Cross River Rail project

Coordinator-General's change report – no. 11

July 2021

COORDINATOR-GENERAL

Queensland Government

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Department of State Development, Infrastructure, Local Government and Planning
PO Box 15517 City East Qld 4002.
1 William Street Brisbane Qld 4000 (Australia)

Phone: 13 QGOV (13 7468)
Fax: 07 3220 6465
Email: **info@dsdmip.qld.gov.au**
Web: **www.statedevelopment.qld.gov.au**

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Executive Summary

This report provides the Coordinator-General's evaluation of proposed changes to the Cross River Rail project (the project) under Part 4 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

The project is a rail link from Dutton Park to Bowen Hills, including 5.9 km twin tunnels under the Brisbane River and Central Business District. Construction of the project commenced on 19 September 2019.

On 20 December 2012, the Coordinator-General's evaluation report on the environmental impact statement (EIS) was released which included imposed conditions and established the broader environmental management framework (EMF) for the project. Since then, ten change applications have been evaluated by the Coordinator-General accounting for detailed design refinements to enhance project outcomes.

On 23 April 2021, the Cross River Rail Delivery Authority (CRR Delivery Authority) applied under section 35C of the SDPWO Act to evaluate an eleventh change to the project (change application).

The change application specifically relates to Clapham Yard including Moorooka station and includes:

- provision of two additional stabling facilities
- reconfiguration of existing surface tracks and bridge structures
- increased elevation to enhance flood immunity at the site (import of approximately 240,000 m^3 of fill to be sourced from tunnel excavations)
- changes to pedestrian access and platform configuration at Moorooka Railway Station
- additional freehold land for permanent and temporary project requirements (1 RP37619, 67 RP37616, 68 RP37616 and 9 SP119390) and temporary access to two road reserves.

To enact these changes, an amendment to Imposed Condition 1 of the evaluated project is required to reference updated technical drawings. The CRR Delivery Authority also proposed changes to Imposed Condition 10, to:

- remove the existing 'construction hours' limitation on spoil haulage and materials/equipment delivery at Clapham Yard site, allowing spoil haulage to occur for 24 hours, 7 days a week
- remove the existing limitation of no more than 80 hours continuous work within the rail corridor for the Clapham Yard site so that work hours for rail possessions align with the period of rail possession approved by rail operators.

The change application was publicly notified from 8 May 2021 to 4 June 2021. A total of 20 submissions were received from the community and government agencies who raised concerns in relation to transport safety, traffic congestion, flooding, air quality, noise and vibration. All submissions have been considered in making the evaluation and finalising this report.

Potential flooding impacts from raising the elevation of Clapham Yard to 9.95 m Australian Heigh Datum and construction of the new rail bridge in Moolabin Creek have been assessed (refer to section 4.1). Consistent with the evaluated project, flood events equal to or lesser than one per cent annual exceedance probability (AEP) will not alter the floodplain dynamics and are not predicted to increase the flood risk or impact to third-party properties. During construction, potential instream flooding upstream of the new rail bridge at Moolabin Creek would occur during 20 per cent AEP events, temporarily increasing existing flood levels at five commercial properties. Once operational, the new rail bridge is not expected to cause

significant change in flood behaviour as the old bridge structures will be demolished, increasing in-stream flows.

Potential traffic impacts of the proposed changes were also assessed (refer to section 4.2) and have been determined to be negligible. The assessment concluded potential impacts to the road network from increased haulage hours and increased vehicle movements, will continue to be managed in accordance with imposed conditions in conjunction with a revised Construction Traffic Management Plan and Haulage Management Plan.

Potential noise and vibration impacts to nearby residents, including the potential for sleep disturbance from night-time works within the rail corridor, have been assessed (refer to sections 4.3 and 5.2.2). The evaluation concluded that although longer duration construction works would occur during the extended rail possessions, the actual scheduled times for these works would not be continuous for the entire rail possession period. The CRR Delivery Authority has advised noisier works would be scheduled primarily during daytime work hours, with less intensive works scheduled at night. Construction works would be undertaken in accordance with detailed site-specific noise management plans, which are informed by proactive noise and vibration modelling.

The potential air quality impacts of the proposed change have been considered (refer to section 4.4). The evaluation concluded potential impacts are generally consistent with the original EIS. The CRR Delivery Authority has identified additional mitigation measures to be incorporated into an updated Air Quality Management Plan and related site-specific sub-plans to ensure air quality goals are met.

The inclusion of additional land into the project's property boundaries has been considered and the subsequent risks of the project to cause erosion or encounter contaminated soils have been assessed (refer to section 4.5). The evaluation concluded that disturbance of potentially contaminated soils will likely increase the volume of soil requiring management compared to the evaluated project. Existing contaminated land management plans and acid sulfate soils management plans under the EMF will continue to be applied to the project to guide land disturbance and manage potential impacts.

Nature conservation, notably vegetation loss from the proposed changes, has been assessed (refer to section 4.6). The evaluation determined that due to the current degraded nature of the disturbance area, the rehabilitation works, following bridge works in Moolabin Creek, will achieve a net improvement on the existing environment.

Lastly, the report assessed potential impacts to landscape and visual amenity (refer to section 4.7). Impacts were found to be generally consistent with those previously assessed as part of the evaluated project with no changes to existing mitigation measures necessary.

The evaluation has found that the proposed changes achieve overall acceptable outcomes for the project's delivery while ensuring potential impacts are appropriately minimised, mitigated and managed. Overall, the evaluation concludes that the proposed changes to the project be approved subject to amendments to Imposed Condition 1 and Imposed Condition 10.

The evaluation includes new requirements in Imposed Condition 10 to temporarily allow 24 hours, 7 days a week spoil haulage at Clapham Yard until the time that approximately 240,000 m^3 of fill material has placed on site to achieve 1% AEP flood immunity (approximately ten months). The evaluation also proposes an additional amendment to Imposed Condition 10 to remove existing provisions prohibiting all other spoil haulage and equipment deliveries between 7:30am to 9:00am and 2:30pm to 4:30pm, Monday to Friday.

As a result, section 5 of this change report replaces the previous Imposed Condition 1 and Imposed Condition 10 of the evaluated project dated April 2021. Appendix 1 of the Project-wide imposed conditions and recommendations document has also been updated to reflect amendments made to conditions.

All relevant EIS assessment documentation (including the updated Project wide imposed conditions and recommendations) is available on the Department of State Development, Infrastructure, Local Government and Planning's website at www.statedevelopment.qld.gov.au/crr**.**

In accordance with section 35L of SDPWO Act, this report will lapse on 31 December 2024.

1. Introduction

This change report has been prepared pursuant to section 35I of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act) and provides an evaluation of proposed changes to the Cross River Rail project (the project) outlined in the project change application received on 23 April 2021.

This change report does not re-evaluate the project as a whole or revisit all the matters that have already been addressed in its assessment to date. Rather, this report considers the nature of the proposed changes and evaluates potential effects on the project and the environment.

In making the evaluation, the following have been considered in accordance with section 35H of the SDPWO Act:

- the nature of the proposed change and its effects on the project
- the currently evaluated project (including all required impact management and mitigation measures)
- the environmental effects of the proposed change and its effects on the project
- all submissions received on the proposed changes
- the material mentioned in section 34A(1)(a) of the SDPWO Act to the extent it is considered relevant to the proposed change and its effects on the project.

This report, including amendment to Imposed Condition 1 and Imposed Condition 10 at section 5, prevails to the extent of any inconsistencies with the Coordinator-General's evaluation report dated 20 December 2012 and change reports approved by the Coordinator-General for the project to date.

2. About the project

2.1 The proponent

The proponent for the project is the Cross River Rail Delivery Authority (CRR Delivery Authority), an independent statutory body established under the *Cross River Rail Delivery Authority Act 2016* to facilitate and manage the delivery of the project. The CRR Delivery Authority commenced operation on 14 April 2017.

2.2 The project

The project is a 10.2 kilometre (km) north-south rail line connecting Dutton Park to Bowen Hills with 5.9 km twin tunnels under the Brisbane River and Central Business District. The project also includes new underground stations at Boggo Road, Woolloongabba, Albert Street, and Roma Street, with upgrades to the existing Exhibition Railway Station and stations between Fairfield and Salisbury. Construction of the project commenced on 19 September 2019.

The Coordinator-General's evaluation report on the environmental impact statement (EIS) was released on 20 December 2012. Since this time, the Coordinator-General has evaluated ten change applications accounting for detailed design refinements to enhance project outcomes.

Further information on the project and changes that have occurred since the project was originally approved in 2012 are detailed in:

- the Coordinator-General's change report (CGCR) dated 8 June 2017
- the CGCR dated 30 August 2018
- the CGCR dated 13 March 2019
- the CGCR dated 26 June 2019
- the CGCR dated 4 October 2019
- the CGCR dated 7 May 2020
- the CGCR dated 16 July 2020
- the CGCR dated 19 November 2020 (amended 21 December 2020)
- the CGCR dated 7 April 2021
- the CGCR dated 9 June 2021.

Collectively, these reports constitute the 'evaluated project'. These documents, the EIS and all subsequent change requests are available on the department's website at www.statedevelopment.qld.gov.au/crr.

2.2.1 Environmental management framework

Imposed conditions set by the Coordinator-General established an environmental management framework (EMF) for the project that the CRR Delivery Authority and their contractors must comply with. The EMF stipulates how potential environmental impacts during project construction and commissioning are to be managed and is supported by a rigorous compliance and reporting regime which includes monitoring and auditing from independent entities.

Initially approved as part of the Coordinator-General's evaluation report on the EIS for the project in 2017, the EMF has been successfully implemented since September 2019, when the project commenced construction. An overview of the approved EMF is illustrated at Figure 2.1. The EMF comprises a number of elements, being:

- the outline environmental management plan (OEMP) which, in accordance with imposed conditions, establishes the overarching outcomes and performance criteria that must be achieved by the CRR Delivery Authority for each environmental element (Imposed Condition 2)
- the construction environmental management plans (CEMPs) (including sub-plans), which are progressively developed for all project works, and in some cases are required to be specifically developed for particular project works (Imposed Condition 4).

The EMF is supported by:

- a compliance and reporting regime, as set out in Imposed Conditions 5 and 6, and
- two appointed independent entities required by the imposed conditions that provide oversight of the project to increase rigour and transparency for the project. Both entities are required to be independent, appropriately skilled and experienced, and have been approved by the Coordinator-General to provide oversight for the implementation of the project's imposed conditions. Those entities are:

- the independent environmental monitor (Imposed Condition 7), and
- the Independent Community Relations Monitor (Imposed Condition 8).

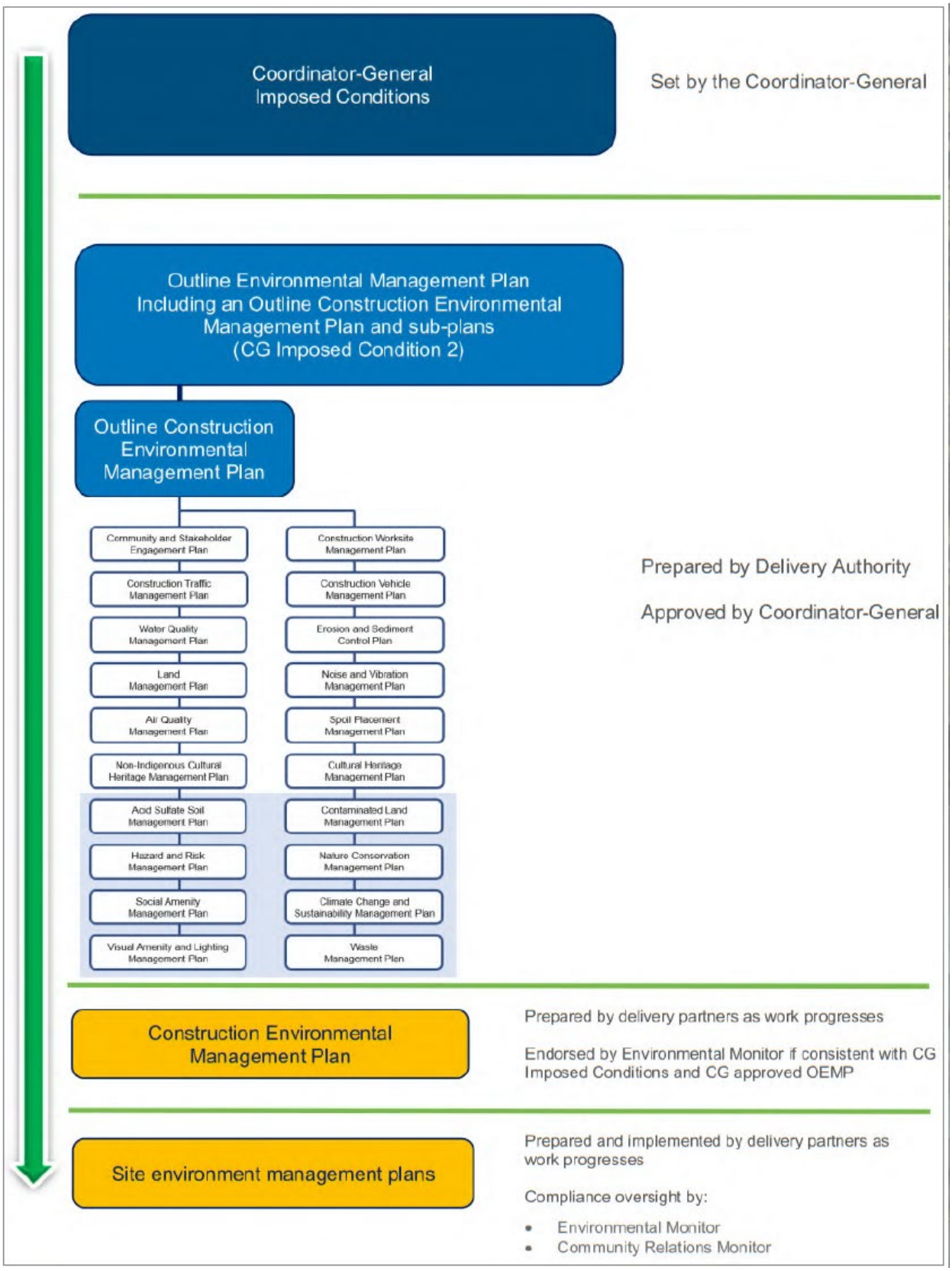

Figure 2.1 Cross River Rail project approved environmental management framework

CEMPs must be consistent with the OEMP and demonstrate how compliance with imposed conditions (construction) will be achieved prior to the commencement of relevant construction works. As outlined in the project's approved OEMP, each CEMP and sub-plan required for the project must include the following components:

- environmental outcome (for each environmental element; the aspect of project implementation to be managed as it affects environmental values e.g. air quality)
- performance criteria
- mitigation measures
- monitoring requirements
- reporting requirements
- corrective actions.

Flexibility is provided in the EMF to enable updates to the OEMP and CEMPs to address unforeseen work programs or refine mitigation measures to better manage project impacts. The EMF has been updated to reflect approved changes to the project since 2017, with the Coordinator-General approving amendments to the OEMP and the environmental monitor progressing amendments to CEMPs.

3. Change report process

3.1 Proponent's reason for change and project change details

On 23 April 2021, the CRR Delivery Authority lodged an application for evaluation of the environmental effects of proposed changes to the project under Part 4 of the SDPWO Act (the project change application).

The proposed changes specifically relate to proposed construction works at the Clapham Yard, Moorooka (see Figure 3.1). The Moorooka Railway Station at the Clapham Yard site is one of six existing stations in the south of Brisbane which will receive major accessibility and general functionality upgrades as part of the project.

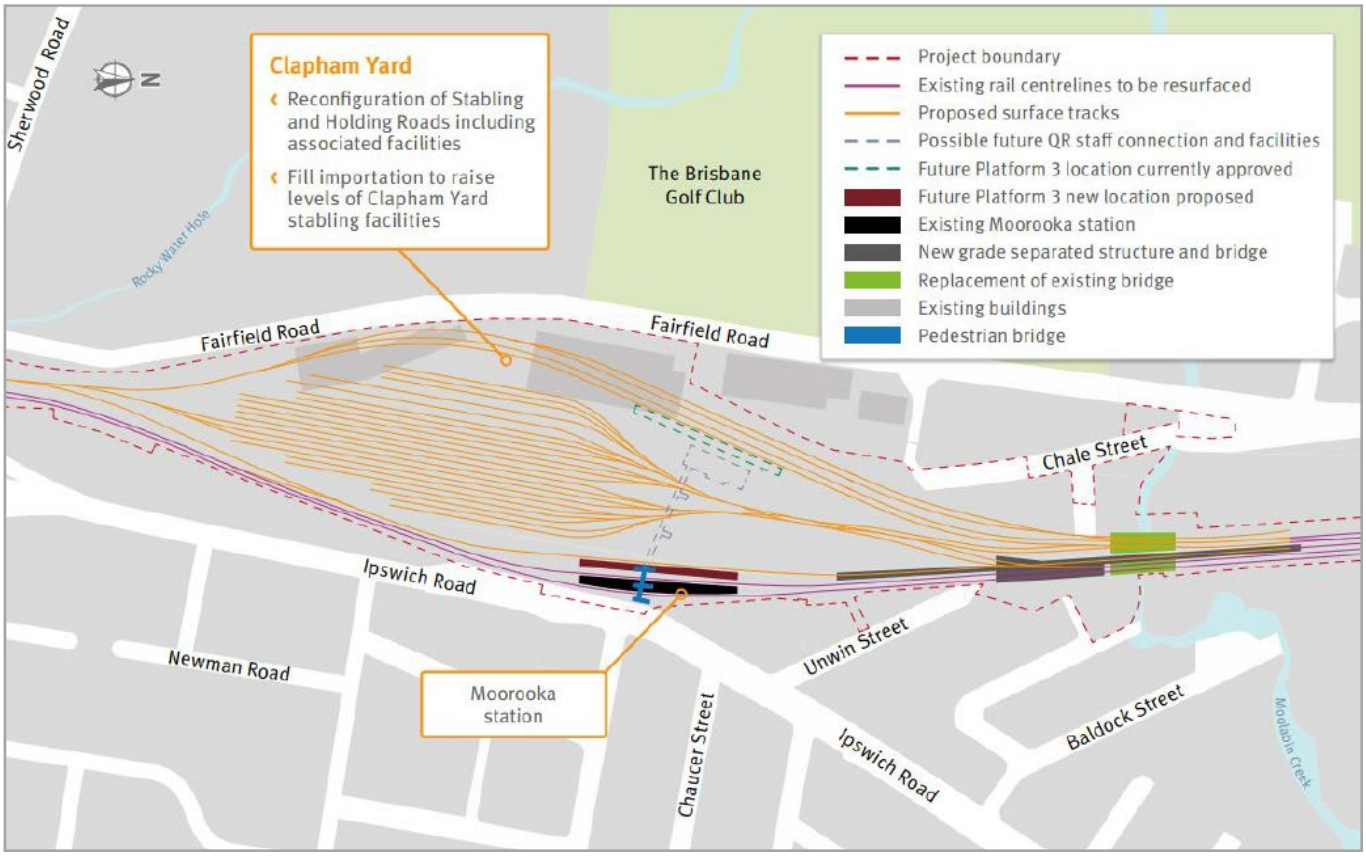

Figure 3.1 Clapham Yard, Moorooka worksite

Due to detailed design considerations accounting for the rail network efficiencies and to meet technical requirements of key stakeholders, including Queensland Rail and the Department of Transport and Main Roads (DTMR), the CRR Delivery Authority sought the following changes to the layout of Clapham Yard, including the Moorooka Railway Station:

- provision of two additional stabling facilities
- reconfiguration of existing surface tracks and bridge structures
- increased elevation to enhance flood immunity at the site (import of approximately 240,000 m^3 of fill to be sourced from tunnel excavations)
- changes to pedestrian access and platform configuration at Moorooka Railway Station
- additional freehold land for permanent and temporary project requirements (1 RP37619, 67 RP37616. 68 RP37616 and 39 SP119390) and temporary access to two road reserves.

Construction activities at the Clapham Yard site are regulated by the project's imposed conditions and the broader requirements of the EMF. To enact the proposed changes, amendments to Imposed Condition 1 and Imposed Condition 10 have been requested to:

- update technical drawings and property impact maps
- remove the existing 'construction hours' limitation on spoil haulage and materials/equipment delivery at the Clapham Yard site, allowing spoil haulage to occur for 24 hours, 7 days a week
- remove the existing limitation of no more than 80 hours continuous work within the rail corridor for the Clapham Yard site so that work hours for rail possessions align with the period of the rail possessions approved by Queensland Rail.

Section 4 of this report provides an assessment of the requested changes to the layout of the Clapham Yard site, including Moorooka Railway Station, while section 5 provides an assessment of the requested changes to the extended work hours, construction hours and imposed conditions.

3.1.1 Rail possessions

Undertaking the Clapham Yard works as detailed by the CRR Delivery Authority will require periodic rail possessions causing intermittent suspensions to rail services during construction. The CRR Delivery Authority has indicated that the proposed changes will require longer rail possessions at the Clapham Yard site than previously envisioned. The CRR Delivery Authority estimates that five extended rail possessions between five and 21 days in duration and spread over the four-year construction period will be required to undertake construction activities. To minimise long term impacts on the rail network during this time, 24-hour continuous construction works are proposed to occur in each rail possession period.

Rail possessions (and their duration) are not approved by the Coordinator-General and accordingly, this evaluation does not assess service disruptions to the broader passenger and freight rail networks. Rather, the CRR Delivery Authority must seek relevant approvals and permits from Queensland Rail, Translink and DTMR who will consider the proposal and determine suitable management measures in this instance.

Potential environmental impacts caused by the proposed 24-hour continuous construction works at the Clapham Yard site have been considered and evaluated in this report (refer to section 5.2.2).

3.2 Public notification

In accordance with section 35G of the SDPWO Act, the proposed change to the project was publicly notified from 8 May 2021 to 4 June 2021. A total of 20 submissions were received from:

- ten private submitters
- six State Government agencies
- one local government elected representative, Brisbane City Council
- one union representative
- one non-government organisation
- Brisbane City Council (BCC).

Key issues raised in submissions on the proposed changes to the project included:

- pedestrian, vehicle and bus safety during peak traffic periods from the change to work hours
- potential increase in traffic impacts and congestion along project haul routes
- potential for increased flood levels from the raising of Clapham Yard at nearby properties
- potential for increased noise, vibration and air quality impacts from the changed project works
- potential noise from night-time works and impacts on health and well-being and amenity on nearby residents from the change to work hours.

Several submitters raised concern that the project does not include scope for a pedestrian overpass bridge across Ipswich Road to Moorooka Railway Station to enhance the safety of commuters currently using traffic crossings. Providing a dedicated pedestrian overpass bridge is currently outside of the scope of the project. However, the CRR Delivery Authority has advised that a feasibility analysis to assess the viability and constructability of changing the current design to allow for a potential future pedestrian overpass is being progressed.

To inform evaluation of the proposed change, the Office of the Coordinator-General issued two requests seeking additional information from the CRR Delivery Authority. The CRR Delivery Authority responded to these requests on 18 June 2021.

The CRR Delivery Authority was also requested to respond to matters raised in the submissions. The CRR Delivery Authority provided a response to submissions, which incorporated additional information requested to inform evaluation of the project change and included:

- response to submissions report, including tailored responses to issues raised in submissions
- consultation report, outlining additional consultation activities undertaken by the CRR Delivery Authority.

The CRR Delivery Authority's response has been published as part of additional information for the change application and is available for viewing on the department's website at www.statedevelopment.qld.gov.au/crr.

4. Evaluation of the proposed changes to the layout of Clapham Yard

4.1 Hydrology

To improve flood resilience at Clapham Yard, the CRR Delivery Authority proposes to raise the elevation of the stabling yard to 9.95 m AHD (Australian Height Datum). The raising of the yard is to satisfy Queensland Rail's design requirements, which stipulate a one per cent annual exceedance probability (AEP) flood immunity needs to be achieved for train stabling facilities. To achieve this, the import of approximately 240,000 m^3 of fill material is required along with the replacement of existing bridge structures over Moolabin Creek. Changes to drainage works, earthworks and structural works, including retaining walls are also needed to accommodate the change.

The CRR Delivery Authority advised that without raising the level of Clapham Yard, there would be an unacceptable flooding risk to stabled rollingstock (trains). In the instance of a flood event, trains stabled at the yard would require evacuation to prevent damage, potentially disrupting the broader rail network.

The Coordinator-General's evaluation report for the project dated 2012 approved the net-filling of Clapham Yard and an associated bridge over Moolabin Creek. The original EIS proposal was approved to raise Clapham Yard to 9.95 m AHD, with the evaluation requiring a comprehensive approach to flood management and imposed conditions to guide flood design during the detailed design phase. This was later removed from the project scope (request for project change 1) and re-introduced in 2019 (request for project change 4) as a cut and fill balance design. Through further project design, it was established that the cut and fill design of the evaluated project would not achieve compliance with Queensland Rail's design standards, which now require improved flood immunity for new stabling yards across the network. Accordingly, a net import of fill is now proposed.

The raising of Clapham Yard and associated upgrades required to the Moolabin Creek bridge have the potential to impact pre-existing flooding events during construction and operation.

During public notification, seven submissions raised potential hydrology impacts citing:

- the potential increase of flood risk or impact to property or life

- lack of information about flood events and reduction of onsite flood storage at Clapham Yard and why there is a need to raise the yard
- potential upstream flood impacts associated with filling Clapham Yard.

All submissions have been considered in preparing the evaluation of the project change. Submissions relating to hydrology and flooding matters are addressed below.

4.1.1 Potential impacts

The CRR Delivery Authority undertook preliminary flood modelling to assess potential impacts from temporary construction activities and permanent conditions once the project is fully operational. Clapham Yard is bound by Moolabin Creek at the northern end and Rock Waterholes Creek at the southern end.

The assessment used existing data available from Brisbane River Catchment Flood Study (BRCFS) TUFLOW models, flood reports, studies and refined design information. This information was used to calculate local flood risks and estimate flood levels for required design immunity. In accordance with standard industry practice for TUFLOW modelling, impacts less than 0.01 m (10 mm) are considered insignificant as they are within the tolerance of model accuracy. This evaluation accepts this methodology of assessment for determining flooding impacts.

During a Brisbane River flood event, Clapham Yard acts as a large backwater storage area with generally slow-moving water inundating and reseeding from Moolabin and Rocky Waterholes Creeks. As such, changes in the floodplain to accommodate increased flood immunity of Clapham Yard were considered to generate only minor impacts on flood levels during a Brisbane River flood event.

Local catchment flood events in Moolabin and Rocky Waterholes Creeks and adjacent floodplains are characterised by faster-moving instream flows. Accordingly, proposed in-stream works to construct new bridge structures in Moolabin Creek have the highest potential to alter hydrology and increase flood impacts.

Raising of Clapham Yard (floodplain impacts)

This section evaluates the potential flood impact from the raising of Clapham Yard as a completed built form. During construction, flood impacts will not be greater than during operations as filling of the site would occur gradually and up to the final landform of 9.95 m AHD. Existing ground levels at the western edge of Clapham Yard vary between 7.0 m AHD and 9.0 m AHD.

The CRR Delivery Authority's flood modelling is based on a conservative final landform profile, which includes the bulk earthworks, localised alignment fill, capping, ballast, and areas affected by retaining walls. The modelling demonstrated that the proposed filling of Clapham Yard would result in impacts less than 10 mm in a one per cent AEP event closest to the worksite and therefore is deemed to be insignificant. In any Brisbane River flood event of equal or lesser magnitude to a one per cent AEP event, raising of the yard will not alter the floodplain dynamics and is not predicted to increase the flood risk or impact to third-party properties.

Construction of bridges over Moolabin Creek (instream impacts)

The CRR Delivery Authority undertook concept level hydraulic modelling of the potential impacts from the construction of the bridges across Moolabin Creek. To build the bridge structures, piling pads are required to be set to a level where minor runoff events do not compromise the worksite and construction of the new bridge piles and piers. Temporary crossings from the south bank of Moolabin Creek may also be required to facilitate heavy vehicle access for the piling rig and other large equipment during construction of the new rail bridge and demolishing of existing bridges (approximately 3 years).

The assessment concludes flooding of Moolabin Creek in proximity to Clapham Yard is driven by two types of weather events, localised fast moving flooding caused by storm events (20 per cent AEP events) and slower moving catchment driven events caused by flooding of the Brisbane River (one per cent AEP). The CRR Delivery Authority used flood modelling to assess the temporary construction impacts for these events.

The model predicted potential impacts of up to 32 mm in a 20 per cent AEP event and 27 mm in a one per cent AEP event, which would temporarily impact five commercial properties upstream of the rail corridor. These properties have poor flood immunity and are partially inundated under existing conditions with fast moving flood waters regularly impacting them in 20 per cent AEP events. In these instances, flood waters break out of Moolabin Creek at Baldock Street, before then flowing directly through and around the buildings. The modelling found that flood impacts for both scenarios are limited to the reach of Moolabin Creek, 300 m upstream of the rail corridor.

The assessment predicts that once completed, the new bridge structures will not cause any significant change in flood behaviour in slower moving one per cent AEP events. The CRR Delivery Authority will ensure the bridges are designed to minimise potential flood impacts to ensure compliance with the Environmental Design Requirements by:

- minimising the number of piers within the creek
- aligning the piers with existing piers and to minimise flow blockage
- localised regrading of bed and banks.

Following construction of the new rail bridge, the old Moolabin Creek rail bridges will be demolished, further increasing in-stream flows and reducing potential afflux and flood impacts upstream.

In accordance with Imposed Condition 17 and Environmental Design Requirements, the CRR Delivery Authority must seek to minimise potential flood impacts as much as possible through bridge design and construction methodology. Project works must be designed and implemented to avoid afflux or cause the redirection of uncontrolled surface water flows, including stormwater flows, outside of worksites. The final design of the bridges will be integral in determining the construction methodology and required works within Moolabin Creek. The CRR Delivery Authority will also undertake iterative flood modelling to reduce the potential to cause temporary flood impacts.

4.1.2 Mitigation and management measures

Current Imposed Condition 17 requires flood management plans (FMP) for construction worksites that are affected by creek flooding events, which includes Clapham Yard. The CRR Delivery Authority has prepared a site-specific FMP for instream construction activities at Moolabin Creek and will update this plan as required through the detailed design phase. The FMP will identify specific flood management measures, minimise the risks of adverse impacts should a flood event occur during the construction phase of the project and detail the proposed monitoring program to facilitate early detection of potential flood events. If construction impacts are not able to be fully mitigated after design flood modelling iterations or by employing different construction methodologies, consultation with affected stakeholders will occur.

The project must achieve the Environmental Design Requirements for the project, which requires the design to not cause property damage from flood impacts to third parties for events up to and including the one per cent AEP. The existing OEMP provides specific flood management measures the CRR Delivery Authority must adhere to. These include measures to ensure construction activities such spoil placement does not cause flood water to be re-directed over other private property. Additionally, surface and in-stream construction works will be managed through the development and implementation of the FMP.

Consistent with the OEMP applicable Environmental Design Requirements, the CRR Delivery Authority must undertake further detailed hydraulic modelling as part of the final detailed design for the bridge structures at Moolabin Creek. In accordance with Recommendation 13 of the Project-wide imposed conditions and recommendations document, detailed hydraulic modelling is to be conducted as part of the final detailed design for the bridge structures in Moolabin Creek with the results presented to BCC for review and comment. It is expected that the CRR Delivery Authority will continue consulting with BCC to further inform the final bridge design and construction methodologies to be employed.

To ensure any potential flooding event is appropriately managed and planned for, the CRR Delivery Authority must also develop emergency procedures for each worksite to facilitate safe and efficient evacuation during flood events. Systems for monitoring actual and potential flood events during construction must also be incorporated.

4.1.3 Coordinator-General's conclusions: hydrology

This evaluation concludes that the CRR Delivery Authority's hydrology assessment and proposed mitigation and management strategies for hydrology are appropriate to effectively manage potential hydrology impacts during construction and operation. The evaluation accepts that without increasing the level of Clapham Yard, unacceptable flooding risks could otherwise occur resulting in network inefficiencies and impacts to stabled trains. Although there are some minor in-stream impacts during construction of the bridges, it is noted these impacts are generally consistent with the evaluated project. To further minimise potential flood impacts, an FMP is required to be prepared for Clapham Yard. The FMP will detail measures to reduce the risks of adverse flood events should they occur during construction and establish the monitoring program to facilitate early detection of potential flood events.

This evaluation confirms existing conditions and environmental design requirements for the project are sufficient to manage potential impacts of the proposed changes. Flood modelling will be undertaken during detailed design to further identify any potential flooding impacts during construction and operation and will inform the application of any additional mitigation measures required at Clapham Yard.

4.2 Traffic and transport (including traffic noise)

The CRR Delivery Authority has requested changes to the spoil haulage arrangements at Clapham Yard, including increased work hours of spoil haulage and heavy vehicle movements. The changes proposed are predominantly to enable the site to achieve a one per cent AEP flood immunity in a timely way, in accordance with Queensland Rail's flood immunity requirements, which require the import of an additional 240,000 m^3 of fill material.

As Clapham Yard remains operational throughout construction of the project, other materials and equipment deliveries will be required to be made at Clapham Yard for the full duration of construction. The CRR Delivery Authority and Queensland Rail would continue using Clapham Yard as a staging facility for construction and maintenance works in the broader railway corridor, including to facilitate construction works at other CRR worksites such as station upgrades at Fairfield, Yeronga, Yeerongpilly, Moorooka, Rocklea and Salisbury.

As there will be limited space onsite to store materials at Clapham Yard, equipment deliveries will be required to be undertaken on an as-needed basis and may occur outside of normal construction hours if those haulage activities are associated with works within approved rail possessions. Section 5.2.2 of this evaluation assesses potential impacts of extended hours work which includes spoil haulage and equipment deliveries in these instances.

Currently, spoil haulage (including materials and equipment delivery) can occur at Clapham Yard from Monday to Saturday 6:30am to 6:30pm with restrictions between 7:30am to 9:00am and 2:30pm to 4:30pm Monday to Friday (current Imposed Condition 10). The CRR Delivery Authority requested to remove these restrictions to allow for spoil haulage and equipment deliveries to occur 24 hours, 7 days a week.

The proposal would support the cost-effective delivery of the 240,000 m^3 of fill to the site by allowing material to be beneficially reused from other Cross River Rail worksites rather than be extracted from quarries. The re-use of spoil material will reduce the project's reliance on quarried material and provide environmental benefits including reduced traffic movements and reduced environmental impacts associated with the disposal and extraction of material. Allowance for 24-hour spoil haulage would maximise the re-use of spoil material from the tunnels, likely to be exhausted in the first quarter of 2022.

Haulage of spoil material will not occur for the complete duration of the construction phase. The CRR Delivery Authority has advised if 24-hour spoil haulage is permitted, the net import of fill could be achieved in a 10 month period or shorter.

The continued use of the existing heavy vehicle access route at Clapham Yard is proposed, with spoil haulage vehicles approaching from the north via Ipswich Road, Muriel Avenue to Fairfield Road (south of Tennyson Memorial Avenue), into Chale Street (see Figure 4.1 below). Receivers in the vicinity of the haul route are predominantly commercial and industrial premises, with some residential receivers located at the southern end of Clapham Yard along Ipswich Road.

Baseline traffic volume data for Fairfield Road in the vicinity of Chale Street was attained to inform the traffic impact assessment and traffic noise impact assessment. Traffic data for Fairfield Road indicates that an average of 2,300 vehicles per hour use Fairfield Road in the AM peaks and 2,500 vehicles per hour use Fairfield Road in the PM peaks, with approximately 20 per cent of this traffic comprising heavy vehicles. Fairfield Road, whilst not a major arterial, carries in excess of 20,000-25,000 vehicles per day. Ipswich Road is a major arterial and carries in excess of 50,000 vehicles per day (52,299 - July to December 2014 data).

The CRR Delivery Authority proposes up to 66 additional construction vehicle movements to occur along the heavy vehicle access route per day, with a maximum of 174 heavy vehicle movements now required. Based on haulage occurring 24 hours, 7 days a week, a maximum of 9 heavy vehicles per hour would occur in off peak times[1] and a maximum of 3 heavy vehicles per hour would occur during peak times[2] (during the 24 hour period).

During public consultation, nine submitters raised concerns about the changes to spoil haulage, with one agency (DTMR) providing support of the proposal. Key concerns with the proposal included:

- potential increase in traffic impacts and congestion along the haul route
- increase in dust along the haul route from spoil vehicles
- road user safety for school transport (bus, car and pedestrian)
- increase in traffic noise, particularly during night-time hours
- potential for trucks to queue in residential areas.

All submissions have been considered in preparing the evaluation of the project change. Submissions relating to traffic and transport matters are addressed below.

[1] Off peak times: 9:30am to 2:30pm and 6:30pm to 6:30am (night-time)
[2] Peak times: 6:30am to 9:30am and 2:30pm to 6:30pm

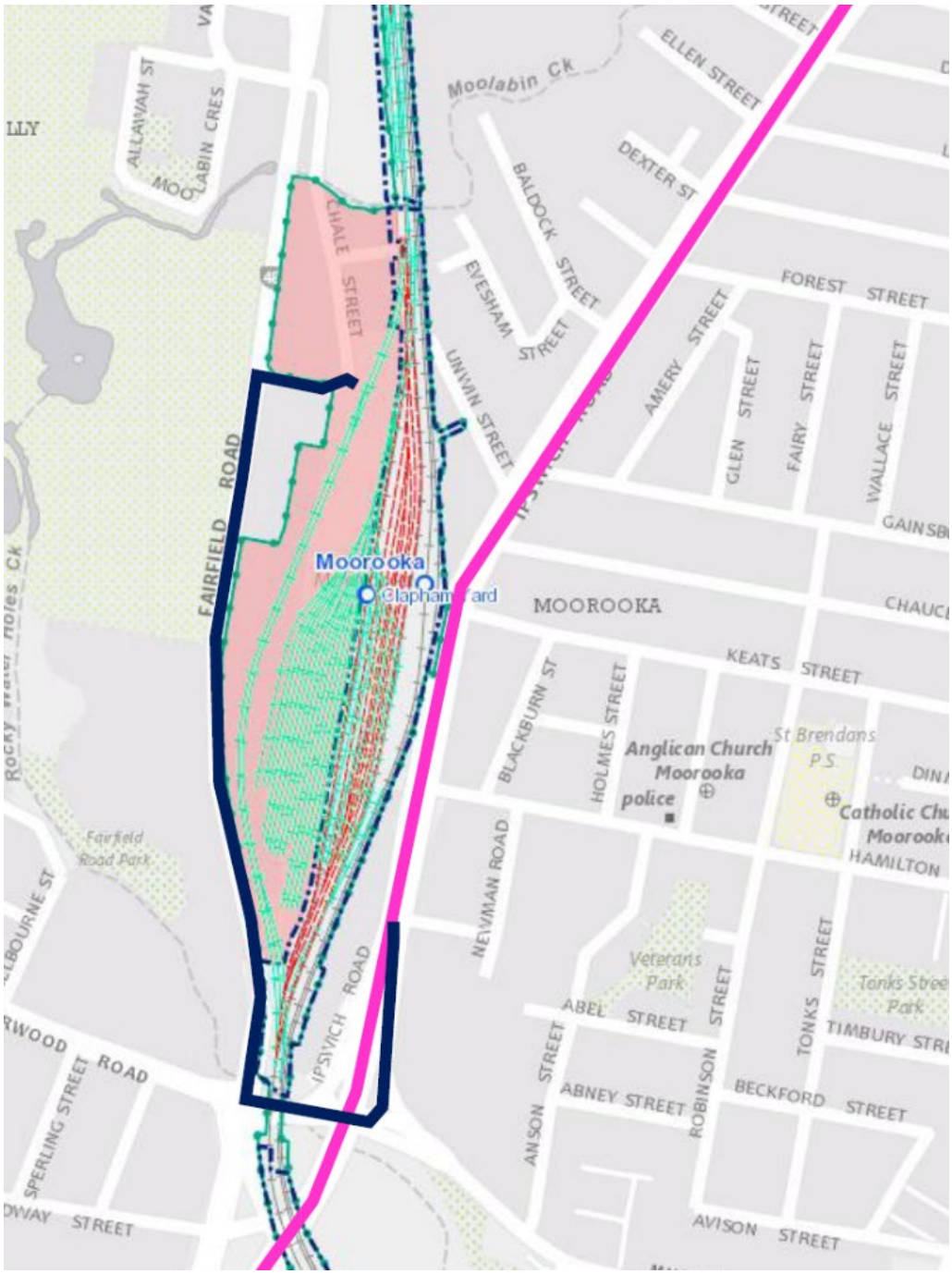

Figure 4.1 Existing heavy vehicle access route at Clapham Yard

4.2.1 Potential impacts

The CRR Delivery Authority's traffic and traffic noise impact assessment was modelled on a conservative prediction that 21 construction vehicle movements would occur per hour over a 24-hour period. Of the 21 construction vehicles modelled, 15 were heavy vehicles and 6 were light vehicles. Being modelled on a 24-hour scenario, actual traffic movements per hour will be lower as the total construction vehicle movements would be spread out over an additional 12-hour period, should 24 hours, 7 days a week haulage be approved. The CRR Delivery Authority's assessment used the DTMR Guide to Traffic Impact Assessment, which provides the trigger for traffic impact assessment. Typically, when development traffic exceeds five per cent of the background traffic, a detailed impact assessment is required to be prepared.

In consultation with BCC, the CRR Delivery Authority determined that the additional construction traffic associated with the increase from 17 to 21 construction vehicles per hour would result in an increase of traffic levels of less than one per cent. As the five per cent threshold was not triggered, a further detailed traffic impact assessment was not required to be undertaken.

In addition to 24 hours, 7 days a week haulage at Clapham Yard, the CRR Delivery Authority is seeking to increase to the total number of construction vehicles accessing the site from 166 in the previously evaluated project to 232 vehicles within a 24 hour period. Of these 232 construction vehicles, 174 would be heavy vehicle movements for spoil haulage and equipment deliveries.

Table 4.1 provides a summary of the proposed traffic impacts associated with increasing vehicle movements at Clapham Yard and introducing 24 hours, 7 days a week haulage compared to the evaluated project. It is shown that although traffic numbers are proposed to increase overall, allowance for 24 hours, 7 days a week haulage can help reduce traffic impacts during peak daytime periods and therefore accommodate additional truck movements during a 24-hour period. Should 24 hours, 7 days a week haulage be approved, an additional 3 heavy vehicle movements would occur during peak hours and an additional 9 heavy vehicles during off peak times.

Table 4.1 Change in construction vehicle numbers

	Evaluated project (existing haulage hours Monday to Saturday)	RfPC 11 - Traffic impact assessment scenario (increased traffic during standard haulage hours)	RfPC 11 – 24 hours, seven days a week spoil haulage proposal
Peak construction vehicles per hour	17	21 (15 hv[3] & 6 lv[4])	**15** (9 hv & 5 lv)
Peak construction vehicles over a 24 hour period	166	189 (131 hv & 58 lv)	**232** (174 hv & 58 lv)
AM and PM Peak heavy vehicles per hour	NA	8	**3**
Daytime off peak and night peak heavy vehicles per hour	NA	15	**9**

As 24 hours, 7 days a week access reduces construction vehicle movements per hour, no additional traffic impact assessment is required to support the increase in hours requested. During the morning and afternoon peak hour periods, three heavy vehicles would occur per hour (6:30am to 9:30am and 2:30pm to 4:30pm). This represents one heavy vehicle every 20 minutes during peak traffic periods.

This evaluation supports the CRR Delivery Authority's assessment that allowance for 24 hours, 7 days a week spoil haulage at Clapham Yard would help minimise the overall hourly movement of construction vehicles during peak traffic periods when traffic congestion is at its worst. Although still representing an increase compared to the evaluated project, the proposal would minimise the risk of construction vehicles causing congestion along the haul route as well as the risk of vehicle queuing.

The CRR Delivery Authority has assessed the potential impact at key intersections, including the signalised intersection of Murial Avenue at Fairfield Road and Ipswich Road. This route is already a major freight corridor access point and the project change does not increase the demand on this intersection by more than five per cent and is therefore consistent with the evaluated project.

[3] hv – heavy vehicles
[4] lv – light vehicles

The CRR Delivery Authority has confirmed that there are no additional impacts to pedestrians and cyclist movements as a result of the project change. Consistent with the evaluated project, adequate car parking will be provided for the construction workforce and managed in a way to avoid workforce parking on local streets. Once constructed, adequate parking will be provided for Queensland Rail maintenance and operational staff at Clapham Yard. The total number of car parks to be provided will be determined in consultation with Queensland Rail and detailed design planning for the railway facilities.

Traffic noise (haul route only)

Consistent with the evaluated project and the DTMR Code of Practice Volume 2 – Construction Noise and Vibration, construction traffic should not increase the background traffic noise level by more than 3 A-weighted decibels (dB(A)). The CRR Delivery Authority's assessment covered a 24-hour period, with the following criteria:

- LA10 (12_{hour})[5] for the hours between 6:30am and 6:30pm
- LA10 (18_{hour})[6] for the hours between 6:00am and 12:00am
- LA10 (1_{hour})[7] for the vehicle movements during any hour between 12:00am midnight and 6:00am

February 2020 traffic volume data for Fairfield Road in the vicinity of Chale Street was reviewed to ascertain the effect of construction related vehicle traffic on noise emissions. Road traffic noise levels were predicted at a reference distance of 50 m. To ensure the worst-case scenario was assessed, the CRR Delivery Authority used 21 construction vehicles per hour (15 heavy vehicles and 6 light vehicles) for the traffic noise assessment across a 24-hour period. It is noted that although 21 construction vehicles, which includes 15 heavy vehicles, have been assessed, a maximum of only 9 heavy vehicles per hour will access the site (including from 6:30pm to 6:30am).

The CRR Delivery Authority's traffic noise assessment predicted a maximum increase in traffic noise of 2.6 dB(A) (LA10 (1_{hour})) above the background traffic noise levels along haul routes utilised for the Clapham Yard site. This increase was predicted between the hours of 12:00am to 6:00am when current background traffic noise levels are the lowest (see Volume 3, Noise and Vibration Impact Assessment of the Request for project change application). Although there is a predicted increase in traffic noise of 2.6 dB(A), this is below the 3 dB(A) goal of increase to the pre-construction traffic noise level and is consistent with the impacts assessed in the evaluated project. With an additional 21 construction vehicles accounted for per hour, the predicted traffic noise level in the vicinity of the haulage route at Fairfield Road was predicted to be 59.1 dB(A), an increase from 56.5 dB(A). This is lower than during the daytime hours when traffic levels are higher. During daytime hours (6:00am and 12:00am), the traffic noise levels in vicinity of the haulage route at Fairfield Road were predicted to be 69.9 dB(A), an increase from 69.7 dB(A) at baseline levels. Overall, the assessment concludes there will be no perceptible increase in traffic noise compared to background traffic noise levels along haul routes.

All other construction noise impacts, including traffic movements internal to the Clapham Yard worksite, are assessed in the Noise and Vibration chapter at section 4.3 below.

Haul route dust

Increasing truck movements at Clapham Yard during construction has potential to cause localised nuisance dust impacts along haul routes utilised for the project. Sources of dust include tracking of worksite dirt and mud onto haulage roads and incidental spoil spills onto access roads due to poor loading

[5] $L_{A10\ (12\ hour)}$ is the average L_{A10} traffic noise level between the hours of 6:30am and 6:30pm
[6] $L_{A10\ (18\ hour)}$ is the average L_{A10} traffic noise level between the hours of 6:00am and 12:00am
[7] $L_{A10\ (1\ hour)}$ for the peak number of heavy vehicle movements during any hour between 12:00am and 6:00am

techniques. Section 4.4 of this report evaluates all other potential air quality impacts associated with the proposed change.

4.2.2 Mitigation and management measures

Traffic

Being an approved haulage route, a Construction Traffic Management Plan (CTMP) sub-plan and Haulage Management Plan have already been prepared to manage heavy vehicle movements at Clapham Yard. The CRR Delivery Authority is required to update these plans when required, to reflect approved changes to haulage hours or an increased number of construction vehicle movements.

Where possible, the CRR Delivery Authority has established access routes to Clapham Yard that avoid traffic signals at the Fairfield Road and Palomar Road intersection. This is to ensure there is maximum opportunity for free flow turnaround whilst minimising back of queue impacts. Access schemes are included in the existing CTMP sub-plan for Clapham Yard, which was prepared by a Nominated Traffic Officer and has already been endorsed by the Independent Environmental Monitor and BCC.

Specific mitigation measures that are included in the CTMP sub-plan include:

- local communities and road users will be notified of proposed changes to local traffic access arising from Project works, including clear signage, public advertisements, and duration of changes
- safe and functional access for pedestrians and cyclist will be maintained near the Project works
- disruptions to the public transport network will be minimised and bus replacement services provided where passenger rail operations are interrupted.

Traffic noise (haul route only)

The potential traffic noise impacts from the proposed change are predicted to be within the acceptable thresholds and are generally consistent with the evaluated project. Therefore, no additional noise management or mitigation measures are required.

The project's Noise and Vibration Management Plan (NVMP) contains extensive management and mitigation measures to manage project noise. Measures to reduce potential noise impacts from the operation of heavy vehicles include maintaining plant and machinery in good working order and limiting compression braking to ensure truck noise is kept to a minimum. Any noise complaints will be dealt with in accordance with the complaint's management procedures outlined in the CEMP and complaints must be addressed as soon as practicable.

Haul route dust

Consistent with the evaluated project, the CRR Delivery Authority will continue to manage haul route dust in accordance with the Spoil Placement Management Plan, Erosion and Sediment Control Plan and Construction Worksite Management Plan. Measures to reduce the risk of causing nuisance dust along haul routes include:

- fitting the exit points at each worksite with a stabilised exit to remove loose spoil from haulage vehicles
- implementing washing and sweeping of roads servicing worksite access and egress points
- designing and constructing all-weather site access for construction vehicles and equipment
- ensuring that trucks transporting construction spoil are:
  - covered to prevent wind-blown dust during transport

- cleaned down prior to exit from the worksites and spoil placement site to prevent spills of loose material to roadways.

The overarching CEMP also includes procedures for incident prevention and complaints management. In the event spoil haulage trucks are not covered during transport or excessive dirt is released to the roadway, an incident investigation process can be triggered to rectify the issues raised by a complainant.

4.2.3 Coordinator-General's conclusions: Traffic and transport

This evaluation accepts the CRR Delivery Authority's assessment of traffic impacts, which concludes additional construction traffic will not exceed five per cent of the background traffic levels. Although an increase in haulage vehicles will occur during construction, potential impacts during peak hours would be minimised should allowance for 24 hours, 7 days a week haulage be provided. As vehicle movements would be spread out over a longer timeframe, potential for the project to cause congestion queuing of haulage vehicles along the haul route would be reduced.

This evaluation finds the CRR Delivery Authority's assessment of traffic noise impacts is sufficient and associated management measures are adequate to manage any potential impacts. As the CRR Delivery Authority's assessment concluded that the change in traffic noise levels remains within the acceptable thresholds and limits of the existing imposed conditions, no additional traffic noise impact management or mitigation measures are required. Accordingly, the CRR Delivery Authority will continue to ensure best practice measures are employed in accordance with the existing management strategies detailed in the existing site-specific CTMP sub-plan and NVMP.

This evaluation finds the existing procedures and management actions outlined in the Spoil Placement Management Plan in conjunction with the broader EMF are sufficient to accommodate the increased haulage task proposed. The CRR Delivery Authority will continue to monitor haulage activities during construction to ensure wheel generated dust generated along the haul routes and site access points is kept to a minimum.

The evaluation of requested changes to Imposed Condition 10 is addressed in section 5.2 of this report. In summary, the evaluation accepts the removal of existing vehicle lockouts between 7:30am to 9:00am and 2:30pm to 4:30pm, Monday to Friday. New requirements stipulated at Imposed Condition 10 have been included to allow 24 hours, 7 days a week spoil haulage to occur on a temporary basis until a 1% AEP flood immunity level is achieved at the Clapham Yard worksite (approximately 10 months and 240,000 m^3 of spoil) . The objective of this amendment is to maximise the reuse of spoil extracted from other CRR worksites while ensuring higher intensity haulage activities do not occur for the full duration of the four-year construction period.

All other spoil haulage and equipment deliveries will only be permitted to occur between 6:30am and 6:30pm Monday to Saturday for the duration of the construction phase of the project – except for when haulage activities relate to approved rail possessions which may provide for shorter durations of 24 hours, 7 days a week construction works to occur.

4.3 Noise and vibration

The CRR Delivery Authority has requested changes to the methodology, duration and location of proposed construction works at the Clapham Yard site, including Moorooka Railway Station. Additionally, the CRR Delivery Authority sought amendments to the Coordinator-General's Imposed Condition 10 (hours of work) to remove the limitation of 80 hours of continuous work for approved rail possessions at the Clapham Yard site (refer to section 5.2.2).

Compared to the previously evaluated project, proposed changes have the potential to increase noise and vibration disturbance to nearby sensitive receptors. To assess potential noise and vibration impacts during construction and operation, the CRR Delivery Authority prepared a noise and vibration impact assessment (see Volume 3 of the Request for project change application). Potential traffic noise impacts from the proposed changes specific to the heavy vehicle haul route are addressed in section 4.2.

During public notification, nine submissions commented on potential construction and operational noise and vibration impacts related to works in the Clapham Yard worksite. Key concerns raised included:

- potential for increased construction noise impacts from proposed changes, including 24-hour continuous works during extended rail possessions (addressed in section 5.2.2), and impacts on the health, well-being and amenity of nearby residents
- requirements for advance notice to, and consultation with, nearby residents for noisy works (addressed in section 5.2.2)
- the need to further consider the redevelopment or extension of existing noise barriers to mitigate predicted noise exceedances during construction and operation
- the need to ensure adequate respite periods are provided for surrounding sensitive receivers when extended periods of night-time and Sunday noise generation are expected to occur (addressed in section 5.2.2).

All submissions have been considered in preparing the evaluation of the project change. Submissions relating to noise and vibration matters are addressed below.

4.3.1 Construction Noise

4.3.1.1 Potential impacts

The noise and vibration impact assessment is outlined at Volume 3, Attachment B Technical Report: Noise and Vibration of the Request for project change application. Significant noise generating construction activities are reported to involve demolition of existing buildings, earthworks and station construction. The change application predicted the maximum (peak) level of noise at any one time and is representative of the 'worst-case' construction scenarios[8], whereby plant and equipment with the loudest noise level is accounted for. Existing site-based mitigations were factored into the modelling and applied where practicable (i.e. purpose-built noise barrier along Ipswich Road).

The assessment undertaken is therefore conservative, with monitored noise emissions likely to be lower than predicted. Actual construction noise levels to be experienced at any given receptor location are dependent on the following factors:

- construction stage and type of construction activities being undertaken (i.e. demolition, earthworks)
- period of works being undertaken
- receiver type and resilience to noise
- proximity of the nearest receiver to the works.

[8] The construction scenarios with activities likely to generate the highest level of noise impacts being Scenario 1 – Demolition of existing buildings, Scenario 2 – General earthworks and Scenario 3 – Construction of Moolabin Creek bridges

Figure 4.2 below illustrates the location of the Clapham Yard site in proximity to the surrounding representative noise sensitive receivers[9]. Receivers located closest to Project Works are expected to have the highest potential to be impacted by noise disturbance.

Figure 4.2 Representative noise sensitive receptors surrounding the Clapham Yard worksite

[9] A building or a group of similar receivers where noise levels are predicted

Compared to the previously evaluated project, the proposed third platform at Moorooka Railway Station will move east by approximately 150 m to be located adjacent to the existing station platforms. The proposed changes will mean that some previously identified sensitive receptors to the west of Clapham Yard will be further away from construction activities.

Construction noise goals for the project are stipulated by Imposed Condition 11. Proposed changes are likely to result in exceedances of these goals during both standard construction hours (Monday to Saturday, 6.30am to 6.30pm) and out of hours work (evening (6.30pm to 10.00pm), public holidays and Sundays). As 24-hour continuous works are proposed to occur during rail possessions, night-time noise would also be generated between the hours of 10.00pm and 6.30am. This is also considered as out of hours work (refer to section 5.2.1 below).

As shown in Figure 4.2 above, demolition of several buildings located within the Clapham Yard worksite is required. The project change application states the worst-case scenario for potential noise impacts is building demolition works (Scenario 1) for which unmitigated noise levels of up to 65 A-weighted decibels (dB(A)) are predicted for residential receptors. In these instances, exceedances of the project's construction noise goals of up to 10 dB(A) could occur during the day (see Table 4.2 below). Despite no changes proposed to the location or extent of building demolition within Clapham Yard, the demolition methodology continues to be refined with predicted noise levels now envisioned to be up to 3 dB(A) more than those identified in the evaluated project.

Compared to the previously evaluated project, more substantial earthworks (Scenario 2) are required to accommodate the import of approximately 240,000 m^3 of fill material to enhance flood immunity at Clapham Yard. In the worst-case noise modelling scenarios, the change application predicted that earthworks could exceed construction noise goals by up to 10 dB(A) in the day and 23 dB(A) during out of hours works at surrounding residential, commercial, and industrial receptors.

The CRR Delivery Authority has advised that both commercial and industrial receptors are unlikely to be occupied during out of hours works, with advance notification and consultation to be undertaken prior to commencement of the works to confirm occupancy, duration of noisy activities and proposed mitigations.

It is important to note that the highest potential for out of hours works to generate noise impacts is during approved rail possessions. Noise impacts from rail possessions are addressed in section 5.2.2.

Apart from rail possessions, the CRR Delivery Authority proposes minor earthworks at night to facilitate 24-hour spoil haulage deliveries. In accordance with Imposed Condition 10, earthworks (Scenario 2) occurring out of hours (24 hours, 7 days a week) must be undertaken as Managed Work[10]. As part of the provisions for Managed Work, the predicted or monitored noise impacts must meet construction noise goals stipulated for the project. In the event construction noise goals cannot be met, earthworks cannot occur outside of standard construction hours.

The change application presented three construction methodology options with varying types and quantities of plant and equipment and offset distances, which demonstrated there is a potential for out of hours earthworks to occur without exceeding the construction noise goals. This includes reducing the amount of equipment operational at night and ensuring earthworks do not occur in proximity to the residential receptors adjoining the worksite and Ipswich Road.

The CRR Delivery Authority has committed to refine the construction methodology (i.e. equipment selection, working hours etc.) once actual delivery, stockpiling and placement works are known. This would validate the modelling of the change application and verify compliance with the definition of Managed Work.

[10] Managed Work means Project Work for which either the predicted or monitored impacts meet the performance criteria at a Sensitive Place.

Table 4.2 Predicted construction noise levels at sensitive receivers above construction noise goals

Proposed time of works	Dominant noise	Duration of equipment use	Noise sensitive receiver	Potential noise levels above noise goals, dB(A)	
				Day ($LA10_{adj}$)	Out of hours ($LA10_{adj}$)
Scenario 1 – Building demolition					
Standard Hours[1]	30 tonne excavators	5-8 hours per day	Residential	10	-
			Commercial	8	-
			Industrial	18	-
Scenario 2 - Earthworks					
Standard Hours and OOHW[2]	Grader	Up to 10 hours per day	Residential	10	23*
			Industrial	5	23

Table note: [1] Monday to Saturday, 6:30am to 6:30pm; [2] Monday to Saturday 6:30pm to 6:30am, Sundays and Public Holidays.

* Where an exceedance of 1 dB(A) or more above the relevant construction noise goal is predicted and monitored during out of hours works, Managed Works are not authorised to occur.

4.3.1.2 Mitigation and management measures

The change application concludes that the establishment of the EMF through the imposed conditions provides a robust approach to manage identified noise and vibration impacts on the health, well-being and amenity of nearby residents from the proposed changes. This includes Imposed Condition 11, which establishes construction noise goals for Project Works. It is further stated that tailored mitigation measures at the Clapham Yard site will be further investigated during the preparation of a site-specific CEMP. Potential mitigation measures may include:

- substitution of alternative (quieter) construction methods and equipment
- avoid the use of plant and equipment simultaneously adjacent to sensitive receptors where reasonably practical
- schedule construction activities to avoid noisy activities being undertaken out of hours
- the use of acoustic barriers and enclosures
- restrict the number of nights per week that works are undertaken, or schedule in respite measures, unless it can be adequately demonstrated that the sequencing of works to a shorter timeframe will result in reduced exposure duration to high noise levels.

In accordance with the EMF (discussed in section 2.2.1) and as required by Imposed Condition 2, the current OEMP includes outline sub-plans, which incorporate the environmental outcomes and performance criteria that must be achieved by the project. The Outline Noise and Vibration Management Plan (Outline NVMP) can be found at Appendix Q of the OEMP, which sets out the performance outcomes and standard mitigation measures in relation to noise and vibration.

A Noise and Vibration sub-plan (NVSP) for the Clapham Yard site has also been prepared, which forms part of the Rail, Integration and Systems CEMP (RIS CEMP) for the relevant Project Works. This plan aims to achieve the environmental outcomes stated in the OEMP and includes:

- details of consultation and mitigation measures to be implemented, including specific requirements for notification to Directly Affected Persons (DAPs) and near neighbours
- complaints management
- details of noise and vibration monitoring, auditing, reporting and corrective action.

On 2 March 2021, the CRR Delivery Authority advised that monitored noise levels from construction activities to date have been generally found to be 5 dB(A) less than worst-case predictive levels, demonstrating the effectiveness of mitigations and the broader EMF requirements.

As required by the Imposed Conditions and the OEMP, the CRR Delivery Authority will continue to undertake noise monitoring and reporting of environmental impacts during demolition and construction works to demonstrate compliance with the performance criteria and refine management measures as required. In accordance with the RIS CEMP, construction works must be stopped if monitored noise and vibration levels indicate an exceedance of the construction noise goals, until such time the non-compliance is corrected.

In accordance with Imposed Condition 11, the NVSP and Community Engagement Plan, the CRR Delivery Authority is expected to continue providing advance notification and undertake consultation with DAPs and near neighbours to ensure the likely nature, extent and duration of noise and vibration impacts during construction are well understood and address any concerns raised.

4.3.2 Operational noise

4.3.2.1 Potential impacts

The change application remodelled operational noise impacts for sensitive receptors within 100 m of the Clapham Yard site boundary, including residential receptors located on both Blackburn Street and Ipswich Road. The evaluation notes receptors located between Ipswich Road and the south-eastern boundary of Clapham Yard were not considered as part of the original EIS.

The project is subject to Environmental Design Requirement 3 for operational noise and vibration which requires the track surface airborne noise emissions to achieve a 65 dB(A) noise goal. Operational noise standards set by Queensland Rail indicate train noise 3 dB(A) above background levels is noticeable to the human ear and therefore should be mitigated.

The project change application predicts operational noise may result in noise levels exceeding the operational noise goal at 21 sensitive residential receptors. The CRR Delivery Authority predicted levels above the environmental design requirement by up to 7 dB(A) at residences located along Ipswich Road and up to 2 dB(A) at residences along Blackburn Street. These exceedances are a result of revised noise levels for idling trains and through train movements (passenger and freight) compared to the evaluated project. The increase in the terrain height within Clapham Yard to achieve flood immunity was also considered as part of the change application.

Modelling undertaken for the original EIS predicted an increase of up to 2 dB(A) as a result of the change in through train movements from the project, and concluded that an average increase in operational train noise of 2 dB(A) or less would be undetectable to the human ear and therefore negligible. Accordingly, predicted noise levels at residential receptors along Blackburn Street remain consistent with the original EIS and they are unlikely to experience increased noise disturbance from operational train noise.

Due to the proximity of residential receptors along Ipswich Road to the existing rail corridor, noise attenuation barriers were constructed in 2006/2007 to mitigate railway noise. The change application concluded that despite the existing noise barrier, operational noise levels experienced at these residential properties would cause disturbance.

The CRR Delivery Authority stated that the dominant operational noise source will be from through train movements, with an increase in passenger and freight train movements consistent with the rail operators assumed year on year growth factor forecasts. As the proposed capacity of the stabling yards and number of idling trains is consistent with the evaluated project, it is expected noise generated by idling trains in the stabling yard to have an insignificant effect on the overall noise levels.

4.3.2.2 Mitigation and management measures

Investigations to inform potential modifications (redevelopment or extension) to the existing noise barriers at the south-eastern boundary of Clapham Yard will be undertaken as part operational noise modelling at detailed design. These investigations will address issues raised by submitters and will be informed by additional operational noise modelling undertaken during the detailed design phase to consider:

- track geometry and elevation
- as-built level of the top of the existing barrier
- building and window levels of residential receptors
- other relevant modelling inputs (i.e. New Generation Rollingstock (train) idling noise levels)
- safety and security.

The CRR Delivery Authority acknowledges that while noise barriers are a useful measure to mitigate noise impacts, they are not always reasonable or practicable to install (i.e. loss of amenity and shadowing impacts). For that reason and following the results of additional operational noise modelling, the CRR Delivery Authority will propose recommendations on the feasibility and practicality of available noise abatement measures to Queensland Rail, as the railway operator and manager of operational matters. Should it be determined noise barriers are to be constructed, the CRR Delivery Authority would incorporate these structures into the construction work program.

The project change application anticipates industrial and commercial sensitive receptors in proximity to the existing rail corridor would have existing mitigation incorporated within the façade design to address noise intrusion. The CRR Delivery Authority has advised additional mitigation measures for these sensitive receptors will be determined through consultation with affected parties closer to the commencement of project construction.

4.3.3 Vibration

4.3.3.1 Potential impacts

The CRR Delivery Authority undertook a vibration and re-generated noise impact assessment as part of the noise and vibration impact assessment. The assessment provided for the peak level of predicted vibration and subsequent re-generated noise for vibration intensive construction activities within Clapham Yard. The assessment is a conservative one, with vibration emissions expected to be lower than the predicted. Vibration levels generated by a construction activity would, in most instances, vary throughout its operation as it moves towards and recedes away from the sensitive receptor.

Consistent with the change application, the Coordinator-General's evaluation report for the project's EIS approved the net-filling of Clapham Yard with 240,000 m^3 of bulk fill material and accompanying construction activities (i.e. building demolition works and earthworks). The project's EIS established the distance of more than 100 m between vibration impacts from construction works and nearest residential receivers would ensure compliance with both cosmetic building damage and human comfort goals.

Compared to the previously evaluated project, the CRR Delivery Authority's assessment concluded the proposed change may result in additional vibration impacts due to a refinement of the scale, duration and

intensity of the proposed construction activities, inclusive of their geographical location in relation to surrounding sensitive receptors. Previously earmarked for acquisition and therefore not considered in the project's EIS, residential properties adjoining the south-eastern Clapham Yard worksite boundary at Ipswich Road were included in the assessment of project changes.

Construction vibration goals for cosmetic damage and human comfort for the project are stipulated by Imposed Condition 11. As presented in Table 7 of the noise and vibration impact assessment, the CRR Delivery Authority's assessment predicts potential ground-borne noise and vibration impacts from building demolition works (Scenario 1) and earthworks (Scenario 2) within Clapham Yard to be below the cosmetic damage goals at all receptors.

The CRR Delivery Authority's worst-case modelling indicates that vibration levels during building demolition works are envisioned to exceed the human comfort goal of 1 mm/s at approximately 15 residential receiver locations.

The assessment predicted earthworks required as part of the proposed changes would result in exceedances of the 0.5 mm/s human comfort goal by 0.1 mm/s at two residential receptors along Ipswich Road, located 70 m from Project Works. However, modelling of vibration impacts once mitigations had been applied (e.g. scheduling of noisier equipment during the day only) concluded that vibration levels would be insignificant and compliance would continue to be achieved with Imposed condition 11 at all residential receiver locations, at all times.

4.3.3.2 Mitigation and management measures

In accordance with the NVSP (detailed in section 4.3.1.2 above), the CRR Delivery Authority has committed to utilise an array of mitigation measures such as management controls (i.e. working hours, respite periods), source controls (i.e. equipment selection) and other relevant site-specific measures to reduce vibration levels at sensitive receptors.

Prior to construction works occurring, the CRR Delivery Authority will undertake further vibration monitoring to:

- inform the construction methodology and mitigation measures to reduce vibration and re-generated noise impacts on sensitive receptors
- validate the modelling of the request for project change application
- demonstrate compliance with the noise and vibrations set out in Imposed Condition 11.

The demolition and removal of redundant buildings within the Clapham Yard site has already commenced with no impacts or complaints reported to date by the CRR Delivery Authority.

As required by the imposed conditions and the OEMP, the CRR Delivery Authority will continue to undertake vibration monitoring and reporting of environmental impacts during construction works to demonstrate compliance with the performance criteria and refine management measures as required. Should the monitored impact of construction activities be greater than the impact predictively modelled, the CRR Delivery Authority would determine whether changes to the construction methods, management and mitigation measures or scheduling of works are required and proactively consult with potentially impacted stakeholders.

4.3.4 Coordinator-General's conclusions: noise and vibration

This evaluation concludes that the CRR Delivery Authority has adequately assessed the potential noise and vibration impacts resulting from the proposed changes to the project. As indicated in the change application, the CRR Delivery Authority's assessment is based on a worst-case methodology and

therefore, noise and vibration impacts are expected to be lower in practice following the implementation of site-specific management measures where appropriate.

The CRR Delivery Authority is expected to continue managing noise and vibration impacts of the project consistent with the current measures described in the NVSP. Overall, noise levels are expected to remain within the construction noise goal limits set by Imposed Condition 11 and the broader EMF. Should new or additional mitigation measures be required at the Clapham Yard Worksite, the CRR Delivery Authority has indicated that the NVSP and/or related site-specific sub plans will be updated to capture those additional controls as required.

It is noted the existing EMF and Imposed Conditions for the project establish a proactive regime for the identification of DAPs, and to actively engage with DAPs about the appropriate management and mitigation of construction noise and vibration impacts. The assessment concludes that the most appropriate mitigation and management measure/s will be determined by the degree of exceedance of the applicable construction noise goals.

The CRR Delivery Authority must conduct ongoing noise and vibration monitoring during construction to validate predictive noise and vibration modelling with further investigation of mitigation measures. In the event predictive modelling or monitoring report noise or vibration levels above the relevant goal, the CRR Delivery Authority will engage with potential DAPs and tailor mitigations to address the exceedance.

4.4 Air quality

The CRR Delivery Authority requested changes to the design and layout of Clapham Yard, including the relocation of the new platform at Moorooka Railway Station. To deliver the proposed changes, the project requires the import, handling and placement of approximately 240,000 m^3 of fill to enhance flood immunity at Clapham Yard (as discussed in section 4.1 above). These changes have the potential to result in changes to air quality impacts to existing or new sensitive receptors.

During operation of the project, the potential for air quality impacts would occur indirectly from increased rail freight movements which may generate increased coal dust and increased exhaust emissions from diesel powered locomotives. Air quality impacts during operation are predicted to be consistent with the evaluated project, previously identified as compliant with the operational air quality objectives set out in the environmental design requirements. Therefore, potential air quality impacts during operation will not be considered further in this report.

During public notification, four submissions commented on potential construction and operational air quality impacts related to works in the Clapham Yard site. Key concerns raised included:

- requirements for advance notice to, and consultation with, nearby residents during construction
- schedule dust suppression activities to be carried out on a timed, regular basis to minimise dust nuisance
- ensure all reasonable and practicable mitigation measures described in the air quality management plan (AQMP) are extended to the project works at Clapham Yard and Moorooka Railway Station and will be implemented to limit air quality goal exceedance at sensitive places.

All submissions have been considered in preparing the evaluation of the project change. Submissions relating to air quality matters are addressed below.

4.4.1 Potential impacts

The air quality impact assessment is outlined at Volume 3, Attachment D Technical Report: Air Quality of the Request for project change application. The change application assessment predicted the emissions

estimation and dispersion modelling for the worst-case construction scenarios with the highest potential to result in exceedances of the air quality criteria and goals set out for the project at Imposed Condition 13.

The CRR Delivery Authority's assessment assumed that the construction activities with the highest potential to generate emissions would be earthworks, material handling and associated vehicle movements to support earthworks due to the high potential for dust emissions. Accordingly, the emissions inventory underpinning the assessment included:

- Stage 1 (Clapham Yard) – surface excavation works and the import and placement of fill material
- Stage 4 (Moorooka Station Upgrade) – bulk earthworks backfilling associated with the reconfiguration and decommissioning of dual gauge tracks.

The background air quality of a locality establishes a baseline by which potential air quality impacts can be identified, compared, and assessed. Background air quality information adopted in the change application was established based on six monitoring stations located in the southern area of the project and dust deposition monitoring undertaken by Department of Environment and Science at Fairfield Railway Station. The assessment adopted background air quality concentrations and dust deposition levels for Clapham Yard comparable to the background concentrations adopted for the evaluated project.

The proposed changes to the project at Clapham Yard are similar to those assessed in the original EIS. The CRR Delivery Authority's change application concludes the air quality impacts previously assessed for the original EIS are likely to result in exceedances of the air quality criteria and goals. Similarly, the results of the dispersion modelling for the change application predicted that concentrations and deposition rates for various particulate matter (TSP, PM10, PM2.5 and dust deposition) emitted from Clapham Yard would also be non-compliant at particular sensitive receiver locations (see Table 4.3).

For Stage 1 earthworks, the CRR Delivery Authority's assessment concludes the air quality impacts associated with the removal and replacement of spoil material are likely to result in exceedances of the dust deposition and TSP (24 hour) nuisance goals at sensitive receptors outside the boundary of the Clapham Yard worksite. Exceedances of the TSP (24 hour) nuisance goal are predicted at seven residential receptors and 14 industrial and commercial receptors including three car yard businesses along Moorooka Road. Dust deposition nuisance was predicted at only two industrial receptors within 100 m of the Clapham Yard site boundary. The evaluation identifies that the results of the change application represent a worsening from the air quality impacts previously assessed for the original EIS, with potential exceedance of the TSP (24-hour) nuisance goal significantly higher for the change application.

The change application predicted exceedances of the PM_{10} (24 hour) goal 50 µg/m^3 by 16 µg/m^3 at commercial and industrial receptors for Stage 1 earthworks, which represents a potential risk to the health of occupants. However, the CRR Delivery Authority has noted that exceedances are only predicted to occur for two days out of an entire year. As the potentially affected receptors are non-residential, the CRR Delivery Authority consider the potential risk to the health of occupants will be low.

The CRR Delivery Authority's assessment concluded that predicted concentrations and deposition rates for all other stages apart from Stage 1 would remain below the applicable air quality criteria and goals at all assessment locations.

Table 4.3 Predicted exceedances of air quality goals at sensitive receiver locations

		PM_{10} 24 hour ($\mu g/m^3$) (health)	TSP 24 hour ($\mu g/m^3$) (nuisance)	Dust deposition ($mg/m^2/day$) (nuisance)	PM_{10} annual average ($\mu g/m^3$) (health)	TSP annual average ($\mu g/m^3$) (health)
EIS 2011		Exceedance	Exceedance	Exceedance	Compliant	N/A
RfPC11	**Stage 1 (Scenario 1[11])**	Compliant	Compliant	Exceedance	Compliant	Compliant
	Stage 1 (Scenario 2[12])	Exceedance	Exceedance	Exceedance	Compliant	Compliant
	Stage 4 (Scenario 3)	Compliant	Compliant	Compliant	Compliant	Compliant

4.4.2 Mitigation and management measures

A Rail, Integration and Systems AQMP (RIS AQMP) exists for the relevant project works and was last updated in October 2020. The plan operates in conjunction with the broader EMF for the project and includes:

- details of mitigation measures
- compliance management including training, incidents and emergencies (incorporating complaints management)
- details of air quality monitoring and auditing
- reporting including greenhouse gas emissions and incident reporting
- documentation and communication protocols.

In the change application, the CRR Delivery Authority indicates there are minor differences in the site-specific mitigation measures considered for Stage 1 than for the previously evaluated project based on the refined scale, duration and intensity of works. These include:

- water sprays will be used when loading and unloading trucks and on haulage roads
- a binding agent will be used on exposed areas (as well as water sprays).

As the CRR Delivery Authority's assessment predicted that air quality criteria and goals could be exceeded notwithstanding mitigation measures being applied consistent within the RIS AQMP, the CRR Delivery Authority will be required to identify and incorporate details of any additional relevant project works and associated mitigation measures into the RIS AQMP prior to the commencement of works.

As required by the imposed conditions and the OEMP, once detailed design has occurred the CRR Delivery Authority will undertake further dispersion modelling to demonstrate compliance with the performance criteria and refine mitigation measures as required.

The CRR Delivery Authority has committed to undertake targeted air quality monitoring of air quality concentrations and dust deposition levels at residential receptors along Ipswich Road, which are predicted to experience the highest sensitivity to nuisance dust. In accordance with the RIS CEMP, construction works must be stopped if monitored air quality results indicate an exceedance of the air quality criteria and goals, until such time the non-compliance is corrected.

[11] Surface excavation works during an approximate nine week period
[12] Import and placement of fill material during an approximate 24 weeks period

4.4.3 Coordinator-General's conclusions: Air quality

The evaluation has found that the CRR Delivery Authority has assessed the potential air quality impacts resulting from the proposed changes to the project. The CRR Delivery Authority's assessment findings predict air quality impacts of the proposed changes could exceed existing air quality criteria and goals stipulated at Imposed Condition 13 during Stage 1 earthworks. The potential for modelled exceedances to occur in reality is dependent on multiple factors, including meteorological conditions and the effectiveness of onsite mitigations applied at the location of dust generating activities.

The evaluation concludes that additional mitigation measures identified by the CRR Delivery Authority will be implemented where necessary at the Clapham Yard site to meet the air quality limits and goals. Should new or additional mitigation measures be required, the CRR Delivery Authority has indicated that the RIS AQMP and/or related site-specific sub plans will be updated to capture those additional controls as required. The CRR Delivery Authority will continue to manage air quality impacts of the project in accordance with the limits set by Imposed Condition 13 and the measures described in the RIS AQMP within the broader EMF established for the project.

4.5 Project site, erosion and soils

Additional land is required for the project and updates have been proposed to the property impact plans provided at Volume 2 of the Request for project change application. Permanent structures proposed for these lots typically consist of underground public utility plant, underground drainage and combined services routes. There will also be minor ground disturbance activities associated with supporting construction activities to deliver the permanent structures as well as the Moolabin Creek bridges.

A portion of three additional State-owned land parcels, owned by the DTMR, are to be permanently incorporated into the project extent (1 RP37619; 67 RP37616 and 68 RP37616) while one lot owned by Aurizon (9 SP119390) would also be utilised on a temporary basis during construction. Partial encroachment on an additional two road reserves is also required during construction.

One submitter raised concerns regarding potential impacts associated with cadastre boundary corrections at the northern end of Clapham Yard. The CRR Delivery Authority has advised in this regard that Property Impact Plans are being re-aligned to show the actual extent of the rail corridor in relation to neighbouring properties and assets in this instance.

4.5.1 Potential impacts

To achieve appropriate flood mitigation for Clapham Yard, the proposed changes include the requirement for the import of 240,000 m^3 of fill, which has the potential to cause soil disturbance. Precise volumes of soil to be excavated and disturbed across the Clapham Yard site will be confirmed through the development of detailed design.

The CRR Delivery Authority has assessed changes that may lead to soil erosion, further disturbance of potential acid sulfate soils and actual acid sulfate soils (PASS/AASS) and contaminated land impacts from the proposed changes.

Changes to potential impacts with respect to soils, geology and contaminated land are anticipated for change elements where additional ground disturbance is required. Generally, the changes are minor in nature and associated with the management of disturbance of contaminated and/or acid sulfate soils during construction.

Due to the requirement for additional land associated with the proposed changes, review of the environmental management register (EMR) and contaminated land register (CLR) status of each additional

lot/plan was undertaken. A summary of the EMR/CLR search is provided in Table 1 at Volume 3, Chapter E of the Request for project change application. The summary indicated that no properties were listed on the CLR, however two properties were listed on the EMR having been used previously for the purposes of storing petroleum products or oil and housing railway yard activities.

4.5.2 Mitigation and management measures

Overall, the CRR Delivery Authority reports there will be increased disturbance of potentially contaminated soils at Clapham Yard. Although there is increased risk of disturbing contaminated sites associated with the proposed changes, the mitigation measures are generally consistent with the evaluated project. The CRR Delivery Authority has committed to undertake additional soil characterisation consistent with the relevant supplementary contaminated land management plans (CLMPs) for the area to mitigate potential impacts associated with the disturbance of contaminated soils outside of the boundary of the evaluated project. As a result of the additional sampling, the supplementary CLMPs will be updated.

The existing CEMP and its sub-plans include mechanisms to ensure risks associated with contaminated land, ASS and erosion is appropriately managed. The CRR Delivery Authority has concluded minor updates to the relevant subplans, including the acid sulfate soils management plans (ASSMP) will be required to manage the risks associated with this soil disturbance. Additional contaminated land and acid sulfate soil (CLASS) investigations are underway to assist in determining the required updates.

Disturbance of potentially contaminated soils will increase the volume of soil requiring management in relation to potential contamination however the predicted impacts are consistent with the evaluated project. The CRR Delivery Authority will continue to manage contaminated land in accordance with the CEMP and sub-plans.

Based on increased quantities of imported fill at Clapham Yard, the potential for changes to erosion impacts will be increased. However, the CRR Delivery Authority has sufficiently determined that these risks will be managed through the development of new or updates to site-specific erosion and sediment control plans in accordance with the accompanying CEMP and site specific sub-plans.

As the mitigation measures are consistent with the existing EMF, no changes are required to the project OEMP, the CEMP nor the imposed conditions. The existing management plans cater for an iterative approach to ensure consistent management of impacts. They require that as new information becomes available with regards to the extent of predicted disturbance (increase or decrease), management requirements are reviewed and amended to ensure minimisation of impact to the receiving environment.

4.5.3 Coordinator-General's conclusions: Project site, erosion and soils

This evaluation finds the CRR Delivery Authority has satisfactorily assessed potential impacts of the proposed changes on erosion and risks of encountering contaminated soils. It is acknowledged that additional land is required to be incorporated into the project boundaries to facilitate construction works. Lots 1 RP37619; 67 RP37616 and 68 RP37616 are to be permanently incorporated while one lot owned by Aurizon (9 SP119390) will be utilised on a temporary basis during construction. Partial encroachment on an additional two road reserves is also required during construction.

The evaluation confirms that the changes to the project will increase the risk of disturbing contaminated soils. Disturbance of potentially contaminated soils will increase the volume of soil requiring management in relation to potential contamination however, the predicted impacts are consistent with the evaluated project. Management of contaminated land will continue to be undertaken in accordance with the existing measures detailed in the CEMP and site specific sub-plans.

It is also acknowledged that overall, there will be increases in the disturbance of PASS/AASS associated with the proposed changes. PASS/ASS will be managed in accordance with the CEMP and sub-plans.

Based on increased quantities of imported fill at Clapham Yard, the potential for changes to erosion impacts will also be increased. In this regard, the CRR Delivery Authority has satisfactorily demonstrated that these increases will be sufficiently managed through the development of or updates to site-specific erosion and sediment control plans in accordance with CEMP and sub-plans.

The predicted impacts do not warrant an amendment of the OEMP, CEMP and imposed conditions. It is recommended to update the supplementary ASSMP and CLMP upon completion of the additional CLASS investigations. Otherwise, no new or additional management measures are recommended to be incorporated in the EMF.

4.6 Nature conservation

The CRR Delivery Authority has requested changes to the layout of Clapham Yard site, including the reconstruction of two existing rail bridges and the construction of one new grade separated rail bridge at Moolabin Creek. These proposed changes have the potential to impact on nature conservation.

The CRR Delivery Authority undertook a desktop review of the potential impacts to nature conservation resulting from the proposed project changes. A field assessment from 2019 was also relied upon for the technical assessment, which found the area is of low ecological value and is unlikely to include any vegetation of state or national significance.

One submitter advised that whilst Moolabin Creek in proximity to the Clapham Yard worksite is generally degraded, it is expected that safe fauna movement is to be maintained or improved along this waterway for aquatic and terrestrial species.

4.6.1 Potential impacts

The CRR Delivery Authority's assessment demonstrated that the Moolabin Creek aquatic system conditions are typical of heavily urbanised waterways. Significant development has led to a generally degraded aquatic ecology, with reduced water quality conditions, impacted riparian vegetation and high prevalence of introduced aquatic fauna. Vegetation within the corridor is dominated by weed herbs, shrubs and grasses, with the exception of planted and naturally occurring natives observed during the survey. Overall, the proposed development footprint was concluded to contain low habitat value.

The project change has the potential to increase disturbance at Moolabin Creek to the west of the existing bridges by up to an additional 2,500 m^2. Potential operational impacts include some permanent vegetation loss that may occur from associated scour protection requirements at the bridges.

4.6.2 Mitigation and management measures

The existing CEMP biosecurity management sub-plan and nature conservation management sub-plan as part of the EMF adequately recognise the legal and other requirements applicable to these project works. As the proposed mitigation measures are consistent with the existing EMF, the CRR Delivery Authority has not requested changes to the OEMP, the CEMP nor the imposed conditions in this regard.

The CRR Delivery Authority propose to manage the impacts in accordance with the existing EMF and required environmental approvals. Under the EMF, the CRR Delivery Authority is required to rehabilitate the temporary riparian vegetation disturbed by project activities with trees, shrubs and grasses endemic to the area to re-establish the riparian environment and protect the creek bed and banks from erosion. The

relevant aspects of the proposed change (bridge and grade separated structures) will be designed to ensure fish passage is maintained.

The CRR Delivery Authority's technical assessment (see Volume 3 of the Request for the project change application), confirms that due to the current degraded nature of the disturbance area, the rehabilitation works will achieve a net improvement on the existing environment. Once all required rehabilitation has occurred, no additional impacts are anticipated to ecological values of Moolabin Creek compared to the evaluated project.

Moolabin Creek is mapped as Queensland waterways for waterway barrier works (low impact waterway). As such, all works within the waterway will be required to comply with 'Accepted development requirements for operational work that is construction or raising a waterway barrier work'. If these requirements cannot be complied with, the CRR Delivery Authority will be required to obtain an Operational Works (Construction or raising a waterway barrier work) permit prior to construction.

Moolabin Creek is mapped as a watercourse under the *Water Act 2000*. This means that a riverine protection permit will be required unless an exemption applies.

4.6.3 Coordinator-General's conclusions: Nature conservation

This evaluation finds the CRR Delivery Authority has satisfactorily assessed the potential impacts to nature conservation resulting from the proposed changes to the project. It is acknowledged that although there will be permanent vegetation loss as a result of the proposed works at Moolabin Creek, the current degraded nature of the disturbance area means proposed rehabilitation works will likely achieve a net improvement compared to the existing state of the environment at this location.

Accordingly, no additional impacts are anticipated to ecological values of Moolabin Creek compared to the evaluated project.

The CRR Delivery Authority has provided a satisfactory response that potential impacts can be mitigated and managed through measures outlined in the existing EMF.

4.7 Landscape and visual amenity

Proposed changes at Clapham Yard will result in an increased impact on visual amenity when compared to the evaluated project. However, due to the existing rail environment and low-moderate sensitivity of the surrounding receptors (largely industrial), the change application predicts these impacts to remain low to moderate during construction, and low during operations.

Submitters made the following comments regarding visual amenity:

- proposal does not include visual amenity improvements along the site frontage to Fairfield Road or Chale Street
- local Government requests opportunity to provide comments on landscape and visual amenity during the design process.

All submissions have been considered in preparing the evaluation of the project change. Submissions relating to landscape and visual amenity impacts are addressed below.

4.7.1 Potential impacts

The elements of the proposed change that are relevant to landscape and visual amenity are:

- the inclusion of the grade separated structure over Moolabin Creek

- the change in location of the Moorooka Railway Station western platform to be located adjacent to the eastern platforms with the associated provision of accessible pedestrian footbridge for station platform access
- earthworks and associated retaining walls required to provide flood immunity for Clapham Yard. Generally, retaining walls will be required at a number of locations within the western half of the site and will vary between 1.5 m and 3.5 m high depending on location.

Existing views to Clapham Rail Yard are currently possible from many local viewpoints, including residential properties. Consequently, the project is not anticipated to significantly change the intensive rail and transport corridor visual environment. The most visually prominent feature would be the rail viaduct adjacent to Moorooka Railway Station, which will be approximately 430 m long and 8.5 m high. As this structure would be elevated, it would increase the visual prominence of rail infrastructure for travellers along Ipswich Road and occupants within commercial and residential properties on the eastern side of Ipswich Road.

Construction Impacts

During construction, the visual impacts are likely to remain relatively unchanged from what was presented for the evaluated project. Heavy machinery will be present at the site and fluctuating volumes of vehicle traffic entering and exiting the site will be visible. Service infrastructure will be installed, and earthworks are anticipated to change the immediate visual amenity of the existing site.

Operational Impacts

The CRR Delivery Authority has determined that the proposed changes are unlikely to result in significant changes to the visual impact presented by the evaluated project for Clapham Yard during the operational phase. Generally, Clapham Yard is as described for the evaluated project. Where there are changes to what was presented for the evaluated project, the changes are considered to be relatively minor and would be accommodated within the context of the rail and industrial land use environment.

4.7.2 Mitigation and management measures

Recommended mitigation measures for the changed landscape and visual amenity impacts arising from the proposed changes are generally consistent with the evaluated project requirements set out in the approved OEMP and implemented through the endorsed CEMP.

The project OEMP contains the visual amenity and lighting management plan and the CEMP contains the construction activities management sub-plan, which provide more detailed mitigation measures to prevent and manage impacts associated with visual amenity and lighting.

The CRR Delivery Authority has advised tree planting to soften the visual amenity along Fairfield Road will be investigated in consultation with QR, BCC and George Weston Mill to ascertain road safety and operational constraints. Other alternatives may include the incorporation of public art on vertical faces such as retaining walls. Where possible the CRR Delivery Authority will minimise clearing of standing vegetation along the Fairfield Road Frontage, allowing existing plantings to continue providing softening of impact of vertical built structures.

As the mitigation measures are consistent with the existing EMF, no amendments are required to the OEMP, the CEMP or the imposed conditions to accommodate the proposed changes.

The CRR Delivery Authority has confirmed that BCC has been provided with the Landscape Rehabilitation and Urban Design packages for review and comment. This includes elements such as (but not limited to) the Moorooka Station and Clapham Yard.

4.7.3 Coordinator-General's conclusions: Landscape and visual amenity

This evaluation has found that the CRR Delivery Authority has satisfactorily assessed the potential impacts to landscape and visual amenity resulting from the proposed changes to the project.

The effects associated with changes are generally comparable with those assessed as part of the evaluated project. Changes in impact to visual amenity during the operational phase are unlikely to be significant. Construction or temporary change in impacts to visual amenity is likely to remain relatively unchanged from the evaluated project.

No required changes to the project's imposed conditions, CEMP, OEMP and the relevant sub-plan have been identified with respect to the landscape character and visual amenity impacts identified for the proposed changes.

5. Evaluation of the proposed changes to the imposed conditions

5.1 Condition 1: General conditions

The CRR Delivery Authority has requested changes to Imposed Condition 1(a) to allow works at the Clapham Yard site to be carried out generally in accordance with the updated design drawings. Table 5.1 below presents the details of proposed changes to Imposed Condition 1, which will enact the changes evaluated in this report.

The collective requested changes to condition 1 are depicted below where deletions are shown in ~~strikethrough~~ and additions are shown in red.

Table 5.1 Requested changes to Imposed Condition 1

Requested changes to the condition
Condition 1. General conditions (a) The project must be carried out generally in accordance with: (i) the Cross River Rail request for Project Change dated April 2021, as amended by the Response to Submissions Report for the Cross River Rail Request for Project Change dated July 2021; (ii) the drawings provided at Volume 2, Cross River Rail Request for Project Change dated April 2021; ~~(i) the Cross River Rail request for Project Change dated November 2021, as amended by the Response to Submissions Report for the Cross River Rail Request for Project Change dated March 2021;~~ ~~(ii) the drawings provided at Volume 2, Cross River Rail Request for Project Change dated November 2020, as amended by the drawings provided at Attachment D of the Response to Submissions Report for the Cross River Rail Request for Project Change dated March 2021;~~ (iii) the Cross River Rail Request for Project Change dated March 2021; (iv) the Cross River Rail Request for Project Change dated November 2020; ~~(iii)~~(v) the Cross River Rail Request for Project Change dated August 2020; ~~(iv)~~(vi) the Cross River Rail Request for Project Change dated May 2020; ~~(v)~~(vii) amendments to the Project identified in the Cross River Rail Request for Project Change dated June 2018; ~~(vi)~~(viii) amendments to the Project identified in the Cross River Rail Request for Project Change dated November 2018; ~~(vii)~~(ix) the Cross River Rail Request for Project Change dated April 2019. (b) The proponent must notify the Coordinator-General and all nominated entities in Schedule 2 in writing of the commencement of Project Works and the commencement of the commissioning and operational phases of each 'construction site' at least 20 business days prior to the relevant commencement date.

Given the evaluation of the proposed changes in section 4 of this report, the requested changes to Imposed Condition 1 are found to be acceptable.

5.2 Condition 10: Hours of work

The collective requested changes to condition 10 are depicted in section 5.2.2 below where deletions are shown in ~~strikethrough~~ and additions are shown in red.

5.2.1 Construction hours (spoil haulage)

The CRR Delivery Authority has requested changes to Imposed Condition 10(a), Table 1 to remove the existing 'construction hours' limitation on spoil haulage and materials/equipment delivery at the Clapham Yard site to allow for 24 hours, 7 days a week spoil haulage.

This change has been requested to support the efficient delivery of Clapham Yard bulk earthworks, while allowing fill material to be beneficially reused from other CRR worksites. As evaluated in section 4.2 of this report, 24 hours, 7 days a week spoil haulage will also reduce the number of heavy vehicle movements

per hour during peak periods, which supports the improved road safety and management of potential traffic congestion impacts on along the haul route.

Although the CRR Delivery Authority's proposed change would permit 24 hours, 7 days a week spoil haulage to occur for the full duration of construction activities, the CRR Delivery Authority advises this activity would only occur for an approximate 10-month period from August 2021. This 10-month period is reflective of the estimated time required to deliver the 240,000 m^3 of spoil material to the Clapham Yard worksite. I am satisfied that there is a demonstrated need for 24 hours, 7 days a week spoil haulage during this period as outlined in section 4 above. However, I consider it appropriate to restrict the removal of the existing 'construction hours' limitation on spoil haulage to align with the completion of the delivery of the 240,000 m^3 of spoil material to the Clapham Yard worksite to achieve a 1% AEP flood immunity level.

To this end, amendments to Imposed Condition 10 have been made to ensure 24 hours, 7 days a week spoil haulage only occurs for the duration of placement of spoil material at Clapham Yard. The final condition is outlined in Table 5.2 below.

Spoil deliveries aside, other materials and equipment deliveries will still be required for the complete duration of construction works at Clapham Yard and to facilitate construction works associated with the broader project. The CRR Delivery Authority has requested the removal of lock out periods (Monday to Friday, 7:30am to 9:00am and 2:30pm to 4:30pm) to enable spoil haulage and materials and equipment deliveries for Clapham Yard to occur Monday to Saturday, 6:30am to 6:30pm. Allowing heavy vehicles during lock out periods will not adversely impact pedestrian and vehicular traffic safety outside of schools as approved haulage routes are located more than 500 m from the closest school in the vicinity of the Clapham Yard site.

The CRR Delivery Authority advises Clapham Yard will continue to operate as a staging facility for broader construction works on the railway and railway stations during rail possession periods, which are also being upgraded as part of the broader project. Allowance for 24 hours, 7 days a week haulage during approved rail possessions at other CRR worksites will allow for oversized deliveries to be made at Clapham Yard, fabricated, and then delivered to other construction locations within the railway corridor. This includes for station update works at Fairfield, Yeronga, Yeerongpilly, Moorooka, Rocklea and Salisbury.

5.2.2 Extended hours work

The CRR Delivery Authority has requested to change Imposed Condition 10(a), Table 1 to remove the existing limitation of 80 hours of continuous work for approved rail possessions at the Clapham Yard site.

Table 5.2 Requested changes to Imposed Condition 10

Requested changes to the condition
Condition 10. Hours of work (a) Surface works for the Project are authorised to be undertaken within the hours of work set out in Table 1.

Table 1. Construction hours

Worksite	Surface works – standard hours	Extended hours work (includes spoil haulage, materials/equipment delivery to support extended work hours activities, and delivery of "in time" materials such as concrete, hazardous materials, large components and machinery)		Managed Work	Spoil haulage and materials/ equipment delivery (excluding concrete deliveries)
Clapham Yard	Monday to Saturday: 6:30am-6:30pm	Project Works that require continuous construction support, such as continuous concrete pours, pipe-jacking or other forms of ground support necessary to avoid a failure or construction incident	Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	~~Monday to Friday: 6:30pm - 7.30am, 9:00am - 2:30pm, 4:30pm - 6:30pm~~ ~~Saturday: 6:30am - 6:30pm~~ For spoil haulage from other worksites for reuse at Clapham Yard: 24 hours, 7 days until a 1% AEP flood immunity level is achieved for the rollingstock stabling facilities at the Clapham Yard site (approx. 240,000 m^3) For other spoil haulage and materials/equipment delivery: Monday to Saturday: 6:30am - 6:30pm
		For any approved rail possessions for the Cross River Rail project	~~80 hours continuous work~~ Up to 24 hours per day, for the duration of the possession		
		Project Work in a road that cannot be undertaken reasonably nor practicably during standard hours due to potential disruptions to peak traffic flows	At any time permitted by the road authority, or otherwise, Monday to Friday 6:30pm - 10:00pm		
		Project Works involving the transport, assembly or decommissioning of oversized plant, equipment, components or structures	During the hours stated in the road access permit or otherwise Monday to Friday: 6:30pm - 10:00pm		

5.2.2.1 Reasons for the proposed changes to Condition 10: Extended hours work

The granting of longer term rail possessions by Queensland Rail is to ensure the CRR Delivery Authority can have continued and safe use of the rail corridor for the duration of a permitted time (in the project's case – 24 hours, 7 days a week). The duration of the works on rail corridor land at Clapham Yard would be limited to the timeframes specified in rail possession permits approved by Queensland Rail at Clapham Yard and other CRR worksites in the railway corridor. Clapham Yard would continue to be utilised as a construction staging area to facilitate rail possession works elsewhere along the railway corridor. This includes for rail maintenance works undertaken by Queensland Rail as well as upgrades and construction works associated with the CRR project.

The CRR Delivery Authority advise that removal of the current 80 hours extended works limitation will allow for construction of the project to happen more efficiently. Being undertaken in an active rail network, construction works at Clapham Yard will require temporary track closures which will disrupt both freight and passenger train movements. The longer construction takes in these instances, the greater service disruptions are caused to the rail network overall. Therefore, works are generally encouraged to be expedited in these instances.

The CRR Delivery Authority has advised that they meet regularly and work closely with Queensland Rail about the project and applications for rail possession permits as the primary railway operator. Queensland Rail did not provide a submission on this change application.

5.2.2.2 Potential impacts from the proposed changes to Condition 10: Extended hours work

The noise and vibration impact assessment outlined at Volume 3, Attachment B Technical Report: Noise and Vibration of the Request for project change application assessed two noise impact scenarios at Clapham Yard that may result from the proposed changes to extended work hours for Imposed Condition 10(a) for rail possession.

Nine submissions commented on the proposed changes to Condition 10(a) or the potential for an increase in the duration of noise and vibration impacts at nearby sensitive receptors (located adjacent to the rail corridor) during extended rail possessions. A summary of the key concerns raised in relation to potential noise and vibration impacts from extended rail possessions can be found at section 4.3.

CRR Delivery Authority's assessment indicated the worst-case scenario for works within a railway corridor during a rail possession at Clapham Yard could have the potential to result in exceedances of the construction noise goals by up to 1.5 dB(A) in the day and up to 14.5 dB(A) during out of hours works at residences on Blackburn Street. If no mitigation measures or controls are applied, the highest potential noise experienced at surrounding sensitive receptors could be up to 56.5 dB(A), which would not be the case in practice.

In this regard, the change application presented that predicted worst-case scenario noise impacts will not occur along the length of the rail corridor for the whole time of the rail possession. Works are transient and discrete in nature and would move along the rail corridor incrementally as the existing infrastructure is cut and removed and the new infrastructure is being installed. The CRR Delivery Authority noted that noise emissions from this type of activity will gradually increase and then decrease as the works move toward and away from each residence or business.

On 18 June 2021, the CRR Delivery Authority advised the extended rail possessions at Clapham Yard would occur over five discrete periods[13] (i.e. five to seven days during Easter 2022 and Easter 2024) during the four-year construction period. Subject to negotiation and approval by Queensland Rail, the CRR Delivery Authority has indicated[14] the longest rail possession period would be between 14 to 21 days during Christmas 2024 at the end of the construction period to commission Clapham Yard. The change to allow for continuous works greater than 80 hours will allow more time for the CRR Delivery Authority to program and manage works. Where possible, noisier works would be undertaken primarily during daytime work hours, with less intensive works scheduled at night.

Utilisation of Clapham Yard as a construction staging area to facilitate rail possession works at other locations within the railway corridor was also found to have noise impacts less than the assessed worst-case scenario. The staging area will be based on the western side of Clapham Yard and a significant distance from potential sensitive receptors east and south east of Clapham Yard.

The CRR Delivery Authority responded to submitter concerns with a consolidated Response to Submissions Report that has been published as part of the additional information for the change application. Additional information was sought from the CRR Delivery Authority to inform this evaluation, which is contained in the Response to Submissions Report.

Sleep disturbance and hours of construction

To reduce impacts on freight and passenger rail services, construction works within rail corridors are encouraged to be expedited and undertaken during off peak times. To this end, aspects of construction within the Clapham Yard worksite are proposed to occur at night. For Project Work undertaken during an approved rail possession, respite periods do not apply, and the CRR Delivery Authority is able to undertake 24-hour continuous work until those activities are complete.

Due to background noise sources decreasing in the evening, out of hours works (evening (6.30pm to 10.00pm) and night-time works (10.00pm to 6.30am)) have a potential to cause sleep disturbance at receiver locations at these times. This evaluation considers that an exceedance of 5 dB(A) above the construction noise goals during the night-time may lead to sleep disturbance, including intermittent events where only a small number of noise events with a high maximum noise level (i.e. piling) occur. This would align with the current World Health Organisation guidance which stipulates sleep disturbance is likely to be caused by levels of 40 dB(A) and above.

For Clapham Yard, 24-hour continuous works are predicted to result in noise impacts up to 14.5 dB(A) above the construction noise goals during the night-time at residences along Blackburn Street. Additional sensitive receptors would potentially experience sleep disturbance where noise levels are experienced between 5 dB(A) and 14.5 dB(A) above the existing construction noise goals at night-time.

5.2.2.3 Management and mitigation measures for the proposed change to Condition 10: Hours of work

The change application concludes the establishment of the EMF through the imposed conditions provides a robust approach to manage identified impacts of the proposed changes to Imposed Condition 10(a). In accordance with the EMF, all construction methodologies and mitigation measures are interrogated and prepared to reduce impacts to the greatest extent possible. This is informed by risk assessment analysis and predictive impact modelling during detailed design.

[13] Subject to change during detailed design
[14] As the extended rail possessions are typically negotiated with and approved by QR between 6 to 12 months in advance, the proposed extended rail possessions are indicative in nature and will be confirmed by CRR Delivery Authority following the amendment to Imposed Condition 10 to support extended rail possessions.

In accordance with the EMF (discussed in section 2.2.1 above) and as required by Imposed Condition 2, the current OEMP includes the Outline NVMP which incorporates the environmental outcomes and performance criteria that must be achieved by the project. The following is an excerpt from the Outline NVMP:

> ***Environmental Outcomes***
>
> *The following environmental outcomes in relation to noise…are to be achieved for the Project:*
>
> - *Construction activities are designed, planned and implemented to maintain human health and wellbeing, to the extent reasonable and practicable.*
> - *Construction activities generally are designed, planned and implemented to maintain daily patterns of activity, and to minimise sleep disturbance at night…*
>
> ***Performance Criteria***
>
> *The following performance criteria must be achieved throughout construction of the Project:*
>
> *Air-borne Noise*
>
> - *Project Works are designed, planned and implemented to achieve the noise goals specified in Imposed Condition 11 to the extent reasonable and practicable.*
> - *Where predictive modelling conducted prior to the commencement of works in a locality, indicates that the noise goals are likely to be exceeded:*
>   - *potentially Directly Affected Persons must be identified and consulted regarding the potential impacts and the mitigation measures proposed to address the impacts;*
>   - *mitigation measures must be developed in consultation with potentially Directly Affected Persons on a 'case by case' basis prior to commencement of the works; and*
>   - *agreed mitigation measures must be included in a mitigation register and implemented prior to undertaking Project Works.*
> - *Project Works occurring underground or within an effective acoustic enclosure, and achieving the goals for human health and wellbeing set out in Imposed Condition 11, may progress continuously while monitoring indicates noise levels remain below the goals…"*

Consequently, in the event noise impacts are modelled to exceed or monitored above the relevant goal (daytime or night-time goals), engagement with DAPs is required to occur in advance. All mitigation measures to be implemented are to be included in the site-specific CEMP developed for the scope of works, which then is required to be endorsed by the independent Environmental Monitor as being consistent with the OEMP prior to the commencement of relevant Project Works (under Imposed Conditions 4 and 7).

As the CRR Delivery Authority's noise and vibration impact assessment predicted that construction noise goals during out of hours works would be exceeded, the CRR Delivery Authority will be required to implement new tailored and targeted mitigation and management measures in these instances. To meet the requirements of the project's imposed conditions and the approved OEMP, the details of these measures must be incorporated into the NVSP (detailed in section 4.3.1.2 above) prior to the commencement of those works.

As required by the imposed conditions and the OEMP, the CRR Delivery Authority will continue to undertake noise monitoring and reporting of environmental impacts during construction works to demonstrate compliance with the performance criteria and refine management measures as required.

Directly affected persons

As defined in the OEMP and imposed conditions, a DAP is:

> *'an entity being either the owner or occupant of premises for which predictive modelling indicates or monitoring confirms construction impacts to be above the performance criteria in the imposed conditions.'*

In instances when predicted or monitored noise levels are found to be above the relevant construction noise goal (daytime or night-time goals), the CRR Delivery Authority must proactively engage with DAPs and develop tailored mitigation measures on a 'case by case' basis with them. The CRR Delivery Authority must maintain records of engagement with DAPs and add any agreed mitigation measures in the project's mitigation register. The DAP process is generally triggered through two avenues:

(1) Where predicted or monitored noise levels are more than 20 dB(A) above the relevant noise goal, a number of requirements are triggered as per Imposed Condition 11(c)

(2) Where a person enquires or complains about noise and the predicted or measured noise level is 1-20 dB(A) above the relevant construction noise goal, the person would be considered a DAP.

Commencement of works cannot occur unless advance notification and consultation has been undertaken with DAPs. If a person is concerned that noise levels are being exceeded at their location, they have the right to lodge a complaint to the CRR Delivery Authority which is required to investigate the matter and seek to remedy the issue/s raised. The extent of stakeholder consultation and engagement to be undertaken is determined by predictive noise modelling.

Sleep disturbance and hours of construction

The CRR Delivery Authority reports that sensitive receivers likely to experience sleep disturbance (exceedance of the construction noise goals by 5 dB(A) or more) will be proactively identified and consulted prior to the commencement of Project Works. It is noted that predicted noise levels in the change application are worst-case and are subject to the implementation of the construction program, effectiveness of mitigation measures and actual façade reductions experienced in practice.

The Out of Hours Works (OOHW) Protocol, outlined in the RIS-CEMP and NVSP, fulfils the function of a site specific sub-plan for Clapham Yard. The OOHW Protocol details the permitting system that enables OOHW to be assessed and approved by the Stakeholder and Community Relations Manager, the Environment Manager and the Construction Manager (or delegate) up to four weeks prior to works occurring.

For any works during an approved rail possession, an OOHW permit must be obtained by the works supervisor. This ensures differences in the construction program are recognised and opportunities for impact minimisation are thoroughly investigated prior to commencement. The permitting system forces consideration of the scope of work to be undertaken, the scheduling of project works across the worksite and the type of plant and equipment to be used.

Further information from the CRR Delivery Authority confirms that the worst-case scenario for out of hours works will not be experienced for the entire period of the rail possession, being up to 21 days. Despite the rail possession requiring 24-hour continuous works to occur, the CRR Delivery Authority have previously confirmed that in conjunction with the OOWH Protocol and permitting system, high noise generating activities will not occur continuously for the entire duration of the rail possession. Where possible, the CRR

Delivery Authority is expected to schedule lower noise generating activities during night-time, particularly after 10.00pm, significantly reducing the potential for sleep disturbance during night-time works. Therefore, construction noise from within the rail corridor is not likely to cause sleep disturbance for the full 21 days.

Community consultation and engagement

The CEP for the project works, in conjunction with the Outline NVMP, further outlines how the CRR Delivery Authority will undertake communication and engagement with the community and stakeholders relevant to Project Works. The CEP includes specific communication requirements relating to works at night and engagement with identified potential DAPs. This includes details about the timing, duration, scale, and intensity of project works and information about complaints procedures. Accordingly, this evaluation considers the information to be made available to the community will adequately convey the need for the construction programme and extent of night-time Project Works.

In accordance with Imposed Condition 11, the Outline NVMP and the CEP, the CRR Delivery Authority is expected to continue providing advanced notification and undertake consultation with DAPs and near neighbours to address their concerns. For locations whereby Project Works are predicted to exceed the noise goals by more than 20 dB(A), the CRR Delivery Authority will be expected to undertake consultation with DAPs as a priority and commence negotiation of suitable mitigation measures following issue of this report.

Conclusion of the proposed change to Condition 10: Extended hours work

The CRR Delivery Authority has demonstrated the need for the Project Works identified in the change application to be undertaken during extended rail possession periods and acknowledges that these works will result in noise levels at sensitive places that exceed the noise goals outlined in Imposed Condition 11. This evaluation concludes these impacts can be sufficiently mitigated to allow the specified Project Works to proceed and it is accepted the noise impacts from extended hours work activities will be temporary and short term in nature.

It is noted the existing EMF and imposed conditions for the project establish a proactive regime for the identification of DAPs, and requirement to actively engage with DAPs about the appropriate management and mitigation of construction noise and vibration impacts. The assessment concludes that the most appropriate mitigation and management measure/s will be determined by the degree of exceedance of the applicable construction noise goal.

The CRR Delivery Authority must conduct ongoing noise monitoring during construction to validate predictive noise modelling with further investigation of mitigation measures. In the event predictive modelling or monitoring report noise levels above the relevant construction noise goal, the CRR Delivery Authority will engage with potential DAPs and tailor mitigations to address the exceedance.

Noise levels emitted during rail possessions are unlikely to cause sleep disturbance for the full possession period. The CRR Delivery Authority has advised noisier works would be scheduled primarily during day-time work hours, with less intensive works scheduled at night-time between 10.00pm and 6:30am. This evaluation also accepts that potential impacts from the use of Clapham Yard as a staging area to facilitate construction and maintenance elsewhere within the railway corridor will be confined to the western side and will not likely cause nuisance.

6. Coordinator-General's conclusion

This report concludes my evaluation of the proposed project change pursuant to section 35I of the SDPWO Act. The evaluation has found that the requirements of the SDPWO Act have been satisfactorily met and that sufficient information has been provided to enable evaluation of the proposed changes to the conditions of approval.

The report has also considered potential impacts associated with the additional land requirements for the project (lot 1 RP37619; 67 RP37616 and 68 RP37616), including the temporary additional use of lot 9 SP119390 and two road reserves during construction. Inclusion of the additional land is deemed to be acceptable as presented in Volume 2 of the project change application.

The evaluation confirms the EMF for the evaluated project is sufficient to manage the project's potential environmental impacts, including the changes evaluated as part of this report. The EMF includes requirements for the CRR Delivery Authority to consult and collaborate with stakeholders—including DAPs—in advance of any project works and to ensure the implementation of various site-specific mitigations are employed across the project. The complaints management approach required by the EMF was similarly determined to be appropriate. The independent Environmental Monitor and Community Relations Monitor will continue to provide appropriate oversight of the implementation of the EMF to ensure conditions are implemented.

The evaluation concludes that the amendments to Imposed Condition 1 and Imposed Condition 10 will result in overall acceptable outcomes and will ensure that the project continues to be delivered efficiently while limiting the duration of potential nuisance. Accordingly, I approve the changes to the conditions for the Cross River Rail project as outlined in this report.

In accordance with section 35K of the SDPWO Act, the Coordinator-General's report on the EIS for the project, and the Coordinator-General's change report, both have effect for the project. However, if the reports conflict, this Coordinator-General's change report prevails to the extent of the inconsistency with earlier reports.

Section 5 of this report replaces the previous Imposed Condition 1 and Imposed Condition 10 of the evaluated project dated April 2021. The Cross River Rail: Project-wide imposed conditions and recommendations dated July 2021 for the project has been updated to reflect the changes and can be viewed online at www.statedevelopment.qld.gov.au/crr. The CRR Delivery Authority must implement all conditions in this report.

In accordance with section 35L of SDPWO Act, this report will lapse on 31 December 2024.

A copy of this report will be issued to the CRR Delivery Authority.

A copy of this report and all relevant EIS assessment documentation (including the revised project wide imposed conditions and recommendations for the project) are available on the Department of State Development, Infrastructure, Local Government and Planning's website at www.statedevelopment.qld.gov.au/crr.

Toni Power
Coordinator-General

Acronyms and abbreviations

Acronym	Definition
AQMP	Air quality management plan
BCC	Brisbane City Council
CEMP	Construction Environmental Management Plan
CEP	Community Engagement Plan
CGCR	Coordinator-General's change report
CGER	Coordinator-General's evaluation report
CRR	Cross River Rail
CTMP	Construction Traffic Management Plan
DAP	Directly Affected Person
dB(A)	A-weighted decibels
DES	Department of Environment and Science
DTMR	Department of Transport and Main Roads
EIS	environmental impact statement
EMF	environmental management framework
GTIA	DTMR's Guide to traffic impact assessment
M	Metres
NVMP	Noise and Vibration Management Plan
OEMP	Outline Environmental Management Plan
OOHW	Out of hours work
QR	Queensland Rail
SDPWO Act	*State Development and Public Works Organisation Act 1971*

Glossary

Term	Definition
Construction Environmental Management Plan	the Construction Environmental Management Plan referred to in Condition 4.
coordinated project	A project declared as a 'coordinated project' under section 26 of the SDPWO Act. Formerly referred to as 'significant project'.
Coordinator-General	The corporation sole constituted under section 8A of the SDPWO Act and preserved continued and constituted under section 8 of the SDPWOA Act.
directly affected person	an entity being either the owner or occupant of premises for which predictive modelling or monitoring indicates the project impacts would be above the performance criteria in the imposed conditions.
imposed condition	A condition imposed by the Queensland Coordinator-General under section 54B of the SDPWO Act. The Coordinator-General may nominate an entity that is to have jurisdiction for that condition
significant project	A project declared (prior to December 2012) as a 'significant project' under section 26 of the SDPWO Act. Projects declared after 21 December 2012 are referred to as 'coordinated projects'.
Outline EMP	the Outline EMP approved by the Coordinator-General in Condition 2.
predictive modelling	the use of appropriate analytical scenario testing, whether or not by numerical measurements, undertaken prior to the commencement of Project Works.
project work	any works, including early works, demolition works or site preparation works, for construction of the project. Project Work does not include: • any works associated with the demolition of buildings and structures on State owned land • works involving the relocation or replacement of public utilities when undertaken by a public utility authority or provider • the placement and management of spoil at spoil placement locations • works associated with the temporary Roma Street Coach Terminal.
managed work	Project Work for which either the predicted or monitored impacts meet the performance criteria at a Sensitive Place.
the project	The project described in the Coordinator-General's Evaluation Report dated 20 December 2012.

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Office of the Coordinator-General
PO Box 15517 City East Qld 4002 Australia
tel 13 QGOV (13 74 68)
crr@coordinatorgeneral.qld.gov.au
www.statedevelopment.qld.gov.au

Queensland Government