Moorebank Avenue Realignment

State Significant Infrastructure Assessment SSI 10053

October 2021

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Title: Moorebank Avenue Realignment

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Glossary

Abbreviation	Definition
AHD	Australian Height Datum
Boot Land	Residual Commonwealth-owned land between the eastern boundary of the MPE Site and the Wattle Grove residential area, and between the southern boundary of the MPE Site and the East Hills Railway. It comprises Part Lot 4 DP1197707
CEMP	Construction Environmental Management Plan
Council	Liverpool City Council
Crown Lands	Crown Lands, DPIE
DAWE	Department of Agriculture, Water and the Environment (formerly DoEE)
Department	Department of Planning, Industry and Environment
DPI	Department of Primary Industries, DPIE
DPIE	Department of Planning, Industry and Environment (the Department)
DJLU	Defence Joint Logistics Unit
DNG	Derived Native Grassland
EES	Environment, Energy and Science Group, DPIE
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
Heritage	Heritage NSW, Department of Premier and Cabinet
IMT	Intermodal Terminal facility
LEP	Local Environmental Plan
Minister	Minister for Planning and Public Spaces
NRAR	Natural Resources Access Regulator, DPIE

Abbreviation	Definition
Proponent	Sydney Intermodal Terminal Alliance (SIMTA), a wholly owned subsidiary of Qube Holdings Limited
SEARs	Planning Secretary's Environmental Assessment Requirements
Secretary	Planning Secretary of the Department of Planning, Industry and Environment
SEPP	State Environmental Planning Policy
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
SSI	State Significant Infrastructure
TfNSW	Transport for NSW
VPA	Voluntary Planning Agreement (SVPA-2018-9696) between the Proponent and TfNSW under MPW S2 SSD

Executive Summary

The proposal involves construction of approximately three kilometres of road to bypass the Moorebank Logistics Park (MLP) to the east, comprising a four-lane road around the Moorebank Precinct East (MPE) to its south eastern corner, merging to one lane in each direction through the Boot Land north of the bridge over the East Hills railway.

The proposal would:

- present road safety benefits and improvements by minimising traffic congestion from intermingling local traffic with traffic generated by the MLP
- allow the MLP to be managed and operated as a single facility on a unified site
- deliver operational benefits by enabling shorter, more efficient container-carrying vehicle movements within the MLP, to improve its ability to meet precinct throughput targets.

The proposal complies with the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and is consistent with the NSW Government's key priorities and transport planning framework. The proposal is State significant infrastructure under section 5.12 of the EP&A Act. The Minister for Planning and Public Spaces is the approval authority.

The Department considers the environmental impacts of construction and operation acceptable, subject to implementation of appropriate mitigation and management measures and compliance with the Department's recommended conditions of approval. The Department considers that the proposal is in the public interest and should be approved.

Engagement

The EIS was on exhibition from 17 March to 13 April 2021 (a total of 28 days) on the Department's Major Projects website. A total of 17 unique submissions were received on the proposal during the exhibition. Of the submissions received, one was from council, four were from special interest groups and 12 were from community members (including one from the local MP). No submissions were in support of the proposal, 16 submissions objected to the proposal and one submission provided comments only. Ten NSW Government agencies also provided advice.

The key issues raised by the community and considered in this report include traffic impacts during construction and operation, noise impacts during construction and operation, biodiversity and cumulative impacts from construction of the Intermodal terminal and the Moorebank Avenue Realignment (the proposal).

Key assessment issues

Noise and vibration

The noisiest phase (construction of the new road section) is expected to last 11 months. Noise during the noisiest construction phase at the closest residential location is expected to reach 55 dB, which is 9 dB above the noise management level for this location, but substantially below the "highly noise affected" levels. These temporary impacts can be managed to acceptable levels using at source and

behavioural measures such as alternative work practices, methods and equipment, turning off plant not in use, shielding and orientating plant away from receivers, as well as community consultation and notification.

Traffic noise would be moved closer to residential locations at Wattle Grove, however at the anticipated opening to traffic and 10 years after opening, traffic noise would be less than the applicable criteria of 55 dB (daytime) and 50 dB (night-time), therefore no mitigation is required. Operational traffic noise at the nearest residential location is not expected to change between opening and 10 years after opening, with daytime noise predicted to be 46 dB and night-time 42 dB. Higher noise levels of 58 dB during daytime and 54 db at night are expected at the Defence Joint Logistics Unit (DJLU) buildings, which are much closer to the road.

Traffic and transport

The proposal would have limited impact on traffic during construction and impacts and disruption to road users can be managed. Impacts would be temporary and are unlikely to be perceptible to a general road user. The Department is satisfied that the Proponent's mitigation commitments would adequately manage traffic impacts around construction sites and the broader road network. The existing Moorebank Avenue alignment would remain operational during construction.

The proposal would add up to 79 seconds travel time and one kilometre compared to the current alignment which is generally unavoidable due to the route selection set out under the voluntary planning agreement and previous intermodal terminals approvals. This has been minimised and would be further refined during detailed design. The Proponent has committed to further refine intersection design and traffic signal timing (where applicable) to minimise travel time increases while ensuring intersection safety and operability.

Accesses to the rail corridor and Defence Joint Logistics Unit may be affected by construction and operation, requiring repositioning and reconstruction. The Department recommends conditions of approval that require access to utilities and properties be maintained during construction unless otherwise agreed with the relevant utility owner, landowner or occupier, and that property access physically affected by the proposal must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier.

An upgrade to Cambridge Avenue is currently in the strategic design phase and the Department is not aware of funding commitment to it proceeding. The proposal has been designed to tie into the existing road network, namely the existing Moorebank Avenue at the East Hills Rail crossing. Future changes to the road network, including Cambridge Avenue, would need to assess and respond to the road network as built.

Biodiversity

There would be direct and indirect impacts to the biodiversity values in the study area, including threatened ecological communities (TECs) and threatened fauna and flora species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Impacts to biodiversity were assessed in a Biodiversity Assessment Report prepared in accordance with the BC Act. Matters of National Environmental Significance are considered to have been appropriately addressed.

Potential impacts to TECs and threatened species have been reduced through design. The proposed alignment avoids the existing biobanking site and would allow for connectivity to the Boot Land,

despite some fragmentation. The Department is satisfied that the proposed mitigation measures would further manage impacts, including fencing of the biobanking site boundary, managing vegetation clearing, weed management, re-vegetating cleared areas, and construction of fencing and culverts to facilitate the safe movement of local fauna between fragmented habitats.

Impacts to biodiversity values would be offset under the Biodiversity Offsets Scheme by acquiring and retiring ecological and species credits available on the biodiversity credit register, or payment into the Biodiversity Conservation Fund. The Department recommends conditions which specify the ecosystem and species credits required, and preparation and implementation of a Flora and Fauna Management Subplan to manage impacts on biodiversity during construction.

Contamination

Contamination, including asbestos containing material (ACM), is known and is being managed as part of the broader development of the Moorebank Logistics Park. Disturbance of any contaminated land would be managed through targeted investigation, remediation, existing remediation orders and auditing. Targeted investigations would assess re-use suitability or waste classification of excavated materials, assess potential risk to construction workers and the need for remediation.

Management of ACM would be minimised through the implementation of industry standard measures. Likewise, potential impacts causing mobilisation and runoff of pollutants into surrounding surface and ground waters during construction can be mitigated through the implementation of the proposed mitigation measures and recommended conditions.

The Department is satisfied that the proposed approach of targeted investigation, development of management and remediation measures, and the recommended conditions, provide a framework to identify contamination in areas that would be affected by ground disturbance, and establish a management approach to address the presence, remediation or removal, where appropriate, of contaminated materials.

Contents

1 Introduction

Sydney Intermodal Terminal Alliance (SIMTA) (the Proponent), a wholly owned subsidiary of Qube Holdings Pty Ltd (Qube), is seeking approval to realign the section of Moorebank Avenue between Moorebank Precinct West (MPW) and Moorebank Precinct East (MPE) to an alignment that runs around MPE to the north, east and south (the proposal). The realigned section would extend for three kilometres, from 130 metres south of the Anzac Road/Moorebank Avenue intersection to the bridge over the East Hills railway and be comprised of a four-lane road around Moorebank Precinct East (MPE) to its south eastern corner, merging to one lane in each direction through the Boot Land north of the bridge over the East Hills railway.

The section of road through the Moorebank Logistics Parks (MLP) would be decommissioned and altered to provide restricted access to the MLP. The proposed realignment is shown below in **Figure 1** and **Figure 2**.

The proposal would satisfy Qube's obligations under the Voluntary Planning Agreement (VPA) between TfNSW and Qube, executed 21 March 2019. The agreement outlins the satisfactory arrangements for the provision of relevant State public infrastructure associated with MPW and the MLP generally.

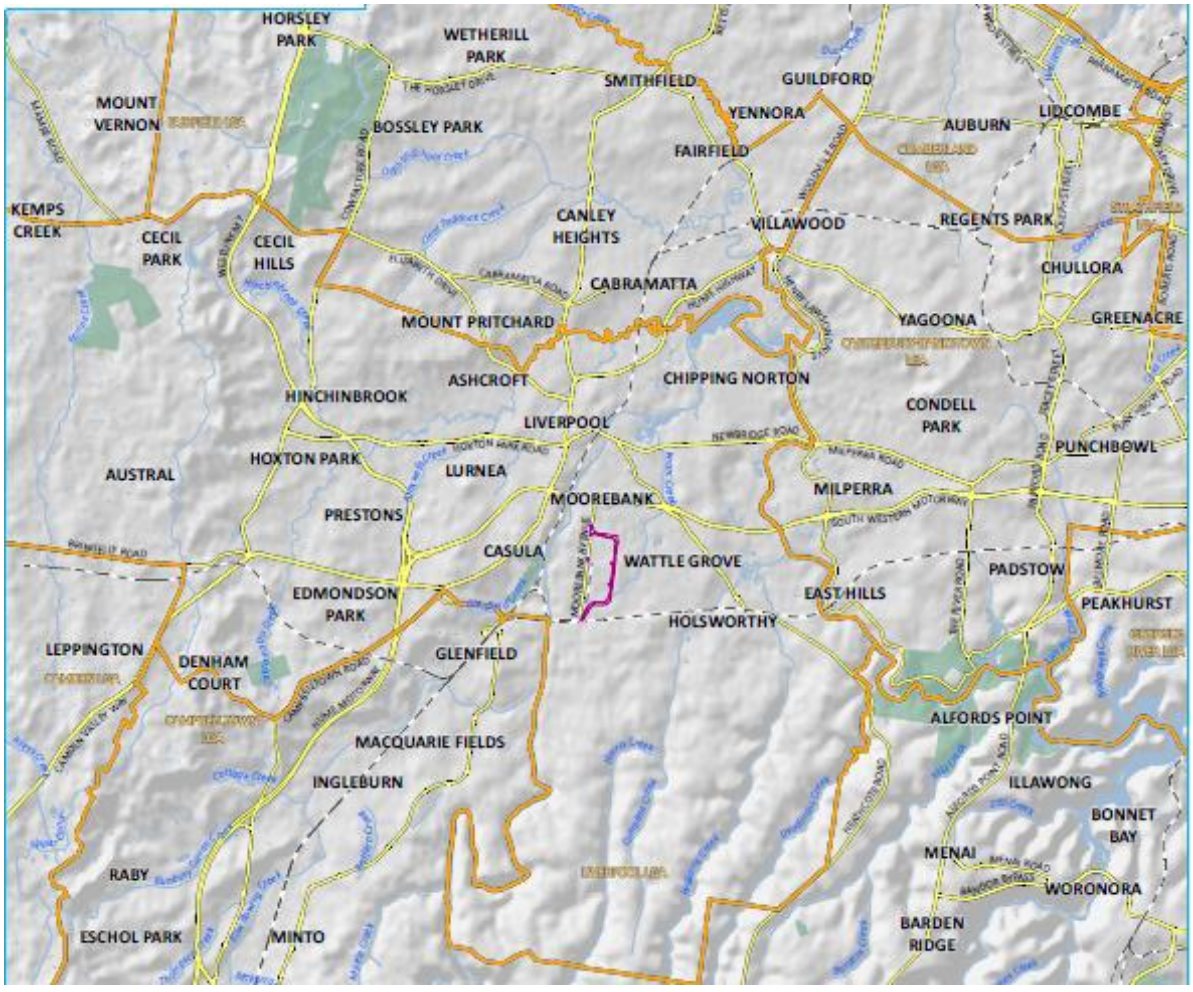


Figure 1 | Regional Context Map (Source: EIS)

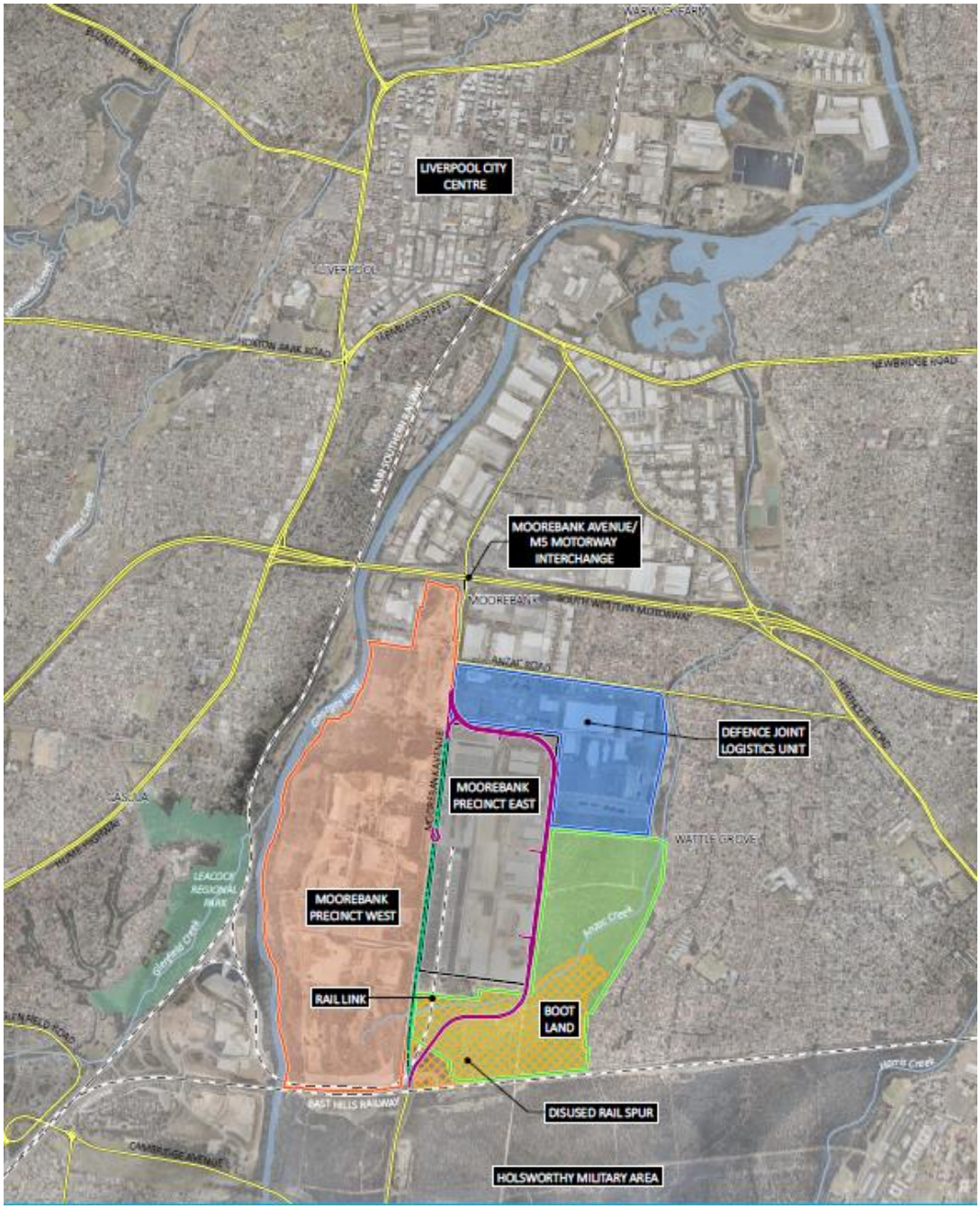


Figure 2 | Local context (Source: EIS)

The proposal would deliver operational efficiencies to the terminals within the MLP. Moorebank Avenue currently provides a barrier to east-west movements in the MLP, restricting the operational efficiency of the precinct. The relocation of Moorebank Avenue would:

- provide for shorter, more efficient, and direct travel route for container-carrying vehicles between the rail link and terminals, contributing to achieving precinct throughput targets
- minimise secondary and non-value creating freight movements by facilitating a direct access between MPE and Moorebank Precinct West (MPW)
- facilitate future automation of the precinct (promote the use of the most efficient modes of transport for a given task).

Realignment of Moorebank Avenue would maintain the north/south connection between Cambridge Avenue and Anzac Road, and the Glenfield and Moorebank communities.

The realignment of Moorebank Avenue would enhance access and egress between the MLP and Moorebank Avenue and improve road safety by separating public vehicles and heavy vehicles transferring freight between MPE and MPW and by minimising traffic congestion from the intermingling of public local traffic and traffic generated by the MLP.

Additionally, the proposal would deliver operational benefits to the MLP by enabling shorter, more efficient container-carrying vehicle movements within the MLP which would improve its ability to meet precinct throughput targets. Further, the proposal would allow the MLP to be managed and operated as a single facility on a unified site.

Upon completion, the new road section (not including those sections extending into the MLP) would be transferred to TfNSW to operate and maintain as a local road and general traffic using Moorebank Avenue would be diverted to the new alignment. The existing road section extending into the MLP would continue to be owned by the Commonwealth and operate as an internal service road to the MLP, with limited public access.

2 Proposal

The Moorebank Avenue realignment proposal is a four-lane road around Moorebank Precinct East (MPE) to its south eastern corner, merging to one lane in each direction through the Boot Land north of the bridge over the East Hills railway. Four signalised intersections are proposed to provide access into the Moorebank Logistics Park (MLP) (**Figure 3**). The section of road through the MLP would be decommissioned and altered to provide restricted access to the MLP.

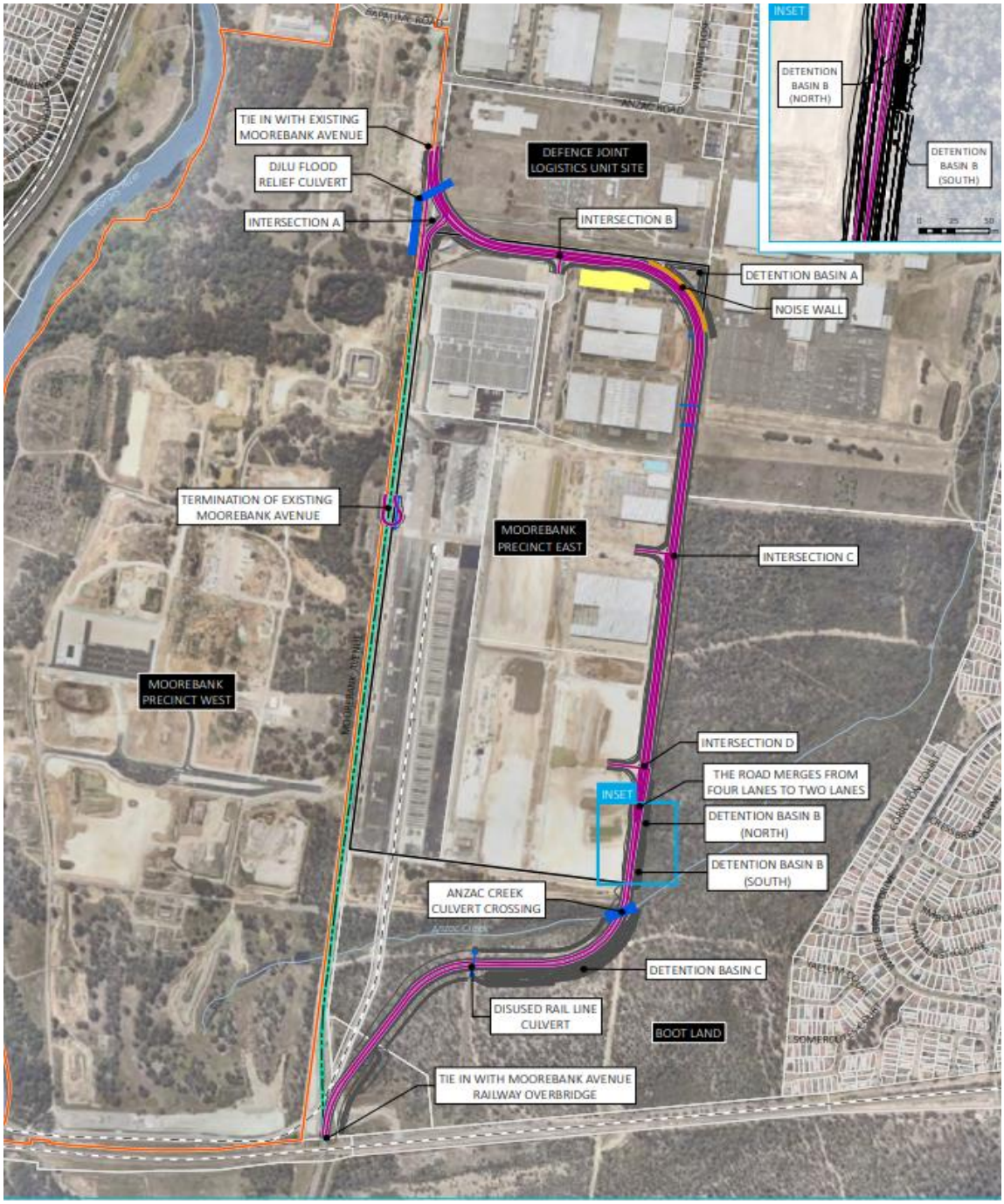


Figure 3 | Key features of the proposal and construction footprint (Source: EIS)

2.1 Physical layout and design

The main components and operational features of the proposal are described in **Table 1** and shown on **Figure 3**.

Table 1 | Main components of the proposal

Aspect	Description
Realigning a section of Moorebank Avenue	• realigning Moorebank Avenue from approximately 130 metres (m) south of the Anzac Road/Moorebank Avenue intersection to the bridge over the East Hills railway
Construction of new road	• constructing approximately three kilometres (km) of road to bypass the MLP to the east, comprising: ○ a four-lane road (two lanes in each direction) commencing approximately 130 m south of the Anzac Road/Moorebank Avenue intersection to the south-eastern corner of MPE ○ a two-lane road (one lane in each direction) from the south-eastern corner of the MPE to north of the bridge over the East Hills railway
Decommissioning of existing road section	• decommissioning of the existing road section and alterations to enable it to function as a restricted access to the MLP.
Construction of signalised intersections	• four accesses to the MLP
Central median	• constructing a central median, typically six metres wide, tapering to zero width where the new road becomes two lanes
Temporary ancillary facilities	• constructing temporary ancillary facilities, including a work site compound, lay-down areas, and construction water detention basins
Infrastructure adjustments	• noise mitigation • constructing retaining walls, drainage infrastructure, onsite detention basins and operational water quality controls (including vegetated swales, bioretention systems and spill containment) • a new culvert in Anzac Creek and extending existing culverts • installing road furniture including security fencing, guideposts, traffic signs, and street lighting • adjusting public utilities

A 1.5 hectare temporary construction compound would be established at the northern boundary of Moorebank Precinct East. It would include temporary offices, workforce facilities (parking, storage containers, crib rooms, and ablution sheds), and storage areas for plant, construction materials and spoil.

Transient construction compounds and laydown areas (for stockpiling of equipment and materials) would be created within the construction footprint as construction of the Project progresses. The construction footprint is approximately 18.96 ha and is shown above in **Figure 3**.

2.2 Timing

Construction is expected to take 16 months and is to be undertaken in three phases (some phases could overlap by up to 3 months each) to enable MLP-related traffic to be moved off Moorebank Avenue at an early stage. This would separate construction and operational traffic to avoid congestion and queuing along Moorebank Avenue while construction continues and MPE operations commence.

The indicative construction program is shown in **Table 2**.

Table 2 | Indicative construction program (Source: EIS)

Phase	Construction phase	Approximate duration
Phase 1 – Enabling works	• Preliminary enabling works	• 3.5 months
Phase 2 – Construction of new road section	• Demolition/vegetation grubbing	• 2 months
	• Earthworks	• 6.5 months
	• Pavement construction	• 6 months
Phase 3 – Finishing works	• Finishing works	• 2.5-3 months
Total		• **16 months**

Standard construction work hours are proposed:

- 7 am to 6 pm Monday to Friday
- 8 am to 1 pm Saturday
- no work on Sundays or Public Holidays.

In addition, the Proponent proposes to undertake certain work outside of standard construction work hours (including spoil importation, asphalt and concrete pours and refuelling), in accordance with an out of hours works (OOHW) protocol. OOHW construction would form part of the Construction Environmental Management Plan (CEMP).

2.3 Related development

Moorebank Precinct East

MPE is located on the eastern side of Moorebank Avenue and forms the eastern section of the MLP. The MPE site is owned by SIMTA. The MPE project involves the construction and operation of an import/export port shuttle freight terminal, a rail link to Southern Sydney Freight Line (SSFL), and associated warehousing and estate works.

The MPE Project is being developed under Concept Approval MP10_0193 (MPE Concept Plan) (as modified), and the following staged approval:

- MPE Stage 1 – Construction and operation of an intermodal terminal facility (IMT) with a maximum capacity of 250,000 twenty-foot equivalent units (TEU) per annum, a rail link to SSFL, and associated infrastructure

- MPE Stage 2 – Construction and operation of warehousing, distribution facilities, and upgrades to part of Moorebank Avenue. MPE Stage 2 is subject to three determined modifications. A fourth modification is under assessment as at September 2021.

Existing approvals issued to date relating to MPE are in **Table 3**.

Table 3 | Moorebank Precinct East project approvals

Approval	Date approved/status	Particulars
MPE Concept Plan		
MP 10_0193 (MPE Concept Plan Approval)	29 September 2014	Concept Approval under the now repealed Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to use the site as an IMT, including a rail link to the SSFL within the rail corridor, warehouse distribution facilities, freight village (ancillary site and operational services), stormwater, landscaping, and associated work.
MP 10_0193 MOD 1	12 December 2016	Modification to the concept approval under section 75W EP&A Act for: • inclusion of additional land parcels for construction of the approved rail link • modification to road infrastructure upgrade requirements and bus routes.
MP 10_0193 MOD 2	31 January 2018	Amendments to the approved concept plan, including: • an increase in the MPE site area and amendments to the MPE site boundary to include work on Moorebank Avenue and drainage work to the south and east of the site • upgrade to Moorebank Avenue, including road widening to four-lanes adjacent to the MPE site • a diversion road and interim access to MPE along Moorebank Avenue during the upgrade • interim site access for warehousing from Moorebank Avenue • reconfiguration of internal road layout and use of internal roads by light and heavy vehicles importation of approximately 600,000 m^3 of clean fill for bulk earthworks within the site and part of Moorebank Avenue • revised warehousing and freight village locations and layouts • revised staging • subdivision of the site following development.
MP 10_0193 MOD 3	31 January 2020	An amendment to the approved concept plan to adjust the southern boundary of the MPE site to facilitate a revised drainage system layout and design for a detention basin.
MPE EPBC Project Approval		
EPBC 2011/6229	6 March 2014	The project was declared a controlled action by the Commonwealth Minister for the Environment due to potential impacts on listed threatened species and communities and Commonwealth land.

Approval	Date approved/status	Particulars
MPE Stage 1 (Intermodal Facility)		
SSD 6766 (the MPE Stage 1 Approval)	12 December 2016 06 March 2018 (LEC appeal decision)	Approval for: • an intermodal terminal facility handling up to 250,000 TEUs (containers) per year, including truck processing and loading areas, rail loading and container storage areas, and an administration facility and associated car parking • a rail link connecting the southern end of the site to the SSFL • associated work including rail sidings, vegetation clearing, remediation and levelling works, and drainage and utilities installation • operation 24 hours a day, seven days per week.
MPE Stage 2 (Warehousing Approval)		
SSD 7628 (the MPE Stage 2 Approval)	31 January 2018 (excl. subdivision) 5 April 2019 (MPE 2 subdivision consent)	Approval for: • earthworks, including the importation of 600,000 m^3 of fill and vegetation clearing • approximately 300,000 m^2 of gross floor area (GFA) of warehousing and ancillary facilities • warehouse fit-out • freight village, with 8,000 m^2 GFA of ancillary retail, commercial, and light industrial land uses • internal road network and hardstand across site • ancillary supporting infrastructure • upgrades to part of Moorebank Avenue • operation 24 hours a day, seven days per week.
SSD 7628 MOD 1	Under assessment	Modification to change timing for road upgrade design approval and completion of work.
SSD 7628 MOD 2	31 January 2020	Modification including: • adjustment to the southern boundary to facilitate a revised drainage system layout and design • removal batter slope requirement for an onsite detention basin. Note: This modification was approved concurrently with MP 10_0193 MOD 3.
SSD 7628 MOD 3	18 December 2020	Modification including: • for two additional lots as part of the subdivision of the MPE • change timing of construction compliance reporting to six-monthly • revise controls for building signage • administrative updates to conditions.
SSD 7628 MOD 4	19 January 2021	Modification to exclude Target warehouse car park “Area 1” from requirement for landscaped bays to include canopy trees for shade, and provision of alternate landscaping.

Moorebank Precinct West (MPW)

MPW is located on the western side of Moorebank Avenue and forms the western section of the MLP. The site is owned by the Commonwealth of Australia. The MPW project involves the construction and operation of an intermodal facility, including a rail link to the South Sydney Freight Line, warehouse and distribution facilities and associated works.

The MPW Project is being developed pursuant to Concept Approval SSD 5066 (MPW Concept Plan) (as modified), and the following staged approvals:

- MPW Stage 1 Early Works (approved as Stage 1 of the MPW Concept Plan) – site preparatory works and establishment of construction facilities and access
- MPW Stage 2 – earthworks, warehouses, freight village, intermodal terminals, and access and intersection upgrades to Anzac Road
- MPW Stage 3 – establishment of works compound, and supporting ancillary facilities such as access roads, services and utilities and subdivision of the site

Existing approvals issued to date relating to the MPW Project are summarised in **Table 4**.

Table 4 | Moorebank Precinct West project approvals

Approval	Date approved/status	Particulars
MPW Concept Plan and Stage 1 Early Works		
SSD 5066 **(MPW Concept Plan and Stage 1 Approval)**	3 June 2016	Concept plan approval for an import/export terminal to handle up to 1.05 million TEUs, an interstate terminal that will handle up to 500,000 TEUs, and warehousing of up to 300,000 m^2. Early Works (Stage 1) involves the demolition of buildings; rehabilitation of the excavation/earthmoving training area; remediation of contaminated land; removal of underground storage tanks; heritage impact remediation works; and the establishment of construction facilities and access, including site security.
SSD 5066 MOD 1	30 October 2019	Modification to the approval, including: • importation of approximately 1,600,000 m^3 of clean fill for bulk earthworks within the site • expansion of the construction footprint to allow for Moorebank Avenue/Anzac Road intersection works • rearrangement of warehousing, freight village, internal roads, and truck parking locations and layouts • deletion of the port shuttle rail freight intermodal terminal and an increase in the warehousing area • use of the interstate terminal for interstate, intrastate and port shuttle rail freight including one additional rail track • increase in building heights as a result of raising the site by up to 3.6 m • reducing constructions stages from four (excluding State 1 Early Works) with potentially only two future development applications

Approval	Date approved/status	Particulars
		• transfer of containers by heavy vehicles between the MPW warehouses and MPE rail terminal and between the MPE rail terminal and MPW warehouses • ability to subdivide the site as part of a future development application.
MPW EPBC Project Approval		
EPBC 2011/6086	27 September 2016	The project was declared a controlled action by the Commonwealth Minister for the Environment due to potential impacts on listed threatened species and communities and Commonwealth land.
MPW Stage 2		
SSD 7709 (the MPW Stage 2 Approval)	11 November 2019	Approval for: • an IMT facility to support a container freight throughput volume of 500,000 TEUs including and associated rail infrastructure (e.g., rail sidings) • approximately 215,000 m^2 of GFA of warehousing, ancillary facilities, and freight village • intersection upgrades to Moorebank Avenue • construction and operation of on-site detention basins • construction works and temporary ancillary facilities including vegetation clearing, and importation of up to 1,600,00 m^3 of fill operation 24 hours a day, seven days per week.
MPW Stage 3		
SSD 10431 (MPW Stage 3 Approval)	11 May 2021	Approval for: • subdivision of the MPW site into nine allotments • importation of unconsolidated clean fill for compaction up to final land level, and structural fill for warehouse pad completion • establishment of a temporary works compound area in the southern portion of the MPW site • ancillary development, including roads, earthworks utilities, signage and landscaping.

2.4 Voluntary Planning Agreement

Under the Liverpool LEP, the Moorebank Logistic Park (MLP) site is mapped as being located within several key sites in the Intermodal Terminal (IMT) Area. Clause 7.36(4) of the Liverpool LEP requires that development consent must not be granted to development for the purposes of an IMT on land in the IMT Area unless the Secretary has certified in writing to the consent authority (in the case of the MPW Project, the Independent Planning Commission) that satisfactory arrangements have been made to contribute to the provision of relevant State public infrastructure in relation to that land. This requirement applied to the determination of the MPE Stage 2 development application (SSD 7709).

On 25 March 2019, Qube RE Services (No 2) Pty Limited (Qube) entered into a voluntary planning agreement (VPA - SVPA-2018-9696) with Roads and Maritime Services (now TfNSW). The VPA required Qube to:

- make a cash contribution of $48 million for regional road upgrades, and
- undertake works in kind and dedication as described for
  - Moorebank Avenue Realignment; or
  - Moorebank Avenue South Upgrade

Under the agreement, TfNSW has absolute discretion for alternative dates.

3 Strategic context

The Moorebank Logistics Park (MLP) is a vital piece of infrastructure for NSW that would transform the way containerised freight moves through Port Botany delivering efficient and more cost-effective services. When completed, the Moorebank facility will move 1.5 million shipping containers annually by rail instead of road, taking 2,700 heavy truck movements off Sydney's roads each day and reducing greenhouse gas emissions by 110,000 tonnes every year.

The MLP will also feature Australia's largest purpose-built warehouse and distribution precinct serviced by the latest automated technology. It is an integral component of the freight, ports, and transport strategies of both the NSW and Commonwealth Governments to help manage the challenges of an expected tripling of freight volumes at Port Botany by 2031.

The realignment of Moorebank Avenue would increase the efficiency of the driverless shuttle carrier system across the MPE and MPW sites.

3.1 Consistency of proposal with strategic planning

The Department considers that the project is strategically justified and consistent with the State Government's commitment to create jobs and economic growth. This has been identified through strategies and initiatives including:

- **Premier's Priorities** – supporting the NSW Government's priorities for a strong economy and well-connected communities by providing safe and efficient access between the MLP, the M5 Motorway and Cambridge Avenue
- **State Infrastructure Strategy (2018)** – identifies a number of key actions to connect people and places, including to 'partner with the Australian Government to plan for Sydney's Western Parkland City' (Infrastructure NSW, 2018). The proposal would support this key action by realigning the Moorebank Avenue link between Liverpool and Glenfield, an important regional traffic route for South Western Sydney
- **Greater Sydney Region Plan (2018)** – directly addresses and supports Objective 20 which identifies the Western Sydney Airport and the surrounding business zone as an economic catalyst for the Western Sydney Parkland City to the MLP, and beyond to the Greater Sydney motorway network via the M5 Motorway and Cambridge Avenue
- **Western City District Plan (2018)** – directly addresses and supports Planning Priority W1 and W7, by providing infrastructure which aligns with forecast growth and providing transport links that service employment areas in Western Sydney
- **Future Transport Strategy 2056 (2018)** – facilitates north-south vehicle connections between Liverpool and Campbelltown-Macarthur
- **NSW Key Freight Routes Road Expenditure and Investment Plan** – facilitates connections between MLP and the M5 Motorway
- **Moorebank Intermodal Terminal Road Access Strategy** – identifies road infrastructure improvements to meet the forecast growth of Liverpool CBD and regional traffic, together with construction of the MLP.

3.2 Project benefits

The proposal would provide long-term benefits for the community and business in the local area through:

- general improvements in the capacity, reliability, connectivity, and safety of the road network through the construction of a modern road with additional capacity
- redistributing traffic (including heavy vehicles) from local to arterial roads, improving the amenity and safety of local roads, and enhancing access and connectivity
- maintenance of a north/south connection between Cambridge Avenue and Anzac Road, and the Glenfield and Moorebank communities
- enhanced road network capacity and connectivity, improving the efficiency of general, freight and commercial vehicle movements, which broadens catchments and reduces overhead costs associated with transport
- creation of up to 122 jobs during peak construction, averaging around 83 personnel on site across the construction period.

Operational efficiencies and benefits to the terminals within the MLP include:

- providing a shorter, more efficient, and direct travel route for container-carrying vehicles between the rail link and terminals
- minimising secondary and non-value creating freight movements by facilitating direct access between MPE and MPW
- facilitating future automation of the precinct.

Realignment of Moorebank Avenue is important to more efficient operation of the broader MLP. The MLP is a nationally significant intermodal terminal facility project linking Port Botany directly to rail terminals and warehousing in southwest Sydney. In operation, the MLP will deliver significant economic benefits to Sydney and NSW, including:

- reducing the volume of heavy vehicle movements along the M5 Motorway and other roads in the order of 3,000 heavy truck movements per day
- a reduction in distance travelled by container trucks on Sydney's road network by 150,000 kilometres every day, and the distance travelled by long distance interstate freight trucks by 93,000 kilometres every day
- creation of about $11 billion economic benefits over 30 years, including $120 million a year for the economy of south-western Sydney, through the improvements to productivity as well as reduced business costs, reduced road congestion and better environmental outcomes.

3.3 Project development and alternatives

The merits of the proposal were considered in the context of the following two options:

- relocating Moorebank Avenue to the east of the MPE site (the proposal)
- upgrading Moorebank Avenue on its current alignment to a four-lane road from south of the entrance to MPE freight terminal to a point approximately 120 m south of the MPE site.

Upgrading Moorebank Avenue along its current alignment was considered not desirable due to:

- Moorebank Avenue continuing to bisect the MLP, creating a barrier to east-west movements and reducing the operational efficiency of the terminals
- potential safety and travel time implications of container-transporting vehicles interacting with general traffic
- congestion from the intermingling of general road traffic and traffic generated by the MLP
- longer, less efficient, and less direct travel for MLP traffic between the rail link, terminals and warehouses
- potential constraint to future automation of the MLP.

Upgrading Moorebank Avenue along its current alignment could still result in environment impacts, and additional land acquisition to the DJLU site, the MLP, Boot Land and land owned by RailCorp.

If the proposal does not proceed, the addition of future background traffic (local traffic and traffic associated with the MLP) would result in Moorebank Avenue operating above capacity by 2029/2030 which would adversely affect traffic movements between Moorebank and Glenfield.

The Department is satisfied that the proposed realignment overall provides a considered balance between environmental costs and benefits, engineering constraints, operational requirements, and economic viability.

4 Statutory Context

4.1 State significant infrastructure

The proposal is State significant infrastructure (SSI) under section 5.12 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Minister for Planning and Public Spaces is the approval authority.

Permissibility

The proposal is characterised as a development permitted without consent in accordance with section 79 State Environmental Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP).

In accordance with section 5.22(2) EP&A Act, the environmental planning instruments relevant to the proposal are:

- Infrastructure SEPP (where it relates to the declaration of development that does not require consent)
- State Environmental Planning Policy (State and Regional Development) 2011 (which declared the infrastructure as SSI).

Mandatory matters for consideration

The determination must have regard to the objects of the EP&A Act. The Department has considered the objects of the EP&A Act including:

- ecologically sustainable development (ESD) (see **Section 4**)
- protection of the environment, including in relation to biodiversity, traffic, noise and vibration, heritage, contamination, water and socioeconomic issues (see **Section 6**)
- good design and amenity of the built environment (see **Section 6**)
- promoting the sharing of the responsibility for environmental planning and assessment between the different levels of government (see **Section 6**)
- community participation in the assessment of the proposal (see **Section 6**).

Ecologically sustainable development

The EP&A adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing, and incentive mechanisms.

Objectives which guide the delivery and operation of the proposal would contribute to its sustainability and the meeting of ESD principles. In addition to the objectives, the Proponent has addressed the above principles directly in both the EIS and Submissions Report and has identified a broad range of mitigation measures to manage impacts associated with these issues.

In conclusion, the Department considers that the proposal is consistent with the principles of ESD.

4.2 *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

On 8 February 2021, the Commonwealth Department of Agriculture, Water and the Environment (DAWE) determined the proposal to be a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), as it was considered that the proposal would likely have a significant impact on the following controlling provisions of the EPBC Act:

- listed threatened species and communities (sections 18 and 18A)
- Commonwealth land (sections 26 and 27A).

Following notification, the Department confirmed the proposal would be assessed under Schedule 1 NSW Assessment Bilateral Agreement (8 February 2021). Under this agreement, the Commonwealth has accredited the NSW assessment process under the EP&A Act for the purposes of the EPBC Act, thus enabling a single assessment of the proposal. An approval under the EPBC Act is still required from the Commonwealth decision-maker.

Additionally, this report makes a recommendation and proposes conditions to the Commonwealth Minister for the Environment in relation to an approval decision.

Consideration of Matters of National Environmental Significance

Biodiversity

DAWE considered the proposed action is likely to have a significant impact on the following biodiversity Matters of National Environmental Significance (MNES):

- Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion – endangered
- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest – critically endangered
- Koala (*Phascolarctos cinereus*) (combined populations of Queensland, NSW and ACT) – vulnerable.

Commonwealth requirements were addressed and the impacts on biodiversity and Commonwealth Land MNES were assessed in the EIS and Submissions Report.

These matters are considered in **Section 6**.

Commonwealth land

In addition, DAWE identified the proposed action is likely to have a significant impact on the environment of the following Commonwealth land sites, including but not limited to the:

- Boot Land
- Defence Joint Logistics Unit-East (DJLU).

The potential impacts identified by DAWE as likely to have a significant impact on Commonwealth land were:

- potential mobilisation and runoff into surrounding surface and ground waters, during construction, of asbestos pollutants and other pollutants such as per- and polyfluoroalkyl substances (PFAS), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), metals, pesticides and herbicides, and other items such as unexploded ordinances (UXOs), which may be present in the soil, considered in **Section 6.4**
- asbestos fibres potentially becoming airborne and, as a result, the potential impact on the health and safety of users of the proposed action area, considered in **Section 6.4**
- potential impacts on availability of road infrastructure and access to the Department of Defence (Defence) DJLU-E logistic facility site, considered in **Section 6.2**.

5 Engagement

5.1 Department's engagement

Under section 5.28(1)(c) of the EP&A Act, the Planning Secretary is required to make the EIS publicly available. The EIS was made publicly available from 17 March to 13 April 2021 (a total of 28 days) on the Department's website. The EIS was not physically exhibited due to the COVID-19 restrictions. Section 10.18 of the EP&A Act states that a requirement to make a document available for inspection at a physical location would be satisfied if the document was made available on the Department's website.

The Department advertised the public exhibition in the Daily Telegraph, the Australian, the Sydney Morning Herald and the Liverpool City Champion, to inform the public of exhibition details and how to provide comments on the proposal. The Department also notified State and local government authorities of the exhibition.

No community information sessions were held due to the COVID-19 restrictions.

The Secretary's Environmental Assessment Requirements (SEARs) were prepared in consultation with relevant regulatory agencies and council.

5.2 Summary of submissions and agency advice

The Department received 17 unique submissions[1] on the proposal during the exhibition period. Of the submissions received, one was from council, four were from special interest groups, and 12 were from community members (including one from the local MP). No submissions supported the proposal, 16 submissions objected to the proposal, and one submission provided comments only. A summary of the submissions is provided in **Table 5**.

Table 5 | Summary of submissions

Submitter	Number	Position
Local council	1	
Liverpool City Council		Comment
Special interest groups	4	
Residents Against Intermodal Development Moorebank (RAIDM)	1	Object
East Liverpool Progress Association	1	Object

[1] There were a total of 20 submissions, of which 17 were unique. Of the 20 total submissions, 19 objected (16 unique), and one commented.

Submitter	Number	Position
Sutherland Shire Environment Centre	1	Object
Georges River Environmental Alliance	1	Object
Community members	12	
Local State MP for Holsworthy	1	Object
< 5 km	11	Object
	0	Support
	0	Comment
5–100 km		Object
	0	Support
	0	Comment
TOTAL	17	

Ten government agencies listed below provided advice.

NSW Government agencies

- Environment, Energy and Science Group (EES), DPIE
- Transport for NSW (TfNSW)
- DPIE Water
- Sydney Water
- Fire & Rescue NSW
- DPI Agriculture
- DPI Fisheries
- Environment Protection Agency (EPA)
- Crown Lands

Commonwealth Government

- Department of Defence

A link to the full copy of the submissions and agency advice is provided in **Appendix C**.

5.3 Community submissions

The following issues were raised by the **local State MP** – Melanie Gibbons Member for Holsworthy:

- the alignment is not consistent with community desire and unmitigated noise would affect local amenity and should be mitigated with a noise barrier along the eastern edge
- weight/truck restrictions should be investigated for Anzac Road and Nuwarra Road

- queries future road ownership and maintenance and that upgrades that benefit MLP be at no cost to the taxpayer
- impacts on Anzac Creek, koala and other animal habitat.

The following issues were raised by the **community and special interest groups**:

Noise and vibration

- impact of noise on residential properties in particular concerns for Wattle Grove residents
- further noise mitigation measures required for residents of Wattle Grove
- potential noise increases due to idling of vehicles sitting in traffic.

Traffic and transport

- impact to operation of other local roads
- creation of congestion around signalised road intersections (specifically where the new road section merges to two lanes)
- insufficient justification provided on the grounds, benefit, and merit of the realignment; noted that the existing alignment already provides a direct truck access to the MLP
- alternatives not fully considered, i.e. construction of bridges/tunnels over current alignment.

Biodiversity

- threatened flora and fauna at risk and fragmented during clearing and operation
- increased risk of fauna vehicle strikes and fatalities
- concerns over extent and level of offsets required
- impact of clearing Plant Community Types (PCT)
- impacts to native species protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- impact to the site previously set aside as a biobank, resulting in the loss of old Cumberland Plain Woodlands and more than 40 hectares of koala habitat.

5.4 Key issues raised – government agencies

The following key issues were raised in advice provided by NSW and Commonwealth Government agencies. Further details of the issues raised in submissions are provided in the relevant sections in **Section 6**.

Environment, Energy and Science Group (EES) – EES provided comments:

- further justification requested for method used in calculating indirect offsets
- errors and inconsistencies within the Framework for Biodiversity Development Assessment were identified.

TfNSW – TfNSW did not object to the proposal. They raised issues with the intersection and road design, and that TfNSW's approval is required for the proposed road design, signal intersection works, and land take, in accordance with the Voluntary Planning Agreement (VPA) and *Roads Act 1993*. TfNSW also advised that adequate evidence or justification be provided to support the proposed traffic control signals.

DPIE Water – DPIE Water provided comments:

- requests further information on measures to address geomorphological impacts to downstream watercourse from increased stormwater flow
- the EIS incorrectly states no waterfront land is present and should be amended
- the Proponent should consult with NRAR to determine any licencing and further assessment requirements needed if/when groundwater is intercepted
- reference to the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* should be updated to the *Sydney Basin Central Groundwater Source.*

Sydney Water – Sydney Water recommends that consultation and discussions with SIMTA, Qube and TfNSW continue as utility relocation would require approval from Sydney Water before work commences.

DPI Fisheries – DPI Fisheries requested consultation on the relevant parts of the CEMP, specifically the riparian vegetation management plan and removal/new waterway crossings for Anzac Creek.

Environment Protection Agency (EPA) – EPA provided comments:

- there is high potential for widespread on-site soil and surface water contamination. Details of the soil and water contaminant levels, with reference to relevant guidelines, should be provided
- a Water Pollution Impact Assessment should be provided consistent with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, along with details of the proposed surface water monitoring program.

NSW Crown Lands – Crown Lands commented that any affected Crown Land would need to be acquired under the *Land Acquisition Act (Just Terms Compensation) Act 1991*.

The following NSW agencies did not object to the proposal and did not provide any comments:

- Fire & Rescue NSW
- DPI Agriculture.

Department of Defence (Commonwealth Government) – Department of Defence is conditionally supportive of the proposal in the context of the broader MIT development. Department of Defence requested detailed consideration of the traffic impacts of the proposal and the functional requirements of Defence at the DJLU-E entrance. Defence would like to understand the traffic and operational impacts of remaining in-situ at Moorebank Avenue and/or relocating to Anzac Road, including queue length and turn back options with consideration to lock down options according to Defence SAFEBASE Security requirements.

Defence also noted that the current design of the proposal would impact its operations, property, infrastructure services and assets, and that these matters have not been addressed with demonstrated mitigation measures through the planning process and EIS.

5.5 Key issues raised – council

Liverpool City Council – Council provided comments:

- the project would result in significant impacts relating to biodiversity, traffic, construction noise, road noise and vibration
- the local Wattle Grove community has not been adequately consulted about possible impact and mitigation measures to minimise the expected impacts
- the need for cumulative noise assessment with mitigation measures such as landscape embankments has not been addressed within the EIS.

5.6 Response to submissions

Following the exhibition of the EIS, the Department directed the Proponent to prepare a response to the submissions received on the EIS. The Proponent's Response to Submissions Report (**Appendix D**) was made publicly available on the Department's website on 1 June 2021 and forwarded to relevant agencies for comment.

The Department has considered the issues raised in submissions received from exhibition of the EIS and feedback on the amended project in its assessment of the project in **Section 6**.

6 Assessment

The Department in its assessment of the proposal considered the EIS, RtS and submissions / feedback received on the proposal. The Department identified the key issues for assessment are:

- noise and vibration (**Section 6.1**)
- transport and traffic (**Section 6.2**)
- biodiversity (**Section 6.3**)
- contamination (**Section 6.4**).

Other issues are discussed in **Section 6.5**.

6.1 Noise and vibration

Construction is proposed only during daytime hours, although the potential for some night-time construction work is identified where this cannot be done during daytime.

The noise assessment considered three phases of construction. The noisiest phase (construction of the new road section) is expected to last 11 months. Noise management levels were identified for the three land use types in the area (residential, commercial, and industrial). Three residential locations are between 360 metres and 650 metres from construction.

Current background noise levels in nearby residential locations are consistent with those that would occur in semi-rural to quiet suburban locations. Noise during the noisiest construction phase at the closest residence is expected to reach 55 dB, or 9 dB above the noise management level for this location, but significantly below the “highly noise affected” levels at all locations.

No residences would be subject to vibration impacts.

Operational traffic noise was modelled at opening and in 2034 (10 years after anticipated opening). Traffic noise at the nearest residential location is not expected to change between opening and 10 years after opening, with daytime noise predicted to be 46 dB and night-time 42 dB. Higher noise levels are expected at Defence Joint Logistics Unit (DJLU) buildings, which are closer to the road, of 58 dB during daytime and 54 dB at night for the most affected.

Submissions and agency advice

EPA

- construction noise levels were noted and recommended that standard hours be adopted
- operational noise not expected to exceed Road Noise Policy (RNP) “new road” criterion including cumulative traffic with the MLP
- requested confirmation of noise wall at northern end of alignment (near DJLU)
- cumulative noise of MPE and MPW construction not included.

Liverpool City Council

- requested a construction noise and vibration management plan and a complaint handling procedure
- suggested a one-way site traffic loop to minimise vehicle reversing
- queried why a noise wall is proposed for DJLU and not for residential areas

- concerned that assessment does not consider expected additional traffic from Cambridge Avenue upgrade project
- requested noise mitigation measures such as earth mounds, low noise pavements or noise walls
- requested road noise considers cumulative impacts of MIT operation and associated developments.

Local MP – Melanie Gibbons Member for Holsworthy

- notes that noise will increase and no effort to reduce or eliminate the existing noise; there is a need for noise barriers and double glazing
- noise assessment focusses on projections and not the change from current
- some locations will experience an increase in daytime and night-time noise which will affect amenity
- a noise barrier along eastern edge of Moorebank Avenue realignment should be required
- need to consider the Australian Standards for noise levels in suburban houses
- noise assessment does not consider that the site will be raised by 2-3m.

Community

- noise wall for DJLU noted and requested extension passed the southern extent of MPE for residential area.

Consideration

Standard daytime construction hours are recommended

Standard construction hours are stated in the *Interim Construction Noise Guideline* (EPA, 2009) (ICNG) as:

- Monday to Friday 7 am to 6 pm
- Saturday 8 am to 1 pm
- at no times on Sundays or public holidays.

The ICNG notes certain categories of work might need to be undertaken outside standard hours, including public infrastructure works that shorten the length of the project and are supported by the affected community. Clear justification should be provided why work outside the hours is required, other than convenience, such as to sustain operational integrity of road, rail, and utility networks.

A range of activities are identified in the EIS including legitimate reasons to undertake work outside of standard hours, such as: oversized plant and equipment delivery, emergency work and road tie-in. However, other activities are listed where justification for these occurring out of hours is not clear, including:

- refuelling to ensure plant and machinery operations during standard construction hours
- supporting activities such as start-up processes and procedures
- fill importation
- asphalt and concrete deliveries.

These are typical construction activities which can be scheduled during standard construction hours. They do not require special arrangements to provide safety to either the community or workers and,

being a new road, do not avoid inconvenience to the community. Therefore, the Department agrees with the EPA that standard construction hours be adopted.

Notwithstanding, the Department recognises that there are some activities, either because of their unforeseen nature, inconvenience to community functioning, or low impact characteristics, that could occur outside of standard construction hours. These should be at or below noise management levels, or short term and occasional in nature. An Out of Hours Work Protocol is a common approach to managing short term activities required to be undertaken outside of standard construction hours. These activities are generally assigned a risk category with a commensurate approvals process, including justification against noise levels, identifying mitigation in consultation with the community, respite, and notification processes. A condition requiring the preparation of an Out of Hours Work Protocol is recommended, to provide a consistent and transparent approval process as these circumstances arise.

Construction noise during daytime is manageable to limit impacts at residential locations

Construction noise is expected to reach 55 dB at the most affected residential location during the peak construction period (see **Figure 5**). This would exceed the noise management level for that location by up to 9 dB but is akin to a quiet suburb, light traffic or normal conversation and substantially below 75 dB, the highly noise affected level identified in the ICNG (EPA, 2009).

While construction would be closer than other work occurring in the precinct, noise would dissipate over the transmission pathway. Noise management levels are designed as trigger points to consider reasonable and feasible mitigation which can include work practices and equipment types. They are not intended as criteria which must be met, or that noise must be eliminated. Some standard measures, such as locating and orientating plant and equipment away from receivers, or temporary shielding can reduce noise levels by up to 5 dB. Other measures, such as one way traffic movement through the site as suggested by Liverpool City Council, minimise activation of reversing beepers that contribute to noise pollution. These behavioural measures are industry practice and are an accepted approach to reducing construction noise which are revisited as the workface and work program changes.

The Department accepts that additional physical or engineered mitigation would not need to be considered for the proposal based on the expected noise levels. These measures could also have unintended or consequential impacts which have not been assessed such as additional land and clearing requirements, and potential increased biodiversity impacts.

The Proponent has committed to outlining the mitigation measures that would be implemented to minimise the impact of noise on residents in a construction noise and vibration management plan. This approach, of using adaptive work practices to minimise noise impacts to acceptable levels, is considered appropriate.

While construction would be audible to residential receivers, the EPA did not raise concerns regarding construction noise, and anticipated noise levels at residential receivers would be within manageable levels through the implementation of standard management measures. Noise management conditions are recommended that reinforce the objective to minimise construction noise for the community by the greatest extent practicable, while factoring in cumulative construction impacts, and provide respite.

Moorebank Avenue Realignment construction would dominate cumulative noise at residential locations

Submissions argued that the cumulative construction impacts of this proposal with the MPE and MPW projects were not considered. In response, the Proponent noted that construction is unlikely to overlap with those projects. Furthermore, background noise monitoring had been undertaken during construction of those projects, resulting in the noise impact baseline containing the potential cumulative impacts of those projects.

A further review of cumulative impacts provided in the Submissions Report indicated that, in most instances, the proposal construction would be the dominant construction noise source. The cumulative impacts could result in an 1-2 dB increase at Wattle Grove North, an increase that would not substantially change the construction noise environment. The Department is satisfied that the proposed management measures are appropriate to address these noise impacts.

Traffic noise would be less than the applicable criteria and no mitigation is required

Expected external traffic noise levels at the residence closest to the road are expected to be 46 dB (daytime) and 42 dB (night) at opening, and unchanged 10 years from opening. Noise at the DJLU buildings at the northern end of the realigned road would be subject to higher noise levels (58 dB), due to proximity to the road. These are below the relevant criteria for noise for a new road and noise mitigation is not required, in accordance with the NSW Road Noise Policy (EPA, 2011).

Traffic noise at the time of opening was modelled considering predicted annual traffic growth compared to current. This included predicted traffic at the time of expected road opening and 10 years from expected road opening. The road is a new road as categorised by the Road Noise Policy (EPA, 2011). The proposal is unlikely to generate additional traffic over and above that which is expected to access the MLP.

The relevant criteria for existing residences affected by noise from a new road are 55 $dB_{LAeq\ 15\ hr}$ (day) (equivalent to a household refrigerator) and 50 dB $_{Laeq\ 9\ hr}$ (night) (a quiet suburb or conversation at home). These criteria aim to provide protection, primarily inside and around permanent residences, schools, hospitals, and other sensitive land uses from road traffic noise and are consistent with current international practice.

Road noise at the most affected location at opening and 10 years after opening is predicted to be below these levels by 8-9 dB during the day and night, therefore no further mitigation is required. A small section of noise barrier is proposed near the access to the DJLU. This barrier is subject to a separate agreement based on the sensitivity of the activities that occur in those DJLU buildings.

The Department is satisfied that the assessment was appropriate and that no mitigation is required to comply with the relevant Road Noise Policy criteria, either at opening or 10 years after opening. Conditions for monitoring within 12 months of the project opening to traffic, to validate the road traffic noise predictions, are recommended to determine whether actual noise levels are consistent with predictions. Where this is not the case (and if noise exceeds the relevant criteria), consideration of the need for mitigation must be considered.

Impacts of Cambridge Avenue upgrade would be considered when that project proceeds

Several submissions identified that the noise assessment does not consider the potential increase in traffic from a future Cambridge Avenue upgrade.

A future upgrade to Cambridge Avenue is not funded at the time of writing and has not been assessed. As the details of any future proposed upgrade are not known, including if it is likely to

proceed, there is no requirement to consider the potential impacts. If a decision is made to proceed with a future Cambridge Avenue upgrade, the assessment of that proposal would consider consequential changes to the surrounding network, including the proposal, and changes to noise and other impacts may need to be mitigated at that time.

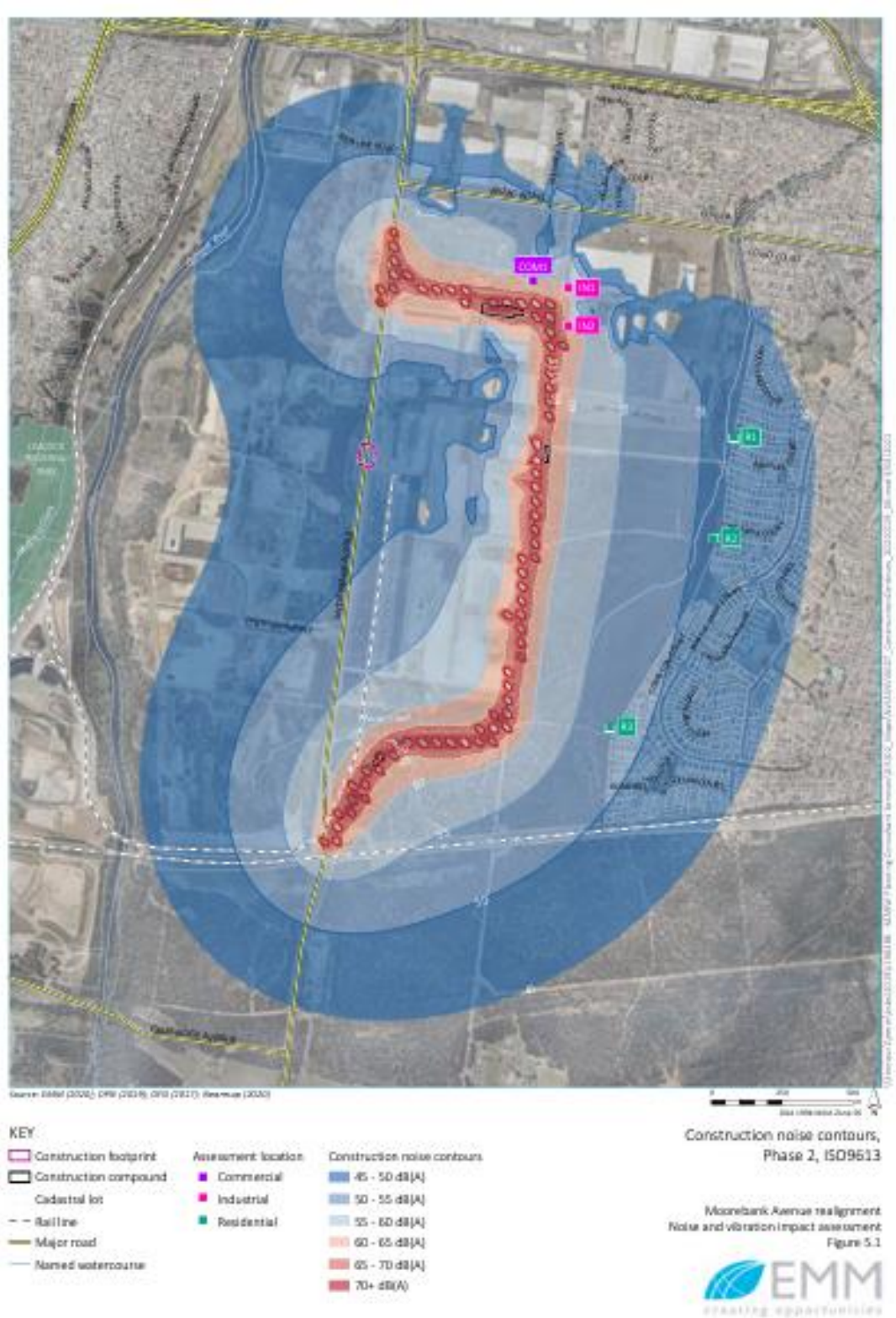


Figure 4 | Noise contours during peak construction period (Source: Moorebank Avenue Realignment Noise and Vibration Impact Assessment, EMM 2021)

6.2 Transport and traffic

Note: References to sections of the EIS, Submissions Report and the recommended conditions of approval have been included in this section to satisfy the Commonwealth's assessment requirements.

The proposal seeks to replicate road capacity configurations, including the capacity of the upgraded Moorebank Avenue approved under SSD 7628. The realignment would result in approximately one additional kilometre of travel for traffic along Moorebank Avenue. During operation, traffic could experience an increase of travel time by up to 60 per cent (78.9 seconds).

Construction would not change the Level of Service for key intersections on the surrounding road network, and construction traffic increases and disruption are unlikely to be noticeable to road users. Construction traffic would be guided by Traffic Control Plans and traffic controllers.

A shared pedestrian/cycling path would be provided on the western side of the road, providing access to the MPE development, while a footpath would be provided along the eastern side adjoining the Boot Land. Up to three kerbside bus stops would be relocated from the existing Moorebank Avenue alignment to locations in both directions along the new alignment.

At completion and commissioning of the realigned road section, public traffic using Moorebank Avenue would be redirected onto the new alignment. The existing road alignment would be decommissioned and modified through the addition of a cul-de-sac to function as a restricted access to the MLP.

Submissions and agency advice

Transport for NSW (TfNSW)

TfNSW raised issues with the intersection and road design, and noted that TfNSW's approval is required for the proposed road design, signal intersection works and land take, in accordance with the Voluntary Planning Agreement (VPA) and *Roads Act 1993*. TfNSW also advised that adequate evidence or justification be provided to support the proposed traffic control signals, and specifically:

- an alternative priority controlled vehicular access design for the Moorebank Precinct East site, subject to further vehicle and pedestrian traffic analysis
- the proposed concept design for the modification to the existing Defence Joint Logistics Unit (DJLU) signalised intersection, to allow an additional signalised access to the Moorebank Precinct East site, does not satisfy TfNSW traffic control signal design requirements.

Community and interest group submissions

Community, local MP for Holsworthy, Melanie Gibbons, and interest group submissions raised:

- operational traffic, including congestion where the new road section merges to two lanes at the south-western corner of the MPE site, additional signals, turns and travel duration, and impacts on local roads
- validity of the operational traffic modelling, including concerns regarding the software used, modelling methodology, and source inputs
- how heavy vehicle traffic will cross the MPE railway line, which is currently level with Moorebank Avenue
- the need for weight restrictions on Anzac Road/Nuwarra Road to limit heavy traffic through to Wattle Grove

- lack of clarity as to how MPW vehicle movements will be managed with the proposal.

Liverpool City Council (Council)

Council:

- raised the significant traffic impact on existing road users from the increased travel distance (approximately 1 kilometre) and travel time (up to approximately 78.9 seconds per vehicle), and specifically that the assessment does not mitigate this traffic impact
- agrees on the need to integrate MPE and MPW, but highlights that an option which would improve travel time, such as a tie-in with two-lanes in each direction at the southern end to connect to the future Cambridge Avenue Project, has not been addressed
- highlighted that TfNSW has expressed concerns about the number of proposed signalised intersections along the realigned road
- noted a Works Authorisation Deed (WAD) needs to be entered into with TfNSW, to ensure its requirements for the Project have been adequately addressed. This includes design configuration of the proposed intersections, and agreed tie-in at the southern end to ensure continuity with TfNSW potential future Cambridge Avenue upgrade Project
- requests an in principle approval letter from TfNSW, for classifying the realigned Moorebank Avenue to a state road, with a copy of the letter to be provided to Council before determination.

Department of Defence

The Department of Defence requested:

- detailed consideration of the functional requirements of a Defence Joint Logistics Unit-East (DJLU-E) entrance
- that they be given an understanding of the traffic and operational impacts of remaining in-situ at Moorebank Avenue and/or relocating to Anzac Road, including queue length and turn back options with consideration to lock down options according to Defence SAFEBASE Security requirements.

Bilateral Agreement between the Commonwealth and NSW

The Bilateral Agreement (dated 2015) and the Amending Agreement No. 1 (dated 2020) between the Commonwealth and the State of NSW applies to the assessment of major projects that require both NSW State and Commonwealth government planning approvals under the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) require both NSW State and Commonwealth Government planning approvals.

Commonwealth requirements have been addressed and the potential impacts on the availability of road infrastructure and access to the Department of Defence DJLU-E logistic facility site (Commonwealth Land) assessed. Sections of the EIS relevant to the potential impacts on the availability of road infrastructure and access to Commonwealth Land are:

- Chapter 4 – Project development and alternatives
- Chapter 6 – Consultation
- Chapter 7.4 – Traffic and transport
- Chapter 8 – Management and mitigation measures
- Chapter 9 – Evaluation and conclusion

- Appendix A – SEARs and EPBC Act Referral Decision
- Appendix D – Traffic Impact Assessment.

Sections of the Submissions Report relevant to road infrastructure and access to Commonwealth Lands are:

- Chapter 4.12 – Response to submissions – Traffic and transport
- Appendix A – Revised management and mitigation measures.

Impacts to the environment on Commonwealth land trigger a Controlled Action under EPBC Act

The Commonwealth Department of Agriculture, Water and the Environment (DAWE) found in its assessment of the controlled action referral (EPBC 2020 / 8839) that the proposal is likely to have a significant impact on the following controlling provisions of the EPBC Act:

- Commonwealth Land (section 26 and section 27A), including potential impacts on the availability of road infrastructure and access to the Department of Defence (Defence) DJLU-E logistic facility site.

Consideration

Impacts from construction traffic and disruption to road users can be managed

The addition of construction vehicles would exacerbate traffic impacts on key roads. Construction is expected to generate on average 390 vehicle movements per day, up to a maximum 910 vehicle movements per day during construction. Community members and agencies raised concerns about heavy vehicles using Anzac Road and Cambridge Ave.

The Proponent committed to preparing a Construction Traffic and Transport Management Subplan to manage impacts to traffic and transport, and detail implementation measures to maintain access, safety and manage construction traffic interfaces with other projects under construction.

Specific mitigation proposals include:

- a transport and traffic management plan (TTMP) developed for the proposal post-approval and included in the Construction Environmental Management Plan (CEMP). The TTMP would provide details for the ongoing management and maintenance of traffic management and mitigation measures during the construction
- TfNSW traffic controllers engaged on-site would be accredited by TfNSW to control traffic around construction
- no marshalling or queuing of trucks would be permitted on the public road.

Increased traffic during construction is not expected to change operation of key intersections in the surrounding network, including the intersection of Moorebank Avenue and Anzac Road. Heavy vehicles would be prohibited from using Anzac Road or Cambridge Avenue. The Department acknowledges that the addition of construction vehicles from the proposal would slightly exacerbate traffic impacts on the key roads. However, these impacts are temporary, and are unlikely to be noticeable to a general road user.

The Department is satisfied that the Proponent's mitigation commitments adequately manage traffic impacts around construction sites and the broader road network. The existing Moorebank Avenue alignment would remain operational during construction, and construction of the proposal is unlikely to

result in significant impacts on general through traffic, on-street parking, and emergency vehicle access. Construction workers would park their private vehicles in the Moorebank Precinct site.

Moorebank Avenue would remain publicly accessible for pedestrians and cyclists throughout construction. Bus stops at the intersection of Anzac Road and Moorebank Avenue would be relocated during intersection construction, and the Proponent has committed to consult with Council and Transport for NSW on the relocation of these bus stops.

Access to the construction site would be primarily through MPE. Access is required near the bridge over the East Hills railway for the delivery of construction materials. This is an existing access to the rail corridor owned by Sydney Trains. The Proponent would seek agreement from Sydney Trains to modify this existing access to better function as a construction access point.

Current access to warehouses 3, 4 and 5 on MPE is via an internal access road. Part of that road that fronts the eastern boundary sits within the construction footprint of the proposal. During later construction, that part of the SSI alignment would be required to maintain operational access to warehouses 3, 4 and 5 and, depending on timing, future warehouses 6, 7 and 8. The Department has recommended a condition to accommodate this arrangement as a temporary measure pending dedication of the SSI as a public road. Access and egress for operational traffic before the SSI is dedicated as a public road must be via the existing approved access on Moorebank Avenue.

A transport and traffic management plan would be developed in consultation with TfNSW and Council and include details on heavy vehicle haulage routes and intersection use requirements. Smaller vehicles (up to three tonnes) such as vans, utes, and passenger vehicles may use Cambridge Avenue, which is a Commonwealth road open to public vehicles, but is weight restricted.

To reinforce the commitments made, and for consistency with other approvals related to the MLP, the Department recommends a condition that Moorebank Avenue, south of the Moorebank Avenue rail overbridge, and local roads, may not be used by heavy vehicles to access the site, with the exception of access to/from Glenfield Waste Services Facility.

Additional travel time and distance have been minimised and would be further refined

The realignment would be approximately one kilometre longer than the current Moorebank Avenue. Modelling suggests that traffic on the realigned Moorebank Avenue could experience an increase of travel time of around 60 per cent (78.9 seconds).

The Proponent has committed to further modelling to refine intersection design and traffic signal timing (where applicable) and minimise traffic impacts, while ensuring intersection safety and operability.

The longer route is generally unavoidable due to the route selection set out under the voluntary planning agreement and previous intermodal terminals approvals. Light vehicles use this route as an alternative to major arterials, to access Glenfield and the M5 corridor to the south. The increase in travel time resulting from the proposal could discourage road users from using this route in the short term, and instead use alternative routes such as the Hume Highway or the M5 Motorway.

Mid-block capacity is not expected to be affected by the proposal. The expected Level of Service is consistent with the operation of the broader precinct. The Department notes this proposal is not a traffic generating development, and the realignment is to take predicted traffic that would have otherwise used Moorebank Avenue. The longer route may actually reduce future growth, due to reducing Moorebank Avenue's time and distance advantages over other routes (i.e. the M5).

Intersection and road design would be further refined through detailed design

Council and TfNSW both argue for no traffic signals to four new intersections along the realignment, and the use of priority-controlled intersections instead, as traffic volumes do not meet the threshold for signalised intersections.

The Proponent considered other options for these intersections, including priority-controlled intersections (i.e. a give way). Possible safety benefits of roundabouts were noted, but roundabouts were not considered due to the site constraints and land acquisition issues. These potential impacts have not been assessed, and issues need to be balanced against additional land take, increased biodiversity impacts, including to biobanking land and Defence land.

The Proponent argues that signalisation of the nominated intersections would ensure traffic safety and minimise traffic delay for through movements. Any waiting vehicle wishing to turn right would reduce the eastbound or southbound capacity by half, and potentially create a bottleneck along the alignment. As all heavy vehicles are expected to arrive from the north, an unsignalised intersection would require a reasonable gap (filter turn) to execute the right turn movements.

Similarly, the Proponent argues that exiting trucks wishing to travel west or north would require a reasonable gap before executing the left turn movements from the side roads. As trucks generally take longer for the left turn, it would affect the through traffic and create traffic congestion within the new road section. Further, left turning vehicles from the side roads would not have a clear line-of-sight to the right if there are any simultaneous right turning vehicles to their right-hand side, creating safety and sight distance issues.

The Proponent has committed to undertaking further modelling during detailed design to refine and specify road, intersection design and traffic signal timing (where applicable), and ensure the proposal minimises traffic and transport impacts, including minimising travel time increases, while ensuring intersection safety and operability.

The Department considers that the use of signals for the intersections could have safety, queuing, and operational benefits. However, ultimately the detailed design of the road and intersections is subject to post-approval refinement, consultation and agreement with relevant agencies, including TfNSW, council and DJLU.

The voluntary planning agreement (VPA) requires the new road section to become a public road, dedicated on completion. The asset owner (either TfNSW or council, to be determined by the relevant parties) would be responsible for ongoing maintenance once it is transferred. These matters should be resolved between these parties and, once resolved, any approval required under the *Roads Act 1993* sought. The Department accepts that the option assessed in the EIS could be managed to ensure an appropriate outcome for all users. While concerns raised by TfNSW and council are acknowledged, should an alternative option be available that addresses relevant safety and operational requirements, including for public user through traffic, that is for the relevant road authority to determine. The VPA provides a process (a works authorisation deed) for the relevant parties to agree on the final design and a condition is recommended that supports this approach.

Recommended conditions of approval also require the proposal be designed to meet relevant design, engineering and safety guidelines, including the Austroads *Guide to Traffic Management* for new or modified local roads, parking, pedestrian and cycle infrastructure, and an independent Road Safety Audit of the final design. These conditions, if adopted, allow for design refinement provided that the intersections meet relevant standards.

The realignment is not a traffic generating development. Traffic modelling would continue to be refined

Community submissions raised concerns about the use of modelling data prepared for the terminal generated traffic and regional traffic growth related to the MLP. Specifically, concerns were raised that the software and modelling methodology used are inadequate to test network capacity, and the source inputs include critical errors.

The Department considers that the previous traffic impact assessments are the best available estimate for future traffic growth and notes these were subject to thorough review by the Independent Planning Commission and the Land and Environment Court. Those traffic projections were undertaken to identify the likely traffic generated by the development of the MLP. This proposal would not generate additional traffic to the MLP during operation, but rather divert or reroute that traffic to a replacement road and create new access points to the MLP. Traffic going to the MIT is still going to the terminal, with or without a realignment of Moorebank Avenue.

While the modelling was based on the broader network modelling undertaken for the precinct to date, it incorporated future regional road network and traffic growth assumptions known at the time, and a new base year for the traffic growth projections (2020) was sourced from traffic surveys undertaken in March 2020.

The Department is satisfied that the traffic modelling undertaken for this proposal is appropriate for the scope of the proposal and provides consistency with previously assessed / approved projects. Notwithstanding, the Department has recommended a condition requiring a review of the road network performance within 12 months, and again within five years after opening of the road to traffic, to identify whether expected outcomes are achieved. If this is not the case, options to manage traffic to within expected levels must be considered and implemented, considering natural growth and future development.

The realignment of Moorebank Avenue would have limited impacts on road access for neighbouring businesses and property

Five road accesses off Moorebank Avenue used to access businesses and MPW would not be impacted by the proposal. The Boot Land to the east is a Biobanking site that does not require road access.

Access would be maintained to the Sydney Trains/Transport Asset Holding Entity of NSW land adjacent to the East Hills Railway. A gate providing access to this land, near the southern tie in, north of the East Hill Railway overbridge, would be repositioned as part of the proposal, and the Proponent would consult Sydney Trains/Transport Asset Holding Entity of NSW land on this matter and obtain relevant approval(s).

Options for adjustment to the DJLU access during construction require confirmation between the Proponent and the Commonwealth. The Proponent acknowledges the final agreed option must be consistent with the SSI approval and obtain any additional or supplementary approvals as necessary. Details on DJLU intersection queue length and turn back options, with consideration to lock down options according to Defence security requirements, would be further considered and refined during the consultation with DJLU and through any additional or supplementary approval process.

Permanent relocation of the access to the DJLU has not been assessed as part of this proposal and would be subject to the relevant approval pathway once agreed between the relevant parties.

The Department is satisfied that the above measures, in conjunction with recommended conditions, would minimise impacts to road access for neighbouring properties. Recommended conditions of approval require that access to utilities and properties must be maintained during construction, unless otherwise agreed with the relevant utility owner, landowner, or occupier. Property access physically affected by the proposal must be reinstated or an alternative provided to at least an equivalent standard, unless otherwise agreed.

A future Cambridge Avenue upgrade is not part of this assessment

Agencies including TfNSW and Liverpool City Council requested that the proposal be designed and refined to complement a future upgrading of Cambridge Avenue.

The Department considers it is not the role of this proposal to design for a future Cambridge Avenue upgrade, which is unfunded and has unknown design details. The potential upgrade is currently in the strategic design phase, and as such it could be several years until detailed design and construction commence. In accordance with the VPA, the proposal has been designed to tie into the existing road network, namely the existing Moorebank Avenue on the northern side of the East Hills rail line.

As the planning and design of the Cambridge Avenue upgrade project progresses, a realigned Moorebank Avenue would not prevent future adjustments if required. However, the assessment and provision of any adjustments are the responsibility of the Proponent for that project.

6.3 Biodiversity

Note: References to sections of the EIS, Submissions Report and the recommended conditions of approval have been included in this section to satisfy the Commonwealth's assessment requirements.

The proposal would have direct and indirect impacts to the biodiversity values in the study area, including threatened ecological communities (TECs) and threatened fauna and flora species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Proponent has committed to implementing mitigation measures aimed at reducing impacts, including fencing of the Biobanking site boundary to minimise access during construction, a system for managing vegetation clearing, weed management to reduce competition for native vegetation, re-vegetating cleared areas at the end of construction, and construction of fencing and culverts to facilitate the safe movement of local fauna between fragmented habitats.

Some impacts to biodiversity values would be offset under the Biodiversity Offsets Scheme (BOS), by acquiring and retiring ecological and species credits available on the biodiversity credit register or paying into the Biodiversity Conservation Fund. The Department has recommended conditions which specify retirement of biodiversity credits set out in the revised Biodiversity Development Assessment Report (BDAR), and implementation of measures to manage and monitor the culverts and fauna exclusion fencing during operation.

Biodiversity Assessment Method and Bilateral Agreement (Assessment)

In accordance with the BC Act, impacts to the biodiversity values were assessed under the Biodiversity Assessment Method (BAM) (OEH, 2017) and presented in a BDAR. Impacts to the biodiversity values were updated in a revised BDAR (an appendix to the Submissions Report) to address comments raised by DPIE Environment, Energy and Science Group (EES).

The proposal is also a **controlled action** under the EPBC Act.

Bilateral Agreement between the Commonwealth and NSW

The Bilateral Agreement (dated 2015) and the Amending Agreement No. 1 (dated 2020) between the Commonwealth and the State of NSW for the assessment of major projects under the EPBC Act , endorsed the BAM and the BOS as the basis for assessing biodiversity values under the EPBC Act.

The revised BDAR assessed the impacts of the proposal on listed threatened species and threatened ecological communities (TECs) considered matters of National environmental significance (MNES).

Commonwealth requirements have been addressed and the impacts assessed on biodiversity MNES. Sections of the EIS relevant to the biodiversity MNES include:

- Chapter 4 – Project development and alternatives
- Chapter 6 – Consultation
- Chapter 7.2 – Biodiversity
- Chapter 8 – Management and mitigation measures
- Chapter 9 – Evaluation and conclusion
- Appendix A – SEARs and EPBC Act Referral Decision
- Appendix B – Biodiversity Development Assessment Report.

Sections of the Submissions Report relevant to the biodiversity MNES include:

- Chapter 4.4 – Response to submissions – Biodiversity
- Chapter 6 – Statement of commitments
- Chapter 7 – Summary
- Appendix A – Revised management and mitigation measures
- Appendix B – Revised biodiversity development assessment report.

Impacts to threatened species and TECs trigger a controlled action under EPBC Act

The Commonwealth Department of Agriculture, Water and the Environment (DAWE) found in its assessment of the controlled action referral (EPBC 2020 / 8839) that the proposed action is likely to have a significant impact on the following controlling provisions of the EPBC Act:

- Listed threatened species and communities (section 18 and section 18A).

The Commonwealth considered the proposed action is likely to have a significant impact on the following biodiversity MNES:

- Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion – endangered
- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest – critically endangered
- Koala (*Phascolarctos cinereus*) (combined populations of Queensland, NSW and ACT) – vulnerable.

Clearing native vegetation would impact TECs

Approximately 9.17 hectares of four Plant Community Types (PCTs), stratified into 10 vegetation zones that correlate with the four TECs listed under the BC Act, would be cleared. Three PCTs are

also considered to be TECs under the EPBC Act. **Table 7** provides details of the impacted PCTs, their general condition, conservation status, and area impacted.

Table 6 | Impacts to native vegetation (Source: Submissions Report)

Plant Community Type (PCT) Identification	Condition	TEC under the BC Act?	TEC under the EPBC Act?	Area (ha)
724: Broad-leaved Ironbark – Grey Box – Melaleuca decora grassy open forest on clay / gravel soils of the Cumberland Plain, Sydney Basin Bioregion	High* Medium* Poor Derived native grassland (DNG)	Yes, Shale Gravel Transition Forest in the Sydney Basin Bioregion (Endangered)	Yes, Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (Critically Endangered)	2.73
725: Broad-leaved Ironbark – Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	High DNG	Yes, Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion (Endangered)	Yes, Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion (Critically Endangered)	0.61
883: Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	High* Medium* DNG	Yes, Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (Vulnerable)	Yes, Castlereagh Scribbly Gum and Agnes Banks Woodlands in the Sydney Basin Bioregion (Endangered)	5.67
1067: Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	High	Yes, Castlereagh Swamp Woodland Community (Endangered)	No	0.15
			Total Area:	**9.17**

* Meets EPBC Act listing criteria

Impacts to the native vegetation identified in **Table 7** above require the provision of ecosystem credits for direct impacts to 9.17 hectares of TECs in accordance with the BOS.

The proposal would also remove fauna habitat (grasslands, riparian forest and woodlands) for locally occurring threatened fauna species. This includes the loss of potential foraging and breeding (hollow bearing trees) habitats.

Some threatened flora and fauna species would be impacted by construction

The proposal would impact on potential foraging, breeding and roosting habitat of threatened fauna and potential locations of threatened flora species. The revised BDAR addresses potential impacts to threatened flora and fauna species in accordance with the BAM, identifying the species known to be present or are likely, predicted or assumed to occur. Impacts must be addressed by the provision of ecosystem credits and species credits in accordance with the BOS.

Species and Ecosystem credit species

Thirteen ecosystem credit species (species that can be reliably predicted to use an area based on habitat surrogates) were predicted to occur in the study area.

Five flora species were predicted to occur in the area through targeted surveys undertaken during suitable seasonal survey windows:

- Bynoe's Wattle (*Acacia bynoeana*) (Endangered BC Act, Vulnerable EPBC Act)
- Downy Wattle (*Acacia pubescens*) (Vulnerable BC Act, Vulnerable EPBC Act)
- Small-Flower Grevillea (*Grevillea parviflora* subsp. *parviflora*) (Vulnerable BC Act, Vulnerable EPBC Act)
- *Hibbertia puberula* subsp. *puberula* (Endangered BC Act)
- Nodding Geebung (*Persoonia nutans*) (Endangered BC Act, Endangered EPBC Act).

In addition, *Hibbertia fumana* (Critically Endangered BC Act) recorded during previous surveys was assumed to be present.

The Cumberland Plain Land Snail (*Meridolum corneovirens*) (Endangered BC Act) was recorded in the area during targeted surveys.

Although not recorded during targeted surveys undertaken for the revised BDAR, two threatened fauna species are assumed to be present based on the presence of suitable habitat and nearby recent records:

- Koala[2] (*Phascolarctos cinereus*) (Vulnerable BC Act, Vulnerable EPBC Act)
- Bush Stone-curlew (*Burhinus grallarius*) (Endangered BC Act).

Construction and operation would have indirect impacts on biodiversity

The following indirect impacts would be expected to occur:

- injury or mortality to fauna from vehicles strikes
- increase in weeds which would compete against native vegetation
- increase in pathogens which would reduce the health of native vegetation
- runoff and sedimentation to waterways
- increase in noise, light, vibration, and dust, which could disrupt fauna.

Approximately 5.63 hectares of the four PCTs would be indirectly impacted according to the revised BDAR (see **Table 8**).

Fragmentation of remnant native vegetation would occur

The Boot Land is already disconnected from surrounding native vegetation by the East Hills rail corridor, MLP and other residential and industrial development. The proposal would cause further habitat fragmentation and reduced habitat connectivity within the Boot Land.

Table 7 | Indirect impacts to native vegetation (Source: Submissions Report)

[2] Koala presence was confirmed within the Boot Land by Cumberland Ecology in November 2018 during targeted surveys conducted in relation to the preparation of the Koala Management Plan associated with the Moorebank Precinct West Stage 2 development.

Plant Community Type (PCT) Identification	Area (ha)
724: Broad-leaved Ironbark – Grey Box – Melaleuca decora grassy open forest on clay / gravel soils of the Cumberland Plain, Sydney Basin Bioregion	1.98
725: Broad-leaved Ironbark – Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	0.52
883: Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	2.98
1067: Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	0.15
Total area:	**5.63**

Submissions and agency advice

Community and interest group submissions

Community submissions raised biodiversity concerns regarding:

- the proposal will inflict further damage on local ecology
- unacceptable clearing of native vegetation
- fragmentation of the Boot Land causing serious risk and irreversible impacts to flora and fauna, including critically endangered plants such as *Hibbertia fumana,* and threatened wildlife
- the destruction and fragmentation of koala habitat
- avoiding impacts to Boot Land by redesign
- impacts to existing Biobanking site
- loss of old growth Cumberland Plain Woodlands
- impacts to MNES
- installing wildlife fencing and corridors on either side of the road to avoid vehicle strike.

Council and Government agency submissions

Liverpool City Council raised a number of biodiversity concerns including:

- clearing of significant native vegetation, high-quality threatened species habitat and TECs
- disturbance of waterway beds and banks and riparian vegetation
- habitat fragmentation and increased fauna vehicle strikes
- potential impacts on biodiversity MNES
- the assessment of impacts to *Hibbertia fumana*, hydrological impacts to Anzac Creek, and koala populations.

EES reviewed the BDAR and advised:

- direct and indirect impact credit requirements for flora be recalculated separately
- further justification for methodology used in calculating indirect offsets is required
- recalculation of *Hibbertia fumana* offsets.

In response to the Submissions Report, EES Group advised that the revised BDAR adequately addressed the issues raised in its EIS submission.

Department of Primary Industries (DPI Fisheries) confirmed that no threatened aquatic species, populations or communities are known to occur within the proposal area due to unsuitable habitat but noted that the proposal would have direct and indirect impacts on Anzac Creek and receiving waters.

Consideration

Alignment avoids the existing Biobanking site

A large portion of the proposal study area is within or adjacent to the Boot Land. Part of the Boot Land is a registered Biobanking site (Biobanking agreement No. 341) (**Figure 5**) which was established to meet the offset obligations for development of the MLP.

When the Biobanking site was established, a corridor for a possible realignment of Moorebank Avenue was excised. The proposal was designed to fit within the excised corridor and outside the boundary of the Biobanking site.

The Biobanking site would be fenced during early work to protect it from construction activities. The Department has recommended a condition which requires construction to remain outside of the Biobanking site. Indirect impacts to the biodiversity values of the Biobanking site were assessed in the revised BDAR and are discussed below.

Potential impacts to TECs and threatened species have been reduced by project design

Impacts to TECs and threatened species have been minimised by avoiding larger areas of intact vegetation with higher biodiversity value important for fauna habitat and movement, including the existing Biobanking site. This has been achieved by the northern portion of the new road following the existing Greenhills Road transport and utilities corridor, which runs east of the MLP and west of the Boot Land. This corridor comprises mostly cleared land, grassland, and areas of low condition native vegetation. The southern portion of the new road follows the corridor earmarked for the Moorebank Avenue realignment when the Biobanking site was established.

Residual impacts to TECs and threatened species remain and have been addressed in accordance with the BAM. These are addressed in more detail below. The objective of this process is to provide a common approach that leads to a scientifically based means of offsetting which, if achieved, is aligned to NSW and Commonwealth set biodiversity outcomes.

Residual impacts to TECs that cannot be avoided would be offset

Despite the attempt to minimise biodiversity impacts through project design, native vegetation clearing would be required with loss of hollow bearing trees and removal of dead wood, dead trees, and bush rock in the construction footprint. Construction would directly impact:

- 4.72 hectares of Shale Gravel Transition Forest in the Sydney Basin Bioregion (PCT 724), an endangered ecological community (EEC) under the BC Act – 0.78 hectares of which is in High condition. The balance comprises Low condition and derived natural grasslands

- 0.61 hectares of Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion (PCT 725), an EEC under the BC Act – 0.16 hectares of which is in High condition with the balance comprising derived natural grasslands
- 5.67 hectares of Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion (PCT 883), a vulnerable ecological community under the BC Act – 3.77 hectares of which is considered in High condition
- 0.15 hectares of Castlereagh Swamp Woodland Community (PCT 1067), an EEC under the BC Act – all is considered in High condition.

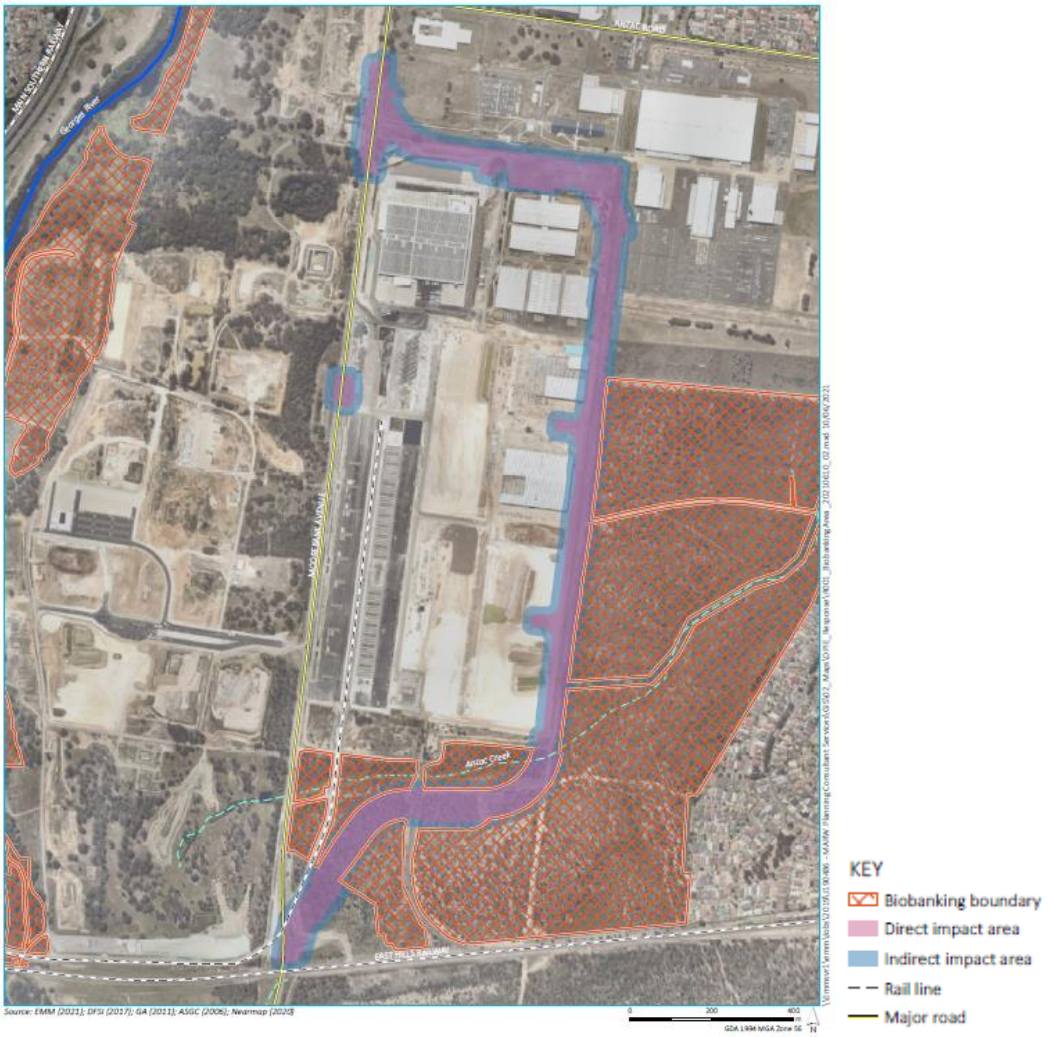


Figure 5 | Biobanking site (Source: Proponent)

Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (PCT 724) is an EPBC Act critically endangered ecological community (CEEC). Approximately 0.92 hectares of this TEC meets the EPBC Act listing. To accommodate the proposal, a thin strip of intact vegetation of this CEEC would be cleared along the eastern edge of the Greenhills Road transport and utilities corridor.

The EPBC Act lists Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion (comprising PCT 725) as a CEEC, which overlaps with the BC Act listed Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion. An intact patch of this TEC is located adjacent to the

existing utilities easement east of the MPE site, located north of Anzac Creek. A narrow strip of approximately 0.16 hectares of intact vegetation would need to be cleared as well as a patch of Derived Native Grassland (DNG) within the existing transport and utilities corridor.

The EPBC Act lists Castlereagh Scribbly Gum and Agnes Banks Woodlands in the Sydney Basin Bioregion (comprising PCT 883) as an EEC. Approximately 5.4 hectares of this EEC would need to be cleared within the existing transport and utilities corridor between the south eastern corner of the MPE Site to where the current alignment of Moorebank Avenue crosses over the East Hills rail line.

Indirect impact to 5.63 hectares of native vegetation would be likely due to increase in weeds and pathogens, predatory and pest species, changes to runoff regimes, and fragmentation from exposure to new edges, transportation of weed propagules and pathogens on vehicles and impermeable pavement. The calculation of offsets for indirect impacts was based on data collected during the biodiversity monitoring program for Snowy 2.0 Exploratory Works (EMM 2019). EES advised the method used to calculate indirect impacts is appropriate.

A range of mitigation measures are proposed including:

- fencing the Biobanking site to prevent access by construction vehicles, equipment and personnel
- locating work compounds and temporary laydown and stockpile areas within the existing MPE construction site and / or within the road construction footprint
- undertaking pre-clearing surveys to check on fauna and hollows, and translocating any fauna and hollows found to areas of retained vegetation
- weed control measures.

Direct and indirect impacts to TECs are proposed to be offset in accordance with the BOS and biodiversity credit requirements of the proposal would be met through one or a combination of:

- retirement of credits held from the Biobanking site and other biobanking sites
- purchase and retirement of credits available on the biodiversity credit register
- payment into the Biodiversity Conservation Fund.

The Department accepts impacts to the TECs are unavoidable, but most of the TECs to be cleared are not of a High condition. High condition native vegetation that is expected to be cleared is in the existing utilities and road corridor and limited to approximately 4.86 hectares (or less than 25 per cent of the construction footprint) on the eastern edge of the corridor. Most of the existing native vegetation in the Boot Land (approximately 93 hectares) remains unaffected and the Biobanking site is preserved. The Department accepts that the impacts to TECs can be appropriately mitigated through the Proponent's commitments, with residual impacts addressed in accordance with the BOS.

Residual impacts to threatened species that cannot be avoided would be offset

Despite reducing impacts to threatened species through project design, the proposal is expected to impact on some threatened flora and fauna, including 14.8 hectares of Cumberland Plain Land Snail habitat, 14.8 hectares of Bush stone-curlew habitat and 11.85 hectares of Koala habitat.

To minimise temporary and permanent impacts to threatened species, the Proponent has committed to:

- undertaking pre-clearing surveys (including translocation of fauna)
- retaining hollow logs and limbs for relocation to the Biobanking site

- installing exclusion zones around retained vegetation to reduce impacts of inadvertent vehicle access
- appropriately disposing of and managing weeds including wash-down stations to limit the transportation of weed propagules and pathogens from construction vehicles
- implementing waste management strategies to minimise vermin and feral species
- using directional lighting to minimise light spill as much as possible
- re-vegetating cleared areas as soon as possible following construction.

Certain impacts to threatened species are unavoidable, but the proposed measures, if implemented, would mitigate indirect impacts to threatened species. Further measures to reduce indirect impacts include using timber felled or collected during clearing, where these could be repurposed as habitat components or seed or other propagation material used in habitat enhancement and rehabilitation. A condition is recommended requiring this, with residual impacts addressed by biodiversity credit offsets in accordance with the BOS.

Biodiversity offsets for residual impacts to TECs and threatened species

The impacts to TECs and threatened species habitats require offsetting through securing ecosystem credits to address impacts to PCTs and species credits for impacts to threatened flora and fauna species. Biodiversity credits required to offset impacts are in **Table 9** and **Table 10** below.

Table 8 | Ecosystem credits (Source: Submissions Report)

PCT	Impacted Area (ha)	Vegetation Zone	Number of Credits
724: Broad-leaved Ironbark – Grey Box – *Melaleuca decora* grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	4.72	High / Medium* Poor Derived native grassland (DNG)	27 2 20
725: Broad-leaved Ironbark – *Melaleuca decora* shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	1.13	High DNG	5 4
883: Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	8.36	High* Medium* DNG	89 39 0
1067: Parramatta Red Gum woodland on moist alluvium of the Cumberland Plain, Sydney Basin Bioregion	0.30	High	3
		Total credits:	**189**

* Meets EPBC Act listing criteria

Note: Refer to Table 1 in Appendix F for breakdown in direct and indirect impact credits for each EPBC Act listed TEC.

The EIS and Submissions Report indicate that a BOS would be prepared and biodiversity credits set out in the revised BDAR would be retired. The Department has recommended conditions requiring the Proponent retire all biodiversity credits set out in the revised BDAR before the commencement of activities that will impact biodiversity. The retirement of credits can include:

- retiring credits under the BC Act and EPBC Act; and / or

- making payments into the Biodiversity Conservation Fund; or
- providing supplementary measures or applying the variation criteria where like-for-like credits cannot be sourced.

Table 9| Species credits (Source: Submissions Report)

Threatened Species	Loss of Habitat / Impacted individuals	Number of Credits
Acacia bynoeana (Bynoe's Wattle)	0.86 ha	8
Acacia pubescens (Downy Wattle)	1.07 ha	10
Grevillea parviflora subsp. *parviflora* (Small-flower Grevillea)	3.76 ha	61
Persoonia nutans (Nodding Geebung)	0.76 ha	10
Hibbertia puberula subsp. *puberula*	6.73 ha	109
Hibbertia fumana	0.27 ha / 2	8
Phascolarctos cinereus (Koala)	11.85 ha	168
Burhinus grallarius (Bush Stone-curlew)	14.80 ha	194
Meridolum corneovirens (Cumberland Plain Land Snail)	14.80 ha	194
Total credits:		**762**

Connectivity and fragmentation of the Boot Land

Fragmentation of the Boot Land would be a potential indirect impact due to the loss of vegetation connectivity and a restriction of fauna species movements.

The Proponent seeks to mitigate the impacts associated with vegetation fragmentation by installing culverts across Anzac Creek to improve connectivity for ground-dwelling fauna such as frogs, small mammals, and reptiles; and installing fauna-exclusion fencing to prevent fauna from crossing over the road and guide fauna towards the culvert entrances.

Fragmentation of the Boot Land is appropriately addressed by the Proponent's committed mitigation measures and the recommended conditions which require indirect impacts be addressed through the retirement of all biodiversity credits set out in the revised BDAR.

Tree removal and replacement plantings

The proposal is expected to remove a significant number of trees, with most located within the highly vegetated, less developed Boot Land. The number of trees proposed to be removed would be identified during detailed design. The Department acknowledges that tree removal necessary for the proposal would impact on tree canopy cover. Despite the Proponent proposing to minimise tree removal as far as possible, there is no commitment to the replacement of removed trees nor the replacement of the amount of tree canopy cover lost. The Department recognises the importance of maintaining and increasing the number of trees and green cover, particularly in southwestern Sydney. Conditions are recommended to:

- require a tree survey to inform revegetation and replacement of trees
- identify a replacement ratio of 2:1 for trees not subject to the biodiversity offset;
- prepare a landscape strategy to provide detail of the type, size, location and timing of replacement.

Matters of National Environmental Significance (MNES) were appropriately considered

The revised BDAR considered potential MNES under sections 18 and 18A of the EPBC Act known to occur or potentially occur in the proposal area. These are summarised in **Table 11**. Significant impact is possible for the Cumberland Plain Shale Woodlands and Shale Gravel Transition Forest in the Sydney Basin Bioregion, the Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion, and the Koala. Impacts to all other species and communities were considered unlikely to be significant.

Table 10 | Summary of MNES potentially occurring in the study area

MNES under the EPBC Act	Number of candidates requiring further survey and assessment	Recorded / assumed presence	Significant impact assessment conclusion
TECs	Three listed TECs	All recorded	Significant impact possible for: – Cumberland Plain Shale Woodlands and Shale Gravel Transition Forest in the Sydney Basin Bioregion – Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion
Threatened flora	Four species	All recorded	None Impacts to these species unlikely to be significant.
Threatened fauna	Five species	Two – not recorded One – recorded One – assumed One – recorded – incidental siting	Significant impact possible for: – Koala
Migratory species	Four species	One – recorded – incidental siting Two – not recorded One – recorded	None Impacts to these species unlikely to be significant.

TECs

The proposal is likely to have significant impacts on two TECs, being:

- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest in the Sydney Basin Bioregion (direct impact on 0.92 hectares and indirect impact on 1.22 hectares)
- Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion (direct impact on 5.40 hectares and indirect impact on 2.96 hectares).

The Protected Matters Search Tool (PMST) also identified the presence of the Cooks River / Castlereagh Ironbark Forest in the Sydney Basin Bioregion, but the assessment concluded that the proposal is unlikely to have a significant impact on this TEC.

Threatened flora species

A 'likelihood of occurrence' assessment was completed for threatened flora species listed under the EPBC Act. This identified four threatened flora species that have a moderate to high likelihood of occurrence (using desktop assessment or targeted surveys) which are summarised in **Table 12**.

Table 11 | Summary of assessment – MNES flora species

Threatened flora species listed under the EPBC Act	BDAR assessment
Acacia bynoeana (Bynoe's Wattle)	This species is considered to have a high likelihood of occurrence and was recorded during targeted surveys in areas of the Boot Land to the south and east of the existing S-shaped utilities and transport corridor intersecting the Boot Land and south of the MPE Site. Most recorded locations are outside the proposed impact area The species is unlikely to be significantly impacted by the proposal considering: • only 0.9% of available habitat for the species within the Boot Land would be directly impacted • the proposal would not have a significant impact on the population size, area or increase isolation of the species No listed important habitat would be directly impacted
Acacia pubescens (Downy Wattle)	This species was recorded within the Boot Land during targeted surveys, predominantly to the east of the existing Greenhills Road transport and utilities corridor The species is unlikely to be significantly impacted by the proposal considering: • only 1.4% of available habitat for the species within the Boot Land would be directly impacted • the proposal would not have a significant impact on the population size, area or increase isolation of the species No listed important habitat would be directly impacted
Grevillea parviflora subsp. *parviflora* (Small-flower Grevillea)	This species is known to occur in the study area with records throughout the Boot Land. The species was recorded during targeted surveys, mostly to the south and east of the existing S-shaped utilities and transport corridor intersecting the Boot Land and east of the MPE Site. Most populations are located beyond the impact area The species is unlikely to be significantly impacted by the proposal considering: • only 5.1% of available habitat for the species within the Boot Land would be directly impacted

Threatened flora species listed under the EPBC Act	BDAR assessment
	• the proposal would not have a significant impact on the population size, area or increase isolation of the species No listed important habitat would be directly impacted
Persoonia nutans (Nodding Geebung)	There are many records of this species within the study area, particularly to the south and east of the MPE Site The species is unlikely to be significantly impacted by the proposal considering: • the proposal would not have a significant impact on the population size, area or increase isolation of the species • no listed important habitat would be directly impacted The proposal would not disrupt the breeding cycle of the species

Threatened fauna species and migratory species

In declaring the proposal to be a controlled action, DAWE considered that there were likely to be significant impacts to the koala (*Phascolarctos cinereus* (combined populations of Queensland, NSW and the ACT)). In addition to the koala, the PMST identified a further eight candidate species requiring further assessment – four fauna and four migratory species.

Surveys were undertaken for all candidate species. Only the White-throated Needletail species was observed flying during field surveys. The assessment of the threatened fauna and migratory species is summarised in **Table 13** and **Table 14**.

Table 12 | Summary of assessment – MNES fauna species

Threatened fauna species listed under the EPBC Act	BDAR assessment
Anthochaera phrygia (Regent Honeyeater)	Moderate likelihood of occurrence in desktop study but not recorded in targeted surveys The Regent Honeyeater has a wide distribution range and there are records of the species within 10 km of the study area. The study area is outside the mapped important areas, however known feed tree species were recorded during vegetation integrity surveys Proposal would be unlikely to have a significant impact on the species
Hirundapus caudacutus (White-throated Needletail)	Moderate likelihood of occurrence in desktop assessment and recorded flying over the study area in targeted, however the site is not considered to provide suitable foraging opportunities Proposal would be unlikely to have a significant impact on the species
Lathamus discolor (Swift Parrot)	Moderate likelihood of occurrence in desktop assessment but not recorded in targeted surveys The study area is not within known mapped special areas for this species, however it has been recorded six times within 10 km of the study area since 1980, with the

Threatened fauna species listed under the EPBC Act	BDAR assessment
	most recent observation recorded in 2014. A favoured feed tree species was identified during vegetation integrity surveys, however few individuals were identified across the study area Proposal would be unlikely to have a significant impact on species
Pteropus poliocephalus (Grey-headed Flying-fox)	Moderate likelihood of occurrence in desktop assessment with an incidental sighting recorded in targeted survey Whilst no flying-fox camps were observed on the study area, the species was recorded flying over the study area Proposal would be unlikely to have a significant impact on species
Phascolarctos cinereus (Koala)	Moderate likelihood of occurrence in desktop assessment There are over 700 records of the species within 10 km of the study area. The species is considered to occur within the study area and has been assumed present Proposal may possibly have a significant impact on species

Table 13 | Summary of assessment – MNES migratory species

Threatened migratory species listed under the EPBC Act	BDAR assessment
Pandion haliaetus (Eastern Osprey)	Moderate likelihood of occurrence in desktop assessment This species is water-dependent, hunting for fish in clear, open water. Nests can be made high up in dead trees or dead crowns of live trees, usually within one kilometre of the sea This species was observed flying over the study area during field surveys, however no breeding nests were identified in the study area Proposal would be unlikely to have a significant impact on the species
Chrysococcyx basalis (Horsfield's Bronze-Cuckoo)	Moderate likelihood of occurrence in desktop assessment. Not recorded in targeted surveys Proposal would be unlikely to have a significant impact on the species
Myiagra cyanoleuca (Satin Flycatcher)	Moderate likelihood of occurrence in desktop assessment. Not recorded in targeted surveys Proposal would be unlikely to have a significant impact on the species
Rhipidura rufifrons (Rufous Fantail)	Moderate likelihood of occurrence in desktop assessment. Recorded sighting in targeted survey This species prefers dense, moist undergrowth of tropical rainforests and scrubs Proposal would be unlikely to have a significant impact on the species

The proposal would be unlikely to significantly impact any assessed listed species, except for Koalas. A total of 6.71 hectares of habitat containing Koala feed trees would be removed and 11.85 hectares of Koala habitat would be directly or indirectly impacted. EES assessed EPBC Act-listed threatened species and TECs (see **Appendix F**), which verified the revised BDAR assessment, including the nature and extent of all relevant impacts, measures to avoid and mitigate, and appropriate offsets for any residual adverse significant impacts. DPIE EES Group confirmed that the revised BDAR was appropriately undertaken with a satisfactory conclusion and that an appropriate offset for any residual adverse significant impact has been determined.

Accordingly, the Department is satisfied with the revised BDAR's conclusions on impacts to MNES, and recommends the Commonwealth Minister for the Environment:

- notes the Department's assessment of MNES in this report
- considers the Bilateral assessment in **Appendix F**
- considers additional EPBC Act considerations, including the Commonwealth's international obligations and the consideration of relevant approved conservation advices, recovery plans, and threat abatement plans in **Appendix G**
- adopts **Conditions E2** to **E9** in the recommended instrument of approval (**Appendix H**).

6.4 Contamination and soils

Note: References to sections of the EIS, Submissions Report and the recommended conditions of approval have been included in this section to satisfy the Commonwealth's assessment requirements.

A preliminary site investigation (PSI) confirmed that existing contamination is primarily from off-site sources and is currently being managed as part of the broader development of the Moorebank Logistics Park. It is recognised that the proposal still has the potential to disturb contaminated land; however, this can be appropriately managed and monitored to minimise impacts.

The Department is satisfied that the commitments made and the recommended conditions provide a robust framework to identify contamination in the areas that would be affected by ground disturbance and establish a management approach to address the presence, remediation or removal, where appropriate, of contaminated materials. Potential impacts causing mobilisation and runoff of pollutants into surrounding surface and ground waters during construction can be mitigated through the implementation of the proposed mitigation measures and recommended conditions.

Bilateral agreement between the Commonwealth and NSW

The Bilateral Agreement (dated 2015) and the Amending Agreement No. 1 (dated 2020) between the Commonwealth and the State of NSW for the assessment of major projects under the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) require both NSW State and Commonwealth Government planning approvals.

The Bilateral Agreement (dated 2015) and the Amending Agreement No. 1 (dated 2020) between the Commonwealth and the State of NSW applies to the assessment of major projects that require both NSW State and Commonwealth government planning approvals under the Environment Protection and Biodiversity Conservation Act (EPBC Act).

Commonwealth requirements have been addressed and the contamination impacts on Commonwealth Land have been assessed. Sections of the EIS relevant to contamination impacts on Commonwealth Land include:

- Chapter 4 – Project development and alternatives
- Chapter 6 – Consultation
- Chapter 7.6 – Contamination
- Chapter 8 – Management and mitigation measures
- Chapter 9 – Evaluation and conclusion
- Appendix A – SEARs and EPBC Act Referral Decision
- Appendix F – Preliminary Site Investigation.

Sections of the Submissions Report relevant to contamination and Commonwealth Lands include:

- Chapter 4.7 – Response to submissions – Contamination
- Appendix A – Revised management and mitigation measures
- Appendix C – Additional Contamination Assessments.

Impacts to the environment on Commonwealth land trigger a Controlled Action under EPBC Act.

The Commonwealth Department of Agriculture, Water and the Environment (DAWE) found in its assessment of the controlled action referral (EPBC 2020 / 8839) that the proposed action is likely to have a significant impact on the following controlling provisions of the EPBC Act:

- Commonwealth Land (section 26 and section 27A).

The Commonwealth considered the proposed action is likely to have an impact on Commonwealth Land including:

- potential mobilisation and runoff into surrounding surface and ground waters, during construction, of asbestos pollutants and other pollutants such as per- and polyfluoroalkyl substances (PFAS), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), metals, pesticides and herbicides, and other items such as unexploded ordinances (UXOs), which may be present in the soil
- asbestos fibres potentially becoming airborne, and as a result, the potential impact on the health and safety of users of the proposed action area.

Issue

Some contaminated soils and material would be disturbed by construction

Various contaminants may be encountered during construction. These are:

- fill stockpiles near the disused railway spur containing total TPH, BTEX, metals, PAH, and polychlorinated biphenyls (PCB) and elevated lead
- potential asbestos containing material (ACM) is also present to the east of the alignment (and north of Anzac Creek) and in pipe insulation (lagging) at Anzac Creek (see **Figure 6**). Fragments of ACM at several locations along the alignment could be disturbed and become airborne
- per- and polyfluoroalkyl substances (PFAS) - known migration of PFAS via surface water from the fire station to Anzac Creek has been identified (see **Figure 7**). The creek is a

potential pathway for offsite migration. PFAS levels recorded in Anzac Creek are below recreational water use guidelines but exceed potable water guideline levels. Anzac Creek is not used for potable water and no recreational activities are proposed

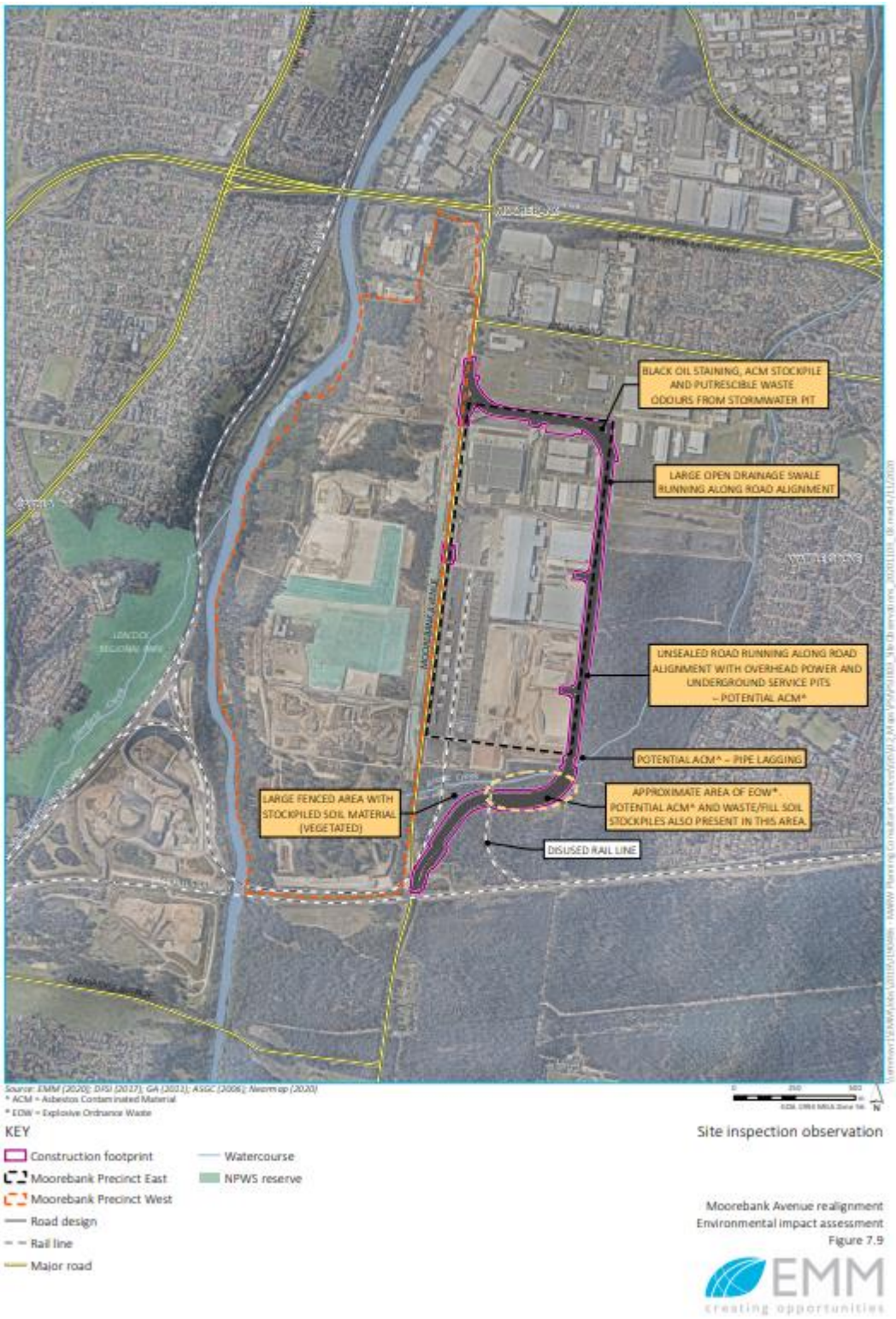


Figure 6 | Potential locations of contamination along the alignment (Source: Moorebank Avenue Realignment Environmental Impact Statement, EMM 2021)

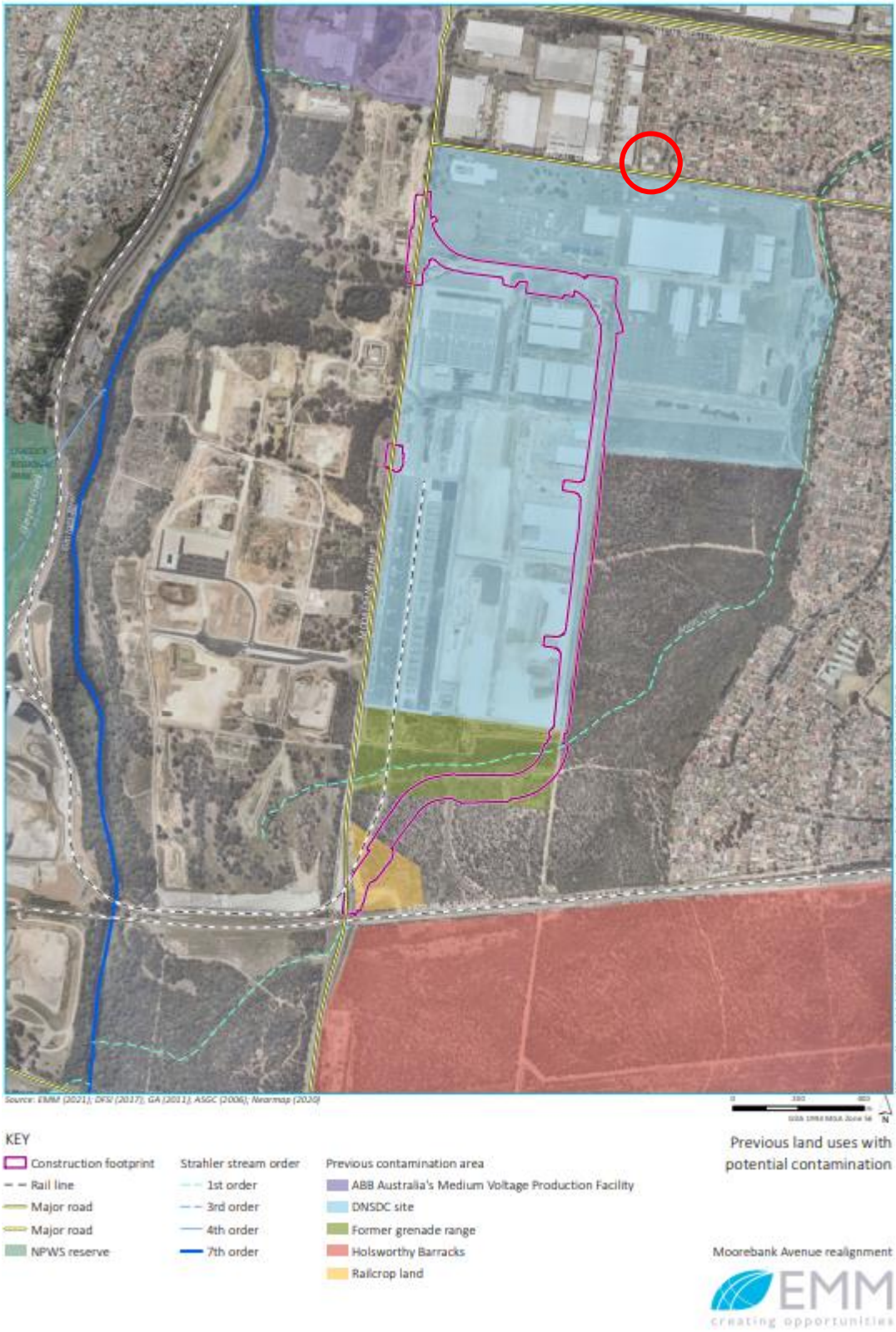


Figure 7 | The location of former uses and sources of contamination. As noted in the EIS, most contamination has come from off site. Per- and polyfluoroalkyl substances (PFAS) has migrated over the surface from the Holsworthy Barracks in the south and the Liverpool Fire Station to the north on Anzac Road (circled).

- fuel and chemical storage areas on MPE which are a potential source of PFAS and other contaminants of potential concern (CoPC) but is currently under remediation/management and are up gradient from the proposal
- explosive ordnance waste (EOW) which could leach into the surrounding area. The potential for explosive ordnance (EO) and unexploded ordnance (UXO) is considered low due to past remediation in the area.

To define the extent and magnitude of contamination, targeted investigations would be undertaken by the Proponent to inform appropriate management measures. The results of these investigations would be used to assess potential risks to construction workers during construction, to classify the suitability of re-use of materials, and to classify treatment/remediation options and disposal. The Proponent has committed to implementing a contamination management plan to appropriately manage risks during construction.

Risks to surface and ground water quality are possible due to the potential mobilisation and runoff of pollutants

Per- and polyfluoroalkyl substances (PFAS) contamination in the area is expected due to the proximity and historic use of PFAS containing firefighting foams at the Holsworthy Barracks and Liverpool Fire Station. Known migration of PFAS via surface water from the fire station to Anzac Creek has been identified (**Figure 7**) and the creek is a potential pathway for offsite migration. Fuel and chemical storage areas on MPE which are a potential source of PFAS and other contaminants of potential concern (CoPC) are currently under remediation/management and are up gradient from the proposal.

Previous investigation of the Holsworthy Barracks (CH2M HILL, 2018), found that the concentration of PFAS in water samples collected from Anzac Creek exceeded the human health drinking water guidelines, but that the concentration is below recreational water use guidelines. Construction activities would not increase PFAS levels in Anzac Creek and the potential impact on human health is expected to be negligible as Anzac Creek is not used as a potable water source.

Submissions and advice

Council and Government agency submissions

Environment Protection Authority (EPA) recommended conditions to manage the risk from contaminated soils. The EPA also:

- requested an assessment of the presence of ordnances prepared by a suitably qualified expert on ordnances as part of the RTS and a sampling and analysis quality plan (SAQP) for Detailed Site Investigations
- in a meeting (7 May 2021) agreed to and recommended (in correspondence dated 15 June 2021) a targeted assessment approach, instead of a detailed site investigation.

Liverpool City Council (council) recommended a site audit to confirm that sufficient information is available to address the statutory requirements of SEPP No. 55- Remediation of Land. Council also recommended that where additional intrusive investigations indicate that the site poses unacceptable risks to human health or the environment, a Remedial Action Plan (RAP) is to be prepared by a suitably qualified environmental consultant.

Sydney Water noted that as the site is contaminated, any new water or sewerage infrastructure would need to be constructed in uncontaminated ground or made from materials that prevent the migration of contaminants into the infrastructure.

Consideration

Contamination can be managed through targeted investigation, remediation, existing remediation orders and auditing

The Proponent has committed to implementing ongoing management and mitigation measures, such as site-specific remediation action plans, additional site investigations, and strategies for the management, monitoring and treatment of contaminated soil and groundwater.

The following mitigation measures are proposed:

- the removal and clearance of contamination sources on-site (i.e. stockpiles of fill, asbestos containing material (ACM), and explosive ordnance waste (EOW))
- targeted investigations at locations where soil disturbance is proposed to assess potential risks to construction workers during construction as well as re-use suitability or waste classification of excavated materials and disposal
- implementation of a Contamination Management Plan (CMP) to provide ongoing contamination management and mitigation during construction
- an Acid Sulfate Soils (ASS) Management Plan would be prepared and implemented to manage exposure of ASS if it is encountered.

The Department has also recommended conditions for contamination management which reflect the recommendations of the EPA. These conditions would require targeted site investigations along the road alignment. The results of these investigations would determine the need for Remedial Action Plan(s) (RAPs), Validation Reports, and Site Audit Statements to confirm, before remediation, that the land can be made suitable for its proposed use and that, once remediation is completed, the land can be made suitable for its intended use. An intended use could include a Sydney Water asset such as any new water or sewerage infrastructure.

The Department is satisfied that this targeted approach would manage contamination risks. The approach is based on potential risk and the broad range of existing records, investigations and remediation that have occurred across the MLP. The approach is also responsive to the findings and provides for validation by an independent site auditor of the sampling methodology, development of RAPs and that remediated land is suitable for the intended final purpose before it is used.

Targeted investigations would be undertaken to assess re-use suitability or waste classification of excavated materials, assess potential risk to construction workers, and determine the need for remediation

To refine the extent and magnitude of contamination, targeted investigations would be undertaken, guided by a Sampling and Analysis Quality Plan (SAQP).The EPA initially recommended a detailed site investigation; however, following a meeting with the Proponent, the EPA agreed that a targeted site investigation in areas subject to ground disturbance was an acceptable approach.

The Department is satisfied that these targeted investigations would allow for adequate assessment of re-use suitability or waste classification of excavated materials, assess potential risk to construction workers, and determine the need for remediation. Further, the Department considers that the management measures and recommended conditions provide an appropriate framework to manage known and unexpected contamination.

The potential for asbestos containing material (ACM) to become airborne can be minimised through mitigation measures and recommended conditions

The Proponent has committed to removing known ACM and stockpiled materials in accordance with a Contamination Management Plan which would include an Asbestos Management Plan and an Unexpected Finds Protocol.

The EPA recommended the SAQP be verified as fit for purpose by an accredited site auditor. The Department considers that this recommendation, along with conditions that require ACM be identified and its extent determined to guide its removal and disposal within the existing regulatory framework, are appropriate to manage potential impacts to acceptable levels. Further, the Department is satisfied that there is substantial guidance and regulation regarding the removal and disposal of ACM to minimise the potential for ACM to become airborne and pose a risk to workers or surrounding property and occupants.

Potential mobilisation and runoff of contaminants into surrounding surface and ground waters during construction can be minimised

Water quality control measures, including management plans, have been included as mitigation measures. In addition, recommended conditions require reporting on per- and polyfluoroalkyl substances (PFAS) be provided to the EPA before construction, and that the EPA be consulted where potential risk of PFAS migration to areas offsite exists.

The Department is satisfied that potential impacts causing mobilisation and runoff of pollutants into surrounding surface and ground waters during construction can be mitigated through the implementation of the proposed mitigation measures and recommended conditions. The mitigation commitments and recommended conditions would provide a robust framework to identify contamination in areas that would be affected by ground disturbance, and to establish a management approach to address the presence and removal of contaminants.

6.5 Other issues

The Proponent assessed the potential impacts of the proposal in relation to water, flooding, heritage and social. The Department considers that the Proponent has adequately assessed these issues and they can be managed through the Proponent's environmental management measures and recommended conditions of approval. **Table 15** summarises the assessment and recommended conditions of approval.

Table 14 | Assessment of other issues

Issue	Findings	Recommendation
Water	Water quality, stormwater and groundwater impacts are expected to be negligible to minor with pollutant load reductions for all pollutants shown to meet the adopted reduction targets. The primary risk to water quality during construction would be during earthworks, construction vehicle and plant movement and road construction. This work, if not managed appropriately, could expose soils, cause erosion, and mobilise sediment resulting in reduced water quality in receiving watercourses. A culvert would be installed where the road crosses Anzac Creek and existing culverts extended requiring work within existing watercourses/drainage lines. Instream work poses a higher risk of erosion and sediment transport due to the potential disturbance of bed sediments and concentrated flows occurring from the upstream catchment. During operation, runoff from the roadway would be collected and discharged to bioretention basins via pipes, swales and overland flow paths constructed as part of the proposal or discharged via existing drainage channels into the Georges River or Anzac Creek. Bioretention basins would be established with biofiltration areas sized to provide water quality benefits and achieve pollutant load reduction targets. Vegetated swales would be established where practical to promote consistent flow and reduce velocity to encourage the natural settlement of sediments and capture litter and organic matter. A perched system within the alluvium soils and a deeper aquifer within the bedrock underlie the site. Excavations during construction are expected to be relatively shallow and are not anticipated to intercept groundwater which typically occurs at four to seven metres below ground level. DPIE Water	The EPA raised issues regarding water quality and contaminant levels which were addressed in the Submissions Report and considered above in relation to contamination. A Water Pollution Impact Assessment was recommended. This request is consistent with requirements where an Environmental Protection Licence is required and ensures that the Proponent is aware in advance of the information requirements for an application. A condition requiring that a Water Pollution Imapct Assessment be prepared has been recommended by the Department. The Department is satisfied that the range of proposed mitigation measures would manage the impacts identified and has further recommended standard conditions to manage water quality and stormwater runoff during construction and operation. The Department is satisfied that potential water quality and stormwater impacts can be minimised through implementation of the recommended conditions and proposed mitigation measures.

Issue	Findings	Recommendation
	requested that a Hydrogeological Assessment be undertaken post-approval to confirm the groundwater depth. The Proponent made a range of commitments regarding water quality, stormwater, and groundwater. These include: • implementation of a Water Management Plan (WMP) which would detail the ongoing management and maintenance of water management • mitigation measures during the construction, including a Soil and Water Management Plan (SWMP) which would include a Surface Water Monitoring program • water management controls for the construction of the proposal to reduce disturbance to soil and water • preparation of an Erosion and Sediment Control Plan • undertaking a Hydrogeological Assessment to assess the impacts of the excavations on the underlying aquifer and determine where the base of the excavation is with respect to site groundwater levels. Additional details of the mitigation measures to address potential runoff and water quality impacts are listed in Table A1 of the Submissions Report including siting of infrastructure away from receiving environments, diversion of clean water around construction areas, siting of sedimentation basins to manage construction runoff, surface water monitoring, scheduling culvert work during low rainfall periods, scour protection around discharge outlets.	

Issue	Findings	Recommendation
Flooding	The proposal is located outside of the PMF flood extent and above flood planning levels for the Georges River as described in the *Georges River Floodplain Risk Management Study and Plan* (Bewsher 2004) and *Georges River Flood Study: Final Draft Report* (BMT 2020). It is also consistent with the *Anzac Creek Floodplain Risk Management Study and Plan* (BMT WBM 2008) and is expected to have minimal impact on flooding in the locality. During construction, there is a potential hazard to construction personnel, construction plant and equipment and downstream watercourses. Construction workers would need to work in Anzac Creek to install culverts increasing the risk to workers and equipment. The Proponent has committed to preparing and implementing a flood emergency response and evacuation plan, or equivalent, during construction to ensure the safety of construction personnel, construction plant/equipment and downstream watercourses. Flood impact mapping for the 1% annual exceedance probability (AEP) flood event identified that changes in peak flood level would be minor and restricted to within or immediately adjacent to the proposed road corridor. Changes in peak flood levels for larger and smaller events (less or more frequent) scale with flood magnitude. There would be no change in flood effects on existing development. Localised increases in peak flood level reach a maximum of about 230 mm afflux (i.e. change in flood depth) in the 1% AEP flood outside the road corridor in bushland areas around inlets to drainage swales at the southern extent of the project and around the box culvert across the disused rail high flow culvert and the Anzac Creek culvert. There would be no change to the flood hazard rating. No impacts to beneficial inundation of the floodplain environment are expected downstream of the proposal.	Liverpool City Council requested that the flood model be extended further downstream for the 1% AEP event. The assessment indicated that there would be no increase in flood levels downstream of the proposal in the 1% AEP event and therefore the justification to extend modelling is not clear nor considered necessary. The Department is satisfied that the potential impacts on flooding are minimal, restricted to locations immediately adjacent to the proposal, would not increase the extent of inundation and would not affect surrounding development. Further, local flood evacuation would be improved by providing flood-free egress from and around the MLP. The residual flooding impacts can be appropriately managed by establishing performance goals of no increase in inundation except in the locations identified at culvert and swale inlets during the 1% AEP event.

Issue	Findings	Recommendation
	The identified impacts are generally consistent with flood planning provisions contained in the Liverpool Local Environment Plan (LEP) 2008 and Development Control Plan (DCP) 2008, as well as the *NSW Floodplain Development Manual* (NSW Dept. of Infrastructure, Planning and Natural Resources 2005). The Proponent has also committed to the following mitigation measures to improve water quality during high rainfall events: • implementation of diversion channels and drains to divert water around the proposal site for up to the 10-year Average Recurrence Interval (ARI) design storm event • bioretention basins to attenuate stormwater runoff from the proposal site for up to the 100-year ARI design storm event • scour protection to reduce erosion and sedimentation at stormwater discharge outlets for up to the 50-year ARI design storm event.	
Heritage	No State listed heritage items would be impacted by the proposal. The proposal would pass through the Australian Army Engineers Group (Liverpool LEP, I57) and runs adjacent to the Defence National Storage and Distribution Centre (DNSDC) (Liverpool LEP, I57A). The Statement of Heritage Impact identified several other locally listed items around the proposal. Of the locally listed sites, the DNSDC, Kitchener House, Holsworthy Group and Cubbitch Barta National Estate are on the Commonwealth Heritage List (CHL). Glenfield Farm is the only item on the State Heritage Register and is located 1.5km to the west of the proposal across the Georges River. The DNSDC was formerly listed on the CHL and was delisted when ownership of the site was transferred to SIMTA but remains on the Liverpool LEP Schedule	No community submissions raised impacts to heritage as a matter of concern. An Aboriginal Cultural Heritage Assessment Report (ACHAR) was submitted as part of the Submission Report and revised following comment from Heritage NSW. The mitigation measures recommended in the ACHAR were updated to clarify the appropriate steps for Aboriginal objects that are to be harmed, and to include additional opportunities for Registered Aboriginal Parties to comment on the removal and recording of Aboriginal objects. The Department has recommended standard conditions for Aboriginal and non-Aboriginal heritage which are consistent with the mitigation measures proposed by the Proponent. These include: • preparation of an unexpected finds procedure

Issue	Findings	Recommendation
	5 register. MPE occupies the site of the former DNSDC and all historic buildings have been demolished. The Australian Army Engineers Group/School of Military Engineering surrounds the DNSDC site and includes Liverpool Fire Station. Except for the fire station, no built elements remain and there would be negligible impact on this item. The southern portion of the proposal would be visible from Glenfield House, which is elevated to the west of the Georges River and would not affect its heritage value, however a mitigation measure has been included to retain as many trees as possible in the southern Boot Land to reduce the visual impact on this item. The Heritage Report identified that the proposal alignment has been heavily disturbed and the likelihood of archaeological material being present is nil to low. However, an unexpected finds procedure has been recommended as a mitigation measure to provide guidance for management in the unlikely event that any sites are uncovered. Eight Aboriginal sites have been recorded in the proposal area. One is thought to have been previously destroyed and one declassified based on previous test excavations. The remaining sites are isolated Aboriginal objects, comprised of silcrete raw material, on disturbed surfaces. The sites are all considered to be of low archaeological significance and cannot be avoided. Due to previous disturbance, the potential for sub-surface archaeological deposits within the proposed study area is considered low. An Aboriginal Heritage Management Plan (AHMP) would be developed to manage the removal, recording and relocation of identified items and assist with the removal of any unexpected finds. Mitigation measures proposed to manage historic and Aboriginal heritage include:	• preparation of an Archaeological Research Design and Excavation Methodology • nomination of a qualified excavation director to oversee and advise on matters associated with historical archaeology. In addition to the standard conditions, the Department has recommended requirements for preparing an AHMP, included as **Appendix A**. These requirements were recommended by Heritage NSW (Aboriginal Cultural Heritage Division) and ensures that the AHMP is prepared in accordance with best practice. The proposal would have a negligible to low impact on Historical and Aboriginal Heritage. The Department is satisfied that the potential impacts can be minimised through the recommended standard conditions and the implementation of the proposed mitigation measures. Any residual impacts are considered unlikely.

Issue	Findings	Recommendation
	• preparation of an Historic Heritage Management Plan to provide details for the ongoing management and maintenance of historic heritage and mitigation measures during construction • implementation of an Unexpected Finds Protocol • protection, where possible, of trees that provide visual shielding to Glenfield Farm • preparation of an Aboriginal Heritage Management Plan in consultation with Aboriginal stakeholders before any ground disturbance to provide the framework for managing Aboriginal heritage • ongoing consultation with the Registered Aboriginal Parties during construction.	
Social	It is expected that there would be minor, temporary social impacts to the way of life, and health and wellbeing of nearby stakeholders. The Liverpool and Campbelltown LGAs have an unemployment rate over 1 per cent above the NSW average. The proposal is expected to employ an average of 83 personnel across the 16-month construction timeline. The Proponent has committed to implement a Local Participation strategy and prioritise local workers and suppliers. The implementation of this strategy is expected to be positive impact for local residents and businesses. Construction is expected to generate dust and noise causing potential amenity and health issues, which would be managed through management and mitigation measures such as watering of exposed surfaces (for dust suppression using recycled water where possible) and programming, equipment selection and location for noise management. Noise and dust control measures would be incorporated into the CEMP and controlled through the Air Quality and Noise mitigation measures.	The Department is satisfied that potential impacts can be minimised through the recommended standard conditions and the implementation of the proposed mitigation measures. Most social impacts are expected to be caused by dust and noise pollution, and their impacts on residents' health and lifestyle during construction and operation. Noise pollution impacts are limited and are discussed in section 6.1 in this report. Dust pollution was assessed in Section 7.10 of the EIS and identified only minor, temporary construction impacts. The proponent's recommended mitigation measures can be found in Table A1 of the Submissions Report.

Issue	Findings	Recommendation
	A monitoring and management framework would be developed and implemented to measure the effectiveness of the proposed mitigation measures, including the changing conditions and trends in the local area and regional area over the same period.	

7 Evaluation

The Department considers the proposal is in the public interest and should be approved, subject to conditions.

The Department's assessment considered all relevant matters and objects of the *Environmental Planning and Assessment Act 1979*, the principles of ecological sustainable development, advice from NSW Government agencies, Liverpool City Council, and strategic government policies and plans.

The project is consistent with key government policies and strategies including:

- Building Momentum: NSW State Infrastructure Strategy 2018-2038 (Infrastructure NSW, 2018)
- A Metropolis of Three Cities – the Greater Sydney Region Plan (Greater Sydney Commission, 2018)
- Western City District Plan (Greater Sydney Commission, 2018)
- Western Sydney City Deal (Commonwealth of Australia, 2018)
- NSW Key Freight Routes Road Expenditure and Investment Plan (Transport and Infrastructure Council, 2016)
- Moorebank Intermodal Terminal Road Access Strategy (TfNSW, 2019).

The proposal would deliver operational efficiencies to the terminals within the Moorebank Logistics Park (MLP) while enhancing road network capacity and connectivity. Key benefits include:

- operational efficiencies to the terminals within the MLP, which:
  - provide for shorter, more efficient, and direct travel route for container-carrying vehicles between the rail link and terminals
  - minimise secondary and non-value creating freight movements by facilitating a direct access between Moorebank Precinct East (MPE) and Moorebank Precinct West (MPW)
  - potentially facilitate future automation of the precinct
- maintenance of a north/south connection between Cambridge Avenue and Anzac Road, and the Glenfield and Moorebank communities
- enhanced road network capacity and connectivity, improving the efficiency of community, freight and commercial vehicle movements, broadening trade catchments and reducing overhead costs associated with transport
- redistribution of traffic (including heavy vehicles) from local to arterial roads, improving the amenity and safety of the environment and enhancing access and connectivity
- general improvements in the capacity, reliability, connectivity, and safety of the road network.

In its assessment, the Department reviewed the Environmental Impact Statement, Submissions Report, and assessed the key issues arising from the construction and operation of the proposal.

Key issues associated with the proposal are:

- noise and vibration
- traffic and transport
- biodiversity
- contamination.

The Proponent identified environmental mitigation measures which it has committed to applying to the proposal. Based on its assessment, the Department recommends conditions of approval to reinforce these commitments and address outstanding or residual impacts.

The Department is satisfied that issues raised in submissions have been appropriately considered and responded to by the Proponent. Residual impacts can be mitigated, managed, and offset through the implementation of the Proponent's commitments, or through recommended conditions to reinforce commitments and address outstanding or residual impacts.

8 Recommendation

It is recommended that the Executive Director, as delegate for the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report
- **accepts and adopts** the findings and recommendations in this report as the reasons for making the decision to grant approval to the application
- **agrees** with the key reasons for approval listed in the notice of decision
- **approves** the application in respect of SSI-10053, subject to the conditions in the attached project approval
- **signs** the attached project approval and recommended instrument of approval (see attachment).

Prepared by:

Jonathan Blackmore
Senior Planner
Transport Assessments

Recommended by:

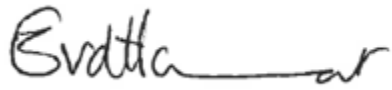
Lisa Mitchell
Team Leader
Transport Assessments

Recommended by:

Jake Shackleton
Director
Infrastructure Management

9 Determination

The recommendation is **Adopted** by:



Erica van den Honert
Executive Director
Infrastructure Assessments
as delegate of the Minister for Planning and Public Spaces

Appendices

Appendix A – List of referenced documents

1. *Moorebank Avenue Realignment – Environmental Impact Statement* dated March 2021
2. *Moorebank Avenue Realignment – Response to Submissions* dated May 2021
3. *Building Momentum: NSW State Infrastructure Strategy 2018-2038* (Infrastructure NSW, 2018)
4. *Greater Sydney Region Plan: A Metropolis of Three Cities – connecting people* (Greater Sydney Commission, 2018)
5. *Western City District Plan* (Greater Sydney Commission, 2018)
6. *Future Transport 2056* (TfNSW, 2018)
7. *NSW Key Freight Routes Road Expenditure and Investment Plan* (Transport and Infrastructure Council, 2016)
8. *Moorebank Intermodal Terminal Road Access Strategy* (TfNSW, 2019).

Appendix B – Environmental Impact Statement

https://www.planningportal.nsw.gov.au/major-projects/project/37891

Appendix C – Submissions and agency advice

https://www.planningportal.nsw.gov.au/major-projects/project/37891

Appendix D – Submissions report

https://www.planningportal.nsw.gov.au/major-projects/project/37891

Appendix E – Community views for draft notice of decision

The key issues raised by the community and considered in the Planning Secretary's Assessment Report and by the decision maker include noise and vibration, traffic and transport, and biodiversity.

Issue	Consideration
Noise and vibration • Impact of noise on residential properties in particular concerns for Wattle Grove residents • Further noise mitigation measures required for residents of Wattle Grove • Potential noise increases due to idling of vehicles sitting in traffic.	*Assessment* • Current background noise levels in residential locations are consistent with quiet suburban locations • Noise during the noisiest construction phase at the closest residential location is expected to reach 55 dB but significantly below (20 dB) the "highly noise affected" level (75 dB) at all locations • No residences are in areas that would be subject to vibration impacts • Traffic noise at the nearest residential location is not expected to change between opening and 10 years after opening, with daytime noise predicted to be 46 dB and night-time 42 dB which is below the criterion that would require consideration of mitigation for suburban areas. *Recommended Conditions / Response* • Standard daytime construction hours are recommended. • Clear justification should be provided why work outside the standard hours is required, other than convenience, such as to sustain operational integrity of road, rail and utility networks • Construction noise during daytime would be manageable to limit impacts at all residential locations • Noise management conditions are recommended that reinforce the objective to minimise construction noise for the community to the greatest extent practicable, while factoring in cumulative construction impacts and the provision of respite • Operational traffic noise is expected to be below the relevant noise criterion for a new road and therefore noise mitigation is not required in accordance with the *NSW Road Noise Policy* (EPA, 2011) The Defence Joint Logistics Unit (DJLU) buildings would be subject to higher noise levels due to proximity to the road (58 dB at opening and in 2034). A small section of noise barrier is proposed near the access to the DJLU. This barrier is subject to a separate agreement based on the sensitivity of the activities that occur in those buildings.
Traffic and transport • Impacts to the operation of other local roads due to construction and operation	*Assessment* • Construction would not change the level of service for key intersections on the surrounding road network

Issue	Consideration
• Additional travel distance and times – alternatives not fully considered. Truck and train access already possible to MLP • Congestion around signalised road intersections and road design.	• Construction traffic increases and disruption are unlikely to be perceptible to road users • Additional travel time and distances are likely • Liverpool City Council and TfNSW argue for no traffic signals to four new intersections along the realignment and the use of priority-controlled intersections. *Recommended Conditions / Response* • Measures would be implemented to maintain access, safety and manage construction traffic interfaces with other projects under concurrent construction. These include use of safety barriers, traffic controllers, prioritisation of pedestrians and no marshalling or queuing on public roads, and would be detailed in a construction traffic and transport management plan. The existing Moorebank Avenue alignment would remain operational during construction, and therefore impacts on general through traffic, on-street parking, and emergency vehicle access would be unlikely • The additional distance of the route is generally unavoidable due to the route selection set out under the voluntary planning agreement and previous intermodal terminals approvals. The increase in travel time could discourage road users from using the proposal and seek to use alternative routes such as the Hume Highway or the M5 Motorway, thereby limiting future traffic growth • The use of signalisation for the intersections could have safety, queuing, and operational benefits. However, ultimately the detailed design of the road and intersections would be subject to further post-approval development, consultation, and agreement with relevant agencies, including TfNSW and Defence • To further minimise road network performance impacts and risk, a condition that requires the preparation of an Operational Road Network Performance Review has been recommended.
<u>Biodiversity</u> • Threatened flora and fauna at risk and fragmented during clearing and operation • Increased risk of fauna vehicle strikes and fatalities • Concerns over extent and level of offsets required • Impact of clearing plant community types (PCT)	*Assessment* • The proposal would have direct and indirect impacts to the biodiversity values, including threatened ecological communities (TECs) and threatened fauna and flora species listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) • The proposal would impact on potential foraging, breeding and roosting habitat of threatened fauna and potential locations of threatened flora species. The revised

Issue	Consideration
• Impacts to native species protected under the EPBC Act. • Impact to the site previously set aside as a biobank, resulting in the loss of old Cumberland Plain Woodlands and more than 40 hectares of koala habitat.	Biodiversity Development Assessment Report (BDAR) addresses potential impacts to threatened flora and fauna species in accordance with the Biodiversity Assessment Method (BAM), identifying the species known to be present or likely, predicted or assumed to occur • The proposal would result in the removal of 6.71 hectares of habitat containing koala feed trees and 11.85 hectares of koala habitat would be directly or indirectly impacted • The Boot Land is already disconnected from surrounding native vegetation by the East Hills rail corridor, the MLP and other residential and industrial development • The proposal would cause further habitat fragmentation and reduced habitat connectivity within the Boot Land • Some impacts to biodiversity values would be offset under the Biodiversity Offsets Scheme, by acquiring and retiring ecological and species credits available on the biodiversity credit register or paying into the Biodiversity Conservation Fund. *Recommended Conditions / Response* • The Proponent has committed to implementing mitigation measures aimed at reducing impacts, including fencing the Biobanking site boundary to minimise access during construction, a system for managing vegetation clearing, weed management to reduce competition for native vegetation, re-vegetating cleared areas at the end of construction, and construction of fencing and culverts to facilitate the safe movement of fauna between fragmented habitats • The Department has recommended conditions which specify retirement of biodiversity credits set out in the revised BDAR, and implementation of measures to manage and monitor the culverts and fauna exclusion fencing during operation • Fragmentation of the Boot Land is appropriately addressed by the Proponent's committed mitigation measure and the recommended conditions which require indirect impacts be addressed through the retirement of all biodiversity credits set out in the revised BDAR.

Appendix F – Assessment of EPBC Act listed Threatened Species and Communities

1. Identifying MNES

*(a) **Confirm** whether all the EPBC Act-listed threatened species and communities that occur on the project site, or in the vicinity are identified in the EIS. Note which species and/or communities have not been identified.*

The Commonwealth has provided NSW DPIE with referral documentation which includes a possible list of MNES recorded on and within the vicinity of the proposal generated by the Protected Matters Search Tool. Section 8, Appendix I, and Appendix J of the Biodiversity Development Assessment Report, v5 Final, 24 May 2021 (BDAR) has reviewed possible MNES:

- Three EPBC-listed TECs were located within the study area - *Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion, Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion* and *Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest*.
- Four other TECs listed in the documents are noted in Appendix I as not being detected during surveys. Two TECs listed in the Commonwealth documents were not reviewed in Appendix I but were also not detected during surveys.
- 45 EPBC-listed species were identified by the PMST. 42 are reviewed in Appendix I. *Acacia bynoeana, EPBC-listed threatened species Acacia pubescens, Grevillea parviflora* subsp*. parviflora, Persoonia nutans* White-throated needletail, Koala and Grey-headed Flying-fox were detected or assumed to be present.
- 15 listed migratory species were identified by the PMST and have been reviewed in Appendix I. Eastern Osprey and Rufous Fantail were detected during surveys.

No species that are known to occur on the site have been omitted from the assessment.

*(b) **Comment** on whether the Framework for Biodiversity Assessment (FBA) has been applied to all EPBC Act-listed threatened species and communities that occur on the project site or in the vicinity.*

The Biodiversity Assessment Method (BAM) has been applied to all the EPBC-listed threatened species and TECs identified as likely to be impacted.

*(c) In the circumstance where there are EPBC Act-listed species that are not addressed by the FBA (i.e. migratory species) **comment** on whether these species have been assessed in accordance with the SEARs and provide references to where the assessment information is detailed in the EIS.*

The SEARs only require that biodiversity impacts not covered by the BAM need to be addressed. They provide no detail about the assessment required for migratory species.

All migratory species identified as recorded on the site have been assessed in the BDAR.

*(d) **Verify** that the Proponent has expressed a statement about the potential impact i.e. likely significant, low risk of impact, not occurring, for each listed threatened species and community protected by the EPBC Act referred to in 1(a). Note which species and/or communities have not been addressed in this manner.*

Verified.

*(e) **Identify** where further information from the Proponent is critical to the assessment of MNES particularly in relation to mapping Table 1 (A), analysis of impacts Table 1 (F) and Table 2 (F), avoidance, mitigation and offsetting, and 6.*

No additional information required.

2. Assessment of the relevant impacts

All EPBC Act-listed species and/or communities that the Commonwealth consider would be significantly impacted (as noted in the referral documentation) should be assessed and offset. These are referred to as relevant impacts.

(a) ***Verify*** *[by ticking the following boxes]:*
✓ the nature and extent of all the relevant impacts has been described
✓ measures to avoid and mitigate have been described
✓ an appropriate offset for any residual adverse significant impact has been determined.

The Commonwealth referral documents considered that Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest, Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion and Koala were likely to be significantly impacted.

Section 4.3 of Volume 1 of the EIS briefly discusses alternatives to the proposal which are based on a Planning Agreement between the then Roads Maritime Services (now Transport for NSW) and Qube. An upgrade of part of the existing alignment of Moorebank Avenue to four-lanes is discussed as an alternative to the proposal. The EIS lists reasons why that alternative is not considered 'desirable':

- container trucks would interact with public vehicles
- potential for congestion
- Moorebank Avenue would create a barrier to east-west movement within Moorebank Logistics Park, reducing operational efficiency
- there would be less efficient movement of freight between the rail link, terminals and warehouses
- the future automation of the Moorebank Logistics Park (MLP) would be potentially constrained
- there would be negative cost/time implications
- there would be unacceptable traffic congestion on Moorebank Avenue by 2029.

The Department has considered the project development and alternatives in **Section 3.3** of this report and is satisfied that the proposed option provides a considered balance between environmental costs and benefits, engineering constraints, operational requirements, and economic viability.

The two ecological communities and koalas have had their direct impacts assessed in accordance with the BAM and offsets calculated.

The calculation of offsets for indirect impacts was based on data collected during the biodiversity monitoring program for Snowy 2.0 Exploratory Works (EMM 2019). The Department's Environment, Energy and Science Group (EES Group) questioned the method used to calculate indirect impacts, and in response, the Proponent provided further justification. EES Group is now satisfied that the method used to calculate indirect impacts is appropriate.

(b) ***Note*** *if information in relation to any of these boxes has not been provided for any relevant EPBC Act-listed species and communities.*

N/A

(c) There may be listed threatened species and communities for which the Proponent will claim that the impact will be ***not*** *significant in accordance with the EPBC Act Significant Impact Guidelines. Please* ***provide*** *advice for cases where OEH disagrees with this finding.*

The BDAR and Appendix I found that significant impacts on these three entities was 'possible'.

(d) Provide references to where specific lists or tables are detailed in the EIS:

- Chapter 8 – Impacts to MNES

Table 8.1 MNES threatened communities and species for which assessments were completed

- Appendix H - EPBC PMST Report
- Appendix I – EPBC Act protected matters likelihood of occurrence assessment

  Table I.1 Likelihood of occurrence assessment – threatened ecological communities

  Table I.2 Likelihood of occurrence assessment – threatened flora

  Table I.3 Likelihood of occurrence assessment – threatened fauna

  Table I.4 Likelihood of occurrence assessment – migratory species
- Appendix J - EPBC Act significant impact criteria assessments

  Table J.1 Significant impact criteria assessment – Threatened ecological communities
  Table J.2 Significant impact criteria assessment – Endangered flora
  Table J.3 Significant impact criteria assessment – Vulnerable flora
  Table J.4 Significant impact criteria assessment – Critically endangered birds
  Table J.5 Significant impact criteria assessment – Vulnerable birds
  Table J.6 Significant impact criteria assessment – Vulnerable mammals
  Table J.7 Significant impact criteria assessment – migratory terrestrial species
  Table J.8 Significant impact criteria assessment – migratory wetland species

Table 1 | Impact Summary Relevant EPBC Act –listed Ecological Communities (refer to Section 3)

A	B	C	D	E			F	G
EPBC Act -listed EEC	**Y/N**	**PCTs**	**Y/N/ comment**	**Ha (Direct + Indirect)**	**Credits (Direct + Indirect)**		**Comment**	**Relevant figures taken from BDAR**
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Y	724 - Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	Y	Derived native grassland (DNG)	Does not meet EPBC listing criteria		-	-
				High/Medium	0.89 + 1.25	27*	Direct impacts correctly assessed as 100% loss. Indirect impacts are a 20m buffer with reductions in native groundcover and litter scores.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8.
				Poor	Does not meet EPBC listing criteria		-	-
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Y	883 - Hard-leaved Scribbly Gum -Parramatta Red Gum heathy woodland of the Cumberland Plain, Sydney Basin Bioregion	Y	DNG	Does not meet EPBC listing criteria		-	-
				High	3.77 + 2.34	89*	Direct impacts correctly assessed as 100% loss. Indirect impacts are a 20m buffer with reductions in native groundcover and litter scores.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8.

				Medium	1.64 + 0.61	39*	Direct impacts correctly assessed as 100% loss. Indirect impacts are a 20m buffer with reductions in native groundcover and litter scores.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8.

A. **List** the relevant EPBC Act listed ecological communities that will be significantly impacted in accordance with the referral documentation.
B. **Verify** that there is evidence in the EIS that listed EEC and species habitat has been mapped in accordance with relevant listing guidelines (Yes/No). *Proponents are required by the SEARs to ensure that EPBC-listed communities are mapped in accordance with EPBC Act listing criteria. It is important that any derived native grassland components of an EPBC listed EEC are included in the mapping of native vegetation extent.*
C. **List** the Plant Community Types (PCTs) associated with the ecological communities in accordance with Chapter 5 of the FBA.
D. **Confirm** that the identification of PCTs has been correct (Yes/No) and comment if not correct.
E. **Record** the area of impact (ha) and credits required.
F. **Comment** on the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the EEC. Note whether further information might be required.
G. **Cite** relevant page numbers for details provided the EIS and Appendices for each EEC.

Table 2 | Impact Summary Relevant EPBC Act –listed Species (refer to Section 4)

A	B	C	D	E		F	G
Threatened species (listed under the EPBC Act)	**Credit Type (SC/EC)**	**Record PCTs associated with ecosystem credits**	**Y/N/Comment**	**Ha (total species habitat)**	**Credits (total species habitat)**	**Comment**	**Relevant page numbers in the EIS and Appendices**
Koala	SC/EC	724 725 883 1067	All vegetation with overstorey is included within the Koala habitat polygon	6.84 (direct) 5.01 (indirect)	168	Credits are calculated using the average FVIS loss	Tables 6.13, 7.9 & 7.11

A. **List** the relevant threatened species that will be significantly impacted in accordance with the referral documentation.
B. **Record** whether the relevant threatened species is classified as “species credit species” of ecosystem credit species for the purposes of the FBA.
C. **List** the PCTs associated with the ecosystem credit species.
D. **Verify** that the habitat polygons for MNES have been mapped appropriately representing the foraging and/or breeding habitat for the species that will be impacted by the development.

E. **Record** the area of impact (ha) and credits required. For impacts associated with ecosystem credit species identify the total credit requirements associated with the cleared PCTs identified as habitat for the species.
F. **Comment** on the adequacy of the analysis of the impacts in relation to the nature and extent of the impact and whether or not the EIS includes an analysis of the direct and indirect impacts to the species. Note if further information is required.
G. **Cite** relevant page numbers for details provided in the EIS and Appendices for each threatened species.

3. Avoid, mitigate, and offset

***Comment** on whether or not the EIS identifies measures to avoid and minimise impacts on the relevant EPBC Act-listed threatened species and communities. Section 8 of the FBA requires that Proponents detail these efforts and commitments in the EIS. Identify gaps in the discussion on measures to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS.*

DPIE EES Group has no expertise to assess the relative transport planning merits of the two alternatives considered.

Clauses 8.1 & 8.2 of the BAM are only partially applicable to this proposal as the presence of the BSA site has already defined the only available route for the realignment. Table 7.6 of the BDAR provides information on the measures to be implemented to minimise and mitigate the impacts of the chosen alignment. These measures all appear appropriate and comprehensive.

***Comment** on the adequacy and feasibility of measures to avoid and minimise impacts. Identify inadequacies where further efforts could be made to avoid and minimise impacts on Commonwealth matters. Provide references to sections and page numbers in the EIS that discuss avoidance and mitigation measures relevant to EPBC Act-listed species and communities.*

Measures to avoid, minimise and mitigate impacts are discussed in Chapter 7.2 (pp. 123-132) and Table 7.6.

Assuming that the alternative of upgrading Moorebank Avenue is not feasible from a traffic planning perspective, then the measures to avoid, minimise and mitigate impacts are considered appropriate and comprehensive.

DPIE EES Group does not have the expertise in road design and construction to determine whether the implementation of these measures has resulted in the absolute minimisation of impacts.

4. Offsetting

*(a) **Verify** [by ticking the following boxes] that the offsets proposed to address impacts to EPBC-listed threatened species and communities are in accordance with the requirements under the EPBC Act.*

✔*An appropriate offset for any residual adverse significant impact has been determined.*

☐*Proposed offsets for EECs provide a like for like outcome i.e. Proponents have identified PCTs attributed to the specific threatened ecological community being impacted*

✔*Proposed offsets have been determined using the FBA or BAM*

Credit requirements for threatened species have been calculated in the BAM as a single impact zone (incorporating both direct and indirect impacts). When reviewing the EIS version of the BDAR (v4 Final, 3 February 2021), DPIE EES Group questioned the method to calculate offsets, and in response, the Proponent provided a recalculation of offsets that DPIE EES Group considers satisfactory.

The BDAR states that a Biodiversity Offset Strategy would be prepared for the project. Therefore, it is not clear at this stage if offsets will provide a like-for-like outcome.

***Comment** on whether the information and data relied upon for the assessment have been appropriately referenced in the EIS. Comment on the validity of the sources of information and robustness of the evidence.*

There are no significant sources of information and data which have not been used.

Table 3 | Summary of Offset Requirements

A	B	C	D	E	F
Threatened species or EEC (listed under the EPBC Act)	**Credits required as calculated by the FBA**	**Credits generated from offsets in remnant vegetation**	**Credits generated from offsets proposed by other means**	**Comment on the proposed offsets.**	**Relevant page numbers in the EIS and Appendices**
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	27	0	0	No credits confirmed but three options are proposed including (i) retirement of credits currently held from the Biobanking sites established in the area, (ii) purchase and retirement of credits available on the biodiversity credit register, and (iii) payment into the Biodiversity Conservation Fund. All are acceptable to EES Group.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8. Chapter 7.4
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	128	0	0	No credits confirmed but three options are proposed including (i) retirement of credits currently held from the Biobanking sites established in the area, (ii) purchase and retirement of credits available on the biodiversity credit register, and (iii) payment into the Biodiversity Conservation Fund. All are acceptable to EES Group.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8. Chapter 7.4
Koala	168	0	0	No credits confirmed but three options are proposed including (i) retirement of credits currently held from the Biobanking sites established in the area, (ii) purchase and retirement of credits available on the biodiversity credit register, and (iii) payment into the Biodiversity Conservation Fund. All are acceptable to EES Group.	Areas can be found in Table 5.4. Detailed description in Tables 5.5-5.7. Credits in Table 7.8. Chapter 7.4

A. List the relevant threatened species or ecological community included in the proposed offset package (these are the listed species and communities that will be significantly impacted in accordance with the *EPBC Act Significant Impact Guidelines 1.1*.). Identify any relevant species or ecological communities which have not been included in the proposed offset package.

B. List the total credit requirement identified by the FBA for impacted listed threatened species and ecological community. For EECs and ecosystem credit species this is the sum of the credits generated by PCTs associated.

C. Identify the total number of required credits which are proposed to be retired through conserving and managing remnant / mature vegetation.

D. Identify the number of credits proposed to be met through other methods allowable under the FBA, such as rehabilitation of impacted areas or regrowth vegetation.

E. **Comment** on the adequacy of the proposed offset in meeting requirements of the FBA and the EPBC Act. In particular is there a reasonable argument for a shortfall in credits required for MNES and/or non-compliance with like-for like? Are the offsets proposed by means other than protection of remnant vegetation adequate?

F. **Reference** the relevant page numbers from the EIS and Appendices for each threatened species and community.

Appendix G – Assessment of Matters of National Environmental Significance

In accordance with the bilateral agreement between the Commonwealth and NSW Governments, the Department provides the following additional assessment required by the Commonwealth Minister for the Environment (the Minister), in deciding whether or not to approve a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Department considers that all threatened species and ecological communities and Commonwealth land protected under Part 3 of the EPBC Act have been adequately assessed and documented in the Moorebank Avenue Realignment Environmental Impact Statement (EIS) and the Moorebank Avenue Realignment Submissions Report (Submissions Report).

The assessment of threatened species and ecological communities and clearing and fragmentation of vegetation has been prepared based on the information contained in: Chapter 7.2 – Biodiversity and Appendix B – Biodiversity Development Assessment Report of the EIS; Chapter 4.4 Response to submissions – Biodiversity and Appendix B – Revised biodiversity development assessment report of the Submissions Report; any supplementary information provided during the assessment process; and advice provided by the Department's Environment, Energy and Science Group (EES).

The assessment of the impact on Commonwealth Land has been prepared based on the information contained in: Chapter 7.4 – Traffic and Transport, Chapter 7.6 – Contamination, Appendix D – Traffic Impact Assessment, and Appendix F – Preliminary Site Investigation of the EIS; Chapter 4.12 – Traffic and Transport, Chapter 4.7 – Contamination and Appendix C – Additional Contamination Assessments of the Submissions Report; and supplementary information provided during the assessment process.

This Appendix is supplementary and should be read in conjunction with the assessment included in:

- **Section 6.3** of the assessment report, which includes the Department's consideration of impacts to Commonwealth land in relation to biodiversity aspects of the environment, impacts to listed threatened species and communities, mitigation and offsetting measures for biodiversity aspects of the Commonwealth land and threatened species and communities, and clearing and fragmentation of vegetation communities and flora and fauna due to clearing; and

- **Section 6.4** and **6.2** of the assessment report, which includes the Department's consideration of impacts on Commonwealth land in regard to mobilisation of contaminants and access to the Department of Defence Joint Logistics Unit (DJLU).

M.1 REQUIREMENTS FOR DECISIONS ABOUT MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

In accordance with section 136 of the EPBC Act, in deciding whether or not to approve the taking of an action and what conditions to attach to an approval, the Minister must consider matters relevant to any matter protected by a provision of Part 3 that the Minister has decided is a controlling provision for the action. These matters are addressed in **Table 1** of this assessment of MNES.

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of sections 18 and 18A (with regard to listed threatened species and communities) and sections 26 and 27A (with regard to Commonwealth land) of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Minister must not act inconsistently with certain

international environmental obligations, recovery plans or threat abatement plans. The Minister must also have regard to relevant approved conservation advices.

No additional considerations are identified in the EPBC Act in relation to impacts on Commonwealth land.

BIODIVERSITY – LISTED THREATENED SPECIES AND COMMUNITIES

Australia's International Obligations

Convention on Biological Diversity (Biodiversity Convention)

Australia's obligations under the Biodiversity Convention include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The recommendations of the Biodiversity Development Assessment Report (BDAR) (as updated by the revised BDAR in the Submissions Report) and the assessment report to which this appendix is attached are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as the assessments under the NSW *Environmental Planning & Assessment Act 1979* (EP&A Act) and EPBC Act) to avoid and minimise adverse impacts on biological diversity. The recommended instrument of approval requires avoidance, mitigation and management measures, and offsetting for the listed threatened species and communities. In addition, all information related to the proposed action is required to be publicly available to enable the equitable sharing of information and improved knowledge relating to biodiversity.

Convention on Conservation of Nature in the South Pacific (APIA Convention)

Australia's obligations under the APIA Convention include encouraging the creation of protected areas that, together with existing protected areas, would safeguard representative samples of the natural ecosystems (especially endangered species), protect superlative scenery and striking geological formations and regions.

Additional obligations include using best endeavours to protect such fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction.

The APIA Convention was suspended with effect from 13 September 2006. While this Convention has been suspended, Australia's obligations under the APIA Convention have been considered. The recommendations in the revised BDAR and this assessment report are not inconsistent with the APIA Convention, which has the general aim of conservation of biodiversity.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommendations in the revised BDAR and this assessment report are not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

Recovery Plans and Approved Conservation Advices

There are Approved Conservation Advices for Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion; Cumberland Plain Shale Woodlands and Shale-Gravel

Transition Forest; and koala (*Phascolarctos cinereus*). However, there are no made or adopted Recovery Plans for these communities and species.

- **Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion**

The Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion Conservation Advice took effect on 17 March 2015.

The Cumberland subregion stretches from Killara in the east up to Pacific Park and Colo in the north across to Glenbrook in the west and down to Bargo in the south.

The ecological community is concentrated in the Western Sydney region with clusters in Holsworthy, Castlereagh, Londonderry, Berkshire Park and Kemps Creek. The main and ongoing threat to this ecological community is clearing for urban development, the fragmentation of native vegetation remnants, inappropriate fire regimes, weed invasion and the low level of protection in reserves. The main potential threat to the community is climate change, which could influence the species composition and possibly influence the future distribution and extent of the ecological community.

The proposal directly impacts 5.41 hectares of the ecological community. Indirect impacts are likely to affect 2.95 hectares of the ecological community, in a 20-metre buffer around the construction footprint comprising reductions in native groundcover and litter scores.

The Department has recommended conditions requiring the Proponent offset biodiversity credits or make payment to the Biodiversity Conservation Fund (BCF).

- **Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest**

The Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest Conservation Advice took effect on 9 December 2009.

The ecological community is concentrated in the Western Sydney region with clusters in Liverpool, Oran Park, Penrith, Windsor and Luddenham. The main and ongoing threat to this ecological community is clearing for urban development, the fragmentation of native vegetation remnants, inappropriate fire regimes, weed invasion and the low level of protection in reserves. The main potential threat to the community is climate change, which could influence the species composition and possibly influence the future distribution and extent of the ecological community.

The proposal directly impacts 0.89 hectares of the ecological community. Indirect impacts are likely to affect 1.25 hectares of the ecological community, in a 20-metre buffer around the construction footprint comprising reductions in native groundcover and litter scores.

The Department has recommended conditions requiring the Proponent offset biodiversity credits or make payment to the Biodiversity Conservation Fund (BCF).

- **Koala (*Phascolarctos cinereus*)**

The Koala Conservation Advice for the koala took effect on 2 May 2012 and applies to the combined population in Queensland, NSW and the ACT.

The main threats to this species are the loss and fragmentation of habitat, vehicle strike, disease, removal of movement corridors, and predation by dogs.

The Conservation Advice identified research priorities to fill gaps in the knowledge of the species and develop effective conservation management measures and priority management actions to support

the recovery of the koala population. The research priorities include population monitoring and abundance estimation, landscape scale population models and gene flow and connectivity. The recommended priority management actions include measures to address habitat loss, disturbance and modification, and animal predation.

The Conservation Advice recommended the development of a recovery plan under the EPBC Act. To date no EPBC Recovery Plan has been prepared for the koala, however there is a NSW Recovery Plan (DECC 2008) that identifies threats to koalas, efforts to conserve koalas and actions to aid the recovery of the species. The objectives of the recovery plan include the conservation of koalas in their existing habitat and rehabilitating and restoring koala habitat and populations.

The proposal would directly and indirectly impact 11.85 hectares of known and potential koala habitat. The Proponent is proposing to offset known habitat through the provision of 168 credits in accordance with the Biodiversity Offsets Scheme.

Under the Biodiversity Offset Scheme associated with the creation of the Biobanking site, the Biobanking agreement No. 341, and the conditions associated with the Moorebank Precinct West Stage 2 project (SSD-7709), the Proponent is required to prepare a Koala Management Plan and install and maintain exclusionary fencing to separate the Biobanking site from the utilities and road corridor. The Proponent proposes additional mitigation measures including Anzac Creek culverts under the road and additional fauna exclusion fencing to prevent koalas accessing the realigned road. The Department considers that the Anzac Creek culverts and exclusion fencing would not result in any additional loss of koala movement or fragmentation of koala habitat between the two sections of the Biobanking site. The Proponent has committed to preparing a Construction Environmental Management Plan and a Biodiversity Management Plan to address impacts on biodiversity values from construction.

Threat Abatement Plans

The Threat Abatement Plan (TAP) relevant to this action is discussed below and is available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved.

No TAPs have been identified as being relevant to Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion or koalas.

With respect to Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest, the following TAP is relevant:

- ***Threat abatement plan for disease in natural ecosystems caused by*** **Phytophthora cinnamomic**

Phytophthora dieback is a destructive disease caused by the pathogen *Phytophthora cinnamomi* and other *Phytophthora* species and represents a significant threat to Australian native species. The disease places important plant species at risk of death, local extirpation or even extinction, potentially resulting in major declines in some insect, bird and animal species due to the loss of shelter, nesting sites and food sources. Phytophthora dieback can cause permanent damage to ecosystems and is a key threatening process under the EPBC Act. Once an area is infested with the pathogen, eradication is usually impossible.

The Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest ecological community is susceptible to Phytophthora dieback.

The TAP recognises that any activity that moves soil, organic material or water into susceptible native vegetation areas has the potential to introduce and spread soil pathogens. The limited management

options available focus on modifying human activities through education, restricting access to certain sites and when access is necessary, deploying and enforcing strict hygiene controls.

The Proponent has identified Phytophthora dieback as a significant construction risk particularly through earthworks and movement of people and vehicles and plant along the proposed alignment.

The Proponent has committed to implement hygiene protocols to minimise the spread of *Phytophthora cinnamomic.* Further, to ensure that risks of Phytophthora dieback are managed, the Department supports the Proponent's commitment to prepare and implement a biodiversity management plan (which would be encompassed within the CEMP) to manage construction impacts, including specific measures to manage the spread of diseases and pathogens. The Department considers that these measures would be appropriate to address the TAP for Phytophthora disease in natural systems.

M.2 REQUIREMENTS FOR DECISIONS ABOUT WORLD HERITAGE PROPERTIES

The Commonwealth determined that the action is not a controlled action for the controlling provision of World Heritage (Section 12 and Section 15A of the EPBC Act) and further consideration is not required.

M.3 REQUIREMENTS FOR DECISIONS ABOUT NATIONAL HERITAGE PLACES

The Commonwealth determined that the action is not a controlled action for the controlling provision of National Heritage (sections 15B and 15C of the EPBC Act) and further consideration is not required.

M.4 ADDITIONAL EPBC ACT CONSIDERATIONS

Table 1 below contains the additional mandatory considerations under the EPBC Act, additional to those already discussed, which the Commonwealth Minister must consider in determining the proposed action.

Table 1 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act section	Considerations	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in **Section 6.5** of the assessment report.	The Department considers that the proposal would result in a range of benefits to the State and regional economy through improvements in the efficiency of the inter- and intra-state freight network.
Factors to be taken into account		
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been considered, particularly: • the long-term and short-term economic, environmental, social and equitable considerations that are relevant to this decision • conditions that restrict environmental impacts and impose monitoring and adaptive management reduce any lack of certainty related to the potential impacts of the project	The Department considers that the proposal, if undertaken in accordance with the recommended conditions of approval, would be consistent with the principles of ESD. **Section 4.1** of the assessment report addresses the proposal in regard to ESD principles.

EPBC Act section	Considerations	Conclusion
	• conditions requiring the project to be delivered and operate in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance • advice provided within this report reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for the project • mitigation measures to be implemented which minimise potential impacts of the project on biodiversity within the project area.	
136(2)(e)	Other information on the relevant impacts of the proposed action. The Department is not aware of any relevant information not addressed in this assessment report.	**Section 3.3** of the assessment report discusses the route selection process. The Proponent considers that in the development of the proposal route, impacts to koala habitat have been avoided, where possible, through route selection. The Department considers that all information relevant to the impacts of the proposal have been taken into account in the assessment. The Department's consideration on key issues is presented in **Section 6** of the assessment report.
Factors to have regard to		
176(5)	Bioregional plans	There is no relevant bioregional plan.
Considerations on deciding on conditions		
134(4)	Must consider: • information provided by the person proposing to take the action or by the designated Proponent of the action; and • the desirability of ensuring as far as practicable that the condition(s) is a cost-effective means for the Commonwealth and a person taking the action to achieve the object of the condition.	All related documentation provided by the Proponent of the action is available at the Department's website www.majorprojects.planning.nsw.gov.au. The Department considers that the recommended conditions at **Appendix [J]** are a cost-effective means of achieving their purpose.

M.5 CONCLUSIONS ON CONTROLLING PROVISIONS

Listed threatened species and ecological communities (sections 18 and 18A of the EPBC Act)

For the reasons set out in **Section 6.3** of this assessment report and this Appendix, the Department recommends that the impacts of the action on threatened species and ecological communities would be acceptable, subject to the implementation of the avoidance and mitigation measures described in the EIS and Submissions Report and the requirements of the recommended conditions.

Commonwealth land (sections 26 and 27A of the EPBC Act)

For the reasons set out in **Section 6.2 and 6.4** and this Appendix, the Department recommends that the impacts of the action on Commonwealth Land would be acceptable, subject to the implementation of the avoidance and mitigation measures described in the EIS and Submissions Report and the requirements of the recommended conditions.

M.6 OTHER PROTECTED MATTERS

The DAWE determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action.

Appendix H – Recommended Instrument of Approval

https://www.planningportal.nsw.gov.au/major-projects/project/37891