LEVEL CROSSING REMOVAL PROJECT

22 December 2021

Edithvale and Bonbeach Level Crossing Removal Project: Annual Compliance Report No.1

Commonwealth EPBC Approval 2017/7906

VICTORIA'S BIG BUILD

VICTORIA State Government

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1 Treasury Place, Melbourne

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2 Introduction

2.1 Background

The Victorian Government is removing the dangerous and congested level crossings at Edithvale and Bonbeach in Victoria, by lowering the rail line into trenches. An Environment Effects Statement (EES) was undertaken for the Projects to assess potential impacts to groundwater levels, groundwater quality and the Edithvale-Seaford Wetlands, which is a listed as a wetland of international importance through the Ramsar Convention on Wetlands treaty. Australia is a Contracting Party to the Ramsar Convention and as such, the Edithvale-Seaford Wetlands represents a Matter of National Environmental Significance.

Due to the proximity of the projects to the Edithvale Wetland, which is one of two wetlands that form the Ramsar Site, matters of national environmental significance required assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

2.2 Approval under the Environment Protection and Biodiversity Conservation Act 1999

The design and construction of the projects is authorised and regulated by Incorporated Documents that have been incorporated into the Kingston Planning Scheme, and by the approval of the project as a controlled action under the EPBC Act.

The Commonwealth Department of Agriculture, Water and the Environment (DAWE) granted approval for the Project on 3 December 2018 (EPBC 2017/7906). The approval included a number of conditions that the Level Crossing Removal Project (LXRP) is required to fulfil, including development and implementation of the Environmental Management Framework (EMF) and its Environmental Performance Requirements (EPRs), which include management plans applicable to the design, development and operation of the projects.

2.3 Description of activities

Table 1 contains a description of the approved project and details of the current activities undertaken during the period covered by the report.

Table 1 Description of activities

Activity	Description
EPBC number	2017/7906
Project name	Edithvale and Bonbeach Level Crossing Removal Project
Approval holder and ACN or ABN	Level Crossing Removal Project ABN: 69 981 208 782
The approved action	To remove two level crossings at Edithvale Road, Edithvale and Station Street/Bondi Road, Bonbeach, Victoria [1] [see EPBC Act referral 2017/7906]

[1] The removal of level crossings between Edithvale and Bonbeach at Chelsea, while being undertaken concurrently, are not subject to the EPBC Act approval.

Activity	Description
Location of the project	Edithvale and Bonbeach, Victoria
Person accepting responsibility for the report – signed declaration	Andrew Kerr Refer to signed declaration in Appendix **A**: Declaration of Accuracy
Dates for the reporting period of the report	13 October 2020 to 12 October 2021
Date of preparation of the report	22 December 2021

2.4 Purpose of this document

This document is a Compliance Report relating to the Edithvale and Bonbeach Level Crossing Removal Project in accordance with condition 7 of the EPBC Act approval EPBC 2017/7906. The approved action commenced on 13 October 2020.

This Compliance Report covers the period 13 October 2020 to 12 October 2021 and therefore relates to 'Year 1' of the groundwater monitoring program. Its purpose is to:

- demonstrate that all conditions of the EPBC approval have been considered and addressed
- list the conditions of the EPBC approval, including any variations to those conditions, noting if compliance or non-compliance with each condition has been achieved
- detail the specifics of the management plan (Groundwater Monitoring and Management Plan, EPR_GW2) that supports the approval condition, noting if compliance or non-compliance has been achieved
- provide material demonstrating that the requirements of that Groundwater Monitoring and Management Plan have been implemented

This Compliance Report has been prepared in acknowledgement of the Declaration of Accuracy completed in Appendix **A**: Declaration of Accuracy.

3 EPBC Approval Conditions and Compliance

Project approval was subject to meeting several EPBC Act conditions. Those conditions that are specific to the action are outlined in **Table 2**, which references the full wording of all conditions under the EPBC approval and the condition reference number. **Table 2** also designates compliance or non-compliance for each condition, with a summary of evidence and comments to support the compliance designation.

Table 2 EPBC Act approval conditions and document reference

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
1	The approval holder must submit a Groundwater Monitoring and Management Plan for the Minister's approval that ensures predicted and potential impacts to groundwater as a result of the action are monitored, and corrective actions implemented if applicable trigger values are reached.	Compliant	The *Groundwater Monitoring and Management Plan (EPR_GW2)* was approved by the Commonwealth Minister for the Environment on 2 December 2019 and was revised to account for design changes. The Commonwealth Minster for the Environment accepted these changes on 3 July 2020, resulting in an approved Revised Action Management Plan (RAMP). The RAMP was again revised to account for groundwater monitoring changes. The Commonwealth Minster for the Environment accepted these changes on 26 August 2020, resulting in an approved RAMP (available through the following website: **https://levelcrossings.vic.gov.au/media/publications/edithvale-and-bonbeach-groundwater-monitoring-and-management-plan**) Predicted and potential impacts to groundwater as a result of the action are monitored through quarterly reviews, focussing on the triggers stipulated in Sections 3, 4 and 5 of the RAMP. Quarterly review summaries from groundwater monitoring events (GME) 1 to 4 undertaken during this review period, are provided in the trigger review assessments within Appendix B: Groundwater Monitoring Program Report, which confirm that no applicable trigger values were reached during the reporting period.
2	The approval holder must not commence the action unless the Minister has approved the Groundwater Monitoring and Management Plan in writing. The approval holder must implement the Groundwater	Compliant	Confirmation of approval of the RAMP was provided by DAWE, which noted that the action commenced on 20 October 2020 (Ref: 18/011286). Plan implementation is evidenced through this Compliance Report and the compliance statements are summarised in Section 4. A detailed annual factual monitoring report has been prepared and referenced as Appendix B: Groundwater Monitoring Program Report. Note that this technical report

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
	Monitoring and Management Plan approved by the Minister.		has not been appended to this Compliance Report, as the summary provided in Section 4 includes all the data that is relevant to the EPBC Act approval.
3	The Groundwater Monitoring and Management Plan must be consistent with the relevant Environmental Performance Requirement approved by the Victorian Minister, and must include:	Compliant	As per items 3a to 3f outlined below.
3a	The Groundwater Monitoring and Management Plan environmental objectives, relevant EPBC Act protected matter/s and a table setting out where it addresses the EPBC Act approval conditions applicable to the Groundwater Monitoring and Management Plan;	Compliant	Condition met through Table 13 within the RAMP
3b	A table of commitments made in the Groundwater Monitoring and Management Plan to achieve the objectives, and reference to where each commitment is detailed in the Groundwater Monitoring and Management Plan;	Compliant	Condition met through Section 1.5 and Table 1 within the RAMP and the relevant sections of the RAMP referenced therein.
3c	Reporting and review mechanisms, and documentation standards to demonstrate compliance with the Groundwater Monitoring and Management Plan	Compliant	Section 6 within the RAMP outlines reporting, notification and audit requirements. This Compliance Report forms the basis of demonstrating compliance with reporting and review mechanisms, and documentation standards.

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
			Specific reporting and review documentation demonstrating compliance with the RAMP are included in Appendix B: Groundwater Monitoring Program Report.
3d	An assessment of risks to achieving Groundwater Monitoring and Management Plan environmental objectives and risk management strategies that will be applied;	Compliant	Risks to implementation of the Plan are outlined in Section 8.3 within the RAMP. New environmental risks identified through implementation of the RAMP are assessed in Section 4.3 of this Compliance Report. The new environmental risks identified do not impact the Groundwater Monitoring and Management Plan environmental objectives.
3e	Impact avoidance, mitigation and/or repair measures, and their timing;	Compliant	Sections 3, 4 and 5 within the RAMP outline monitoring to be undertaken to identify the need for impact avoidance and mitigation. Appendix B: Groundwater Monitoring Program Report confirms that no applicable trigger values were reached during the reporting period. A *Groundwater Quality Mitigation Plan (EPR_CL5)* has been prepared (refer to Appendix **C**: Groundwater Quality Mitigation Plan), to meet the requirements of EPR_CL5 and address impact mitigation measures and their timing, should they be required if a trigger is reached.
3f	A monitoring program, which must include: i. measurable performance indicators;	Compliant	Sections 3, 4 and 5 within the RAMP outline monitoring to be undertaken to identify the need for impact avoidance and mitigation, through measurable performance indicators (triggers). To demonstrate monitoring program implementation, an annual factual monitoring report is included in Appendix B: Groundwater Monitoring Program Report. To demonstrate the monitoring of measurable performance indicators (triggers indicating potential impacts to groundwater as a result of the action), the quarterly review documentation is included in Appendix B: Groundwater Monitoring Program Report, which confirms that no applicable trigger values were reached during the reporting period.

Condition reference number	Condition		Is the project compliant with this condition?	Evidence / Comments
	ii.	the timing and frequency of monitoring to detect changes in the performance indicators;	Compliant	Requirements are outlined in Sections 3, 4 and 5 of the RAMP. To demonstrate the timing and frequency of monitoring of performance indicators, an annual factual monitoring report is included in Appendix B: Groundwater Monitoring Program Report, which confirms that no applicable trigger values were reached during the reporting period.
	iii.	trigger values for corrective actions; and	Compliant	Requirements are outlined in Sections 3, 4 and 5 of the RAMP. To demonstrate the monitoring of measurable performance indicators (triggers indicating potential impacts to groundwater as a result of the action), the quarterly review documentation is included in Appendix B: Groundwater Monitoring Program Report.
	iv.	corrective actions, and commitments to implement these actions if trigger values are reached.	Compliant	Corrective actions are outlined in Sections 3, 4 and 5 of the RAMP. As referenced in the RAMP as a corrective action, a *Groundwater Quality Mitigation Plan (EPR_CL5)* has been prepared (refer to Appendix **C**: Groundwater Quality Mitigation Plan), to meet the requirements of EPR_CL5 and address impact mitigation measures and their timing, should they be required if a trigger is reached.
4	The approval holder must submit an Edithvale Wetlands Monitoring and Mitigation Plan for the Minister's approval that ensures impacts to wetlands as a result of the action are monitored, and corrective actions implemented if applicable trigger values are reached.		Compliant	The *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* was submitted and approved and is available through the following website: *https://levelcrossings.vic.gov.au/media/publications/edithvale-and-bonbeach-groundwater-monitoring-and-management-plan* The *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* is referenced as a corrective action in Section 4 of the RAMP. Since no applicable trigger values were reached during the reporting period, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* did not come into effect during this reporting period.

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
5	The approval holder must not commence the action unless the Minister has approved the Edithvale Wetlands Monitoring and Mitigation Plan in writing. The Edithvale Wetlands Monitoring and Mitigation Plan approved by the Minister must be implemented.	Compliant	The *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* was approved by the Commonwealth Minister for the Environment on 2 December 2019. Commencement of action occurred subsequently on 13 October 2020 in accordance with condition 7 of the EPBC Act approval EPBC 2017/7906.
6	The Edithvale Wetlands Monitoring and Mitigation Plan must be consistent with the relevant Environmental Performance Requirement as approved by the Victorian Minister, and must include:	Compliant	As per items 6a to 6f outlined below.
6a	The Edithvale Wetlands Monitoring and Mitigation Plan environmental objectives, relevant EPBC Act protected matter/s and a table setting out where it addresses the EPBC Act approval conditions applicable to the Edithvale Wetlands Monitoring and Mitigation Plan	Compliant	The *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* has been prepared to address the requirements of EPR FF7 and Conditions 4-6 of the EPBC Approval 2017/7906 (Appendix A). DAWE, the Victorian Government Department of Environment, Land, Water and Planning (DELWP) and Melbourne Water were consulted during the preparation of this Plan. Section 3 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* outlines the relevant environmental objectives, while the relevant EPBC Act protected matter/s and applicable EPBC Act approval conditions are outlined in Table 6. In accordance with Section 1.3.1 of the RAMP, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* represents a contingency measure that would be implemented in the event that mounding and/or drawdown of groundwater occur as a result of the construction and/or operation phases of the projects, as defined within Section 4 of the RAMP. None of the triggers defined in Section 4 of the RAMP and relating to Edithvale Wetland were met during the reporting period. As such, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* has not been implemented.

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
6b	A table of commitments made in the Edithvale Wetlands Monitoring and Mitigation Plan to achieve the objectives, and reference to where each commitment is detailed in the Edithvale Wetlands Monitoring and Mitigation Plan	Compliant	Table 1 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* presents a table of commitments to achieve its objectives, with reference to where each commitment is detailed in the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)*. Compliance with each of the three objectives during this reporting period is summarised below: **Objective 1 (Establish a process to assess if groundwater mounding at the trench extends to the Edithvale Wetland):** will commence if the trigger outlined in RAMP relating to potential impacts on Edithvale Wetland is met. None of the triggers defined in Section 4 of the RAMP relating to Edithvale Wetland were met during the reporting period. Specific reporting and review documentation demonstrating such are included in Appendix B: Groundwater Monitoring Program Report. **Objective 2 (Define an approach to review and analyse existing monitoring data to determine if the habitat suitability of Edithvale Wetland is at risk and determine thresholds (triggers) for mitigation)**: is being undertaken through data collected monthly by Melbourne Water as an ongoing requirement of the Edithvale-Seaford Wetland Ramsar Site Management Plan (Ecology Australia 2016)[2]. There is no requirement in the RAMP for this data to be reviewed unless the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* is implemented. **Objective 3 (Identify mitigation measures to be implemented if monitoring determines habitat suitability of Edithvale Wetland is at risk)**: is outlined in Section 6 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)*. Since no applicable trigger values were reached during the reporting period, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* did not come into effect during this reporting period.
6c	Reporting and review mechanisms, and documentation standards to demonstrate	Compliant	Compliance with the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* is measured through the trigger outlined in Section 4 of the RAMP. None of the triggers defined in the RAMP relating to Edithvale Wetland were met during the reporting period. Specific reporting and review

[2] Ecology Australia (2016). *Edithvale-Seaford Wetlands Ramsar Site Management Plan*. Prepared for Melbourne Water. Ecology Australia Pty Ltd, Fairfield, Victoria.

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
	compliance with the Edithvale Wetlands Monitoring and Mitigation Plan;		documentation demonstrating such are included in Appendix B: Groundwater Monitoring Program Report.
6d	An assessment of risks to achieving Edithvale Wetlands Monitoring and Mitigation Plan environmental objectives and risk management strategies that will be applied;	Compliant	An assessment of risks to achieving the environmental objectives of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* is provided in Appendix D of that Plan. Since the risks to achieving the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* are hinged on the trigger outlined in Section 4 of the RAMP, the new environmental risks identified in Section 4.3 and Appendix **D**: Risk Analysis for new Environmental Risks of this Compliance Report are referenced here as they too represent relevant risk management strategies.
6e	Impact avoidance, mitigation and/or repair measures, and their timing;	Compliant	Section 6 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* outlines impact avoidance, mitigation and/or repair measures. None of the triggers defined in Section 4 of the RAMP and relating to Edithvale Wetland were met during the reporting period. As such, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* has not been implemented.
6f	A monitoring program, which must include: i. measurable performance indicators; ii. the timing and frequency of monitoring to detect changes in the performance indicators; iii. trigger values for corrective actions; and	Compliant	**In terms of monitoring:** Section 4 within the RAMP outlines monitoring to be undertaken to identify the need for impact avoidance and mitigation at Edithvale Wetland. Section 7 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* outlines a relevant monitoring program at Edithvale Wetlands that would be implemented if the triggers defined in Section 4 of the RAMP relating to Edithvale Wetland were met. Since these triggers were not met during the reporting period, the monitoring program outlined in Section 7 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* has not been implemented. **In terms of corrective actions:**

Condition reference number	Condition	Is the project compliant with this condition?	Evidence / Comments
	iv. corrective actions, and commitments to implement these actions if trigger values are reached.		A *Groundwater Quality Mitigation Plan (EPR_CL5)* has been prepared (refer to Appendix **C**: Groundwater Quality Mitigation Plan) as a contingency measure to address impact mitigation measures and their timing. Since the RAMP triggers were not met during this reporting period, the *Groundwater Quality Mitigation Plan (EPR_CL5)* has not been implemented. Section 6 of the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* outlines impact avoidance, mitigation and/or repair measures that would be considered if that Plan was implemented.
7	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of commencement of the action.	Compliant	Confirmation of notice of commencement of the action provided by DAWE on 20 October 2020 (Ref: 18/011286)
8	If the commencement of the action does not occur within 5 years from the date of this approval, then the approval holder must not commence the action without the prior written agreement of the Minister.	Compliant	This item is not applicable

4 Compliance Statement

4.1 Compliances

Project operations were compliant in full with the EPBC Act conditions of approval. In summary:

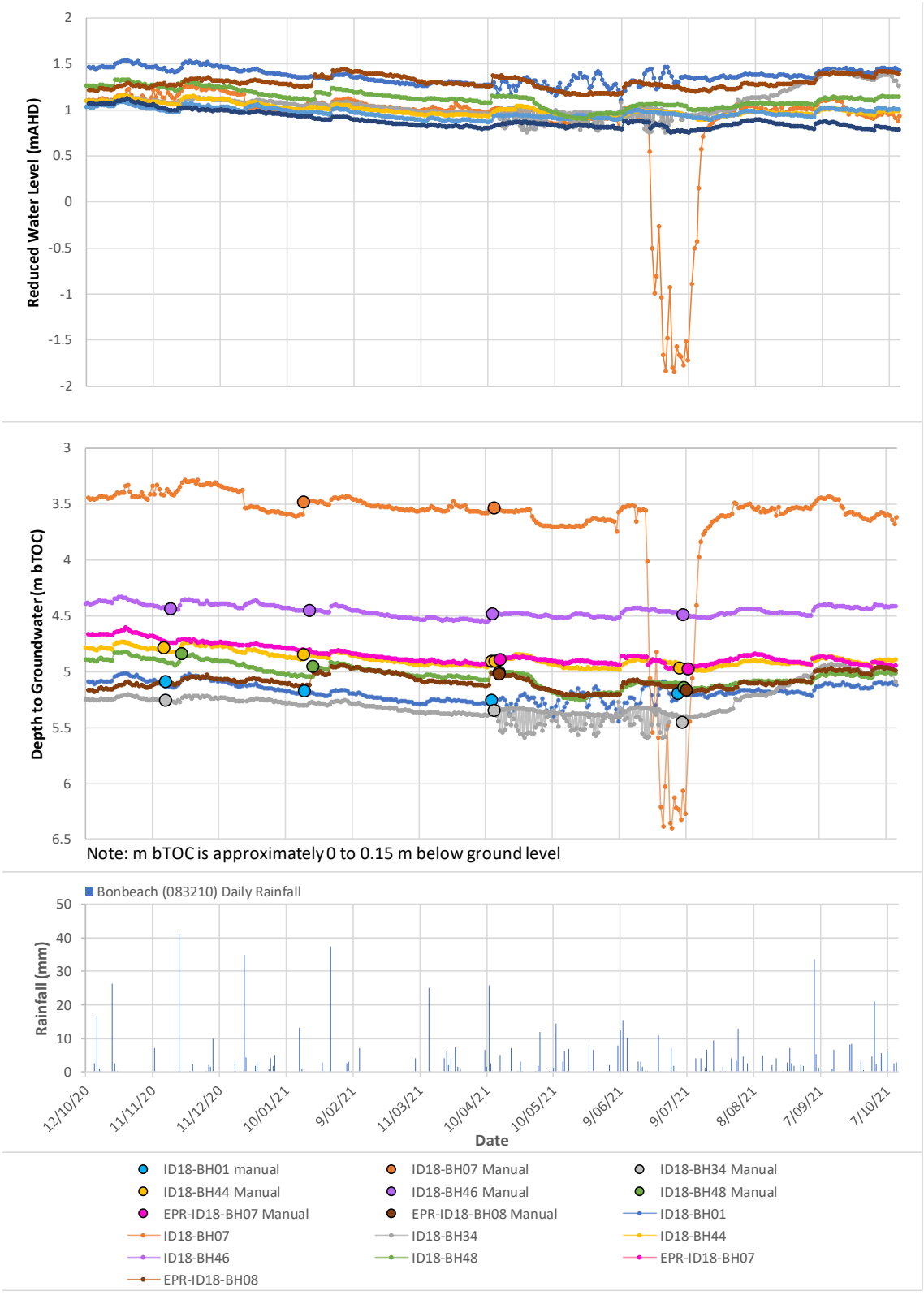
- All conditions of the EPBC approval have been considered and addressed
- Project operations were compliant with the EPBC Act conditions of approval
- There were no groundwater level or quality triggers identified as met or exceeded through the analysis undertaken during Year 1 of the Plan implementation period. This indicates that there were no project induced changes to groundwater quality or levels (outlined in Appendix B: Groundwater Monitoring Program Report)
- The requirements of the RAMP have been implemented
- As stipulated in the RAMP, future groundwater monitoring shall be undertaken for a period of no less than 10 years. As the project is still in construction phase, this report fully supports the continuation of groundwater monitoring, which may be reviewed as part of the Second Annual Compliance Report, which will relate to Year 2 of monitoring (i.e. the period 13 October 2021 to 12 October 2022)
- The groundwater monitoring program is adequate, and may be refined / rationalised during the pending RAMP review. Through its implementation in Year 1 of monitoring, several minor revisions to the RAMP are suggested to:
  - Improve its usability and reduce complexity in implementation
  - Reduce monitoring scope where sufficient data exists as evidence to propose such reduction
  - Amend the wording and/or metrics of certain triggers to reduce complexity in implementation or remove unintended consequences (such as accidental tripping of triggers, which have been identified in Year 1 of monitoring, as outlined in Appendix B: Groundwater Monitoring Program Report)
- There are no updated project designs or project related modelling that better represent the project condition as compared to that which is represented currently in the RAMP

Figure 1 of this document presents a summary of groundwater level data obtained during Year 1 of monitoring, from all groundwater monitoring bores relevant to the EPBC Act protected matter. Specifically, Figure 1 includes data from each of the groundwater monitoring locations that contain a monitoring review trigger within Table 6 of the RAMP.

Figure 1 shows relatively stable groundwater levels across the reporting period, with the exception of a 24-day period (21 June to 15 July 2021) where project groundwater pumping (required during construction and represents a localised and temporary change to groundwater levels only) induced groundwater drawdown temporarily at bore ID18-BH07. Since this drawdown did not occur "*for a sustained period of 3 months*" (as is the condition of the RAMP trigger), this temporary project induced drawdown event has not resulted in a trigger being met or exceeded. Figure 1 data pertaining to Table 6 of the RAMP demonstrates that data is not trending towards meeting or exceeding trigger events or levels.

Construction dewatering is the subject of a new environmental risk, as discussed in Section 4.3 of this Compliance Report.

Figure 1 Groundwater level data, Edithvale



4.2 Non-compliances

There were no non-compliance items identified during this reporting period.

4.3 New environmental risks

Since the Department granted approval for the Project (EPBC 2017/7906), project construction methodologies have progressed and are now well understood. In reviewing these construction methodologies, a new environmental risk become apparent during this Year 1 of the monitoring program, by way of:

- Test pumping through groundwater bores for Trade Waste requirements
- The use of temporary groundwater dewatering techniques during project construction

Appendix **D**: Risk Analysis for new Environmental Risks outlines the related risk analysis undertaken, which confirms that this new environmental risk:

- Did not result in new or increased environmental impact or risk relating to any protected matter as defined in Part 3 of the EPBC Act
- Is no longer relevant to the project as construction dewatering is now completed.

This new environmental risk did not result in new or increased environmental impact or risk relating to any protected matter as defined in Part 3 of the EPBC Act.

4.4 Review of the management plan (RAMP)

A *Groundwater Monitoring and Management Plan (EPR_GW2)* relating to EPBC Approval 2017/7906 and addressing EPBC Act conditions 1 to 3 and EPR_GW2 has previously been prepared by the LXRP. Version 3 of this Groundwater Monitoring and Management Plan was approved by the Commonwealth Minister for the Environment on 26 August 2020. Similarly, the *Edithvale Wetland Monitoring and Mitigation Plan (EPR_FF7)* relating to EPBC Approval 2017/7906 and addressing EPBC Act conditions 4 to 6 and EPR_FF7 has previously been prepared by the LXRP and approved by the Commonwealth Minister for the Environment on 31 October 2019.

LXRP has revised the *Groundwater Monitoring and Management Plan (EPR_GW2)* to incorporate project data obtained through Year 1 of the monitoring program, since commencement of the action in October 2020.
The RAMP is provided at *https://levelcrossings.vic.gov.au/media/publications/edithvale-and-bonbeach-groundwater-monitoring-and-management-plan*. Version 3 of the RAMP was accepted by the Commonwealth Minister for the Environment on 26 August 2020.
At the time of writing, revision of the RAMP is currently in progress and will be submitted to the Minister in due course, without the requirement for approval under section 143A of the EPBC Act, as the taking of the action in accordance with the pending Version 4 of the RAMP will not be likely to have a new or increased impact.

4.5 Independent audit

Independent audits of compliance with the conditions are to be conducted for the 12 month period from commencement of the action, as per item 16 of the EPBC Act approval. This Compliance Report is currently pending independent audit, which will be available on LXRP's website in due course, and also submitted through an audit report to the Department.

Appendix A: Declaration of Accuracy

Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	_____
Full name (please print)	___Andrew Kerr_____
Position (please print)	Senior Manager Land, Planning and Environment, Southern Program Alliance _____
Organisation (please print including ABN/ACN if applicable)	Level Crossing Removal Project
Date	_____/_____/_____

Appendix B: Groundwater Monitoring Program Report

Report not included as all data and information collected in relation to the EPBC Act protected matter has been documented in Sections 4 and 5 of the Compliance Report.

This Groundwater Monitoring Program (GMP) report provides supplementary data and information relating to implementation of the RAMP. The purpose of the GMP was to assess whether the Environmental Performance Requirement EPR_GW2 have been met as per the project Environmental Management Framework (LXRA, 2018a), in particular the requirement to report annually on the results of the monitoring program. The objective of the GMP was to document whether predicted impacts to groundwater as a result of the projects, measured through the groundwater monitoring program, were maintained within the acceptable thresholds specified in the RAMP.

The following conclusions were made in relation to the GMP's objective:

• The groundwater investigations and trigger analysis completed during Year 1 (13 October 2020 to 12 October 2021) of the RAMP implementation period was in accordance with the RAMP and the investigation completed was considered valid and of sufficient quality to meet the objective of the RAMP.

• There were no groundwater level or quality triggers identified as met or exceeded through the analysis undertaken during Year 1 of the RAMP implementation period that indicated there were project induced changes to groundwater quality or levels.

The GMP report can be made available for review upon request.

Report reference number	Review period	Groundwater monitoring event
LXRA-LX31-00-HZ-RPT-0018	October 2020 to October 2021	GME1 to GME5

Appendix C: Groundwater Quality Mitigation Plan

Report not included as it does not relate to an EPBC Act protected matter/s or any applicable EPBC Act approval conditions.

Report reference number	Report date	Version
LXRA-LX31-00-PA-PLN-0003	17 February 2021	1

Appendix D: Risk Analysis for new Environmental Risks

Report not included as it does not relate to an EPBC Act protected matter/s or any applicable EPBC Act approval conditions. A summary of the report contents is provided below.

Report reference number	Report date	Version
STP-000-C-SPAW-MEM-12-EDI-CGT-0008 (SPA memo)	31 August 2021	A

Background

Test pumping for Trade Waste requirements

Hydrological Pump Tests were required for Trade Waste (sewer discharge) purposes, with pump wells located at Edithvale Road, Edithvale and Bondi Road, Bonbeach. Test pumping was undertaken intermittently during the period 17 May to 17 September 2021, with flow rates in the order of 0.6 L/sec.

Construction dewatering

The design of the projects includes the installation of sheet pile walls to enable a rail under road design solution for the level crossing removals at Edithvale and Bonbeach. During planning and delivery of the construction phase, it was identified that dewatering would be required within the sheet pile wall to facilitate excavation and rail construction works within the excavation zones in Edithvale and Bonbeach.

Dewatering options and disposal pathways have been investigated by the construction alliance (Southern Program Alliance, SPA), including hydrological modelling to determine the appropriate dewatering design parameters. The purpose of the groundwater dewatering operations was to facilitate the excavation and construction of the rail under design solution and to limit groundwater interactions within the trench during construction. The use of temporary groundwater dewatering techniques during project construction was considered a new environmental risk and was monitored in terms of the methods adopted and the potential impacts of implementation. This new environmental risk involved:

- Installation of bores to facilitate construction dewatering, which occurred during the period July to 17 September 2021, through 11 bores at Edithvale and 14 bores at Bonbeach, each located within the footprint of all two excavation zones (tanking slabs)
  - All groundwater dewatering bores were located within the sheet pile walls
  - Indicative dewatering locations are shown in Figure 2 (Edithvale) and Figure 3 (Bonbeach).
  - Dewatering zones were encapsulated through the sheet piles, to limit the potential for groundwater impacts beyond the extent of the 'boxed' excavation zones
- Test pumping of bores to facilitate construction dewatering, undertaken during the period August to September 2021 at all 25 bores
  - Test pumping of groundwater dewatering bores occurred for durations of less than 24 hours. Indicative dewatering rates were in the order of 0.6 L/sec
- Construction dewatering undertaken intermittently and progressively during the period 15 September to 16 November 2021. In the order of 150 000 L/day was extracted
- Disposal of extracted groundwater through a Trade Waste Agreement
- Spoil excavation and disposal

Predictive analysis

SPA undertook numerical groundwater modelling of the as-built dewatering network to identify potential drawdown impacts associated with dewatering outside the trench structures. This assessment used the existing groundwater model, developed to inform design elements of the structures and environmental assessment.

The results of this assessment are presented through predictive groundwater flow modelling undertaken by SPA. The predictions indicated that groundwater drawdown beyond the trenches from construction dewatering was localised to areas immediately adjacent the trench, with minor (0.1 m) contours extending a short distance from the sheet wall, adjacent the deepest point of excavation after 45 days of pumping. Based on the modelling, drawdown / mounding was not expected to result in adverse effects on groundwater at the project area.

Figure 2 Indicative dewatering bore locations and anticipated extraction rates, Edithvale

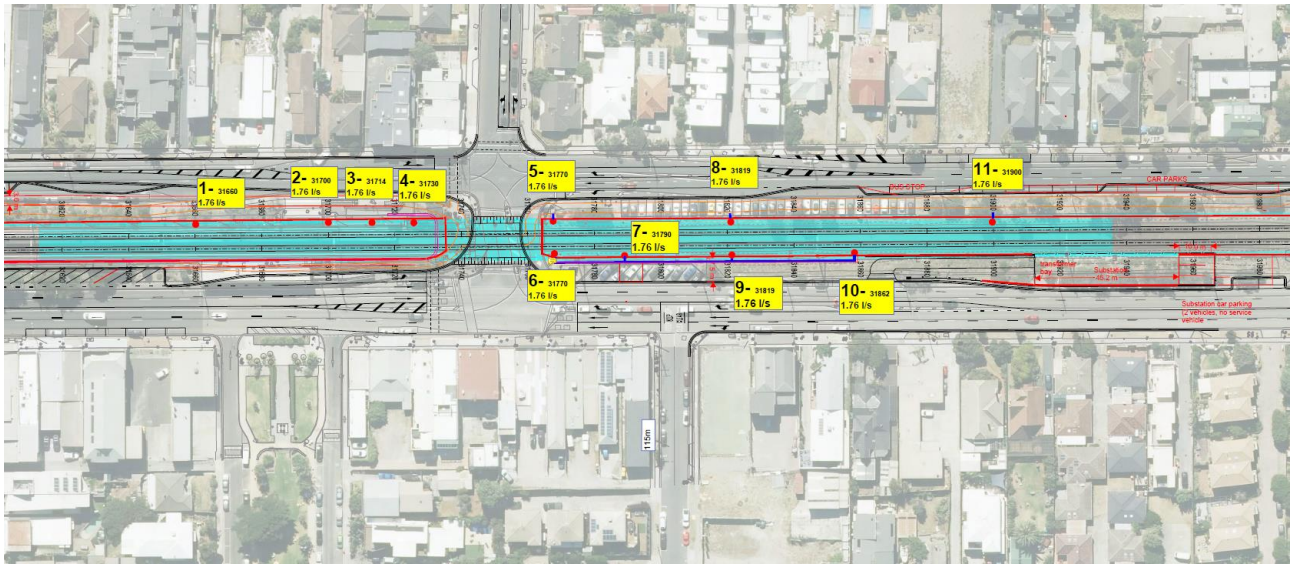
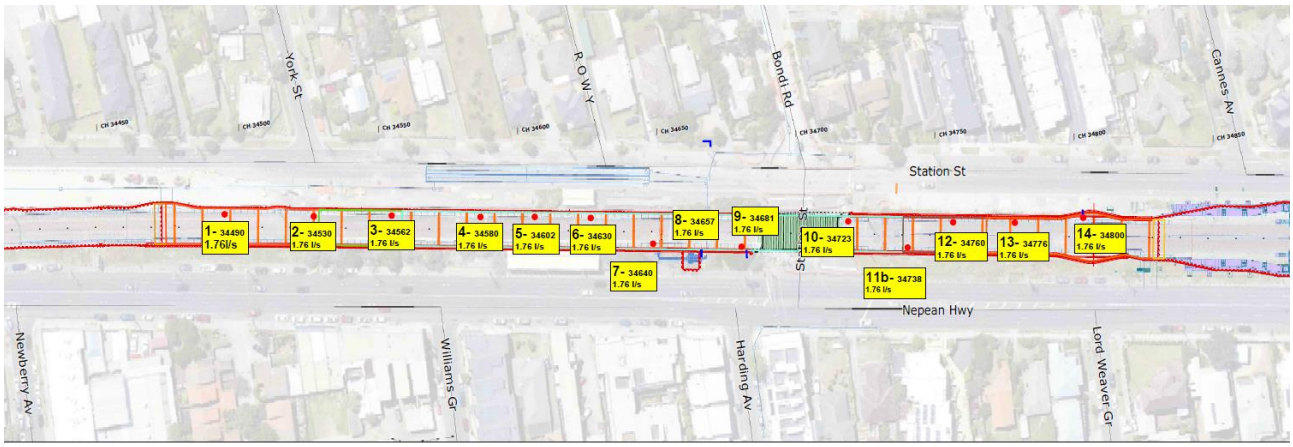


Figure 3 Indicative dewatering bore locations and anticipated extraction rates, Bonbeach



Risk analysis

A risk analysis framework was adopted and is outlined at the end of this section.

Risk definition: The key potential impact identified as relating to this new environmental risk is:
Potential to cause groundwater drawdown, which could affect RAMP trigger compliance

- **Likelihood:** The likelihood of this risk occurring was considered **Unlikely**. This is due to the short timeframe within which groundwater dewatering was proposed to be undertaken
- **Consequence**: The consequence of this risk occurring was considered **Minor**. This is because changes to groundwater levels would be within the range of typical variation and does not result in loss of one or more environmental values of groundwater

Risk rating: Based on an unlikely likelihood and moderate consequence, a **Low** risk rating was applied.

Monitoring undertaken

Appendix **D**: Risk Analysis for new Environmental Risks provides a risk analysis and reporting relating to this new environmental risk.
Monitoring undertaken through RAMP implementation was considered appropriate and sufficient for assessment of potential impacts resulting from this temporary new environmental risk. Primarily, remote groundwater level measurements from key telemetered trigger bore locations was assessed frequently during the construction dewatering period.

The quarterly reviews (refer to trigger review assessments within Appendix B: Groundwater Monitoring Program Report) confirm that there were no non-compliance items identified during this reporting period, in relation to this new environmental risk.

Findings

This new environmental risk is no longer relevant to the project as construction dewatering is now completed. This new environmental risk did not result in new or increased environmental impact or risk relating to any protected matter as defined in Part 3 of the EPBC Act.

Adopted risk framework

Introduction

This section outlines the qualitative risk assessment framework adopted in the assessment of New Environmental Risk. The aim here is to provide an industry leading approach to the assessment of risks, events and potential for mitigation, that is consistent with the assessment of risks in previous studies related to the Projects.

Method

This qualitative risk framework was developed in general accordance with the method and descriptors presented in EPA Victoria's Assessing and Controlling Risk: A guide for business (EPA Publication 1695.1). The risk management approach outlined is based on the framework in the *Australian Standard AS/NZS ISO 31000:2009 Risk management — Principles and guidelines*.

Assessing likelihood

The likelihood of each risk occurring should be assessed using likelihood descriptors provided in Table 3.

Table 3 Adopted likelihood descriptors

	Likelihood	Descriptor
A	Certain	Expected to happen regularly under normal circumstances
B	Likely	Expected to happen at some time
C	Possible	May happen at some time
D	Unlikely	Not likely to happen in normal circumstances
E	Rare	Could happen but probably never will

Assessing consequence

The consequence descriptors adopted are shown in Table 4.

Table 4 Adopted qualitative measures of consequence

Qualitative descriptor	5. Negligible	4. Minor	3. Moderate	2. Major	1. Extreme
Consequence description	**Minimal, if any impact locally. Potentially some impact for a small number (<10) of individuals**	**Low level impact locally, or high impact for a small number (<10) of individuals**	**High level of impact locally, or moderate impact for the broader area**	**High level of impact for the broader area**	**High level of impact for the broader area**
ENVIRONMENT Groundwater	Changes to groundwater quality have no detectable impact.	Changes to groundwater quality within range of typical variation and does not result in loss of one or more beneficial uses of groundwater.	Changes to groundwater quality results in temporary and reversible loss of one or more beneficial uses of groundwater.	Changes to groundwater quality results in permanent loss of one or more beneficial uses of groundwater in a local area.	Changes to groundwater quality results in permanent loss of one or more beneficial uses of groundwater over a widespread area.
PUBLIC HEALTH AND SAFETY Illness / Injury / Fatality	Potential impact to less than 10 individuals.	Potential impact to more than 10 individuals. Minor injury or illness to less than 10 individuals.	Minor injury or illness to between 10 and 100 individuals. Major injury or illness to 1 individual.	Minor injury or illness to between 100 and 1000 individuals. Major injury or illness to between 1 and 10 individuals. 1 fatality or serious injury.	Major injury or illness to greater than 10 individuals. Numerous fatalities or serious injuries.
ECONOMIC Mitigation Cost	Mitigation of off-site impact not required	Off-site impact involving minor rectification costs (<$1,000,000)	Off-site impact requiring moderate rectification costs ($1,000,000 - $5,000,000)	Offsite impact (e.g. groundwater contamination) resulting in requirement for substantial rectification works (e.g. $5 – $10 million).	Offsite impact (e.g. groundwater contamination) resulting in requirement for substantial rectification works (e.g. >$10 million).

Assessing the level of risk

As outlined in EPA Publication 1695.1, the level of risk is a combination of the likelihood of a risk occurring and the consequence of it occurring. The adopted risk register is shown in Table 5, and the descriptions of risk ratings are shown in Table 6.

Table 5 Qualitative risk analysis matrix – Level of risk

Consequence		Likelihood				
		A	B	C	D	E
		Certain	Likely	Possible	Unlikely	Rare
1	Extreme	E	E	H	H	M
2	Major	E	H	H	M	M
3	Moderate	H	H	M	M	L
4	Minor	M	M	M	L	L
5	Negligible	M	L	L	L	L

Table 6 Description of risk ratings

Risk Level	Risk level description
Extreme	Unacceptable level of risk. Take action immediately
High	Unacceptable level of risk. Controls must be put in place to reduce or eliminate risks
Medium	Unacceptable level of risk. Controls must be put in place to reduce or eliminate risks
Low	Acceptable level of risk. Attempt to eliminate, but higher risks take priority