPA policies and the project EPRs and will include:   * Use off-stream sediment traps on either side of the rail or in-stream sediment control if space limited * Stabilisation of exposed bed and bank areas to minimise soil erosion * Avoidance of high flood risk periods * Utilisation of pre-cast components to avoid on-site pouring and application of curing compounds * On site spill kits available with all personnel instructed in their use * Minor containers storing hydrocarbons or chemicals will be stored on bunded pallets or in fully bunded areas at all times * Refuelling of mobile plant and equipment on designated hardstand areas or provided with temporary bunding to contain any spills * Preparation of work instructions to cover tasks and activities which may involve the discharge of hazardous materials (eg. oil change of engines, gear boxes, high voltage transformers, etc) including:   + The appropriate method for discharging these materials   + Actions to be taken in the event of unplanned discharge to drains and waterways * Designated wash out puts for concrete trucks or pumps.   Melbourne Water has provided design requirements for waterway crossings for the project (AJM JV 2017g). The Corangamite Catchment Management Authority will be consulted through the detailed design process and Works on Waterways permits obtained as required. |
| **Other information/comments?** (eg. accuracy of information) |
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| The construction methodology for the rail bridge upgrade over Toolern Creek is yet to be determined. |

**14. Landscape and soils**

**Landscape**

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| **Has a preliminary landscape assessment been prepared?**  🗙 No 🗙 Yes |
| Is the project to be located either within or near an area that is:   * **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**   🗙 NYD 🗙 No 🗙 Yes If yes, provide plan showing footprint relative to overlay. |
| The Environmental Significance Overlay (Schedule 1 - Proclaimed Water Catchment Areas) applies to land from Element 3 to Element 5 in the Shire of Moorabool. The extent of this overlay is shown at **Attachment 1c**. The purpose of this overlay is to identify land within proclaimed water catchment areas. |
| * **Identified as of regional or State significance in a reputable study of landscape values?**   🗙 NYD 🗙 No 🗙 Yes If yes, please specify. |
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| * **Within or adjoining land reserved under the *National Parks Act 1975* ?**   🗙 NYD 🗙 No 🗙 Yes If yes, please specify. |
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| * **Within or adjoining other public land used for conservation or recreational purposes?**   🗙 NYD 🗙 No 🗙 Yes If yes, please specify. |
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| **Is any clearing vegetation or alteration of landforms likely to affect landscape values?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| Proposed clearing of native vegetation for the purposes of the project are not likely to affect landscape values. Native vegetation occurring in the rail corridor is generally scattered, intermittently cleared and largely disturbed due to 100 years of use as a rail corridor. Most remnant patches are small and fragmented, and surrounded by extensive areas dominated by introduced vegetation.  The scope of works for the project does not include the alteration of landforms except for further cutting at Warrenheip (Element 5). This minor expansion of an existing railway cutting will not likely to affect landscape values in this area. |
| **Is there a potential for effects on landscape values of regional or State importance?** 🗙 NYD 🗙 No 🗙 Yes Please briefly explain response. |
| There are no identified landscape values of regional or State significance in or adjacent to the  project area. |
| **Is mitigation of potential landscape effects proposed?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| No potential landscape effects have been identified through the project area, therefore no mitigation measures are proposed. The project as a whole is not anticipated to impact the visual setting and landscape character of the existing rail corridor. |
| **Other information/comments?** (eg. accuracy of information) |
| n/a |
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**Note:** A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

* The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
* The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
* Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

**Soils**

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| **Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe.  The project does not present a significant risk to land stability, acid sulphate soils or erosion. There are no Erosion Management Overlays nor have any areas of land stability or highly erodible soils been identified. The Phase 1 contaminated land investigation (Golder Associates, 2017) determined that acid sulphate soils are unlikely to be generated as a result of the project. The investigation did not identify any soil properties which will prevent construction of the project.  The rail corridor has been held by VicTrack since the construction of the existing alignment. The area may have been subjected to historical filling, using unknown sources of fill. The extent of these impacts, where they exist, are likely to be localised and managed in accordance with the Industrial Waste Resource Guideline. |
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| **Are there geotechnical hazards that may either affect the project or be affected by it?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| The topography of the project area is generally flat and large scale landslips are not considered likely to occur. Ongoing geotechnical investigations in the rail corridor are being undertaken to inform design which will identify any geotechnical hazards. |
| **Other information/comments?** (eg. accuracy of information) |
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| n/a |

**15. Social environments**

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| **Is the project likely to generate significant volumes of road traffic, during construction or operation?**  🗙 NYD 🗙 No 🗙 Yes If yes, provide estimate of traffic volume(s) if practicable. |
| Road traffic generation during the construction phase of the project will be typical of construction on a linear reserve and will occur over a period of 18 months. Construction vehicles for the project will access the rail corridor at discrete locations via the existing road network or the existing access track which runs alongside the rail line. As a rural area, the local roads carry relatively little traffic and where possible, the project will utilise these roads.  Construction of components such as passing loops and track duplications will occur at discrete locations and will not generally require any rail shut downs during standard operational hours. Where this is required, replacement bus services will be arranged.  Maintenance during operation will be as per the current situation. The project is intended to encourage a reduction in car use by commuters in the region once operation commences. |
| Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected. |
| **Visual amenity**  Construction activities for the project will predominantly be located in the existing railway corridor, where routine railway maintenance and other rail activities are currently undertaken. The construction activities will be short term and localised along the project elements and therefore will not cause extensive or major, long term changes in amenity of residents.  It is expected that construction works will predominantly be undertaken during normal working hours. Lighting for works at night may occur to ensure the safety of workers and the community and are likely to be of a short-term and localised along the project elements.  During construction of the project, the delivery partner will be required to undertake construction works in accordance with the project EPRs including the development and implementation of a project CEMP and associated sub-plans.  During operation, there are not expected to be any extensive or major changes to visual amenity as the project consists of works in and adjacent to an existing operating rail corridor. Further, there are no identified landscape values of regional or State significance in or adjacent to the project area. Lighting at the stabling yards will be designed to ensure compliance with applicable standards for safety and rail operations.  Upgraded station works will occur in the existing (Ballan and Bacchus Marsh) and future (Rockbank) urban environments in accordance with an Urban Design Framework which will require a site responsive design approach supporting and enhancing the local context and character. The arrangement and design of cuttings and embankments will address community connectivity and high quality visual amenity through minimising the visual and physical impact of structures. The construction of a new train stabling and driver facilities at Maddingley (Kerrs Road) will be designed in accordance with the Urban Design Framework which promotes the use of high quality materials and a site responsive design to reduce the visual impact of the new facility.  **Air quality**  Dust from earth moving activities and odour from mechanical plant may occur during construction but are not expected to be significant or to have extensive or major effects on the amenity of residents. Impacts from construction activities will be short term as construction of the rail and station upgrades will only occur in a specific location for a limited period as construction of the project moves along the alignment upgrade from element to element.  During construction of the project, the delivery partner will be required to undertake construction works in accordance with the project EPRs including the development and implementation of a project CEMP and associated sub-plans. The EPRs will require the delivery partner to manage construction activities to minimise dust and other emissions in accordance with EPA Publication 480, *Environmental Guidelines for Major Construction Sites* (EPA 1996).  During operation, there are not expected to be any extensive or major changes to existing air emissions. While the project will increase service frequency, the main objective of the project is to increase service reliability rather than add a large number of new services. As such, emissions of the Ballarat Line Upgrade will not affect the amenity of residents.  **Construction Noise**  Construction noise from the rail and station upgrades will be short-term as construction moves along the alignment from element to element. It is expected that construction work will predominantly be undertaken during normal working hours as required by EPA Noise Control Guidelines Publication 1254 October 2008 (EPA 1254). Normal working hours are 7am to 6pm Monday to Friday and 7am to 1pm Saturday.  During construction, the delivery partner will be required to undertake construction works in accordance with project EPRs including the development and implementation of a project CEMP and associated sub-plans. The EPRs will require the delivery partner to manage construction activities to minimise noise in accordance with *EPA Noise Control Guidelines Publication 1254* October 2008 (EPA 1254). Therefore there are not expected to be any extensive or major changes in existing noise conditions during the construction of the project or any significant effects from construction noise on the amenity of residents.  **Railway Noise Assessment**  The increased rail operations on the upgraded rail corridor following project works have has been assessed for operational noise compliance against the investigation thresholds set out in the Victorian Passenger Rail Infrastructure Noise Policy, April 2013 (PRINP).  Operational noise from the increased rail operations is predicted to be below the PRINP investigations thresholds along most of the rail corridor. In the period immediately following completion of project works, operational noise from the increased rail operations is predicted to exceed the PRINP investigation thresholds (without further mitigation through design or acoustic treatment) for three small areas of sensitive receivers adjoining the rail corridor, reducing to one area when rolling stock on the corridor is upgraded to all VLocity trains. The noise sensitive receivers locations were:   * One property located on Stewart Crescent, Rockbank * A number of properties (up to 7) located along a section of James Melrose Drive, Brookfield * A number of properties (up to 3) located along a different section of James Melrose Drive, Brookfield.   The Incorporated Document proposed for the project will require an Environmental Management Framework including Environmental Performance Requirements, to be approved by the Minister for Planning. The Environmental Performance Requirements will include a requirement that the final design of the project appropriately address operational noise in accordance with the PRINP. This would involve consideration of various mitigation options, cost benefit and best fit solution, in accordance with Attachment 5 of the PRINP.  The operational noise impact assessment has considered a number of mitigation options to confirm that options are available that could reduce operational noise to below the PRINP investigation thresholds. As the project is located adjacent to an existing rail line in a tight corridor, options for mitigation through design are limited. As such, for the project, acoustic treatments either along the rail corridor or at the dwellings are considered a practical and cost-effective form of mitigation. The preferred mitigation approach will be assessed on final design of the project under the Environmental Performance Requirements.  **Maddingley Stabling Yard (Kerrs Road)**  An assessment of the predicted noise levels arising from the proposed Maddingley stabling yard has been undertaken using an acoustic model. The acoustic model was developed using source noise levels measured at the existing Bacchus Marsh stabling yard site, which houses the same trains that will be stabled at Maddingley. This model has been used to predict noise levels at Noise Sensitive Areas (NSAs), namely dwellings, in the vicinity of the Maddingley stabling yard, to enable comparison with specified noise limits.  No exceedances to the noise requirements have been predicted at the NSAs surrounding the stabling yard.    **Traffic**  It is expected there may be an increase in traffic during construction but these increases will be short term with no extensive or major effects and are not expected to be significant.  While there will be an increase in traffic during construction, it will be dispersed along the corridor due to the discrete locations of the work sites. Road traffic generated during construction, including traffic generated by construction vehicles, will be typical of construction on a linear corridor and will occur over a period of 18 months.  As with other rail line closures, replacement buses will operate during rail closure periods during the 18 month construction timeframe. Temporary road diversions or closures and mobilisation of heavy equipment to and from the site will occur and will be managed under a traffic management plan. Following construction, all activity associated with the project will be confined to the rail corridor.  During construction of the project, the delivery partner will be required to undertake construction works in accordance with the project EPRs. This will include the requirement for the project contractor to develop and implement a CEMP and associated sub-plans. |
|  |
| **Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?**  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe the hazards and possible implications. |
| The potential dust, water, noise and air emissions expected during construction will be typical of a linear construction project and managed in accordance with applicable regulatory requirements and the CEMP.  The use, storage and management of chemical hazards will be undertaken in accordance with relevant regulations, standards and best practice guidance to avoid any exposure to the health and safety of the community and environment.  During construction of the project, the delivery partner will be required to undertake construction works in accordance with the project EPRs. This will include the requirement for the project contractor to develop and implement a CEMP and associated sub-plans. This will include waste and spoil management prepared in accordance with relevant regulations, standards and best practice guidance and may include:     * Spill kits available on site with all personnel instructed in their use * Minor containers storing hydrocarbons or chemicals will be stored on bunded pallets or in fully bunded areas at all time * Refuelling of mobile plant and equipment should be undertaken, where feasible, on designated hardstand areas or provided with temporary bunding to contain any spills      * Work instructions shall be prepared and issued to cover tasks and activities which may involve the discharge of hazardous materials (eg. oil change of engines, gear boxes, high voltage transformers, etc). The instructions shall specifically address:   + The appropriate method for discharging these materials   + Actions to be taken in the event of unplanned discharge to drains and waterways. |
| **Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?**  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe potential effects. |
| Works will not displace any residences as no residential properties are required for acquisition.  Construction activities will not cause any severance of residential access to community resources as the project will predominantly be located in an existing railway corridor, which has been operating in these communities for over a century. |
| Are non-residential land use activities likely to be displaced as a result of the project?  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe the likely effects. |
| The project is almost entirely located within an existing VicTrack rail corridor and is within the Public Use Zone 4 (Transport) of the Melton and Moorabool Planning Schemes, with the exception of works associated with improvements to or removal of level crossings which take place outside of the rail corridor in the road reserve.  The potential temporary secondary construction areas have been sited where possible on land currently used for railway activities in the existing railway corridor. Where there were no suitable sites within the railway corridor, most secondary construction areas are located in heavily disturbed farming land.  There are six VicTrack leases in the project area and two privately owned properties in the VicTrack land. The affected tenants and private land owners have been consulted and access arrangements have been agreed. The private properties have been excluded from the project area. The tenants on the six VicTrack leases have been consulted, whilst some works on the leased land will be temporary, the leases to private third parties will still be terminated. |
| Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe the potential effects.  Any changes to non-residential land use activities as a result of the project will be temporary and will not cause any adverse effects to local resident, communities, social groups or industries. |
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| **Is mitigation of potential social effects proposed?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| The environmental impacts of the project will be managed through the preparation of an EMF, including EPRs, and a CEMP. This management approach is discussed in detail in section 18 below. The CEMP will address:   * air quality in accordance with EPA Publication 480, *Environmental Guidelines for Major Construction Sites* (EPA 1996) and will include measures such as using appropriate dust suppression measures and using wind fences where appropriate * airborne noise and vibration impacts and may include measures to:   + limit night works to program critical activities only and restrict other works to normal construction hours as far as practicable   + notify residences in advance of works (as appropriate)   + provide residents with a contact number for complaints / comments.   Localised mitigation, in the form of Off Reservation Treatment (ORT), may be offered in the event of a noise complaint that is verified by noise measurements during operation of the Maddingley stabling yard. |
| **Other information/comments?** (eg. accuracy of information) |
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| n/a |

Cultural heritage

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| **Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?**  🗙 No If no, list any organisations that it is proposed to consult.  🗙 Yes If yes, list the organisations so far consulted. |
| Consultation has occurred with the Wurundjeri Tribe Land and Compensation Cultural Heritage Council and Wathaurong Aboriginal Corporation (for areas where Registered Aboriginal Parties (RAPs) are the approval authority) and Traditional Owners (for non-RAP area where Aboriginal Victoria is the approval authority) as part of the Cultural Heritage Management Plans process. |
| **What investigations of cultural heritage in the project area have been done?**  (attach details of method and results of any surveys for the project & describe their accuracy) |
| A detailed desktop cultural heritage assessment has been prepared for the project (Biosis, 2016) which includes the Wurundjeri and Wathaurong RAP areas and an area where the members of the Bunurong Land Council Aboriginal Corporation and the Boon wurrung Foundation are recognised Traditional Owners. |
| **Is any Aboriginal cultural heritage known from the project area?**  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe:   * Any sites listed on the AAV Site Register * Sites or areas of sensitivity recorded in recent surveys from the project site or nearby * Sites or areas of sensitivity identified by representatives of Indigenous organisations |
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| The detailed desktop assessment identified:   * One Aboriginal place was identified in Element 1 within the MSA, just east of Rockbank station where there was extensive ground surface disturbance as a result of the railway construction and maintenance activities. The Standard Assessment identified a further four Aboriginal places (VAHR 7822-3692, -3693, -3694 and -3704). However, these places were identified atop exposed ground within areas of extensive disturbance. * Two previously recorded Aboriginal places lie within 200 m of the referred project area in Element 4. Both Aboriginal places are artefact scatters located within the rail corridor along the floodplains of the Moorabool River.   + VAHR 7722-0545 consists of an isolated silcrete flake located within a subsurface context, which shows signs of modern disturbance with one potential green bottle glass flake also recorded.   + VAHR 7722-0546 is an artefact scatter consisting of 4 silcrete flakes, a silcrete core, and 3 quartz flaked fragments that were located within a subsurface context across three shovel probes. * A few archaeological assessments have been completed within 200 m of the referred project area in Element 5 with the majority of assessments completed further out across Ballarat. Several CHMPs (13046, 13791 and 13982) are currently in progress within 200 m of Element 5. This includes a CHMP (13982) which is being prepared to evaluate the Aboriginal cultural heritage associated with the Ballarat Railway Station covering a section of the Site 5 study area (Biosis 2016).   Three Cultural Heritage Management Plans are being prepared for the whole project, as the project crosses the Wurundjeri and Wathaurong Rap areas and is partially within an area where the members of the Bunurong Land Council Aboriginal Corporation and the Boon wurrung Foundation are recognised Traditional Owners (hence Aboriginal Victoria would be the approving authority).  Salvage of cultural significant artefacts found during the complex assessments will be undertaken prior to the commencement of construction works. The conditions of the approved Cultural Heritage Management Plans will form part of the CEMP and compliance monitored during the project by the MMRA as the sponsor. |
| **Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within** **the project area?**  🗙 NYD 🗙 No 🗙 Yes If yes, please list. |
| There are two sites listed on the VHI:   * VHI H7822-2356 Rockbank Station and Ward’s Chaffmill Site * VHI-H7822-2334 Cobbled Roadway, Greigs Road   No places listed on the Victorian Heritage Register are located in the project. |
| **Is mitigation of potential cultural heritage effects proposed?**  🗙 NYD 🗙 No 🗙 Yes If yes, please briefly describe. |
| Where works are undertaken in proximity to the VHI-listed site, consent to damage will be sought from Heritage Victoria in accordance with the *Heritage Act 1995.* The MMRA’s proactive approach towards the registration and investigation of potential VHI sites represents its desire to mitigate construction impacts on places of cultural heritage value.  The CEMP for the project will require the delivery partner to adhere to management and conservation procedures in the event that any heritage artefacts are discovered during construction. |
| **Other information/comments?** (eg. accuracy of information)  n/a |
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**16. Energy, wastes & greenhouse gas emissions**

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| What are the main sources of energy that the project facility would consume/generate? |
| 🗙 Electricity network. If possible, estimate power requirement/output …………………. |
| 🗙 Natural gas network. If possible, estimate gas requirement/output …………………... |
| 🗙 Generated on-site. If possible, estimate power capacity/output ………………………. |
| 🗙 Other. Please describe. |
| Please add any relevant additional information. |
| Some energy use will occur during the construction phase resulting from the use of vehicles and equipment, such as generators.  The infrastructure associated with the projects are inert. Electricity use from trains during operation will be attributed to the operation of the broader rail network rather than the project. |
| What are the main forms of waste that would be generated by the project facility? |
| 🗙 Wastewater. Describe briefly. |
| 🗙 Solid chemical wastes. Describe briefly. |
| 🗙 Excavated material. Describe briefly. |
| 🗙 Other. Describe briefly. |
| Please provide relevant further information, including proposed management of wastes. |
| Wastewater from rainwater runoff or dewatering activities may be generated during construction.  Wastewater will be managed in accordance with a project CEMP.  Waste in the form of excavated material may be generated by the project, however the final volume cannot be determined until project investigations and designs are completed. Stockpiles will be managed in accordance with a project CEMP. |
| What level of greenhouse gas emissions is expected to result directly from operation of the project facility?  🗙 Less than 50,000 tonnes of CO2 equivalent per annum  🗙 Between 50,000 and 100,000 tonnes of CO2 equivalent per annum  🗙 Between 100,000 and 200,000 tonnes of CO2 equivalent per annum  🗙 More than 200,000 tonnes of CO2 equivalent per annum |
| Please add any relevant additional information, including any identified mitigation options. |
| Total annual operational GHG emissions (train emissions plus stations and stabling) are conservatively estimated to be 22 kt CO2-e p.a (AJM JV, 2017h). |
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**17. Other environmental issues**

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| Are there any other environmental issues arising from the proposed project?  🗙 No 🗙 Yes If yes, briefly describe. |
| None identified. |
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**18. Environmental management**

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| What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above) |
| 🗙 Siting: Please describe briefly |
| The proposed siting of the Ballarat Line Upgrade design is located within the existing rail corridor which is already disturbed and appropriately zoned. This presents significant advantages such as:   * Limiting ecological impacts to native vegetation historically disturbed by the rail use * Minimising Aboriginal cultural heritage impacts by utilising an area disturbed by the rail use * Avoiding residential and commercial land acquisition by utilising the existing VicTrack corridor * Supporting the orderly use and development of land by utilising land that is already used for the purpose of a railway.   Site selection for the potential secondary construction areas prioritised VicTrack land currently used for railway activities in the existing railway corridor. Where there were no suitable sites within the rail corridor, potential secondary construction areas were evaluated using a set of criteria including desktop ecological assessments which assessed the potential presence of significant habitat and listed flora and fauna species.  Other evaluation criteria included accessibility, practicality, safety, land ownership and the potential presence of significant habitat and listed flora and fauna species. As a result of the evaluation process, secondary construction areas are located in:   * Vacant and/or leased VicTrack land      * VicRoads road reserves and VicRoads vacant land adjacent to the rail corridor * Portions of up to 16 privately owned properties that are currently used as farm access tracks, farming activities such as animal grazing and holding. |
| 🗙 Design: Please describe briefly |
| Where ecological field assessments completed by qualified and experienced ecologists identified areas comprising threatened species or potential habitat for threatened species, these areas were identified in the design as ‘No-Go’ areas. Project Engineers confirmed through the design process that activities planned for sites with known ecological constraints identified had been configured to avoid No-Go areas. For these sites, further mitigation measures will be implemented in project EPRs to ensure ecological values are not impacted.  As part of delivery, the design of the Ballarat Line Upgrade is subject to ongoing development and refinement to avoid potential impacts, and is being informed by stakeholder and community consultation. The final design of the project will be in accordance with the Urban Design Framework developed by the MMRA to provide specific design guidance at prominent project components, such as stations and the stabling yard facility. |
| 🗙 Environmental management: Please describe briefly. |
| Environmental management will be an integral part of the detailed design, construction and operation of the project.  An EMF will be developed by the MMRA that outlines clear accountabilities for the delivery and monitoring of the implementation of the project EPRs. The EPRs will be a suite of performance-based standards/outcomes that will be developed based on the outcomes of a risk assessment to be prepared as part of detailed design of the project. The EPRs will apply to the design and construction of the Ballarat Line Upgrade.  The project will be delivered in accordance with the EPRs, and this will be facilitated through Project contracts between the State of Victoria and the alliance contracting partner, referred to as the delivery partner.  Roles and responsibilities for implementation of the EPRs will lie with both the MMRA, as the Project Owner and the Delivery Partner. The delivery contract will specify which EPRs are the responsibilities of the project owner and the delivery partner.  Demonstration of compliance with the relevant EPRs and applicable management plans will be a key performance indicator for the delivery partner. Compliance with the EPRs will be enforced by MMRA as project owner through the contractual arrangements for design and delivery of each project, and monitored by way of periodic audits.  It is also intended that the EMF and EPRs will be given statutory weight through the provisions of the Incorporated Document that is proposed as the primary planning control for the project. MMRA proposes that the EMF including EPRs will be prepared by the MMRA in conjunction with the Delivery Partner based on a risk assessment to be prepared as part of detailed design. The process for finalising the EMF and EPRs would include consultation with relevant councils and will be approved by the Victorian Minister for Planning. The EMF will also set out the process and timeframe for the preparation of a CEMP and any sub-plans required by the EPRs. |
| 🗙 Other: Please describe briefly |
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| The MMRA is developing a Sustainability Management Framework for the Ballarat Line Upgrade to enable the setting of mandatory targets in accordance with the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Tool and the Green Building Council of Australia (GBCA) Green Star ‘Design & As-Built’ Rating Tool, and to enable the effective measurement of sustainable outcomes. The delivery partner will be required to:     * Achieve a minimum IS score of 70 (‘Excellent’) under the ISCA IS Rating Tool (version 1.2) for both the certified ‘Design’ rating and ‘As Built’ rating for the Works * Achieve a minimum of 3 points for the ISCA IS Rating Tool ‘Innovation’ Credit (Inn-1) during the design and construction of the Works * For Rockbank, Ballan and Bacchus Marsh station upgrades and the Maddingley stabling facilities, whilst not required to achieve formal, certified Green Star ratings, have mandated credits from the Green Star ‘Design’ and ‘As Built’ Melbourne Metro Rail Tool and Green Star ‘Design and As Built’ Tool respectively, which must be achieved. Furthermore, each building must achieve an equivalent minimum 4-star Green Star self-assessment rating for compliance with the requirements of the MMRA Ballarat Line Upgrade Green Star Self-Assessment Guidelines * Publically report their sustainability performance on an annual basis in accordance with the MMRA Sustainability Management Plan. |
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19. Other activities

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| Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe. |
| The planning of the project has taken into account other Victorian transport priorities and network planning as outlined in the planning context section at Section 7.  The project is of a short term nature and is anticipated to be commissioned and operational in 2019. Over the long term, land has been identified between Deer Park and Melton as part of existing PSPs for urban development. The project is intended to support anticipated increases in demand for train services arising from this long-term development.  The project will not prejudice the future development of the Toolern rail station or the future electrification of the Melton rail line past Sunshine station. |
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20. Investigation program

Study program

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| Have any environmental studies not referred to above been conducted for the project?  🗙 No 🗙 Yes If yes, please list here and attach if relevant. |
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| Has a program for future environmental studies been developed?  🗙 No 🗙 Yes If yes, briefly describe. |
| No further environmental investigations are anticipated to be undertaken for the project |
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Consultation program

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| Has a consultation program conducted to date for the project?  🗙 No 🗙 Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted. |
| A program of community and stakeholder engagement has been undertaken by the MMRA to investigate potential social effects of the project and to inform design and planning controls for the project. A detailed community engagement framework outlining activities over the life of the project has been developed to guide the program. This framework captures the MMRA’s commitment to meaningful consultation with stakeholders and communities to capture issues and gather input into both the Ballarat Line Upgrade’s design and the construction methodology to deliver it.  In setting the foundation for engagement, the project adopted the following principles:   * **Direct**: direct (i.e. two-way channels such as face-to-face, direct mail, email, or phone calls) is the preferred means of communicating major issues to affected community members and stakeholders * **Open**: communications will be open, transparent, inclusive, accessible, accurate and consistent in its content, and will be planned, coordinated and timely in its delivery, to both internal and external audiences. * **Proactive**: proactive communications and early engagement are integral parts of all project and operational planning processes. * **Tailored**: messages and delivery channels must be tailored to the communication and information needs of their intended audiences.   A program of engagement with key stakeholders, local residents, businesses and public transport users commenced in November 2016 and will continue through 2017 to seek feedback on aspects of the project.  In initiating consultation on the project, a range of channels were established to enable direct communications and facilitate timely information and updates to interested stakeholders and community members. These channels included a project specific 1800-information line, email address and website. Specific materials, including maps and fact sheets were also developed to provide introductory information about the Ballarat Line Upgrade.  To ensure proactive communications, in January 2017 a letter and accompanying factsheet was distributed to properties adjacent to the proposed Ballarat Line Upgrade. Early engagement was also initiated with regulatory stakeholders, local councils, RAPs, key institutions and community groups along the project alignment to brief them on the project design and development. In June 2017, the MMRA sent an additional letter to owners of the properties identified in this referral as potential secondary construction areas.  In delivering open engagement, the MMRA visited communities along the project’s proposed alignment, attending local community events and hosting pop-ups sessions to provide further information, answer questions and gather feedback. This included manning information stands at the Ballan Autumn Festival and the Bacchus Marsh Harvest Festival and pop up sessions in May and June 2017 at Rockbank, Melton, Bacchus Marsh, Ballan and Ballarat stations. Surveys were also developed to gather feedback on travel behaviours, communication preferences and issues and topics of interest. Surveys have been made online and in hardcopy at community events and pop up sessions.  To support interactions, the project has provided information posters and fact sheets to stations along the Ballarat rail line to keep train users up-to-date on the project. Presentations have also been given to local councils, peak bodies and stakeholder groups, including the Committee for Ballarat, Public Transport Users Association and Ballarat Rail Advocacy Committee.  As part of the planning process with regards to the secondary construction areas in private land, directly affected landowners have been identified and engaged about potential access to their land / property. Engagement included direct mail, phone calls and 1:1 meetings with affected landowners along the project corridor. Where concerns were raised by landowners, this feedback has been considered in refining the secondary construction areas. For example one landowner raised concerns about impacts to trees and vegetation on the property in the area identified for the project. As a result of this feedback, the secondary construction area has been shifted to protect the trees and fencing will be installed to protect the vegetation. Engagement will continue with landowners throughout the planning, design and delivery of the Ballarat Line Upgrade.  Specific stakeholder consultation has been undertaken and is ongoing with the following parties:   * Aboriginal Victoria; * City of Melton * Shire of Moorabool * Commonwealth Department of the Environment and Energy * Department of Economic Development, Jobs, Transport and Resources * Department of Environment, Land, Water and Planning * Heritage Victoria * Melbourne Water * Corangamite Catchment Management Authority * Public Transport Victoria * Registered Aboriginal Parties:   + Wathaurong Aboriginal Corporation (Wathaurung)   + Wurundjeri Tribe Land Compensation and Cultural Heritage Council (Wurundjeri) * Environment Protection Authority * VicRoads * VicTrack * V/Line. |
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| Has a program for future consultation been developed?  🗙 NYD 🗙 No 🗙 Yes If yes, briefly describe. |
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| The MMRA will continue its stakeholder and community program as design develops and then into construction. This will include:   * Ongoing meetings with key stakeholders * One on one meetings with owners or occupiers of properties affected or adjacent to the project * Regular community updates * Community pop up events and information sessions * Online materials   The delivery partner will be required to develop and implement a Community and Stakeholder Engagement Plan that includes:   * Regular community updates * Face to face engagement with stakeholders * Clear processes for informing stakeholders, road users, transport users, residents and businesses of upcoming works and potential disruption * Complaints resolution process |

**Authorised person for proponent:**

I, …………………………………………………(full name),

……………………………………………………(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date

**Person who prepared this referral:**

I, …………………………………………………(full name),

……………………………………………………(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date

**Attachments**

|  |  |
| --- | --- |
| No. | Attachment |
| 1 | Maps |
| 1a | Project Area Plans |
| 1b | Key Feature Map |
| 1c | Planning Zones |
| 1d | Planning Overlays |
| 1e  1f  2  3  4  5  6 | Native Vegetation Mapping  Project Bounding Coordinates  AJM JV (2017a) *Summary of Ecological Results for the Ballarat Line Upgrade Project*  AJM JV (2017b) *Ballarat Line Upgrade – Ecology Assessment Additional Areas*  AJM JV (2017c) *Ballarat Line Upgrade – Secondary Construction Areas*  Ecology and Heritage Partners (2017d) *Existing Ecological Conditions Report, Ballarat Line Upgrade*  AJM JV (2017e) *Ballarat Line Upgrade – Operational Noise Impact Assessment* |
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**References**

* AJM JV (2017f) *Ballarat Line Upgrade – Land Use and Planning Assessment Report*
* AJM JV (2017g) *Ballarat Line Upgrade – Surface Water Flooding Memorandum*
* AJM JV (2017h) *Ballarat Line Upgrade – Greenhouse Gas Assessment Memorandum*
* Biosis (2016) *Ballarat Amplification Project – Desktop Cultural Heritage Assessment*
* Golder Associates (2017) *Ballarat Line Upgrade – Phase 1 Contaminated Land Assessment*