



# **New England Highway bypass of Muswellbrook**

**Chapter 7 Environmental safeguards**

Transport for NSW | October 2021

## 7. Environmental management

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This chapter describes how the proposal would be managed to reduce potential environmental impacts throughout detailed design, construction and operation. A framework for managing the potential impacts is provided. A summary of site-specific environmental safeguards is provided and the licence and/or approvals required prior to construction are also listed.

### 7.1 Environmental management plans (or system)

A number of safeguards and management measures have been identified in the REF in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these safeguards and management measures would be incorporated into the detailed design and applied during the construction and operation of the proposal.

A CEMP would be prepared to describe the safeguards and management measures identified. The CEMP would provide a framework for establishing how these measures would be implemented and who would be responsible for their implementation.

The CEMP would be prepared prior to construction of the proposal and must be reviewed and certified by the Transport Environment Officer, Hunter Region, prior to the commencement of any on-site works. The CEMP would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the QA Specification G36 – *Environmental Protection (Management System)*, QA Specification G38 – *Soil and Water Management (Soil and Water Plan)*, QA Specification G40 – *Clearing and Grubbing*, QA Specification G10 – *Traffic Management*.

## 7.2 Summary of safeguards and management measures

Environmental safeguards and management measures outlined in this REF would be incorporated into the detailed design phase of the proposal and during construction and operation of the proposal, should it proceed. These safeguards and management measures would minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 7-1.

Table 7-1: Summary of safeguards and management measures

No.	Impact	Environmental safeguards	Responsibility	Timing
<b>General</b>				
GEN1	Minimise environmental impacts during construction	<p>A Construction Environmental Management Plan (CEMP) will be prepared and submitted for review and endorsement of the Transport Environment Manager prior to commencement of the activity</p> <p>As a minimum, the CEMP will include the following:</p> <ul style="list-style-type: none"> <li>• Any requirements associated with statutory approvals</li> <li>• Details of how the proposal will implement the identified safeguards outlined in the REF</li> <li>• Issue-specific environmental management plans</li> <li>• Roles and responsibilities</li> <li>• Communication requirements</li> <li>• Induction and training requirements</li> <li>• Procedures for monitoring and evaluating environmental performance, and for corrective action</li> <li>• Reporting requirements and record-keeping</li> <li>• Procedures for emergency and incident management</li> <li>• Procedures for audit and review.</li> </ul> <p>The endorsed CEMP will be implemented during the undertaking of the proposal</p>	Construction contractor and Transport	Pre-construction
GEN2	Environmental awareness	All personnel working on site will receive training to ensure awareness of environment protection requirements to be implemented during the proposal. This will include up-front site induction and regular "toolbox" style briefings	Construction contractor and Transport	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<p>Site-specific training will be provided to personnel engaged in activities or areas of higher risk. These include (the following are examples only):</p> <ul style="list-style-type: none"> <li>• Areas of Aboriginal heritage sensitivity</li> <li>• Threatened species habitat</li> <li>• Adjoining residential areas requiring particular noise management measures</li> </ul>		
<b>Biodiversity</b>				
B1	Biodiversity	<p>A Flora and Fauna Management Plan (FFMP) will be prepared in accordance with Transport for NSW's <i>Biodiversity Guidelines: Protecting and Managing Biodiversity on Projects</i> (RMS, 2011) and implemented as part of the CEMP. The FFMP will include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas</li> <li>• Requirements set out in the <i>Landscape Guideline</i> (RMS, 2008)</li> <li>• Pre-clearing survey requirements</li> <li>• Procedures for unexpected threatened species finds and fauna handling</li> <li>• Procedures addressing relevant matters specified in the <i>Policy and guidelines for fish habitat conservation and management</i> (DPI Fisheries, 2013)</li> <li>• Protocols to manage weeds and pathogens</li> </ul>	Construction contractor	Detailed design and pre-construction
B2	Biodiversity	Measures to further avoid and minimise the construction footprint and native vegetation or habitat removal will be investigated during detailed design and implemented where practicable and feasible	Construction contractor	Detailed design and pre-construction
B3	Removal of native vegetation	Native vegetation removal will be minimised through detailed design	Transport	Detailed design
B4	Removal of native vegetation	Native vegetation removal will be minimised via selective placement of temporary ancillary facilities i.e. preference is to avoid areas of higher biodiversity value and to select areas already subject to disturbance	Construction contractor	Pre-construction and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
B5	Removal of native vegetation	Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Pre-construction
B6	Removal of native vegetation	Exclusion zones will be set up at the limit of clearing or where areas containing pathogens or disease are identified in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B7	Removal of native vegetation	Vegetation removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B8	Removal of native vegetation	Native vegetation will be re-established (particularly along new road verges within proximity to known Striped Legless Lizard habitat) in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011) to minimise weed encroachment (in particular perennial grass species)	Construction contractor	Construction and post construction
B9	Removal of native vegetation	The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011) if threatened entities, not assessed in the biodiversity assessment, are identified in the construction footprint	Construction contractor	Construction
B10	Removal of threatened species habitat and habitat features	Habitat will be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B11	Removal of threatened species habitat and habitat features	Site personnel working within proximity of Striped Legless Lizard habitat will be provided with an information sheet and/or induction. An exclusion zone will be set up around known Striped Legless Lizard habitat during construction in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines -	Construction contractor	Pre-construction and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		Protecting and managing biodiversity on RTA projects (Roads and maritime Authority, 2011)		
B12	Removal of threatened species habitat and habitat features	A nest box strategy will be developed in accordance with Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011). The nest box strategy will primarily target the replacement of hollow resources being removed by the proposal on the Squirrel Glider. Final hollow resource impacts and subsequent nest boxes required will be informed by the tree clearing program	Construction contractor	Pre-construction
B13	Aquatic impacts	Aquatic habitat will be protected in accordance with Guide 10: Aquatic habitats and riparian zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011) and Section 3.3.2 Standard precautions and mitigation measures of the Policy and guidelines for fish habitat conservation and management Update 2013 (Department of Primary Industries, 2013)	Construction contractor	Construction
B14	Injury and mortality of fauna and fragmentation of identified habitat corridors	Fauna will be managed in accordance with Guide 9: Fauna handling of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B15	Injury and mortality of fauna and fragmentation of identified habitat corridors	Road-kill and connectivity impacts will be minimised via: <ul style="list-style-type: none"> <li>• Installation of one aerial fauna crossing structure to retain fauna connectivity in the vicinity of where Squirrel Gliders have been recorded. The final location, design and type of structure will be determined during detailed design</li> <li>• Construction of a bridge over Muscle Creek to provide underpass fauna crossing for terrestrial fauna species such as the Koala</li> <li>• Consideration of fauna exclusion fencing in areas where fauna crossing structures are proposed for example near Muscle Creek and/or near known habitat for Striped Legless Lizard</li> </ul>	Construction contractor	Detailed design, construction and post construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Installation of 'Koala Warning Signs' or 'Injured Native Wildlife Signs' in areas of potential wildlife conflict areas or crossing points</li> </ul>		
B16	Invasion and spread of weeds	Priority weed species will be managed in accordance with Guide 6: Weed management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B17	Invasion and spread of pests	Pest species will be managed within the construction footprint	Construction contractor	Construction
B18	Invasion and spread of pathogens and disease	Hygiene procedures will be implemented for the use of vehicles and the importation of materials to the proposal footprint in accordance with Guide 7: Pathogen management of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (Roads and Traffic Authority, 2011)	Construction contractor	Construction
B19	Groundwater dependant ecosystems (GDE)	Interruptions to water flows associated with GDEs will be minimised through detailed design	Transport	Detailed design
B20	Habitat removal	A Biodiversity Offset Strategy will be prepared for the proposal in accordance with Guidelines for Biodiversity Offsets (Roads and Maritime Services, 2016)	Construction contractor	Pre-construction
<b>Surface water and flooding</b>				
W1	General	<p>A Soil and Water Management Plan (SWMP) will be prepared in accordance with QA Specification G38 and implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution associated with undertaking the activity and describe how these risks will be managed and minimised during construction, including arrangements for managing pollution risks associated with spillage or contamination on the site and adjoining areas, and monitoring during and post-construction</p> <p>The Soil and Water Management Plan will address the following:</p>	Construction contractor	Pre-construction and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>• Code of Practice for Water Management, the Roads and Maritime Erosion and Sedimentation Procedure</li> <li>• The NSW Soils and Construction – Managing Urban Stormwater Volume 1 “the Blue Book” (Landcom, 2004) and Volume 2 (DECC, 2008)</li> <li>• Technical Guideline: Temporary Stormwater Drainage for Road Construction, 2011</li> <li>• Technical Guideline: Environmental Management of Construction Site Dewatering, 2011</li> </ul>		
W2	Soil erosion and sedimentation	<p>A site-specific Erosion and Sediment Control Plan (ESCP) will be prepared and implemented and included in the SWMP. The ESCP will identify detailed measures and controls to be applied to minimise erosion and sediment control risks including, but not necessarily limited to:</p> <ul style="list-style-type: none"> <li>• Runoff, diversion and drainage points</li> <li>• Sediment management devices, such as fencing, hay bales or sandbags</li> <li>• Scour protection and energy dissipaters at locations of high erosion risk</li> <li>• Stabilising disturbed areas as soon as possible, check dams, fencing and swales</li> <li>• Staged implementation arrangements</li> </ul> <p>The ESCP will also include arrangements for managing wet weather events, including monitoring of potential high-risk events (such as storms) and specific controls and follow-up measures to be applied in the event of wet weather</p>	Construction contractor	Construction
W3	Contamination of surface water quality	Sediment control basins will be provided at flow discharge points associated with the bypass and bridges over Muscle Creek and Sandy Creek. The requirements for erosion control measures and sediment basins (i.e. number, location and size) will be determined during the proposal detailed design phase	Construction contractor	Detailed design and construction
W4	Contamination of surface water quality	A Spill Management Plan (SMP) will be prepared and implemented as part of the CEMP to minimise the risk of pollution arising from spillage or contamination on	Construction contractor	Pre-construction



No.	Impact	Environmental safeguards	Responsibility	Timing
		<p>the site and adjoining areas. The SMP will address, but not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>• Management of chemicals and potentially polluting materials</li> <li>• Appropriate location and storage of construction materials, fuels and chemicals, including bunding where appropriate</li> <li>• Maintenance of plant and equipment</li> <li>• Emergency management, including notification, response and clean-up procedures.</li> </ul>		and construction
W5	Surface water quality	Water quality requirements will form part of the conditions stipulated in the environment protection licence (EPL) for the proposal. The current water quality monitoring program results will be used for baseline purposes	Construction contractor	Construction
W6	Flood mitigation	<p>A Flood Risk Management Plan (FRMP) will be prepared as part of the CEMP. The FRMP will address, but not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>• Processes for monitoring and mitigating flood risk</li> <li>• Steps to be taken in the event of a flood warning including removal or securing of loose material, equipment, fuels and chemicals</li> </ul>	Construction contractor	Construction
<b>Groundwater</b>				
GW1	Groundwater dewatering	Any dewatering activities will be undertaken in accordance with the RTA Technical Guideline: Environmental management of construction site dewatering in a manner that prevents pollution of waters	Construction contractor	Detailed design and construction
GW2	Groundwater dewatering	If required, groundwater abstraction requirements during the development phase of the proposal will form part of the condition stipulated in the EPL for the proposal	Construction contractor	Detailed design and construction
GW3	Groundwater impact mitigation	Any dewatering activities will be undertaken in accordance with the RTA Technical Guideline: Environmental management of construction site dewatering in a manner that prevents pollution of waters	Construction Contractor	Detailed design and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
GW4	Groundwater impact mitigation	Additional geotechnical investigations will be undertaken to determine the: <ul style="list-style-type: none"> <li>• Need for dewatering</li> <li>• Likely dewatering volumes</li> <li>• Impacts on draw down</li> <li>• Quality of groundwater that would be encountered during construction</li> </ul>	Contractor	Detailed design
GW5	Groundwater impact mitigation	To minimise the potential of encountering groundwater during construction, pile holes should be installed by advancing steel casing into the ground as they are advanced	Construction contractor	Detailed design and construction
<b>Soils and contamination</b>				
E1	Excess spoil	Excess spoil not required or able to be used for backfilling will be stockpiled in a suitable location before being reused or removed from the site, and disposed of appropriately in accordance with the NSW EPA Waste Classification Guidelines (2014)	Construction contractor	Construction
E2	Erosion and sedimentation	Erosion and sediment controls will be implemented before any construction starts and inspected regularly, particularly after a rainfall event. Maintenance work will be carried out as needed	Construction contractor	Construction
E3	Erosion and sedimentation	Site stabilisation of disturbed areas will be carried out progressively as stages are completed	Construction contractor	Construction
E4	Erosion and sedimentation	All stockpiles will be designed, established, operated and decommissioned in accordance with Roads and Maritime Stockpile Management Guideline (RTA, 2011)	Construction contractor	Construction
E5	Erosion and sedimentation	The rehabilitation of disturbed areas will be undertaken progressively as construction stages are completed, in accordance with:	Construction contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>The NSW Soils and Construction – Managing Urban Stormwater Volume 1 “the Blue Book” (Landcom, 2004) and Volume 2 (DECC, 2008)</li> <li>Landscape Guideline (RTA 2018)</li> <li>Guideline for Batter Stabilisation using Vegetation (Roads and Maritime 2015)</li> </ul>		
E6	Erosion and sedimentation	Batters will be designed and constructed to minimise risk of exposure, instability and erosion, and to support long-term, on-going best practice management, in accordance with <i>Guideline for Batter Surface Stabilisation using Vegetation</i> (Roads and Maritime 2015)	Transport and Construction contractor	Detailed design and construction
E7	Tracking of soil off site	Controls will be implemented at exit points to minimise the tracking of soil and particulates onto pavement surfaces	Construction contractor	Construction
E8	Contamination	A Phase II Environmental Site Assessment (ESA) will be prepared to quantify potential areas of contamination identified within the Preliminary CSM of this the Phase I Contamination Assessment and to better inform the CEMP	Transport	Pre-construction
E9	Contamination	The CEMP will include an unexpected finds protocol for potentially contaminated material encountered during construction work	Construction contractor	Construction
E10	Contamination	Should contamination which may pose potential risk to human health and the environment be encountered during construction, further assessment may be required following consultation with Transport environmental staff	Construction contractor	Construction
E11	Contamination	<p>If contaminated areas are encountered during construction, appropriate control measures will be implemented to manage the immediate risks of contamination. This may include but not be limited to:</p> <ul style="list-style-type: none"> <li>Diversion of surface runoff</li> <li>Capture of any contaminated runoff</li> <li>Temporary capping.</li> </ul> <p>All other works that may impact on the contaminated area will cease until the nature and extent of the contamination has been confirmed and any necessary</p>	Construction contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		site-specific controls (for the proposed road corridor) or further actions identified in consultation with the Transport Environment Manager and/or the EPA are implemented		
E12	Contamination	<p>An Asbestos Management Plan will be developed and implemented to manage asbestos and asbestos containing material if encountered during the construction. The plan will include:</p> <ul style="list-style-type: none"> <li>• Identification of potential asbestos on site</li> <li>• Procedures to manage and handle any asbestos</li> <li>• Mitigation measures if asbestos is encountered during construction</li> <li>• Procedures for disposal of asbestos in accordance with the NSW EPA guidelines, Australian Standards and relevant industry codes of practice</li> </ul>	Construction contractor	Construction
<b>Traffic and Transport</b>				
T1	Construction traffic management	<p>A Traffic Management Plan (TMP) will be prepared and implemented as part of the CEMP. The TMP will be prepared in accordance with the Transport for NSW <i>Traffic Control at Work Sites Manual</i> (Transport for NSW, 2020) and <i>QA Specification G10 Control of Traffic</i> (Transport for NSW, 2020). The TMP will include:</p> <ul style="list-style-type: none"> <li>• Confirmation of haulage routes</li> <li>• Measures to maintain access to local roads and properties</li> <li>• Site specific traffic control measures (including signage) to manage and regulate traffic movement</li> <li>• Measures to maintain pedestrian and cyclist access</li> <li>• Requirements and methods to consult and inform the local community of impacts on the local road network</li> <li>• Access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads.</li> <li>• A response plan for any construction traffic incident</li> </ul>	Construction contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>• Consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic</li> <li>• Monitoring, review and amendment mechanisms</li> </ul>		
T2	Access to properties	Disruptions to property access and traffic will be notified to landowners at least five days prior in accordance with the relevant community consultation processes outlined in the TMP	Transport	Detailed design
T3	Access to properties	Where any legal access to property is permanently affected, arrangements for appropriate alternative access will be determined in consultation with the affected landowner and local road authority	Construction contractor and Transport	Detailed design
T4	Access to properties	Access to properties will be maintained during construction. Where that is not feasible or necessary, temporary alternative access arrangements will be provided following consultation with affected landowners and the relevant local road authority	Construction contractor and Transport	Construction
T5	Local road condition	Pre-construction and post construction road condition reports for local roads likely to be used during construction will be prepared. Any damage resulting from construction (not normal wear and tear) will be repaired unless alternative arrangements are made with the relevant road authority. Copies of road condition reports will be provided to the local roads authority	Construction contractor	Pre and post construction
T6	Pedestrian and cyclist access	Pedestrian and cyclist access will be maintained throughout construction. Where that is not feasible or necessary, temporary alternative access arrangements will be provided following consultation with affected landowners and the local road authority	Construction contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
<b>Noise and vibration</b>				
NV1	Noise and vibration	The Noise and Vibration Technical Report will be re-evaluated based on the detailed design in order to reaffirm noise predictions and potential impacts as a result of the proposal	Transport	Pre-construction
NV2	Noise and vibration	<p>A Construction Noise and Vibration Management Plan (CNVMP) will be prepared and implemented as part of the CEMP. The CNVMP will identify:</p> <ul style="list-style-type: none"> <li>• All potential significant noise and vibration generating activities associated with the activity</li> <li>• Noise and vibration sensitive receivers</li> <li>• Measures to be implemented during construction to minimise noise and vibration impacts, such as restrictions on working hours, staging, placement and operation of work compounds, parking and storage areas, temporary noise barriers, haul road maintenance and controlling the location and use of vibration generating equipment</li> <li>• Feasible and reasonable mitigation measures to be implemented, taking into account Beyond the Pavement: urban design policy, process and principles (Transport for NSW, 2014)</li> <li>• A monitoring program to assess performance against relevant noise and vibration criteria</li> <li>• Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures</li> <li>• An out of hours works procedure, including approval process and proposed mitigation measures</li> </ul>	Construction contactor	Pre-construction and construction
NV3	Noise and vibration	<p>All sensitive receivers likely to be affected will be notified at least five days prior to commencement of any works associated with the scenario that may have an adverse noise or vibration impact. The notification will include details of:</p> <ul style="list-style-type: none"> <li>• The proposal</li> <li>• Construction period and construction hours</li> <li>• Contact information for proposal management staff</li> </ul>	Construction contactor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Complaint and incident reporting and how to obtain further information</li> </ul>		
NV4	Noise and vibration	<p>All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include:</p> <ul style="list-style-type: none"> <li>All relevant proposal specific and standard noise and vibration mitigation measures</li> <li>Relevant licence and approval conditions</li> <li>Permissible hours of work</li> <li>Any limitations on high noise generating activities</li> <li>Location of nearest sensitive receivers</li> <li>Construction employee parking areas</li> <li>Designated loading/unloading areas and procedures</li> <li>Site opening/closing times (including deliveries)</li> <li>Environmental incident procedures</li> </ul>	Construction contactor	Construction
NV5	Noise and vibration	<p>Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Works generating high noise and/or vibration levels should be scheduled during less sensitive time periods</p> <p>Any variations to the standard construction hours will follow the approach in Roads and Maritime Services – Construction Noise and Vibration Guideline, including consultation with the affected local community</p>	Construction contactor	Construction
NV6	High noise generating work – standard construction hours	<p>Where feasible and reasonable, high noise generating work (75 dB(A) <math>L_{Aeq}</math> at receiver) will be carried out during standard construction hours and in continuous blocks of no more than three hours with at least one hour respite between each block of work generating high noise impact, where the location of the work is likely to impact the same receiver</p>	Construction contactor	Construction
NV7	High noise generating activities – out of hours	<p>Where high noise generating activities (75 dB(A) <math>L_{Aeq}</math> at receiver) are required out of hours, the following will be implemented:</p> <ul style="list-style-type: none"> <li>The equipment will be used prior to 10pm where feasible and reasonable</li> </ul>	Construction contactor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Where the above cannot be achieved the equipment will be used prior to midnight where feasible and reasonable</li> <li>It is not proposed apply a three hour on and a one hour off respite approach in an effort to ensure that the use of such equipment is completed as early in the night as possible</li> </ul>		
NV8	Noise	Where properties have been identified for architectural treatment and these properties will be impacted by noise from construction works, Transport will consult with those property owners on the early installation of treatments to provide noise mitigation during the construction of the proposal, where feasible	Transport	Pre-construction
NV9	Noise from deliveries	<p>The following will be implemented for deliveries to and from the proposal:</p> <ul style="list-style-type: none"> <li>Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers</li> <li>Dedicated loading/unloading areas are to be shielded if close to sensitive receivers</li> <li>Delivery vehicles are to be fitted with straps rather than chains for unloading, wherever possible</li> <li>Construction sites will be arranged to limit the need for reversing associated with regular/repeatable movements</li> </ul>	Construction contactor	Construction
NV10	Noise from construction vehicles/plant	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work	Construction contactor	Construction
NV11	Noise from construction ancillary facilities	The noise associated with the operation of construction ancillary facilities will primarily result from the operation of fixed and mobile plant and truck movements. Consideration will be given to the layout of the site (positioning of site sheds, earth bunds and hoarding) in order to maximise distance and shielding to nearby receivers	Construction contactor	Pre-construction and construction



No.	Impact	Environmental safeguards	Responsibility	Timing
NV12	Noise	Where practicable, work should be scheduled to avoid major student examination periods such as before or during Higher School Certificate and at the end of higher education semesters	Construction contactor	Construction
NV13	Noise	<p>In circumstances where the noise levels are predicted to exceed construction noise management levels after implementation of the general work practices, additional mitigation measures are required. These measures include the following:</p> <ul style="list-style-type: none"> <li>• Monitoring</li> <li>• Notification (letterbox drop or equivalent)</li> <li>• Specific notifications</li> <li>• Phone calls</li> <li>• Individual briefings</li> <li>• Respite offers</li> <li>• Respite periods</li> <li>• Duration respite</li> <li>• Alternative accommodation</li> </ul>	Construction contactor	Construction
NV14	Vibration	Vibration intensive equipment size will be considered to avoid working within the structural damage minimum working distances. The use of less vibration intensive methods of construction or equipment will be considered where feasible and reasonable	Construction contactor	Construction
NV15	Vibration	Where the use of vibration intensive equipment within the relevant minimum working distances cannot be avoided, prior to the commencement of vibration intensive work, a detailed inspection will be carried out and a written and photographic report prepared to document the condition of buildings and structures within the minimum working distances. A copy of the report will be provided to the relevant landowner or land manager	Construction contactor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
NV16	Operational noise	To confirm that the noise levels targets are achieved, a post-construction noise monitoring program will be carried out in accordance with the <i>Noise Mitigation Guideline</i> within 12 months of opening to traffic	Contractor	Operation
<b>Aboriginal cultural heritage</b>				
A1	Aboriginal cultural heritage	An application for an Aboriginal heritage Impact Permit (AHIP) will be made under section 90A of the NP&W Act. The application will be prepared in accordance with the Heritage NSW Applying for an <i>Aboriginal Heritage Impact Permit: Guide for Applicants</i> (OEH 2011b). An AHIP will be sought for the land and associated objects within the boundaries of the construction footprint	Transport	Pre-construction
A2	Aboriginal cultural heritage	The AHIP will include provision for impact mitigation through archaeological salvage excavation at Muswellbrook Bypass AFT 1 and Muswellbrook Bypass AFT 9  Salvage excavations will be completed prior to any activities (including pre-construction activities) which may harm Aboriginal objects at these site locations. Salvage excavation activities will be undertaken in accordance with the approved methodology	Transport	Pre-construction
A3	Aboriginal cultural heritage	The AHIP will also include provision for community surface collection at all impacted site areas. The collection must be completed prior to any activities which may harm Aboriginal objects at these site locations and will be conducted as part of the overall salvage program, following the issue of the AHIP  The collected objects will be recorded as part of the excavation report and included in the excavation assemblage for long term storage. The collection of surface artefacts will be undertaken in accordance with the approved methodology	Transport	Pre-construction
A4	Aboriginal cultural heritage	The short term management of collected Aboriginal objects will be as follows:	Transport	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Any Aboriginal objects that are removed from the land by actions authorised by an AHIP, must be moved as soon as practicable to the temporary storage location pending any agreement reached about the long term management of the Aboriginal objects</li> <li>The temporary storage location will be KNC, Level 10, 25 Bligh Street, Sydney NSW 2000</li> <li>Any Aboriginal objects stored at the temporary storage location must not be further harmed, except in accordance with the conditions of the AHIP.</li> </ul> <p>The long term management of collected Aboriginal objects is as follows:</p> <ul style="list-style-type: none"> <li>Recovered objects will be lodged with the Australian Museum in the first instance in accordance with the Australian Museum Archaeological Collection Deposition Policy</li> <li>If required, a variation will be sought for recovered objects to be held by the Aboriginal community or reburied. If reburial is to take place, registered Aboriginal parties will be notified and given the opportunity to attend</li> <li>Requirement 26 "Stone artefact deposition and storage" in the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW must be complied with</li> </ul>		
A5	Aboriginal cultural heritage	<p>An Aboriginal Heritage Management Plan(AHMP) will be prepared and implemented as part of the CEMP</p> <p>The AHMP will provide specific guidance on measures and controls to be undertaken to avoid and mitigate impacts on Aboriginal cultural heritage during construction. This should include protection measures to be applied during construction, including but not limited to the recommendations set out in this table, as well as contractor training in general Aboriginal cultural heritage awareness and management of Aboriginal heritage values</p>	Construction contractor	Pre-construction and construction
A6	Aboriginal cultural heritage	<p>The non-impacted portion of partially impacted sites (outside of construction footprint and AHIP boundary) will be marked on the CEMP prior to construction activities to ensure these parts of the sites are avoided and not impacted by the</p>	Construction contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<p>proposal. The site areas will be marked as environmentally sensitive “no-go zones”</p> <p>Temporary fencing will be installed around the edge of the non-impacted archaeological site areas and AHIP boundary during construction to provide a physical barrier against accidental access or impact</p> <p>Workers will be inducted as to appropriate Aboriginal heritage protection measures</p>		
A7	Aboriginal cultural heritage	<p>An Aboriginal cultural heritage awareness training package will be delivered as part of the site induction for all contractor(s) and maintenance personnel involved in the construction works</p> <p>The training package will be developed by a cultural heritage specialist in consultation with the RAPs and Aboriginal cultural knowledge holders. The training package will at a minimum ensure awareness of the cultural significance of the construction footprint, the requirements of the AHMP and relevant statutory responsibilities, and the identification of unexpected heritage items and appropriate management procedures</p>	Construction contractor	Pre-construction and construction
A8	Aboriginal cultural heritage	<p>A cultural heritage specialist will be engaged to develop interpretative materials on the cultural values and historical records relating to Site A: Sandy Creek Cultural Resource Area; Site B Skellatar Hill Line of Sight; and Site C Pathway cultural sites and the cultural landscape they sit within</p> <p>The form of the interpretative materials will be determined in consultation with the Aboriginal cultural knowledge holders and registered Aboriginal persons (RAPs) following investigation of options with Muswellbrook Shire Council.</p> <p>Options to be considered include interpretative signage, an educational booklet, and input into (aesthetic) design elements to reflect the Aboriginal cultural values of the area</p>	Transport	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
A9	Aboriginal cultural heritage	<p>The proposed bridge to be constructed near Site A: Sandy Creek Resource Area will be named in recognition of the Aboriginal cultural values and history of the region</p> <p>A range of potential names with supporting explanations will be developed by a cultural heritage specialist in consultation with the Aboriginal cultural knowledge holders and RAPs, with the options to be presented to the Aboriginal cultural knowledge holders and RAPs for their review and nomination of a preferred option to Transport</p>	Transport	Pre-construction
A10	Aboriginal cultural heritage	The AHMP will include an <i>Unexpected Heritage Items Procedure</i> (Roads and Maritime 2015) requiring notification of the identified knowledge holders within 48 hours of any discovery of potential archaeological Aboriginal skeletal remains during the proposed works	Transport	As required
A11	Aboriginal cultural heritage	If there is a confirmed discovery of archaeological Aboriginal human remains, consultation will occur with the RAPS and Aboriginal cultural knowledge holders in relation to: the development of a Management Plan for proposed works in the relevant area; cultural ceremonies in relation to the human remains and the site of their occurrence; and repatriation of the human remains	Transport	As required
<b>Non-Aboriginal Heritage</b>				
H1	Non-Aboriginal Heritage	A Non-Aboriginal Heritage Management Plan (NAHMP) will be prepared and implemented as part of the CEMP. The NAHMP will provide specific guidance on measures and controls to be implemented to avoid and mitigate impacts to Non-Aboriginal heritage	Construction contractor	Pre-construction
H2	Non-Aboriginal heritage	The <i>Standard Management Procedure - Unexpected Heritage Items</i> (Transport for NSW, 2015) will be followed in the event that any unexpected heritage items, archaeological remains or potential relics of Non-Aboriginal origin are	Construction contractor	During construction

No.	Impact	Environmental safeguards	Responsibility	Timing
<p>encountered. Work will only re-commence once the requirements of that Procedure have been satisfied</p>				
H3	Non-Aboriginal heritage	<p>Two buffer zones will be set up around the old coal rail spur bridge over Muscle Creek and its associated elements, including:</p> <ul style="list-style-type: none"> <li>• a 25 metre radius exclusion zone that is made known to all workers operating near the site</li> <li>• a 50 metre radius limited works area</li> </ul> <p>All those operating within the area will be made aware of the existence of the heritage items and that they are not to be disturbed</p> <p>An archival recording of the former bridge, to be carried out on the bridge prior to the commencement of works, will be considered in consultation with the landowner, MCC. This recording will record, in detail, the bridge and all fabric associated with it. This recording will also be used as a baseline assessment that will allow for a comparison of the bridge and specific elements before and after construction works</p> <p>Vibration monitoring will be undertaken within close proximity of the bridge. This is to record any actual vibration that is encountered in the vicinity of the bridge from construction. This monitoring will be done in conjunction with a visual inspection of the bridge to assess any potential vibration impacts. This monitoring will be added to the CEMP for the proposal.</p>	Construction contractor	During construction
<p><b>Air Quality</b></p>				
AQ1	Air Quality	<p>An Air Quality Management Plan (AQMP) will be prepared and implemented as part of the CEMP. The AQMP will identify:</p> <ul style="list-style-type: none"> <li>• Potential sources of air pollution (such as dust, vehicles transporting waste, plant and equipment) during construction</li> </ul>	Construction contractor	During construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>• Air quality management objectives consistent with relevant published EPA and/or DPIE guidelines including:               <ul style="list-style-type: none"> <li>○ No Dust, No Fuss – Guidelines for controlling dust from construction sites. NSW EPA</li> <li>○ Best Practice Erosion and Sediment Control. IECA, November 2008</li> <li>○ The “Blue Book” - Managing Urban Stormwater: Soils and Construction, Landcom (2004) 4th Ed.</li> </ul> </li> <li>• Mitigation and suppression measures to be implemented, such as spraying or covering exposed surfaces, provision of vehicle clean down areas, covering of loads, road cleaning, use of dust screens, maintenance of plant in accordance with manufacturer's instructions</li> <li>• Methods to manage works during strong winds or other adverse weather conditions</li> <li>• A progressive rehabilitation strategy for exposed surfaces</li> <li>• When the air quality, suppression and management measures need to be applied, who is responsible, and how the effectiveness of measures will be assessed</li> <li>• Community notification and complaint handling procedures</li> </ul>		
AQ2	Air Quality	As part of the AQMP, a monitoring program will be developed to monitor construction dust from the proposal. The monitoring plan will be implemented prior to construction and during the construction period, to assess effective implementation of air quality safeguards, identify any unexpected or inadvertent impacts, and identify recommended revisions or improvements	Construction contractor	During construction
	<b>Landscape and visual</b>			
LV1	Landscape and visual	Visual impact mitigation at Muscle Creek Road will include: <ul style="list-style-type: none"> <li>• Tree planting along the proposed relocated driveway which will assist in reducing the visual impact of the proposal on receptors by partially screening</li> </ul>	Construction contractor	Detailed design

No.	Impact	Environmental safeguards	Responsibility	Timing
		<p>the view to the bypass from these locations. Semi mature trees and shrubs will provide immediate screening post construction</p> <ul style="list-style-type: none"> <li>Scattered tree or shrub planting to the batters of the proposed bypass road, particularly between Muscle Creek Road and Muscle Creek, which will visually 'break up' the flat expanse of the batter planted with pasture grasses</li> </ul>		
LV2	Landscape and visual	<p>The landscape treatment south from the northern connection along the New England Highway will include rows of ornamental trees to assist in screening the changes within the view and increase visual amenity. Ornamental trees provide a 'gateway' landscape treatment to the township of Muswellbrook</p> <p>The landscape treatment to the central connection (at Coal Road) will be more visually recessive, with scattered tree and shrub planting to match the length of the bypass and suggest a more local entry point to the township, rather than the 'gateway' statement at the northern and southern connections</p>	Construction contractor	Detailed design
LV3	Landscape and visual	<p>All plant material will be locally sourced (seed collection preferred), with any seed collection to commence within three months of construction contract award, where possible</p>	Construction contractor	Detailed design
LV4	Landscape and visual	<p>An Urban Design Plan will be prepared as part of the CEMP. The Plan will include:</p> <ul style="list-style-type: none"> <li>Location and identification of vegetation in the proposal area to be retained and proposed landscaped areas</li> <li>Details of the staging of built elements including bridges and concrete barriers</li> <li>Details of the staging of landscape works</li> <li>Maintenance measures for landscaped or rehabilitated areas, including timing of maintenance works</li> <li>A landscape monitoring program including an inspection program and frequency of inspection</li> </ul>	Construction contractor	Detailed design and Pre-construction



No.	Impact	Environmental safeguards	Responsibility	Timing
<b>Property and land use</b>				
P1	Property acquisition	All property acquisition will be carried out in accordance with the <i>Land Acquisition Information Guide</i> (Transport for NSW, 2012) and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>	Transport	Detailed design
P2	Property acquisition	Transport will complete property adjustments to areas impacted by the proposal, including to fencing and driveways/access in consultation with affected property owners	Transport	Detailed design
P3	Property acquisition	Transport will investigate the possibility of licencing land beneath the bridge to be situated over Sandy Creek to impacted landowners to enable continued access for fragmented properties	Transport	Detailed design
<b>Socio-economic</b>				
SE1	Community information	<p>A Communication Plan (CP) will be prepared and implemented as part of the CEMP to ensure provision of timely and accurate information to the community during construction. The CP will include (as a minimum):</p> <ul style="list-style-type: none"> <li>• Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions</li> <li>• Contact name and number for complaints</li> <li>• How the proposal webpage will be maintained for the duration of the proposal.</li> <li>• Minimum consultation activities to be carried out</li> <li>• A complaints handling procedure</li> </ul>	Construction contractor	Pre-construction and construction
SE2	Business impacts	<p>Transport will develop a signage strategy for the entrances to Muswellbrook, in consultation with Muswellbrook Shire Council to encourage motorists to visit Muswellbrook. This will include signage showing:</p> <ul style="list-style-type: none"> <li>• The travel distances and estimated times for travelling routes via the bypass compared to travelling via the Muswellbrook town centre</li> </ul>	Transport	Detailed design and operation

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Services and facilities available within the Muswellbrook township</li> <li>Visitor attractions within the Muswellbrook township</li> </ul>		
SE3	Business impacts	Transport will engage with Muswellbrook Shire Council and local businesses regarding the progress of the proposal to allow businesses time to prepare for changed traffic conditions through the town	Transport	Detailed design and construction
SE4	Employment	Construction workers will be sourced from the local area where feasible	Construction contractor	Construction
SE5	Business impacts	Access to businesses will be maintained throughout the proposal	Construction contractor	Construction
<b>Waste and material management</b>				
M1	Resource use	Use of recycled-content materials will be considered during the detailed design	Transport	Detailed design
M2	Construction waste	<p>A Waste Management Plan (WMP) will be prepared and implemented as part of the CEMP. The WMP will provide specific guidance on measures and controls to be implemented to support minimising the amount of waste produced and appropriate handling and disposal of unavoidable waste.</p> <p>The WMP will include, but will not necessarily be limited to:</p> <ul style="list-style-type: none"> <li>Measures to avoid and minimise waste associated with the proposal</li> <li>Classification of wastes generated by the proposal and management options (re-use, recycle, stockpile, disposal)</li> <li>Classification of wastes received from off-site for use in the proposal and management options</li> <li>Any statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions</li> <li>Procedures for storage, transport and disposal</li> </ul>	Construction contractor	Pre-construction and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Monitoring, record keeping and reporting, including any documentation management obligations arising from resource recovery exemptions</li> </ul> <p>The WMP will be prepared taking into account the Transport <i>Environmental Procedure – Management of Wastes on Roads and Maritime Services Land</i> and relevant Transport Waste Fact Sheets</p>		
M3	Construction waste	<p>The following resource management hierarchy principles will be followed:</p> <ul style="list-style-type: none"> <li>Avoid unnecessary resource consumption as a priority</li> <li>Avoidance will be followed by resource recovery (including reuse of materials, reprocessing, and recycling and energy recovery)</li> <li>Disposal will be a last resort (in accordance with the Waste Avoidance and Resource Recovery Act 2001)</li> </ul>	Construction contractor	Pre-construction and construction
M4	Contamination	The CEMP will include an unexpected finds protocol for potentially contaminated material encountered during construction work	Construction contractor	Construction
M5	Contamination	<p>An Asbestos Management Plan will be developed and implemented to manage asbestos and asbestos containing material if encountered during the construction. The plan will include:</p> <ul style="list-style-type: none"> <li>Identification of potential asbestos on site</li> <li>Procedures to manage and handle any asbestos</li> <li>Mitigation measures if asbestos is encountered during construction</li> <li>Procedures for disposal of asbestos in accordance with the NSW EPA guidelines, Australian Standards and relevant industry codes of practice</li> </ul>	Construction contractor	Construction
<b>Climate change</b>				
CC1	Climate change	Construction equipment, plant and vehicles will be appropriately sized for the task, serviced frequently and will not be left idling when not in use	Construction contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
CC2	Climate change	Opportunities to use low emission construction materials, such as recycled aggregates in road pavement and surfacing, and cement replacement materials will be investigated and incorporated where feasible and cost-effective	Construction contractor	Construction
CC3	Climate change	Construction site layouts will be designed to reduce travel distances and double handling of materials to reduce fuel usage and emission generation	Construction contractor	Construction
CC4	Climate change	Raw materials will be managed to reduce energy requirements for their processing. For example, stockpiled materials will be covered or provided undercover storage where possible to reduce moisture content of materials, and therefore the processing and handling requirements	Construction contractor	Construction
CC5	Climate change	Locally produced goods and services will be procured where feasible and cost effective to reduce transport fuel emissions	Construction contractor	Construction
CC6	Climate change	Materials with lower emissions intensity will be specified in the selection of maintenance materials	Transport	Operation
CC7	Climate change	The most energy efficient street lighting will be specified appropriate for proposal needs will be specified.	Transport	Operation
<b>Hazard and risk</b>				
R1	Hazard and risk	Emergency response plans will be incorporated into the CEMP	Construction contractor	Pre-construction and construction
R2	Hazard and risk	A Hazard and Risk Management Plan will be prepared and implemented as part of the CEMP. The Plan will identify: <ul style="list-style-type: none"> <li>Hazards and risks associated with the activity</li> <li>Measures to be implemented during construction to minimise these risks</li> </ul>	Construction contractor	Pre-construction and construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		<ul style="list-style-type: none"> <li>Record keeping arrangements, including information on the materials present on the site, material safety data sheets, and personnel trained and authorised to use such materials</li> <li>A monitoring program to assess performance in managing the identified risks, including equipment checking and maintenance requirements</li> <li>Contingency measures to be implemented in the event of unexpected hazards or risks arising, including emergency situations</li> </ul>		
R3	Bushfires	<p>A Bushfire Management Plan will be prepared and included as part of the CEMP. The Plan will identify:</p> <ul style="list-style-type: none"> <li>Asset protection zone locations and management details</li> <li>Landscaping requirements including indicative design layout and vegetation density thresholds</li> <li>Access provisions such as locations, passing bays and alternate emergency access</li> <li>Water supplies and bush fire suppression systems</li> <li>Details regarding the Bush Fire Emergency Management and Evacuation Plan and any other essential bush fire safety requirements</li> </ul>	Construction contractor	Pre-construction and construction
R4	Bushfires	<p>Construction activities involving flammable materials and ignition sources (for example, welding) will be proactively managed to ensure that the potential for fire is effectively minimised. High risk construction activities, such as welding and metal work, will be subject to a risk assessment on total fire ban days and restricted or ceased as appropriate. Construction personnel will be inducted into the requirement to safely dispose of cigarette butts</p>	Construction contractor	Construction

Table 7-2: Mitigation measures for impacted Aboriginal archaeological sites

Site name	AHIMS number	Assessed significance	Management and mitigation
Muswellbrook Bypass AFT 1	37-2-5952	Moderate	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological salvage excavation</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 2	37-2-5953	Low	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological mitigation not required</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 3	37-2-5954	Low	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological mitigation not required</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 4	37-2-5955	Low	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological mitigation not required</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 5	37-2-5957	Low	<ul style="list-style-type: none"> <li>Community collection</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 6	37-2-5956	Moderate	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological mitigation not required (marginal impact to low-value portion of site)</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 8 (includes NH 1, NH 2 & NH 3)	37-2-5959 (includes 37-2-1454, 37-2-1455 & 37-2-1456)	Moderate	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological mitigation not required (marginal impact to low-value portion of site)</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass AFT 9	37-2-5960	Moderate	<ul style="list-style-type: none"> <li>Community collection</li> <li>Archaeological salvage excavation</li> <li>AHIP required prior to commencement of works affecting the site</li> </ul>

Site name	AHIMS number	Assessed significance	Management and mitigation
Muswellbrook Bypass AFT 10 (includes DMC 1, DMC 2 & DMC 3)	37-2-5961 (includes 37-2-2631, 37-2-2632 and 37-2-2633)	Low	<ul style="list-style-type: none"> <li>• Community collection</li> <li>• Archaeological mitigation not required</li> <li>• AHIP required prior to commencement of works affecting the site</li> </ul>
Muswellbrook Bypass IF 1	37-2-5962	Low	<ul style="list-style-type: none"> <li>• Community collection</li> <li>• Archaeological mitigation not required</li> <li>• AHIP required prior to commencement of works affecting the site</li> </ul>
Muscle Creek	37-2-0139	Moderate	<ul style="list-style-type: none"> <li>• Community collection</li> <li>• Archaeological mitigation not required (marginal impact to low-value portion of site)</li> <li>• AHIP required prior to commencement of works affecting the site</li> </ul>

## 7.3 Licensing and approvals

Table 7-3: Summary of licensing and approvals

Instrument	Requirement	Timing
<i>Protection of the Environment Operations Act 1997 (s43)</i>	Environment protection licence (EPL) for scheduled activities from the EPA	Prior to start of the relevant activity
<i>Fisheries Management Act 1994 (s199)</i>	Notification to the Minister prior to any reclamation works	A minimum of 28 days prior to the start of work
<i>National Parks and Wildlife Act 1974 (s90)</i>	An AHIP from the Chief Executive of EES for the disturbance of the Aboriginal sites that would be impacted by the proposal	Prior to start of the relevant activity
<i>Coal Mine Subsidence Compensation Act 2017</i>	Approval to alter or erect improvements within a mine subsidence district from the Chief Executive of Subsidence Advisory, pursuant to Clause 21 of the CMSC Act	Prior to start of the relevant activity