

Port Botany Rail Line – Stage 3 Capacity Project

Cabramatta Loop Preliminary Environmental Assessment

ARTC

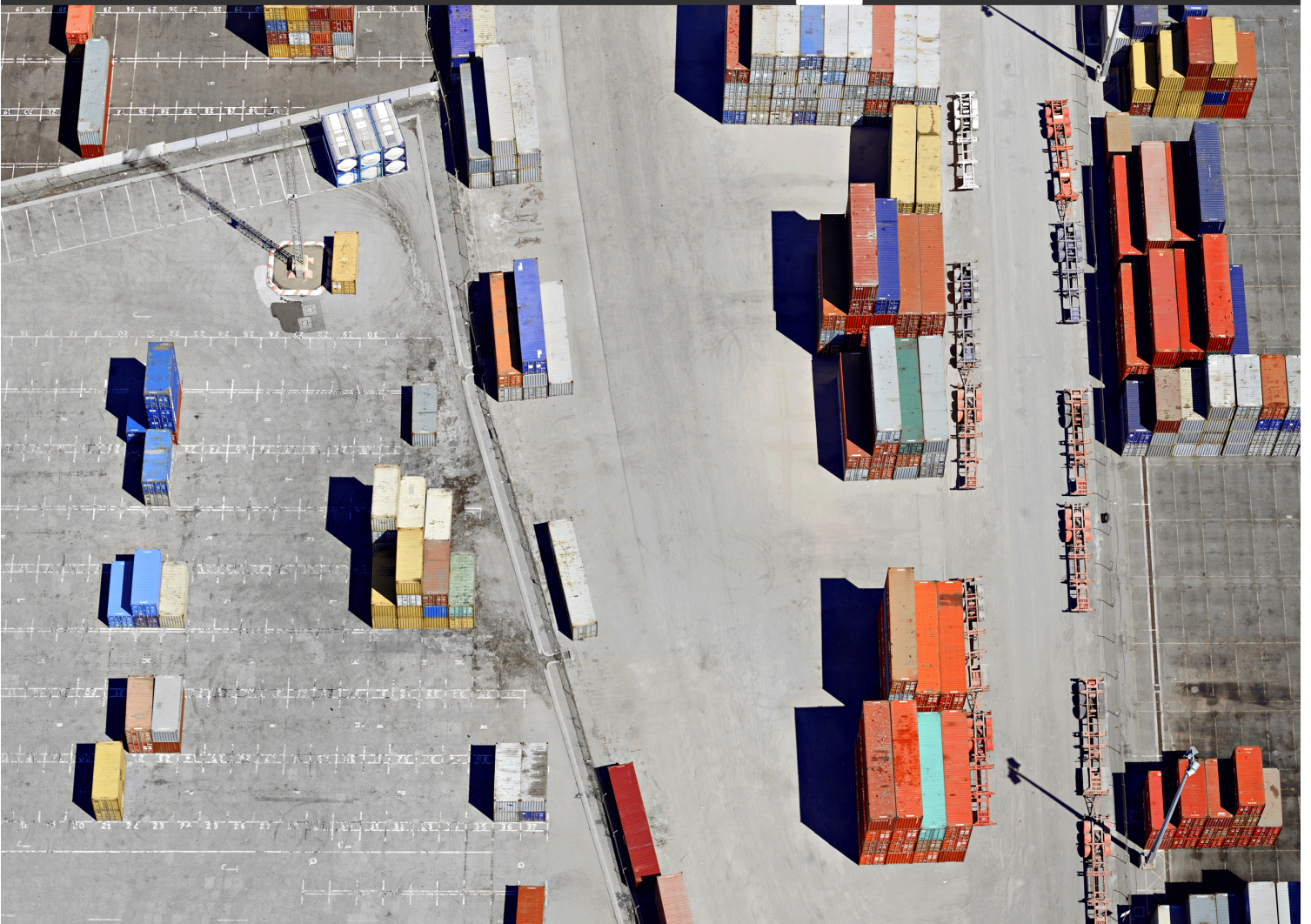


TABLE OF CONTENTS

Glossary and Abbreviations 4

EXECUTIVE SUMMARY 6

1. INTRODUCTION..... 8

1.1 Background..... 8

1.2 Overview of the Project 9

1.3 Purpose of this Report 10

2. PLANNING AND ASSESSMENT PROCESS 11

2.1 NSW Environmental Planning Approvals 11

 2.1.1 Planning approval process under Part 5.1 of the EP&A Act..... 11

2.2 NSW Environmental Planning Instruments 12

 2.2.1 State Environmental Planning Policy (State and Regional Development) 2011 12

 2.2.2 State Environmental Planning Policy (Infrastructure) 2007 12

 2.2.3 State Environmental Planning Policy No 55 – Remediation of Land 12

 2.2.4 Liverpool Local Environment Plan 2008..... 12

 2.2.5 Fairfield Local Environment Plan 2013 13

2.3 Protection of the Environment Operations Act 1997 14

2.4 Other NSW State legislation 14

 2.4.1 Approvals or authorisations that are not required or cannot be refused 14

 2.4.2 NSW legislation and regulations that may still be applicable 15

2.5 Commonwealth Legislation 15

 2.5.1 Environment Protection and Biodiversity Conservation Act 1999..... 15

 2.5.2 Native Title Act 1993..... 15

2.6 Other Requirements 16

 2.6.1 ARTC Code of Practice 16

 2.6.2 SSFL Conditions of Approval..... 16

3. STRATEGIC JUSTIFICATION AND PROJECT NEED 17

3.1 Rail Network Capacity Challenge 17

3.2 Key Benefits of the PBRL Capacity Project..... 17

3.3 Consistency with NSW Strategic Planning and Policy 17

 3.3.1 NSW State Plan..... 17

 3.3.2 State Infrastructure Strategy 17

 3.3.3 2015-2024 Sydney Metropolitan Freight Strategy 18

3.4 Project Objectives 18

4. PROJECT DEVELOPMENT AND ALTERNATIVES	19
4.1 Project Development Overview	19
4.2 Strategic Alternatives	19
4.3 Options Considered – Southern Sydney Freight Line (SSFL).....	21
4.4 Consequences of not proceeding with the project	21
5. PROJECT DESCRIPTION	22
5.1 Overview.....	22
5.2 Key Features	22
5.3 Construction	22
5.3.1 Outline Construction Methodology.....	22
5.3.2 Plant and Equipment	23
5.3.3 Working Hours and Track Possessions	23
5.3.4 Ancillary Facilities	23
5.3.5 Utility Adjustment.....	23
5.3.6 Interaction with Existing and Proposed Infrastructure	24
5.3.6.1 Sydney Trains Down Main Line.....	24
5.3.6.2 Broomfield Street	24
5.3.6.3 Sussex Street.....	24
5.3.7 Property Acquisition.....	24
5.4 Operation.....	25
6. PRELIMINARY ENVIRONMENTAL ASSESSMENT	26
6.1 Preliminary Environmental Risk Analysis	26
6.2 Key Issues	26
6.2.1 Hydrology and Groundwater	26
6.2.2 Flora and Fauna	27
6.2.3 Noise and Vibration	28
6.2.4 Non-Indigenous Heritage.....	30
6.2.5 Traffic Management.....	31
6.2.6 Air Quality	32
6.2.7 Visual Amenity.....	32
6.2.8 Social Impact.....	33
6.3 Other Issues	34
6.3.1 Indigenous Heritage.....	34
6.3.2 Topography, Geology and Soils.....	34
6.3.3 Planning, Land Use and Property	35
6.3.4 Contaminated Land and Hazardous Materials	36
6.3.5 Waste Management and Resource Recovery	36
6.3.6 Energy Efficiency and Greenhouse Gases	37
6.3.7 Cumulative Impacts	37

7. CONSULTATION..... 38

7.1 Overview..... 38

7.2 Consultation to Date..... 38

7.3 Community Consultation and Stakeholder Engagement Plan..... 39

7.4 Public Exhibition of the EIS 40

7.5 Consultation during Construction..... 40

8. SUMMARY OF PROPOSED EIS SCOPE 41

8.1 Proposed EIS Scope for Key Issues 41

8.2 Proposed EIS Scope for Other Environmental Issues 44

9. CONCLUSION 46

References 47

FIGURES

Figure 1 PBRL South Sydney Freight Line (ARTC, 2015)..... 9

Figure 2 Cabramatta Loop Project Overview (ARTC, 2015) 9

TABLES

Table 1 Future Train Numbers Per Day (ARTC)..... 20

Table 2 Construction Plant and Equipment..... 23

Table 3 Proposed EIS Scope for Key Issues 41

Table 4 Proposed EIS Scope for Other Issues 44

ATTACHMENTS

Attachment 1. Environmental Constraints Map

Glossary and Abbreviations

AHIMS	Aboriginal Heritage Information Management System
ARTC	Australian Rail Track Corporation
ASS	Acid Sulphate Soils
Crossover	The mechanism for crossing between two tracks
DGRs	Director General Requirements (DPE)
Down side	The side of the track on which trains travel away from Sydney
DPE	NSW Department of Planning and Environment.
EIS	Environmental Impact Statement.
EPA	Environment Protection Authority
EP&A Act	The NSW <i>Environmental Planning and Assessment Act 1979</i> . Provides the legislative framework for land use planning and development assessment in NSW.
EP&A Regulation	The NSW Environmental Planning and Assessment Regulation 2000.
EPBC Act	The <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> . Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
GHG	Greenhouse gas
IMEX	Import / Export
LGA	Local Government Area.
MFN	Metropolitan Freight Network
PEA	Preliminary Environmental Assessment.
OEH	Office of Environment and Heritage.
OHW	Overhead wire
PBRL	Port Botany Rail Line
Proposed Project Area	The proposed project area is the area in which the proposed project would operate and be constructed.
Rail Corridor	Land dedicated for rail purposes.
SEARs	Secretary's Environmental Assessment Requirements (DPE)
SEPP	NSW State Environmental Planning Policy
SHR	State Heritage Register
SSFL	Southern Sydney Freight Line
SSI	State Significant Infrastructure

Study Area	The study area is an area that is necessary for a technical specialist to undertake and complete an assessment of the proposed project and varies in size depending on the discipline.
Train Line	The infrastructure on which a train travels. It includes two rails, sleepers, fastenings to secure the rails to the sleepers, and ballast around and under the sleepers.
Turnout	The mechanisms for the meeting of two tracks.
Up side	The side of the track on which trains travel to Sydney

EXECUTIVE SUMMARY

This Preliminary Environmental Assessment (PEA) has been undertaken by KMH Environmental on behalf of Australian Rail Track Corporation (ARTC) for the proposed Cabramatta Loop as part of the Port Botany Rail Line (PBRL) Stage 3B Capacity Project.

Transporting freight by rail is a key priority for the Australian and NSW Government, ARTC and its customers, with rail freight movements forecast to increase within Sydney over the next 15 years. To address these increases ARTC has been focusing on improvements to the PBRL under a Nation Building funded Program with Stage 1 and 2 works complete.

Stage 3 works of the PBRL Program includes track upgrading and a Capacity Study for the analysis and design of potential future enhancement options on the Metropolitan Freight Network (MFN) and Southern Sydney Freight Line (SSFL) to meet the predicted demand for rail freight accessing Port Botany, including port shuttle services supporting Moorebank Intermodal, to 2030.

Current track capacity on the SSFL is 24 trains per day in one direction. Through capacity analysis undertaken, demand is predicted to increase to 33 trains per day (one direction) on the SSFL by 2030.

It is important to note that the capacity figures are a prediction and do not represent actual train movements.

Modelling based on operational analysis and predicated demand volumes indicates a 1,300m loop at Cabramatta is required by 2022 and track duplication of the single track between Mascot and Botany is required by 2021. The forecast opening date for Moorebank Intermodal is 2017. With the loop enhancement, capacity will be provided for up to 36 trains per day in one direction.

The proposed project is described in detail in Section 3 of this PEA including the options considered and justification for the preferred option.

In summary, the key components of the proposed project comprise:

- Construction of a 1,300m crossing loop;
- Modification of 6-7 Sydney Trains' overhead wiring (OHW) structures;
- Installation of two new bridges at Sussex Street and Cabramatta Creek;
- Relocation of an existing retaining wall (790m) and noise wall (480m) between Cabramatta Rd East and Sussex Street; and
- Reconfiguration of Broomfield Street between Bridge Street and Sussex Street Bridge, including service relocations.

The estimated cost of the proposed project is \$70 million (2014 \$) and it is expected to take approximately 30 months to construct commencing in 2018.

State Environmental Planning Policy (State and Regional Development) 2011 (SEPP State and Regional Development) declares State Significant Infrastructure (SSI) to which development assessment and approval processes under Part 5.1 of the EP&A Act apply. Part 5.1 of the EP&A Act provides a separate, streamlined and integrated development assessment and approval regime for government infrastructure projects of State significance.

Under SEPP State and Regional Development, developments for the purpose of rail infrastructure which satisfy the following requirements are considered SSI to which Part 5.1 of the EP&A Act applies:

“Schedule 3 State significant infrastructure – general

3 Rail infrastructure

Development for the purpose of rail infrastructure by or on behalf of the Australian Rail Track Corporation that has a capital investment value of more than \$50million.”

As the estimated capital investment value of the proposed Project is \$70 million, the proposed project will be assessed under Part 5.1 of the EP&A Act.

In accordance with the approval process under Part 5.1 of the EP&A Act, the ARTC is required to submit a Project Application to the Department of Planning and Environment (DPE). Accompanying the Project Application will be this PEA which will be used by the DPE to brief Government agencies about the Project, and on which Director General Requirements (DGRs) for the preparation of an Environmental Impact Statement (EIS) would be based.

This PEA was prepared with consideration of the Critical State Significant Infrastructure Standard Secretary's Environmental Assessment Requirements (SEARs) (December 2015).

The proposed project is located within an existing shared rail corridor on land already subject to a high level of disturbance due to both the rail line and surrounding residential and industrial land uses. In addition, considerable environmental assessment was previously undertaken in 2006 for the Southern Sydney Freight Line (SSFL) that was constructed in the Project area in 2012. Therefore, all assessments within the EIS would include consideration of the previous assessments undertaken as part of the SSFL EIS.

Based on preliminary project information, consideration of existing assessments of the Project area and environmental issues for the SSFL EIS an environmental risk analysis was conducted and identified detailed investigations would be undertaken for the following key environmental issues:

- Hydrology and Groundwater – the proposed works traverse Cabramatta Creek, adjacent to the existing SSFL track, therefore flood, groundwater, geomorphology and water quality assessments from the SSFL EIS are considered to be consistent with the proposed works for Cabramatta Loop;
- Flora and Fauna – there are a number of threatened ecological communities and listed threatened species in the vicinity of the proposed works therefore a detailed flora and fauna assessment would be undertaken;
- Noise and Vibration – a detailed noise and vibration assessment, including the results of noise and vibration monitoring undertaken as part of the SSFL operation would be undertaken and the results compared to original predictions made in the SSFL EIS with an updated assessment of potential residual operational impacts of the Cabramatta Loop;
- Non-Indigenous Heritage – there are a number of identified heritage items located within the proposed project area therefore a non-indigenous heritage assessment would be undertaken;
- Traffic Management – the proposed project would impact on the existing road network during the construction and therefore a traffic and transport assessment would be undertaken;
- Air Quality – there is the potential for operational impacts on air quality due to the proposed project therefore an air quality assessment would be undertaken;
- Visual Amenity – there is the potential for visual impacts due to the proposed project therefore a visual amenity assessment would be undertaken; and
- Social Impact – there is the potential for social impacts due to construction fatigue from the recently completed SSFL within the proposed project area therefore a social impact assessment would be undertaken.

Proposed assessment methodologies for each environmental issue are included in Section 6 of this document.

1. INTRODUCTION

This Preliminary Environmental Assessment (PEA) has been undertaken on behalf of Australia Rail Track Corporation (ARTC) for the proposed Cabramatta Loop as part of the Port Botany Rail Line (PBRL) Stage 3B Capacity Project.

1.1 Background

ARTC was created after the Commonwealth and State Governments agreed in 1997 to the formation of a “one stop shop” for all operators seeking access to the National interstate rail network. Within Sydney, ARTC is responsible for operating and maintaining the Southern Sydney Freight Line (SSFL) and the Metropolitan Freight Network (MFN).

Transporting freight by rail is a key priority for both the Australian and NSW Government, ARTC and its customers with rail freight movements forecast to increase within Sydney over the next 15 years. To address these increases ARTC has been focusing on improvements to the Port Botany Rail Line (PBRL) under a Nation Building funded Program with Stage 1 and 2 works complete.

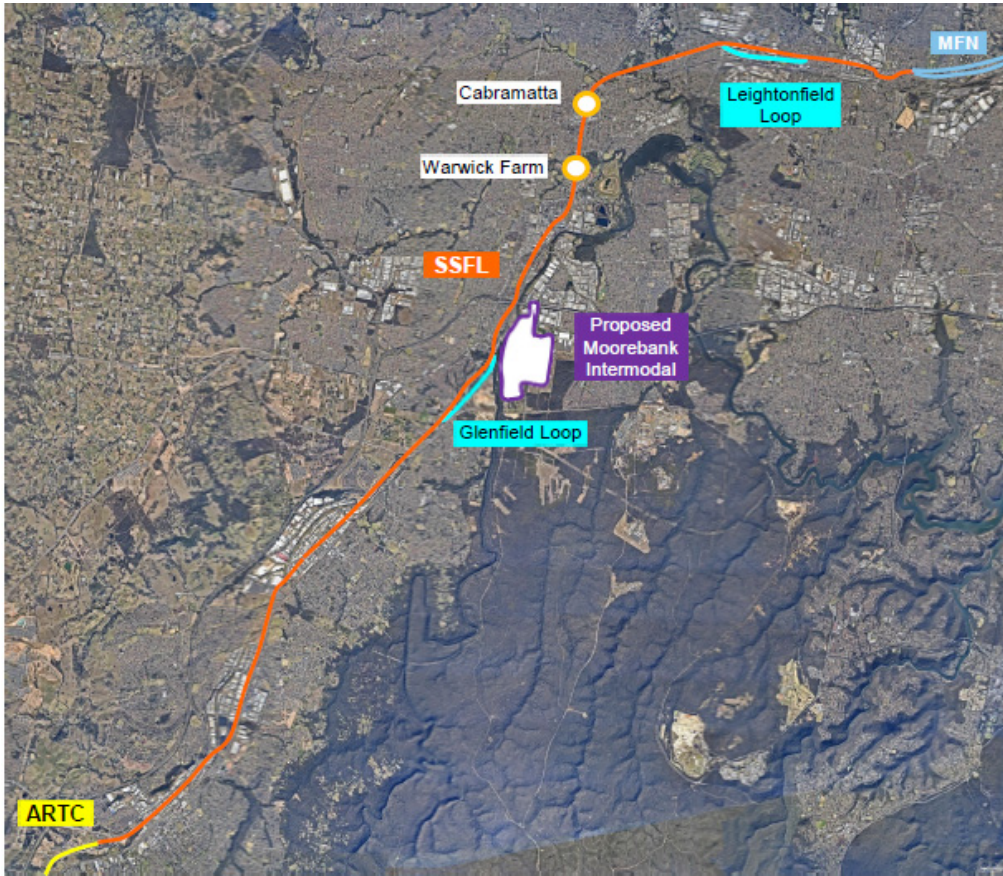
Stage 3 works of the PBRL Program includes track upgrading and a capacity study for the analysis and design of potential future enhancement options on the MFN and SSFL to meet the predicted demand for rail freight accessing Port Botany, including port shuttle services supporting Moorebank Intermodal, to 2030.

Current track capacity on the SSFL is 24 trains per day in one direction. Through capacity analysis, demand is predicted to increase to 33 trains per day (one direction) on the SSFL by 2030, largely as a result of the proposed Moorebank Intermodal, the forecast opening date for which is 2017.

Modelling based on operational analysis and predicated demand volumes indicates a 1,300m loop at Cabramatta is required by 2022 and track duplication of the single line between Mascot and Botany is required by 2021. With the loop enhancement, capacity will be provided for up to 36 trains per day in one direction. The track duplication between Mascot and Botany is assessed separately.

The proposed project involves constructing a dual access loop between Cabramatta and Warwick Farm stations. This location has been selected as it provides transit benefits by being the mid-point between the existing loops at Glenfield and Leightonfield, reducing operational impacts to the wider community (refer geographical map in Figure 1 overleaf).

Figure 1 PBRL South Sydney Freight Line (ARTC, 2015)



1.2 Overview of the Project

The proposed project involves constructing a new 1,300m crossing loop between Cabramatta (32.200km) and Warwick Farm (33.750km) on the down side of the existing SSFL line. The existing SSFL requires slewing towards the Sydney Trains tracks for approximately 600m to reduce property impacts to Peter Warren Card Yard.

Figure 2 Cabramatta Loop Project Overview (ARTC, 2015)



Key components of the project (as shown in Figure 2 above) include:

- Construction of a 1,300m crossing loop;
- Modification of 6-7 Sydney Trains' overhead wiring (OHW) structures;
- Installation of two new bridges at Sussex Street and Cabramatta Creek;
- Relocation of an existing retaining wall (790m) and noise wall (480m) between Cabramatta Rd East and Sussex Street; and
- Reconfiguration of Broomfield Street between Bridge Street and Sussex Street Bridge, including service relocations.

The estimated cost of the proposed project is \$70 million at the concept stage and it is expected to take approximately 30 months to construct commencing in 2018.

Further details are provided in Section 5 of this report.

1.3 Purpose of this Report

This PEA has been prepared to support a State Significant Infrastructure (SSI) application under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The PEA provides the following:

- An overview of the relevant planning legislation and approvals process (Section 2);
- An outline of the project justification (Section 3);
- An outline of the alternatives considered (Section 4)
- A preliminary description of the proposed project (Section 5);
- An outline of the preliminary environmental assessment (Section 6);
- An outline of any stakeholder consultation (Section 7);
- A proposed scope for the subsequent EIS (Section 8).

The PEA also provides a basis for the receipt of the Secretary's Environmental Assessment Requirements (SEARs) from the Department of Planning and Environment (DPE) under Part 5.1 of the EP&A Act, including requirements from other agencies.

This PEA was prepared with consideration of the Critical State Significant Infrastructure Standard Secretary's Environmental Assessment Requirements (SEARs) (December 2015).

2. PLANNING AND ASSESSMENT PROCESS

This section provides a discussion of the relevant legislation, including Acts and Environmental Planning Instruments, and provides discussion regarding the approvals process for the proposed Project. Discussion in relation to International agreement and the NSW State Government Policy of relevance is also provided.

2.1 NSW Environmental Planning Approvals

2.1.1 Planning approval process under Part 5.1 of the EP&A Act

The EP&A Act and *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) are the principal pieces of environmental legislation which provide for development planning and control in NSW.

Under *State Environmental Planning Policy (Infrastructure) 2007* (SEPP Infrastructure), development for the purpose of a railway or rail infrastructure facilities (including the proposed Project) may be carried out by or on behalf of a public authority without consent on any land under Part 4 of the EP&A Act.

ARTC is identified as a public authority for development connected with 'rail corridors or railway infrastructure facilities' under clause 5 of SEPP Infrastructure.

State Environmental Planning Policy (State and Regional Development) 2011 (SEPP State and Regional Development) declares State Significant Infrastructure (SSI) to which development assessment and approval processes under Part 5.1 of the EP&A Act apply. Part 5.1 of the EP&A Act provides a separate, streamlined and integrated development assessment and approval regime for government infrastructure projects of State significance.

Under SEPP State and Regional Development, developments for the purpose of rail infrastructure which are permitted without development consent under Part 4 of the EP&A Act that also satisfy the following requirements are considered SSI to which Part 5.1 of the EP&A Act applies:

“Schedule 3 State significant infrastructure – general

3 Rail infrastructure

Development for the purpose of rail infrastructure by or on behalf of the Australian Rail Track Corporation that has a capital investment value of more than \$50million.”

As the estimated capital investment value of the proposed Project is \$70 million; the proposed Project will be assessed under Part 5.1 of the EP&A Act.

The Minister for Planning and Environment (the Minister) is the determining authority under Part 5.1 of the EP&A Act and the ARTC is required to submit a Project Application to the DPE. Accompanying the Project Application, will be this PEA which will be used by the DPE to brief Government agencies about the Project and on which Director General Requirements (DGRs) for the preparation of an EIS would be based.

Under Section 115V of the EP&A Act, SSI may be declared to be Critical State Significant Infrastructure (Critical SSI) if it is of a category that, in the opinion of the Minister, is essential for the State for economic, environmental or social reasons. Provisions of the EP&A Act provide a more streamlined assessment process and include restrictions on the availability of appeals for projects declared Critical SSI. The Minister may declare this project Critical SSI during the application process.

2.2 NSW Environmental Planning Instruments

2.2.1 State Environmental Planning Policy (State and Regional Development) 2011

SEPP State and Regional Development identifies development that is State Significant Infrastructure under Part 5.1 of the EP&A Act. As discussed above, the proposed Project is considered to be a development that falls under SEPP State and Regional Development and the proposed Project is required to be assessed in accordance with the requirements of Part 5.1 of the EP&A Act.

2.2.2 State Environmental Planning Policy (Infrastructure) 2007

As discussed above, due to the capital investment value, the proposed Project is considered to be SSI under SEPP State and Regional Development and as such approval is required under Part 5.1 of the EP&A Act.

2.2.3 State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) provides consistent state wide planning and development controls for the remediation of contaminated land. The application of SEPP 55 would be further assessed in the EIS.

2.2.4 Liverpool Local Environment Plan 2008

Part of the proposed Project is located within the Liverpool LGA. The Environmental Planning Instrument relevant to the proposed Project is the Liverpool Local Environment Plan 2008 (LEP).

Part of the proposed Project Area is within the existing shared rail corridor which is within SP2 Infrastructure Zone.

Part of the proposed Project Area is within IN1 General Industrial Zone.

Other areas adjacent to the shared rail corridor are zoned:

- R3 Medium Density Residential Zone;
- IN1 General Industrial Zone; and
- RE1 Public Recreation Zone.

There are no local items of heritage within or adjacent to the Project Area listed under the Liverpool LEP.

There are a number of items of heritage within 250m of the Project Area listed under the Liverpool LEP.

- Item no. 66 Warwick Farm Racecourse Group on the Hume Highway that is described as being of state significance.
- Item no. 110 Berryman Reserve on Remembrance Drive that is described as being of local significance.
- Item no. 89 Plan of Town of Liverpool Plan of Town of Liverpool (early town centre street layout–Hoddle 1827) (Streets in the area bounded by the Hume Highway, Copeland Street, Memorial Avenue, Scott Street, Georges River and Main Southern Railway Line described as being of local significance.

There are five classes of potential Acid Sulphate Soils (ASS). Class 1 has the highest possibility of ASS and Class 5 has the least. The proposed Project Area does not contain any mapped potential ASS however, Class 5 potential ASS are within approximately 200m of the proposed Project Area.

Planning approval from Liverpool City Council under the LEP is not required as the proposed Project is subject to assessment under Part 5.1 of the EP&A Act which prevails over the local planning instrument. However, consideration would be given to the Liverpool LEP in preparation of the EIS.

2.2.5 Fairfield Local Environment Plan 2013

Part of the proposed Project is located within the Fairfield LGA. The Environmental Planning Instrument relevant to the proposed Project is the *Fairfield Local Environmental Plan 2013* (LEP).

Part of the proposed project is within the existing shared rail corridor which is within SP2 Infrastructure Zone.

Part of the proposed project is along Broomfield Street which is within R2 Low Density Residential Zone and R3 Medium Density Residential Zone.

Other areas adjacent to the shared rail corridor are zoned:

- R2 Low Density Residential Zone;
- R3 Medium Density Residential Zone;
- R4 High Density Residential Zone;
- IN1 General Industrial Zone;
- IN2 Light Industrial Zone;
- B4 Mixed Use Zone;
- E2 Environmental Conservation Zone;
- RE1 Public Recreation Zone;
- RE2 Private Recreation Zone; and
- W1 Natural Waterways Zone.

There are a number of local heritage items within or adjacent to the proposed Project Area listed under the Fairfield LEP.

- Item no. I19 is a railway viaduct and underbridge within the Project Area that has been described as being of local significance.
- Item no. I10 is a Federation Cottage on Broomfield St adjacent to the Project Area and has been described as being of local significance.

The following items are within 250m of the proposed Project Area listed under the Fairfield LEP.

- Item no. I13 a Church on Cumberland Street that has been described as being of local significance.
- Item no. I21 is a Library and Civic Hall on Railway Parade that has been described as being of local significance.
- Item no. I18 is a Horse water trough on Railway Parade that has been described as being of local significance.
- Item no. I15 Pai Lau gateway on Park Road that has been described as being of local significance.
- Item no. I12 Cabramatta Public School that has been described as being of local significance.

The proposed Project Area does not contain any mapped potential ASS however, Class 5 potential ASS are within approximately 100m of the proposed Project Area.

Planning approval from Fairfield City Council under the LEP is not required as the proposed Project is subject to assessment under Part 5.1 of the EP&A Act which prevails over the local planning instrument. However, consideration would be given to the Fairfield LEP in preparation of the EIS.

2.3 Protection of the Environment Operations Act 1997

The NSW Environment Protection Authority (EPA) issues an environment protection licence (EPL) to the owners or operators of railway systems activities under the *Protection of the Environment Operations Act 1997* (POEO Act). The ARTC has an existing EPL (EPL 3142) which would be applicable to this project and further assessed in the EIS. Work may also be undertaken on land associated with Sydney Trains EPL (EPL 12208). The EIS would include consideration of works occurring within the deed of lease, scheduled activities to be undertaken and liaison with Sydney Trains and the NSW EPA.

2.4 Other NSW State legislation

2.4.1 Approvals or authorisations that are not required or cannot be refused

Part 5.1 of the EP&A Act overrides the need for certain additional approvals/permits/licences/authorisations under certain Acts. Under Section 115ZG of the EP&A Act, the following authorisations are not required for approved SSI:

- The concurrence under Part 3 of the *Coastal Protection Act 1979* of the Minister administering that Part of that Act;
- A permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*;
- An approval under Part 4, or an excavation permit under section 139 of the *Heritage Act 1977*;
- An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*;
- An authorisation referred to in section 12 of the *Native Vegetation Act 2003* (or under any Act repealed by that Act) to clear native vegetation or State protected land;
- A bush fire safety authority under section 100B of the *Rural Fires Act 1997*; and
- A water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000*.

Division 8 of Part 6 of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of approved SSI.

The following directions, orders or notices cannot be made or given so as to prevent or interfere with the carrying out of approved Critical SSI:

- An interim protection order (within the meaning of the *National Parks and Wildlife Act 1974* or the *Threatened Species Conservation Act 1995*);
- An order under Division 1 (Stop work orders) of Part 6A of the *National Parks and Wildlife Act 1974*, Division 1 (Stop work orders) of Part 7 of the *Threatened Species Conservation Act 1995* or Division 7 (Stop work orders) of Part 7A of the *Fisheries Management Act 1994*;
- A remediation direction under Division 3 (remediation directions) of Part 6A of the *National Parks and Wildlife Act 1994*;
- An environment protection notice under Chapter 4 of the *Protection of the Environment Operations Act 1997*; and
- An order under section 124 of the *Local Government Act 1993*.

2.4.2 NSW legislation and regulations that may still be applicable

Other NSW State legislation that may be relevant to the proposed Project includes the following:

- Contaminated Land Management Act 1997;
- Fisheries Management Act 1994;
- Heritage Act 1977;
- Land acquisition (Just Terms Compensation) Act 1991;
- National Parks and Wildlife Act 1974;
- Native title (New South Wales) Act 1994;
- Native Vegetation Act 2003;
- Noxious Weeds Act 1993;
- Roads Act 1993;
- Rural Fires Act 1997;
- SEPP 33 – Hazardous and Offensive Development
- SEPP 44 – Koala Habitat Protection
- Threatened Species Conservation Act 1995;
- Waste Avoidance and Resource Recovery 2001;
- Water Act 1912;
- Water Management Act 2000; and
- Work Health and Safety Regulation 2011.

The extent to which this legislation applies to the proposed Project would be documented in the EIS.

2.5 Commonwealth Legislation

2.5.1 Environment Protection and Biodiversity Conservation Act 1999

An environmental impact assessment would be conducted in accordance with the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to determine if the proposed actions have the potential to significantly impact on any matters of national environmental significance or the environment of Commonwealth land and whether the action is a controlled action.

A referral to the Australian Government Minister for the Environment (Environment Minister) would be required if the proposed project would have a significant impact. If necessary, a referral to the Environment Minister would be made during the EIS process.

2.5.2 Native Title Act 1993

The *Native Title Act 1993* administers processes relating to the recognition, protection and determination of native title and dealings with native title land. Native title is concerned with the rights and interests of Aboriginal and Torres Strait Islander peoples in relation to land and water in Australia and its territories.

An online search of the Native Title Register held by the National Native Title Tribunal (13 January 2016) indicated no current Native Title applications or determinations.

2.6 Other Requirements

2.6.1 ARTC Code of Practice

As the proposed Project is subject to Part 5.1 of the EP&A Act, Clauses 244D-I of Part 14 of the EP&A Regulation (Special Provisions relating to ARTC) are not relevant. The *ARTC Code of Practice for Environmental Impact Assessment of Development Proposals in New South Wales* (the ARTC Code of Practice) is made under those clauses and is therefore not applicable to the proposed Project.

2.6.2 SSFL Conditions of Approval

The proposed Project is to be undertaken within the 36km section of track known as the SSFL which has already been subject to a DPE approval and subsequent conditions of approval. As such, consideration would be given within the EIS to interaction between existing conditions of approval, the Statement of Commitments and proposed future conditions for this project.

3. STRATEGIC JUSTIFICATION AND PROJECT NEED

3.1 Rail Network Capacity Challenge

The current capacity on the Southern Sydney Freight Line (SSFL) is 24 trains per day in one direction.

A Capacity Study was undertaken by ARTC to look at potential future enhancements to the PBRL including both the MFN and SSFL. This analysis identified that demand is predicted to increase to 33 trains per day (one direction) on the SSFL by 2030 (refer to Table 1 in Section 4.2). The proposed works (Stage 3B PBRL Capacity Project) aim to address this capacity challenge.

3.2 Key Benefits of the PBRL Capacity Project

The key benefits of Stage 3 PBRL Capacity Project are as follows:

- Increased rail capacity on the SSFL and MFN to meet forecast demand for container transport to and from Port Botany, through improved train movement logistics;
- Improved rail access for shuttle services to and from Port Botany;
- Operational improvements to allow throughput services to and from Port Botany;
- Operational efficiencies flowing from reduced congestion, reduced transit times and increased capacity;
- Improved reliability to freight rail customers accessing Port Botany through enhanced train movements, connectivity and increased capacity;
- Reduced heavy road safety incidents through increased rail market share;
- Reduced safety incidents to staff through enhanced and efficient train movements;
- Reductions in road maintenance expenditures flowing from diversion of freight from road to rail;
- Reduced air pollution, greenhouse gas emissions and noise flowing from diversion of freight from road to rail;
- Improved rail market share and lower rail cost structures; and
- Reduced congestion mainly for road, but also rail, to and from Port Botany.

3.3 Consistency with NSW Strategic Planning and Policy

3.3.1 NSW State Plan

State Plan NSW 2021 (NSW Government, 2015) contains five strategies to deliver change with ambitious goals and challenging targets. The EIS would include a review of the proposed project to ensure consistency with the plan's goals and targets.

3.3.2 State Infrastructure Strategy

Rebuilding NSW: State Infrastructure Strategy 2014 (NSW Government, 2014) is a plan to invest \$20 billion in new productive infrastructure for NSW. The plan focuses on the importance of sustaining productivity growth in major centres and regional communities and supporting population growth. Projects identified in Rebuilding NSW are based on recommendations from Infrastructure NSW who are guided by various NSW Government agencies, as well as the ARTC's plans.

In response to Infrastructure NSW recommendations the plan commits to:

- assess projects that support rail freight from Port Botany to the Moorebank Intermodal; and
- encouraging ARTC to increase capacity on the Southern Sydney Freight Line

The extent to which the infrastructure strategy applies to the proposed project would be documented in the EIS.

3.3.3 2015-2024 Sydney Metropolitan Freight Strategy

ARTC has prepared the 2015 – 2024 Sydney Metropolitan Freight Strategy (ARTC, 2015) to identify the strategies to achieve rail freight growth in Sydney. The PBRL project was funded by the National Building Program 2009-2014 with stage 1 and 2 works delivered to meet projected growth in demand for container transport by rail. This Project forms stage 3 to accommodate increased freight traffic to Port Botany to 2030 including the future Moorebank Intermodal.

Further assessment of the application of this strategy to the proposed project would be documented in the EIS.

3.4 Project Objectives

The objectives of the proposed project are to:

- Increase rail freight capacity;
- Meet projected growth in demand for container transport by rail;
- Improve reliability for freight customers;
- Provide operational efficiency;
- Decrease road and rail congestion; and
- Grow rail market share.

4. PROJECT DEVELOPMENT AND ALTERNATIVES

4.1 Project Development Overview

In 2004 ARTC and the NSW Rail Corporation (now Transport for NSW (TfNSW)) signed a Deed of Agreement for the MFN Lease and License, to deal with ARTC's lease and management of the NSW network for freight services.

Between 2008 and 2013, leases for various sections of the MFN and SSFL were executed, with all areas now under ARTC control.

ARTC developed, and received, funding from the Nation Building Program 2009-2014, for a staged PBRL upgrading program to meet growing demand for container transport by rail.

Stage 1 – reconfigured and upgraded Botany Yard providing two Arrival and two Departure Roads with partial signalling, reducing congestion and increasing port capacity;

Stage 2 – delivered new staging roads at Enfield Yard and associated signalling, along with signal control separation from Sydney Trains for the Metropolitan Freight Network (MFN); and

Stage 3 – will bring the condition of the PBRL up to current engineering standard and analyse possible capacity enhancements on the MFN and SSFL.

The proposed project represents part 3B of the PBRL Stage 3 which also includes track upgrading works on the MFN.

4.2 Strategic Alternatives

Potential enhancement options were developed to fulfil the following planning principles:

- Connectivity: located in areas providing effective capacity benefit and considerate of operational requirements and external impacts;
- Efficiency: efficient use of the existing network could release capacity and improve service levels;
- Flexibility: Infrastructure and operations should be responsive to customer needs and predicted demand;
- Staging: staging and timing of construction is a significant consideration to meet predicted demand;
- Environment: reduce impacts to the environment and community, where possible; and
- Property: reduce impacts to property or land acquisition, where possible.

The method for identifying enhancement options on the SSFL and MFN was closely aligned with demand modelling and planning principles. Key criteria were modelled and desktop analysis undertaken to identify potential locations available for enhancement on both networks.

According to the *PBRL Stage 3 Capacity Project Scoping Report* (ARTC, 2015), a number of options were identified during desktop analysis, including:

- 1,300m loop at Cabramatta (SSFL);
- 1,300m loop at Minto South (SSFL);
- 900m track extension at Botany (MFN);
- 350m Leightonfield loop extension (SSFL);
- Botany Yard modifications (MFN);
- 1,850m loop at Cabramatta (SSFL);
- 1,300m loop at Minto North (SSFL);
- 800m track extension at Mascot (MFN); and
- 1,300m loop at Casula (SSFL); and
- Track duplication Botany to Mascot (MFN).

These options were included in the demand modelling to assess capacity to 2030. The modelling identified which options provided the greatest capacity benefit and when they would be required, based on predicted demand.

Three key assumptions were made while determining capacity impacts:

- There would be no diversion of coal to the Main South Line that currently transits on the Illawarra line;
- Inland Rail will be operational by 2025; and
- Port shuttle trains will be 650m in length.

Any changes to these key assumptions will affect the capacity modelling.

Four key options were considered in further detail in the *PBRL Stage 3 Capacity Project Concept Assessment Report* (ARTC, 2015):

- 1) A simultaneous entry loop on the SSFL at Cabramatta;
- 2) 900m track extension at Botany on the MFN;
- 3) 800m track extension at Mascot on the MFN; and
- 4) Duplication of the single line track between Botany and Mascot on the MFN.

ARTC modelling indicated that a loop would be required at Cabramatta by 2022 to meet capacity targets.

Modelling also indicated that track duplication associated with options 2, 3 and 4 would be required in some form by 2021 to meet capacity targets. Note that not all trains travel via the SSFL.

Table 1 Future Train Numbers Per Day (ARTC)

Train Type	Train Numbers Per Day (one Direction)															
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
650m Train DP only	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
650m Train Patrick only	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
650m Train DP & Patrick	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
900m DP & QUBE	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
900m Patrick & QUBE	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
900m DP & Patrick	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2
900m DP, Patrick & QUBE	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.7	2.8	2.9	3.0
New 650m IMEX DP only	0.7	2.0	4.3	6.3	7.7	7.7	8.3	9.3	9.7	10.0	10.7	11.3	12.3	12.7	12.7	12.7
New 650m IMEX Patrick only	0.7	2.0	4.3	6.3	7.7	7.7	8.3	9.3	9.7	10.0	10.7	11.3	12.3	12.7	12.7	12.7
New 650m IMEX SICTL only	0.7	2.0	4.3	6.3	7.7	7.37	8.3	9.3	9.7	10.0	10.7	11.3	12.3	12.7	12.7	12.7
Total	15.3	19.4	26.5	32.6	36.7	36.8	38.9	42.1	43.2	44.3	46.4	48.6	51.7	52.8	53.0	53.1

4.3 Options Considered – Southern Sydney Freight Line (SSFL)

This assessment addresses the proposed capacity improvement on the SSFL. A number of options were considered including:

- 1,300m loop at Cabramatta;
- 1,300m loop at Minto South;
- 350m Leightonfield loop extension;
- 1,850m loop at Cabramatta;
- 1,300m loop at Minto North; and
- 1,300m loop at Casula.

ARTC modelling indicated that a 1,300m loop at Cabramatta, being the mid-point between existing loops at Glenfield and Leightonfield, would provide the best solution to increase capacity requirements to 2030. A loop in this location could increase capacity by up to 12 services per day.

4.4 Consequences of not proceeding with the project

Based on predicted demand, the maximum number of trains through the SSFL will reach the current capacity of 24 trains per day by 2022. There will be no further capacity available for port shuttle services between Moorebank Intermodal and Port Botany.

Any potential delays to the Inland Rail project will further restrict capacity.

5. PROJECT DESCRIPTION

5.1 Overview

The SSFL makes an end-on-end connection with the Metropolitan Freight Network (MFN) and extends south-west from Sefton Park Junction to Glenlee (Macarthur) in Sydney's south. The SSFL is single bi-directional freight line in a 'Shared Corridor' with Sydney Trains.

5.2 Key Features

The key features of the proposed project include the following:

- Construction of a simultaneous entry loop to include:
 - Bi-directional signalling;
 - 1.4km track construction,
 - 800m track slew; and
 - 60kmph turnout speed.
- Modification of 6-7 Sydney Trains OHW structures to enable slewing of existing SSFL approx. 1.9m closer to Sydney Trains Down line to obtain clearance as close as possible to the boundary at the back of Peter Warren Car Yard (to be removed and replaced with either a cantilever structure or a structure that spans both the Sydney Trains and ARTC tracks);
- Duplication of existing bridges at Sussex Street and Cabramatta Creek;
- Relocation of the existing retaining wall (790m) and noise wall (480m) between Cabramatta Rd East and Sussex Street approximately 4.5m into Broomfield Street;
- Re-configuration of Broomfield Street road alignment and car parking between Bridge St and Sussex St bridge, including service relocations (relocation of impacted amenities by 4.5m and reduction of existing nature strip);
- Re-configuration of Sussex Street road alignment and road marking; and
- Acquisition of Council property along Broomfield Street.

5.3 Construction

5.3.1 Outline Construction Methodology

The construction period for the proposed works would be approximately 30 months commencing in 2018. The likely sequence and outline of key construction phases and activities would include:

Mobilisation

- Installation of environmental management controls as appropriate;
- Vegetation removal at specified locations;
- Establishment of site compounds and site accesses; and
- Enabling works including OHW structure modification;

Civil Construction and Track Work

- Service relocations
- Replacement parking (to be confirmed)
- Progressive relocation of noise wall and retaining wall;
- Installation of two new bridges;
- Modifications to Broomfield Street
- Drainage works;
- Placement of ballast, laying of new track; and
- Trenching, erection and connection of signalling and communications equipment.

Demobilisation and Rehabilitation

- Demobilisation of site compounds;
- Rehabilitation and landscaping; and
- Removal of erosion and sediment control devices.

5.3.2 Plant and Equipment

Table 2 lists the anticipated construction plant and equipment to be used during construction.

Table 2 Construction Plant and Equipment

Construction Plant and Equipment		
Hydraulic mobile crane	Grader	Rail welding equipment
Excavators (various sizes)	Vibratory roller	Rail grinder
Backhoe	Dump truck	Hi-rail vehicle
Generators	Tamping machine	Bulldozer
Pumps	Ballast regulator	
Front end loader	Rail cutting equipment	

5.3.3 Working Hours and Track Possessions

Standard construction hours would be adopted – 7am to 6pm Monday to Friday and 8am to 1pm on Saturdays.

Work conducted outside of standard working hours may include safety critical works or works required to be carried out during track possessions. The project would utilise the four weekend possessions scheduled each year to facilitate connection of new infrastructure systems to the existing infrastructure. This would require working outside standard working hours.

A noise assessment will be undertaken as part of the EIS to predict noise levels for works during standard construction hours as well as works outside of standard construction hours to determine the location and impact to sensitive receivers.

5.3.4 Ancillary Facilities

A primary construction site compound would be established on adjoining land, subject to negotiation of a temporary lease (refer to Section 5.3.7). The compound would be used for the site office, amenities and storage of equipment. Entry and exit to this compound is being considered via Sussex Street.

The EIS would provide details of the site compound and assess any associated potential impacts.

5.3.5 Utility Adjustment

There are a number of services located within the railway corridor. Investigations have been carried out to confirm locations and depths to utility services and the extent of any relocations that may be required.

It is expected that public utility adjustments would be required to sewer/water mains, low pressure gas, stormwater and minor street services; e.g. CCTV and power poles. Railway signalling and minor drainage works would also be required.

The EIS would assess any potential impacts associated with utility adjustments required for the proposed project.

5.3.6 Interaction with Existing and Proposed Infrastructure

5.3.6.1 Sydney Trains Down Main Line

Part of the scope for this project involves slewing the existing SSFL approximately 1.9m closer to the Sydney Trains Down Main Line to enable clearance to the boundary at the back of Peter Warren Car Yard. To achieve this, 6-7 existing Sydney Trains OHW structures located between the Sydney Trains Down Main Line and the SSFL will need to be removed and replaced with either a cantilever structure or a structure that spans both the Sydney Trains and ARTC tracks.

ARTC will arrange OHW survey in consultation with Sydney Trains to confirm clearances and are negotiating with Sydney Trains to obtain their approval to the new configuration. If Sydney Trains approval is not received (or if sufficient clearance is not available), land acquisition extending approximately 3m into Peter Warren's Car Yard would be required., which would affect vehicle showroom buildings.

5.3.6.2 Broomfield Street

The existing noise wall / retaining wall (rail boundary) on the eastern side of the shared rail corridor would need to be relocated approximately 4.5m into Broomfield Street to make room for the loop in the shared rail corridor. Broomfield Street road alignment, car parking and trees would be affected.

The intention is to relocate all impacted amenities by approximately 4.5m. The nature strip on the opposing side of Broomfield Street is wider than normal, so depending on the remaining road reserve and agreement with Council, the opposing nature strip may be reduced to provide additional road reserve and/or parking.

A number of trees will require removal along the western side of Broomfield Street. The project will look at ways to replace trees in the new configuration which may affect parking layout configuration. ARTC appreciates replacement car parking may be required for any lost car parking spaces, depending on agreements with Council.

5.3.6.3 Sussex Street

The road configuration around Sussex Street would require minor re-alignment and new road marking due to the construction of a new bridge on the eastern side and the existing road curvature beneath Sussex Street bridge. Acquisition of a small area of council land would be required to re-align the existing road corner.

5.3.7 Property Acquisition

Negotiations would be required with Fairfield City Council for:

- Land acquisition along Broomfield Street to extend the shared rail corridor by approximately 4.5m;
- Land acquisition on Sussex Street to re-configure the road to allow for a new bridge; and
- Temporary use of land during construction for a site compound, sediment control devices or other project requirements.

Minor land acquisition at the back of Peter Warren Car Yard may be required to obtain standard clearances. Approximately 0.5m may be required for a small section which would not impact vehicle showroom buildings or business operations. This will be confirmed once OHW survey is undertaken and included in an EIS.

5.4 Operation

The loop would be utilised by container freight trains in a manner that may result in increased operational activities such as horn use, shunting and idling on the SSFL in accordance with Rail Network Safety rules.

The operation of the loop would facilitate a capacity increase in train movements from 24 trains per day one way to 33 trains per day one way by 2030.

6. PRELIMINARY ENVIRONMENTAL ASSESSMENT

6.1 Preliminary Environmental Risk Analysis

A broad preliminary environmental risk analysis was carried out utilising desktop search results and a site inspection to identify key environmental issues for the Project.

Key issues were those identified as requiring further detailed or specialist assessment and investigation. It is likely that these issues may require specific site management measures.

Other issues were those issues that are considered to require some further assessment but are likely to be managed by routine industry environmental management measures.

A detailed environmental risk assessment would be conducted during preparation of the EIS.

6.2 Key Issues

6.2.1 Hydrology and Groundwater

Existing Environment

The proposed project would be located within the Georges River catchment area. The shared rail corridor traverses Cabramatta Creek which supports a backflow from the Georges River when flood waters increase. Cabramatta Creek joins Chipping Norton Lake and Georges River approximately 2km downstream from the proposed project area.

Previous Studies

Previous reports prepared for the SSFL along the alignment between Cabramatta and Warwick Farm identified potential flooding issues in the vicinity of Cabramatta Creek. The Project Area is not within any local flood planning areas.

No detailed groundwater information has been identified. The proposed project is not in an area designated as groundwater vulnerable in the Fairfield or Liverpool LEPs.

The proposed design/configuration of the bridges at Sussex Street and Cabramatta Creek are the same as those built for the SSFL project and deemed appropriate.

Potential Impacts

- Potential construction impacts on water quality including the risk of spills, increased sedimentation, and erosion;
- Potential disruption to groundwater, in particular due to bridge construction in the vicinity of Cabramatta Creek;
- Potentially high flood risk / flood prone land has been identified to both the north and south of Cabramatta Creek and may be a potential constraint for construction of the new bridge; and
- Changes to cross-falls along existing roads and at intersections, in particular Broomfield Street and Sussex Street, may affect local drainage infrastructure capacities.

Proposed Assessment Methodology

Four assessments would be undertaken to determine the potential impacts of the proposed project on hydrological conditions. These assessments would consider the relevance of Commonwealth and State legislation, including the *Water Act 1912* and *Water Management Act 2000*.

Flood assessment

The flood assessment would include the following key tasks:

- Review existing flood study for the area covered by the proposed project;
- Review of the hydraulic modelling of the project area previously undertaken as part of the SSFL EIS to assess
 - the baseline flood conditions including depths of flooding, velocities across the site, flood hazard category, rate of inundation and available emergency access routes;
 - any potential impacts on flooding of neighbouring properties and assets due to changes to ground levels; and
- Provide recommendations on the likely requirements for further investigations resulting from the above, including mitigation measures for identified impacts.

Groundwater assessment

The groundwater assessment would consider the hydrogeological system and potential impact of the proposed project, giving particular consideration to the proposed project's proximity to Cabramatta Creek. The groundwater assessment would include:

- Final ground levels and drainage system requirements;
- Post flood management; and
- Recommendations on any mitigation measures for identified impacts.

Geomorphology assessment

A review of the fluvial geomorphology assessment of watercourses traversing the site from the SSFL EIS would be undertaken to identify potential impacts and pressures on channel integrity. This assessment would measure against the baseline characteristics which have clear linkages to other specialist assessments that would be completed as part of the EIS. These may include:

- Environmentally sensitive or valuable aquatic habitats;
- Deterioration in macroinvertebrate/fish habitat and water quality;
- Current and future sediment sources;
- Geomorphological change over the design lifetime of the proposed project; and
- Recommendations on any mitigation measures for identified impacts.

Water quality assessment

The water quality assessment would consider the potential impacts associated with construction and operation of the proposed project. The mitigation measures proposed would address the risk posed by sedimentation, spillage of fuels and chemicals during construction and address issues to be included in the construction environmental management plan (CEMP).

Operational water quality, including maintenance and drainage works for the proposed project once constructed, would be addressed in the EIS.

6.2.2 Flora and Fauna

Existing Environment

The biodiversity that generally occurs along the alignment has been subject to substantial disturbance such as clearing for residential development, roads, the SSFL and other urban uses. Vegetation along the route is generally restricted to scattered trees (remnant and planted street trees), shrubs and adjacent parkland such as the Jacqui Osmond Reserve.

The Environmental Constraints Map in Attachment 1 shows the extent of riparian vegetation in the vicinity of the proposed project area.

A search of the NSW Wildlife Atlas (13 January 2016) identified 15 listed threatened ecological communities and 38 listed threatened species within 1 km of the proposed project area.

A search of the EPBC Act Protected Matters identified 3 threatened ecological communities and 22 listed threatened species within 10km of the proposed project area.

Potential Impacts

- Potential impacts on a limited amount of identified vegetation communities, in particular in the vicinity of Cabramatta Creek;
- Potential impacts from tree removal along Broomfield Street and Jacqui Osmond Reserve; and
- Vegetation removal, in particular in the vicinity of bridge construction at Cabramatta Creek and Sussex Street, including riparian vegetation.

Proposed Assessment Methodology

The EIS would include detailed investigations to assess the potential impacts on flora and fauna and to identify appropriate and specific mitigation and management measures.

Flora and fauna assessment

A flora and fauna assessment would be undertaken in accordance with the *Threatened Species Assessment Guidelines* (DEC 2007) and the *Threatened Species Survey and Assessment: Guidelines* (DECC 2009).

The assessment would include:

- Review of literature, mapping and State and Commonwealth database searches to identify threatened species, populations and ecological communities with potential to occur;
- Compilation of lists of species recorded on-site;
- Detailed flora and fauna surveys to identify and confirm the presence of flora and fauna features of the proposed project. This would include targeted surveys of potentially occurring threatened species, fauna habitat survey and floristic survey of vegetation communities and descriptions of the vegetation communities and fauna habitats occurring on-site;
- An assessment of potential direct and indirect impacts during construction and operation including potential loss of native vegetation, loss of fauna habitat and proliferation of weeds;
- Significance assessments for all threatened species, populations and ecological communities following the heads of consideration and the *Threatened Species Assessment Guidelines* (DECC 2009) for listings under the TSC Act, *Fisheries Management Act* and the *EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DOE 2013);
- Recommendations regarding referral requirements under EPBC Act as required; and
- Preparation of assessments of significance for threatened species likely to occur on-site in accordance with Section 5A of the EP&A Act as required.

6.2.3 Noise and Vibration

Existing Environment

The majority of proposed works are within an urbanised area located adjacent to the established SSFL railway corridor and main roads. The land uses adjoining this corridor are partly residential (40-50%) and may be considered somewhat susceptible to noise levels as the area is already associated with high volumes of road traffic and freight and passenger train movements.

Sensitive receivers adjacent to, or within close proximity of the proposed works include:

- residential properties located adjacent to the route;
- educational facilities including the Lawrence Hargrave School for Specific Purposes; and
- other community facilities located within the corridor including Uniting Care Multicultural Family Centre.

Potential Impacts

- Construction noise and vibration impacts resulting from operation of plant and construction equipment;
- Operational noise and vibration impacts resulting from increased freight traffic. Any increase in freight traffic is based on future freight capacity demands and is only in part facilitated by the loop with both ARTC and Sydney Trains services in this location. Currently approximately 9 trains per day run on the SSFL (one direction), however the current maximum track capacity of the SSFL is 24 trains per day (one direction) and is predicted to increase to 33 trains per day (one direction) by 2030); and
- Operational noise and vibration impacts resulting from the operation of the new loop resulting in trains standing and idling for various periods of time in close proximity to existing residences.

Proposed Assessment Methodology

Noise and vibration assessment

A noise and vibration assessment would be carried out in accordance with the *Interim Construction Noise Guideline (ICNG)* (DEC, 2009), the *Rail Infrastructure Noise Guideline (RING)* (OEH, 2013) and *Assessing Vibration: a technical guideline* (DEC, 2006). The assessment would also include full consideration of previous assessments from the SSFL EIS and ongoing operational noise and vibration monitoring currently undertaken by ARTC.

The assessment would include:

- Review of current SSFL monitoring locations and further site visit and desktop review as required to identify key sensitive receivers and noise catchment areas;
- A review of the results of noise and vibration monitoring undertaken as part of the SSFL operation and the results compared to original predictions made in the SSFL EIS;
- A baseline noise survey undertaken at nearest residential dwellings and other noise sensitive receivers, if required, in coordination with existing baseline from SSFL EIS to confirm the existing baseline noise levels and characterise the noise environment;
- Prediction of potential noise impacts at sensitive receivers during construction and operation utilising noise propagation software;
- Assessment of construction impacts for worst case noise generating works;
- Assessment of the contribution of the Project to increased movements on the rail network;
- An updated assessment of potential residual operational impacts of the Cabramatta Loop based on available ARTC capacity modelling. Measured existing rail noise levels would be applied to the noise model to calibrate noise impact predictions;
- Assessment of potential vibration impacts with reference to measured ground vibration levels from construction plant and freight train pass by events; and
- Recommendation of feasible and reasonable noise management and mitigation measures to reduce and control noise impacts where adopted noise objectives are predicted to be triggered.

Residual Impacts

The recent construction of the SSFL in this location required the provision of a permanent noise barrier along the alignment in the vicinity of Broomfield Street in order to provide a reasonable and feasible level of noise mitigation for the adjacent areas. It is anticipated that the proposed works would require the relocation of this noise barrier to provide adequate space for the works. Given the reduced distance between the proposed railway line and existing properties to the east, additional potential management measures may need to be considered in order to further reduce potential impacts.

As movements in this location are a combination of ARTC and Sydney Trains rail traffic and the capacity figures are a prediction (i.e. not representative of actual train movements) an assessment would be undertaken during the EIS to determine the contribution to increased movements specifically related to this project. Where a residual increase in operational rail noise is predicted and rail noise levels trigger RING noise objectives, a range of feasible and reasonable management and mitigation measures would be included in the EIS.

6.2.4 Non-Indigenous Heritage

Existing Environment

A range of local heritage sites have been identified adjacent to and within the vicinity of the proposed works. No Commonwealth or State Heritage Register (SHR) items appear to be affected by the proposed works.

The heritage items which may be potentially impacted by the proposed works include:

- Fairfield City Council items
 - Federation Worker's Cottage (132 Broomfield Street); and
 - Railway Viaduct and Underbridge (Railway Parade and Sussex Street, Cabramatta Creek).
- Section 170 heritage items
 - Cabramatta (Cabramatta Creek), Railway Parade & Sussex Street Underbridge; and
 - Warwick Farm Railway Station Group (Remembrance Avenue, Warwick Farm).

Additional local heritage items identified within approximately 250 metres of the proposed alignment of the Cabramatta to Warwick Farm loop, but which are unlikely to be impacted by the proposed project, include:

- Fairfield City Council items:
 - Library and Civic Hall (165 Railway Parade);
 - Horse water trough (Railway Parade (opposite Hughes Street));
 - Pai Lau gateway (Park Road);
 - Cabramatta Public School (72 Cabramatta Road East); and
 - Church (42 Cumberland Street).
- Liverpool City Council items:
 - Warwick farm Racecourse Group (Hume Highway);
 - Berryman Reserve (4 Remembrance Drive); and
 - Plan of Town of Liverpool -early town centre street layout-Hoddle 1827 (Streets in the area bounded by the Hume Highway, Copeland Street, Memorial Avenue, Scott Street, Georges River and Main Southern Railway Line (excluding Tindall Avenue and service ways).

The Environmental Constraints Map in Attachment 1 shows non-indigenous heritage items in the vicinity of the proposed project area.

Potential Impacts

- Direct or indirect disturbance to items of heritage significance during construction or operation;
- The Railway Viaduct and Underbridge and the Federation Workers Cottage are located adjacent to the proposed alignment for the passing loop and may have visual impacts to the curtilage of the heritage items; and
- Impacts to the Warwick Farm Railway Station Group may also occur, in particular to the setting of the heritage item due to the proposed works directly to the north.

Proposed Assessment MethodologyNon-indigenous heritage assessment

A non-indigenous heritage assessment would be carried out in accordance with the Heritage Act 1977.

The assessment would include:

- Review of existing data for records of known heritage sites and issues;
- Field investigations of the corridor (with a focus on registered heritage items and potential curtilage impacts) by suitably qualified person(s) (i.e. Archaeologists);
- Input to design team on significance of the heritage items and issues associated with impacting on the items;
- Assessment of the significance of identified and affected items (including curtilage) and the significance of any impacts; and
- Recommendation of management and mitigation measures.

6.2.5 Traffic Management**Existing Environment**

The surrounding regional and local road networks include Sussex Street, Broomfield Street, Railway Parade, Cabramatta Road and Hume Highway. The proposed project area can be accessed via Sussex Street.

Potential Impacts

Potential impacts the proposed project would have on existing traffic, transport and access include:

- Impacts to existing parking spaces on the western side of Broomfield Street;
- General construction traffic impacts during construction including:
 - Potential partial road closures (for proposal elements such as bridge works to the bridge over Sussex Street and service relocation works in Broomfield Street);
 - Potential requirements for rail possessions to allow for changes to the SSFL and Sydney Trains assets;
 - General increase in traffic and traffic movements for construction vehicles; and
 - Rail possessions for construction of element(s) of the proposed works.

Proposed Assessment Methodology

Two assessments would be undertaken to determine the potential impacts of the proposed project on traffic.

Parking and cycleway assessment

The parking and cycleway assessment would include:

- Survey to determine current demand for car parking within the local area, including commuter car parking;

- Survey to determine current usage of shared cycleway/pedestrian path along Broomfield Street, where parking is currently provided;
- Assessment of capacity at nearby stations (such as Canley Vale or Warwick Farm) to provide alternative parking options during construction and operation of the proposed project;
- Assessment of impacts on parking and cycleway as a result of the proposed project; and
- Identification of measures to minimise impacts on parking and cycleway use.

Traffic assessment

The traffic assessment would include:

- Haulage routes to be used;
- Haulage volumes and timeframe within which haulage would be undertaken;
- Assessment of local road conditions and temporary road closures; and
- Identification of measures to minimise traffic impacts due to road closures and construction traffic.

Residual Impacts

Should the parking demand and supply studies identify a need for replacement car parking this would be addressed in the EIS.

6.2.6 Air Quality

Existing Environment

The proposed project is located adjoining a working railway, industrial areas and arterial roads. Key characteristics of local air quality are likely to be elevated levels of dust arising from these sources.

Potential Impacts

- Potential construction impacts would include emissions arising from dust generation and the use of construction vehicles and plant; and
- Potential operational impacts would include emissions generated by the increase in diesel freight train locomotives utilising the additional track and which are parked within the proposed loop while waiting for other trains to pass.

Proposed Assessment Methodology

Air quality assessment

The assessment would include:

- Air quality modelling to predict the potential impacts of the operation of the loop;
- Assessment of air quality impacts due to the proposed project, taking into account reduction of container truck emissions as a result of the proposed project; and
- Identification of mitigation measures to ensure any potential impacts would be minimised.

6.2.7 Visual Amenity

Existing Environment

The majority of proposed works associated with the Cabramatta loop are within an urbanised area located adjacent to the established SSFL railway corridor and main roads.

Potential Impacts

- Removal of vegetation in vicinity of Cabramatta Creek and removal/replacement of the existing trees adjacent to the existing railway line within the Jacqui Osmond Reserve and along Broomfield Street;

- Relocation of the existing noise wall and retaining wall closer to existing residential areas; and
- Potential impacts on curtilage to heritage items including railway viaduct and Warwick Farm Station.

Proposed Assessment Methodology

Visual amenity assessment

The visual assessment would include:

- An assessment of potential visual impacts due to:
 - vegetation removal along the alignment;
 - bridge construction over Cabramatta Creek and Sussex Street;
 - relocation of the noise wall along Broomfield Road towards nearby residential properties;
- An assessment of potential visual impacts on heritage items such as the Railway Viaduct and Warwick Farm Station; and
- Identification of mitigation measures to reduce potential adverse visual impacts.

6.2.8 Social Impact

Potential Impacts

The proposed project would result in a long term, economic benefit in relation to the increased capacity of freight trains on the MFN. The construction of the proposed project would also result in direct employment opportunities and benefit local and regional service providers.

Potential construction impacts would include:

- Impacts on residential amenity; and
- Access restrictions/changes during construction.

Potential operational impacts would include:

- Additional noise impacts (as described above) leading to potential amenity impacts to adjacent receivers and local community facilities due to increased freight traffic along the alignment and trains waiting on the loop.

The route would be located adjacent to the recently constructed SSFL alignment (completion of the SSFL project occurred in December 2012). Due to the relatively recent completion of construction works in this area, construction fatigue from previous SSFL construction works may present an increased community impact.

Assessment Methodology

Social impacts assessment

The assessment would include:

- Identification of the potential social benefits and impacts of the proposed project, including measures to enhance the benefits, where possible;
- Assessment of cumulative social impacts as a result of the recent completion of the SSFL project in the proposed project area; and
- Identification of any management or mitigation measures necessary to ensure any potential social impacts are minimised.

6.3 Other Issues

6.3.1 Indigenous Heritage

Existing Environment

A search of the OEH Aboriginal Heritage Information Management System (AHIMS) database has been conducted in the preparation of this report (13 January 2016). The search identified no known Indigenous sites and no Indigenous places within the proposed project area or 50 metres from the proposed project area.

Potential Impacts

It is unlikely that the proposed project would impact on any Indigenous heritage sites as:

- There are no known indigenous heritage items within the proposed project area; and
- The proposed project area has been substantially modified and disturbed by previous infrastructure development, railway operations and industrial activities.

The proposed project has the potential to impact unknown items of indigenous heritage as the absence of sites is not generally conclusive as to the potential for impact on indigenous heritage items. There is potential for elevated risk of impacting indigenous heritage when undertaking works that disturb natural ground and/or in vicinity of waterways.

Mitigation and management

The EIS would identify mitigation measures including the preparation of a Unexpected Finds Protocol as part of the CEMP.

As Aboriginal people are the primary determiners of cultural heritage, the cultural significance of the project area would also be sought from any Aboriginal stakeholders registered for the project during consultation.

6.3.2 Topography, Geology and Soils

Existing Environment

The proposed project area is located along an existing shared rail corridor and traverses Cabramatta Creek.

A review of the Fairfield and Liverpool Council LEP ASS maps has indicated that the proposed alignment would not be impacted by ASS. However, some areas of Class 5 ASS risk (very low risk) (or Potential ASS) have been identified to the east of the existing rail alignment. It is not anticipated that these areas would be impacted by the proposed works.

Potential Impacts

- The proposed works would not result in change to the local topography as the new track would be at a similar grade to the existing railway infrastructure; and
- Clearance of some vegetation and disturbance of soils has the potential to result in erosion and sedimentation unless measures are implemented to protect receiving waterways.

Management and Mitigation

An assessment of the site soils would be undertaken for the proposed project. This study would include the following:

- Review of borehole logs from previous investigations conducted as part of the SSFL EIS including descriptions of physical and chemical characteristics of soils including salinity, erodibility, and ASS;

- Likely impacts on site soils from the proposed project; and
- Mitigation measures to minimise potential for erosion, soil instability and ASS impacts.

The EIS would document management measures for minimising soil erosion, sedimentation and ASS impacts.

6.3.3 Planning, Land Use and Property

Existing Environment

Construction of the proposed works will occur within the existing freight railway corridor which is within the 5(a) Special Uses Zone (Transport) which will require some acquisition of land from Council and potentially Peter Warren Car Yard as documented throughout this PEA.

Other areas adjacent to the railway corridor are zoned:

Liverpool LGA

- R3 Medium Density Residential Zone;
- IN1 General Industrial Zone; and
- RE1 Public Recreation Zone.

Fairfield LGA

- R2 Low Density Residential Zone;
- R3 Medium Density Residential Zone;
- R4 High Density Residential Zone;
- IN1 General Industrial Zone;
- IN2 Light Industrial Zone;
- B4 Mixed Use Zone;
- E2 Environmental Conservation Zone;
- RE1 Public Recreation Zone;
- RE2 Private Recreation Zone; and
- W1 Natural Waterways Zone.

The proposed project involves relocating the existing SSFL approximately 1.9m closer to the Sydney Trains Down Main Line to provide as much clearance as possible to the boundary at the back of Peter Warren Car Yard. To achieve this, 6-7 existing Sydney Trains OHW structures located between the Sydney Trains Down Main Line and the SSFL would need to be removed and replaced with either a cantilever structure or a structure that spans both the Sydney Trains and ARTC tracks.

Negotiations are being held with Sydney Trains regarding clearance requirements and feasibility. Should SSFL track slewing not be acceptable to Sydney Trains then approximately 3m of private land would need to be acquired (Peter Warren car dealership site) which would impact vehicle showroom buildings and disturb business operations. A small amount of acquisition (approx. 0.5m) may still be required from Peter Warren car dealership but it is not expected to impact buildings or business operations.

The proposed project would also require negotiation with local Council regarding the relocation of the noise and retaining walls along Broomfield Street and re-configuration of Sussex Street around the new bridge.

Negotiations would also be held with Council for the temporary use of their land during construction for a site compound, sediment control devices or other project requirements.

Potential Impacts

- Permanent acquisitions would have impacts upon existing land uses in the area (road, bicycle paths, footpath, landscaping, car park, noise wall and car yard) to facilitate rail infrastructure; and
- Temporary lease areas for use during construction would have temporary impacts related to vegetation clearance, sedimentation and soil erosion.

Mitigation and Management

The EIS would identify property acquisition requirements, temporary lease areas and recommend mitigation measures to minimise any potential impacts; including minimising vegetation removal, sedimentation and erosion controls and rehabilitation of the site.

6.3.4 Contaminated Land and Hazardous Materials**Existing Environment**

No listed contaminated sites on the NSW EPA's contamination register have been identified along or within close proximity to the proposed works.

It is possible that contamination associated with railway activities would be present in railway ballast materials and soils within and adjacent to the railway (e.g. heavy metals, polycyclic aromatic hydrocarbon etc.).

Potential Impacts

- Potentially contaminated soil or fill material within the shared rail corridor may present a hazard to construction workers or others through dermal (skin) contact, ingestion and inhalation; and
- Potential impact of excavation of contaminated material on the environment includes water pollution and airborne dispersal of contaminants.

Mitigation and Management

The EIS would review the previous contaminated materials assessment undertaken as part of the SSFL EIS and identify any additional assessment required to determine if the potential for contamination exists based on activities undertaken at the site after the assessment .

The EIS would recommend mitigation measures to minimise any potential impacts including removal of soils from areas with potential for contamination.

6.3.5 Waste Management and Resource Recovery**Potential Impacts**

The majority of waste would be generated during the construction phase. The *Waste Avoidance and Resource Recovery Act, 2001*, the POEO Act and relevant regulations and industry guidelines would be used to classify, determine measures for handling, determine storage requirements and appropriate disposal options.

Management and Mitigation

The EIS would identify mitigation measures including the preparation of a Waste Management Plan as part of the CEMP, with a focus on waste reduction and avoidance and recycling and reuse of construction packaging and office wastes.

6.3.6 Energy Efficiency and Greenhouse Gases

Potential Impacts

Greenhouse gas (GHG) emissions would be generated during the construction phase associated with the combustion of fossil fuels in both stationary and mobile construction plant, equipment and vehicles and clearance of vegetation. Additionally, electricity used in offices is another source of greenhouse gas emissions. Embodied energy in construction materials used would also generate increased greenhouse gas emissions.

The proposed Project would improve the efficiency of freight train movements and reduce truck greenhouse gas emissions on local roads.

Management and Mitigation

The EIS would identify opportunities to reduce GHG emissions during both construction and operational phases.

6.3.7 Cumulative Impacts

A review of the Department of Planning's Major Projects Register (December 2015) did not identify any major land development sites within the vicinity of the proposed works. Any future development along the corridor, and in particular proposals for sensitive land uses, would need to be considered as part of any assessment of the proposed works.

Cumulative social impacts resulting from the recently completed SSFL are addressed in Section 6.2.10 above.

7. CONSULTATION

7.1 Overview

ARTC was asked by the Commonwealth Government to undertake capacity analysis to identify infrastructure enhancements that would be required to meet predicted demand until 2030. This work is currently in the Scoping Phase and includes concept and feasibility activities with regular Project Control Group (PCG) meetings with relevant Commonwealth representatives currently being undertaken.

To date, capacity analysis, concept design and feasibility investigations such as surveys, structural assessment and geotechnical assessment have been undertaken to gain a better understanding of project viability and key issues associated with the proposed project.

ARTC are committed to ensuring appropriate community consultation is undertaken as the project progresses which will include consultation with relevant communities and stakeholders including:

- DPE;
- Office of Environment and Heritage;
- NSW Ports;
- Transport for NSW;
- Sydney Trains;
- Department of Infrastructure and Regional Development;
- Department of Sustainability, Environment, Water, Population and Communities;
- Fairfield City Council;
- Liverpool City Council;
- Sydney Water;
- Gas Authorities Owners and maintainers;
- Business Interest Groups;
- Transport and Emergency Services; and
- The community, including all potentially affected landowners and businesses.

Land acquisition would also be negotiated during the Development Phase and would require consultation and negotiation with key stakeholders, including land owners.

7.2 Consultation to Date

ARTC has already undertaken consultation with a number of key stakeholders as follows:

Department of Infrastructure and Regional Development

Regular consultation regarding the Stage 3 program and the proposed Projects is undertaken between the Commonwealth Department of Infrastructure and Regional Development (DIRD). This includes regular PCG meetings and consultation regarding milestone commitments.

Transport for NSW

Notification of the proposed Project and background was provided to Transport for NSW Projects Division in May 2015 (via email). In June 2015 a briefing was provided to the Projects and Freight divisions. Subsequently a copy of the briefing and concept designs for the options were issued to TfNSW. Follow up emails and phone calls have continued to confirm TfNSW has no objections to ARTC's proposals. To date no objections or issues have been raised.

Sydney Trains

Notification of the proposed Project and background was provided to Sydney Trains in May 2015 (via email). In late May 2015 a briefing was provided to Sydney Trains Executive staff. Subsequently a copy of the briefing and concept designs for the options were issued to Sydney Trains.

The Cabramatta loop project holds interest for Sydney Trains as it is in the shared corridor. In November 2015 ARTC presented the Cabramatta project to the Sydney Trains West Region Configuration Change Board forum and have continued to conduct meetings, email and hold discussions with a number of district and discipline staff. The preferred option for ARTC is to modify a number of Sydney Trains OHW structures to fit the loop in the existing corridor at the back of Peter Warren Car Yard to reduce property impacts. Consultation is ongoing and will continue in this regard. To date no objections or key issues have been raised.

Moorebank Intermodal Company (MIC) / Sydney Intermodal Terminal Alliance (SIMTA)

Consultation has occurred with both Moorebank Intermodal Company (MIC) and Sydney Intermodal Terminal Alliance (SIMTA) since mid-2014. MIC undertook its own capacity analysis and provided a copy of the report to ARTC, who built on the analysis to conduct its own modelling, in particular, predicted demand for Moorebank Intermodal from 2017 to 2030. Consultation continues with regards to the intermodal rail connection to the SSFL line. The connection to the SSFL does not impact or interface with the Cabramatta loop project. Consultation is ongoing and includes meetings as required, emails and phone discussions.

NSW Ports

Project consultation with NSW Ports was held early in February 2015 and ARTC provided a presentation of the proposed Project to NSW Ports representatives. NSW Ports provided information regarding their Port Strategy and capacity analysis. NSW Ports and ARTC work together on an ongoing basis to ensure future requirements are planned in conjunction with each other. Consultation includes regular meetings, emails, letters, presentations, phone and face to face discussions.

Sydney Water

The project consulted with Sydney Water in September 2015 regarding impacts to their utilities within the project area. Sydney Water provided copies of drawings where available and advised that they will work with ARTC to implement methods of managing utility impacts.

7.3 Community Consultation and Stakeholder Engagement Plan

A Community Consultation and Stakeholder Engagement Plan would be developed during the Development Phase to identify key objectives and outcomes of consultation activities with the community, stakeholders and government agencies. Community and stakeholder engagement would commence prior to and during the preparation of the EIS so that issues are detailed and considered. This would ensure that stakeholder requirements are accurately captured and considered in the detailed design and mitigation measures developed.

The community consultation and stakeholder engagement plan would include the following:

- Confirmation of the aims of community consultation for the EIS as required by DPE;
- Identification of affected (directly and indirectly) stakeholders;
- Outline the activities and techniques proposed to effectively engage the community and stakeholders to raise awareness and identify issues;
- Establishment the scope and responsibility for consultation with the stakeholders from within the proposed Project's team;
- A Planning focus meeting;
- Provision of a website, email address and telephone information line for enquires;

- A letter to stakeholders introducing the proposed Project and providing details regarding the provision of the website, email address and telephone information line for enquiries;
- Continued liaison with stakeholders; and
- Consultation including one on one meetings with impacted owners and key stakeholders.

All consultation materials proposed by ARTC would provide accurate and timely information on the proposed Project's objectives, EIS process, study outcomes and construction activities, with a view to maintaining stakeholder and community confidence during all phases of the proposed Project.

Where additional stakeholders become apparent during the preparation of the EIS, appropriate consultation would be undertaken and documented within the EIS.

7.4 Public Exhibition of the EIS

The EIS would be put on public exhibition for a minimum of 30 days in accordance with Section 115Z of the EP&A Act. Advertisements would be placed in newspapers to advise of the public exhibition and where the EIS can be viewed as well as details on proposed community consultation and information sessions.

7.5 Consultation during Construction

Consultation with key stakeholders and the community would be addressed in the EIS and continue during construction.

8. SUMMARY OF PROPOSED EIS SCOPE

8.1 Proposed EIS Scope for Key Issues

Table 3 provides a summary of the proposed EIS assessment scope for key environmental issues. This scope would be refined (if necessary) following receipt of the DGRs for the project.

Table 3 Proposed EIS Scope for Key Issues

Issue	Proposed EIS scope
Hydrology and Groundwater	<p><u>Flood assessment</u> The flood assessment would include the following key tasks:</p> <ul style="list-style-type: none"> • Review existing flood study for the area covered by the proposed project; • Review hydraulic modelling of the project area previously undertaken as part of the SSFL EIS to assess <ul style="list-style-type: none"> ○ the baseline flood conditions including depths of flooding, velocities across the site, flood hazard category, rate of inundation and available emergency access routes; ○ any potential impacts on flooding of neighbouring properties and assets due to changes to ground levels; and • Provide recommendations on the likely requirements for further investigations resulting from the above, mitigation measures for identified impacts. <p><u>Groundwater assessment</u> The groundwater assessment would consider the hydrogeological system and potential impact of the proposed project, giving particular consideration to the proposed project's proximity to Cabramatta Creek. The groundwater assessment would include:</p> <ul style="list-style-type: none"> • Final ground levels and drainage system requirements; • Post flood management; and • Recommendations on any mitigation measures for identified impacts. <p><u>Geomorphology assessment</u> A review of the fluvial geomorphology assessment of watercourses traversing the site from the SSFL EIS would be undertaken to identify potential impacts and pressures on channel integrity. This assessment would measure against the baseline characteristics which have clear linkages to other specialist assessments that would be completed as part of the EIS. These may include:</p> <ul style="list-style-type: none"> • Environmentally sensitive or valuable aquatic habitats; • Deterioration in macroinvertebrate/fish habitat and water quality; • Current and future sediment sources; • Geomorphological change over the design lifetime of the proposed project; and • Recommendations on any mitigation measures for identified impacts. <p><u>Water quality assessment</u> The water quality assessment would consider the potential impacts associated with construction and operation of the proposed project. The mitigation measures proposed would address the risk posed by sedimentation, spillage of fuels and chemicals during construction and address issues to be included in the CEMP. Operational water quality, including maintenance and drainage works for the proposed project once constructed, would be addressed in the EIS.</p>
Flora and Fauna	<p><u>Flora and fauna assessment</u> A flora and fauna assessment would be undertaken in accordance with the <i>Threatened Species Assessment Guidelines</i> (DEC 2007) and the <i>Threatened Species Survey and Assessment: Guidelines</i> (DECC 2009).</p>

Issue	Proposed EIS scope
	<p>The assessment would include:</p> <ul style="list-style-type: none"> • Review of literature, mapping and State and Commonwealth database searches to identify threatened species, populations and ecological communities with potential to occur; • Compilation of lists of species recorded on-site; • Detailed flora and fauna surveys to identify and confirm the presence of flora and fauna features of the proposed project. This would include targeted surveys of potentially occurring threatened species, fauna habitat survey and floristic survey of vegetation communities and descriptions of the vegetation communities and fauna habitats occurring on-site; • An assessment of potential direct and indirect impacts during construction and operation including potential loss of native vegetation, loss of fauna habitat and proliferation of weeds; • Significance assessments for all threatened species, populations and ecological communities following the heads of consideration and the <i>Threatened Species Assessment Guidelines</i> (DECC 2009) for listings under the TSC Act, <i>Fisheries Management Act</i> and the <i>EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance</i> (DOE 2013); • Recommendations regarding referral requirements under EPBC Act as required; and • Preparation of assessments of significance for threatened species likely to occur on-site in accordance with Section 5A of the EP&A Act as required.
Noise and Vibration	<p><u>Noise and vibration assessment</u></p> <p>A noise and vibration assessment would be carried out in accordance with the <i>Interim Construction Noise Guideline (ICNG)</i> (DEC, 2009), the <i>Rail Infrastructure Noise Guideline (RING)</i> (OEH, 2013) and <i>Assessing Vibration: a technical guideline</i> (DEC, 2006).</p> <p>The assessment would include:</p> <ul style="list-style-type: none"> • Review of current SSFL monitoring locations and further site visit and desktop review as required to identify key sensitive receivers and noise catchment areas; • A review of the results of noise and vibration monitoring undertaken as part of the SSFL operation and the results compared to original predictions made in the SSFL EIS; • A baseline noise survey undertaken at nearest residential dwellings and other noise sensitive receivers, if required, in coordination with existing baseline from SSFL EIS to confirm the existing baseline noise levels and characterise the noise environment; • Prediction of potential noise impacts at sensitive receivers during construction and operation utilising noise propagation software; • Assessment of construction impacts for worst case noise generating works; • Assessment of the contribution of the Project to increased movements on the rail network; • An updated assessment of potential residual operational impacts of the Cabramatta Loop based on available ARTC capacity modelling. Measured existing rail noise levels would be applied to the noise model to calibrate noise impact predictions; • Assessment of potential vibration impacts with reference to measured ground vibration levels from construction plant and freight train pass by events; and • Recommendation of feasible and reasonable noise management and mitigation measures to reduce and control noise impacts where adopted noise objectives are predicted to be triggered.

Issue	Proposed EIS scope
Non-Indigenous Heritage	<p><u>Non-indigenous heritage assessment</u> A non-indigenous heritage assessment would be carried out in accordance with the Heritage Act 1977.</p> <p>The assessment would include:</p> <ul style="list-style-type: none"> • Review of existing data for records of known heritage sites and issues; • Field investigations of the corridor (with a focus on registered heritage items and potential curtilage impacts) by suitably qualified person(s) (i.e. Archaeologists); • Input to design team on significance of the heritage items and issues associated with impacting on the items; • Assessment of the significance of identified and affected items (including curtilage) and the significance of any impacts; and • Recommendation of management and mitigation measures.
Traffic Management	<p><u>Parking and cycleway assessment</u> The parking and cycleway assessment would include:</p> <ul style="list-style-type: none"> • Survey to determine current demand for car parking within the local area, including commuter car parking; • Survey to determine current usage of shared cycleway/pedestrian path along Broomfield Street, where parking is currently provided ; • Assessment of capacity at nearby stations (such as Canley Vale or Warwick Farm) to provide alternative parking options during construction and operation of the proposed project; • Assessment of impacts on parking and cycleway as a result of the proposed project; and • Identification of measures to minimise impacts on parking and cycleway use. <p><u>Traffic assessment</u> The traffic assessment would include:</p> <ul style="list-style-type: none"> • Haulage routes to be used; • Haulage volumes and timeframe within which haulage would be undertaken; • Assessment of local road conditions and temporary road closures; and • Identification of measures to minimise traffic impacts due to road closures and construction traffic.
Air Quality	<p><u>Air quality assessment</u> The assessment would include:</p> <ul style="list-style-type: none"> • Air quality modelling to predict the potential impacts of the operation of the loop; • Assessment of air quality impacts due to the proposed project, taking into account reduction of container truck emissions as a result of the proposed project; and • Identification of mitigation measures to ensure any potential impacts would be minimised.
Visual Amenity	<p><u>Visual amenity assessment</u> The assessment would include:</p> <ul style="list-style-type: none"> • An assessment of potential visual impacts due to: <ul style="list-style-type: none"> ○ vegetation removal along the alignment; ○ bridge construction over Cabramatta Creek and Sussex Street; and ○ relocation of the noise wall along Broomfield Road towards nearby residential properties; • An assessment of potential visual impacts on heritage items such as the Railway Viaduct and Warwick Farm Station; • Identification of mitigation measures to reduce potential adverse visual impacts.

Issue	Proposed EIS scope
Social Impact	<p><u>Social impacts assessment</u> The assessment would include:</p> <ul style="list-style-type: none"> • Identification of the potential social benefits and impacts of the proposed project, including measures to enhance the benefits, where possible; • Assessment of cumulative social impacts as a result of the recent completion of the SSFL project in the proposed project area; and • Identification of any management or mitigation measures necessary to ensure any potential social impacts are minimised.

8.2 Proposed EIS Scope for Other Environmental Issues

Table 4 provides a summary of the proposed EIS assessment scope for other environmental issues. This scope would be refined (if necessary) following receipt of the Secretary of the Department of Planning and Environment's environmental assessment requirements for the project.

Table 4 Proposed EIS Scope for Other Issues

Issue	Proposed EIS scope
Indigenous Heritage	<p>The EIS would identify mitigation measures including the preparation of a Unexpected Finds Protocol as part of the CEMP. As Aboriginal people are the primary determiners of cultural heritage, the cultural significance of the project area would also be sought from any Aboriginal stakeholders registered for the project during consultation.</p>
Topography, Geology and Soils	<p>An assessment of the site soils would be undertaken for the proposed project. This study would include the following:</p> <ul style="list-style-type: none"> • Review of borehole logs from previous investigations conducted as part of the SSFL EIS including descriptions of physical and chemical characteristics of soils including salinity, erodibility, and ASS; • Likely impacts on site soils from the proposed project; and • Mitigation measures to minimise potential for erosion, soil instability and ASS impacts. <p>The EIS would document management measures for minimising soil erosion, sedimentation and ASS impacts.</p>
Planning, Land Use and Property	<p>The EIS would identify property acquisition requirements and temporary lease areas and recommend mitigation measures to minimise any potential impacts; including minimising vegetation removal, sedimentation and erosion controls and rehabilitation of the site.</p>
Contaminated Land and Hazardous Materials	<p>The EIS would review the previous contaminated materials assessment undertaken as part of the SSFL EIS and identify any additional assessment required to determine if the potential for contamination exists based on activities undertaken at the site after the assessment. The EIS would recommend mitigation measures to minimise any potential impacts including removal of soils from areas with potential for contamination.</p>

Issue	Proposed EIS scope
Waste Management and Resource Recovery	The EIS would identify mitigation measures including the preparation of a Waste Management Plan as part of the CEMP, with a focus on waste reduction and avoidance and recycling and reuse of construction packaging and office wastes.
Energy Efficiency and Greenhouse Gases	The EIS would identify opportunities to reduce GHG emissions during both construction and operational phases.
Cumulative Impacts	Any future development along the corridor, and in particular proposals for sensitive land uses, would need to be considered as part of any assessment of the proposed works.

9. CONCLUSION

ARTC proposes to construction a new bi-directional passing loop on the SSFL between Cabramatta and Warwick Farm. The project would deliver increased capacity to meet predicted demand to 2030.

The project would be subject to assessment and approval by the Minister for Planning under Part 5.1 of the EP&A Act.

This document supports an application to the NSW Minister for Planning seeking the Secretary's environmental assessment requirements for the EIS. It has been prepared based on the indicative locations and design included within the plans in this report, for the purposes of informing the preparation of the DGRs. The project components, location and design may be subject to further changes as part of the ongoing design development and community consultation and clarifications may be made during the environmental impact assessment process.

A preliminary environmental risk analysis for the project has identified the following key environmental issues:

- Hydrology and groundwater;
- Flora and fauna;
- Noise and vibration;
- Non-indigenous heritage;
- Traffic management;
- Air quality;
- Visual amenity; and
- Social impact.

A preliminary environmental assessment of the project's potential impact has confirmed that the above issues have the potential to result in a significant impact (without the adoption of adequate environmental mitigation measures). Detailed assessment of these issues, and other potential environmental issues, would be undertaken as part of an EIS.

Following the receipt of the DGRs, ARTC would prepare and publicly exhibit an EIS, in accordance with the requirements of Part 5.1 of the EP&A Act. The EIS would include:

- A description of the project, including its components and construction activities (including ancillary components and activities);
- A statement of the objectives of the project;
- A summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy;
- An analysis of any feasible alternatives to the project;
- A description of feasible options within the project;
- A description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative/option;
- A concise description of the general biophysical and socio-economic environment that is likely to be impacted by the project (including offsite impacts);
- A demonstration of how the project design has been developed to avoid or minimise likely adverse impacts;
- The identification and assessment of key issues;
- A statement of the outcome(s) the proponent would achieve for each key issue;
- Consideration of the interactions between measures proposed to avoid or minimise impact(s), between impacts themselves and between measures and impacts;
-

- An assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed; and
- Statutory context of the project as a whole.

References

ARTC, PBRL Stage 3 – Capacity Project, Concept Assessment Report (1 April 2015)

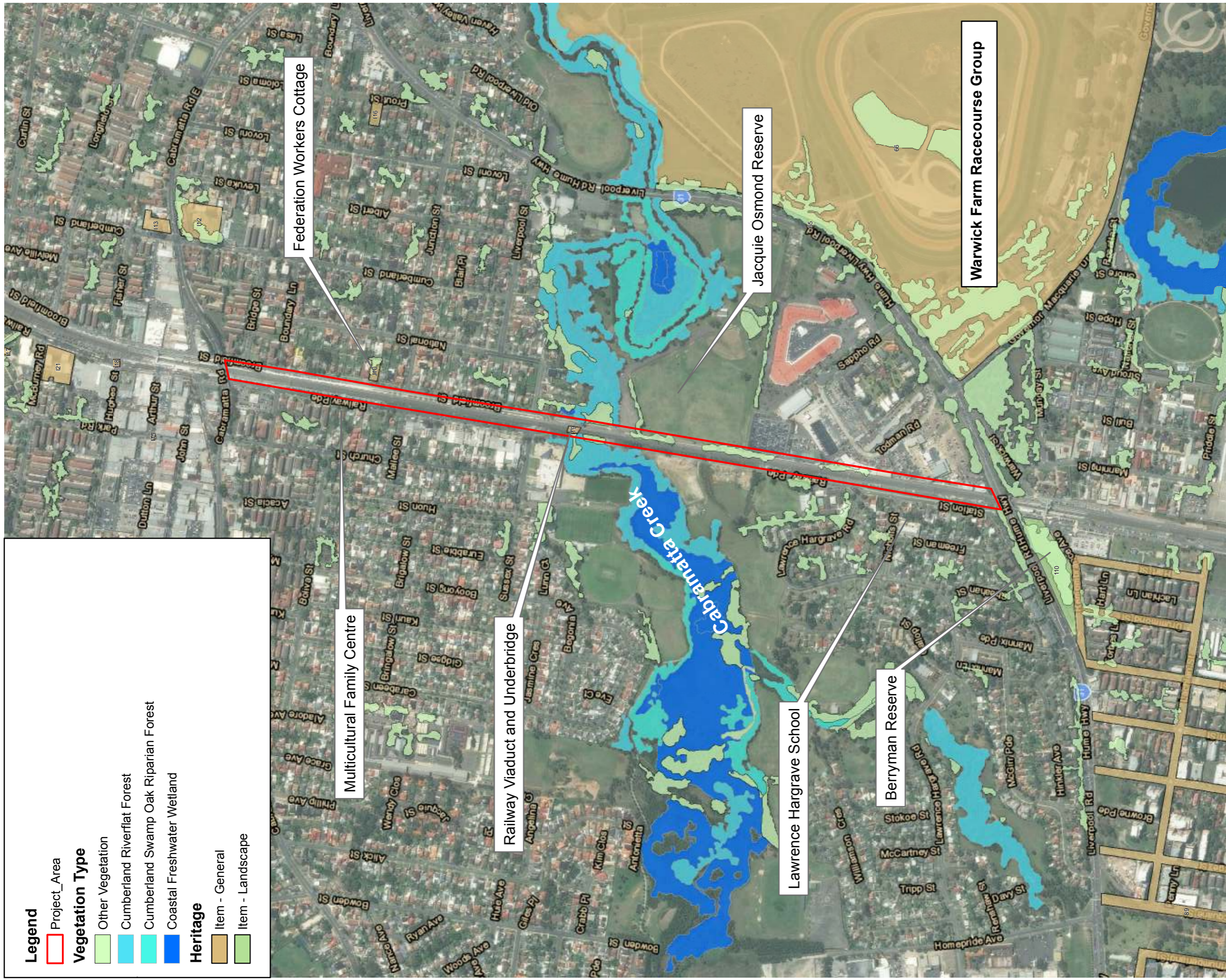
ARTC, PBRL Stage 3 – Capacity Project, Scoping Report (4 August 2015)

ARTC, Southern Sydney Freight Line - Environmental Assessment (27 April 2006)

DPE, Critical State Significant Infrastructure Standard Secretary's Environmental Assessment Requirements (SEARs) (December 2015)

TfNSW, Section 170 Heritage and Conservation Register (13 August 2015)

ATTACHMENT 1 – ENVIRONMENTAL CONSTRAINTS MAP



Legend

Project_Area

Vegetation Type

- Other Vegetation
- Cumberland Riverflat Forest
- Cumberland Swamp Oak Riparian Forest
- Coastal Freshwater Wetland

Heritage

- Item - General
- Item - Landscape

Federation Workers Cottage

Multicultural Family Centre

Railway Viaduct and Underbridge

Jacquie Osmond Reserve

Lawrence Hargrave School

Berryman Reserve

Warwick Farm Racecourse Group

SOURCE:

The Native Vegetation of the Sydney Metropolitan Area (OEH, 2013) VIS_ID 3817
 Standard Instrument Local Environmental Plan (LEP) - Heritage (NSW Department of Planning and Infrastructure 2012)
 ArcGIS Map Service (World Transportation; World Imagery)



1:10,000

