SIMTA Intermodal Terminal Project – Stage 1

Peer Review of the Environmental Impact Statement

Project Number: 8201511201-01/Report 001 Ver 2

Prepared for
Liverpool City Council

July 2015

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Document Information

Prepared for	Liverpool City Council
Project Name	EIS – Peer Review
File Reference	Report 001 Ver 2 SIMTA Stg 1 Exhibition Review Master.docx
Job Reference	8201511201-01/Report 001 Ver 2
Date	3 July 2015
Version Number	Version 2
Effective Date	July 2015
Date Approved:	July 2015

Document History

Version	Effective Date	Description of Revision	Prepared by:	Reviewed by:
1	25/06/2015	Draft	Daniel Thompson	David Laing
2	03/07/2015	Final	Daniel Thompson	David Laing

Executive Summary

The Sydney Intermodal Terminal Alliance (SIMTA) plan to construct and operate of an intermodal freight terminal (IMT) and associated infrastructure at Moorebank, NSW. SIMTA obtained Concept Approval (MP 10_0193) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 29 September, 2014. The Concept Approval does not permit construction and operation subject to Schedule 2, Condition 1.5 of the Approval, with further approvals required under Division 4.1 of the EP&A Act. Consequently, an Environmental Impact Statement (EIS) for the proposed IMT, which addresses the assessment requirements of the EP&A Act has been prepared and lodged with NSW Department Planning and Environment (P&E) for assessment and determination.

The site is located within the Liverpool Local Government Area and was previously Commonwealth land operating as the Defence National Storage and Distribution Centre (DNSDC). The site is now owned by SIMTA with surrounding land primarily Commonwealth owned. The proposed rail spur passes through a number of different public and privately owned parcels. The site is adjacent to Moorebank Avenue to the west with the Georges River beyond, with the residential suburb of Wattle Grove to the east.

The EIS was placed on public exhibition from 28 May to 26 June 2015 (note an extension of the date for submissions was granted to 3 July 2015). Liverpool City Council (Council) and its community have raised significant concerns about the scale of impacts associated with the proposal and have raised their strongest objection to the development scheme. Cardno (NSW/ACT) Pty Ltd (Cardno) was engaged to prepare a submission on behalf of and in conjunction with Council to the public exhibition period.

The review found that environmental impacts are extensive and primarily concern Moorebank, surrounding suburbs and associated transit corridors.

Key issues associated with the project include:

- **Traffic congestion and associated impacts on amenity due to additional vehicles on the road network. These impacts are anticipated to be greater than predicated in the EIS due to the assumptions used**
- **Noise and Air Quality impacts on human health during construction and operations, which are likely to be greater than identified in the EIS due to the traffic assumptions used**
- **Impacts from the rail alignment on the function of the Southern Sydney Freight Line, biodiversity, visual amenity, heritage and existing development**
- **Hazard and risk both within the site and beyond the site boundary associated with the transport and distribution network.**

These impacts are yet to be adequately assessed and managed by the proponent, with the potential to mitigate these impacts to an acceptable level questioned. However, prior to this additional assessment being undertaken, it is essential that a precinct-wide master planning process be undertaken. The master planning would be informed by the latest agreement between SIMTA and MIC as to the extent of cooperation and integration of the two proposed IMT's, while also considering Council's strategic intent for the site and surrounds. Inputs would also be required from other stakeholders including the P&E, Transport for NSW and Roads and Maritime Services.

The master planning and subsequent assessment would help to identify whether IMT facilities at Moorebank are a viable land use and achieve the highest and best use of both the land and potentially Federal Government funds. It is recommended that the master planning is informed by a comprehensive review of alternatives as required by both the Secretaries Environmental Assessment Requirements (SEARs) and the *Environmental Planning and Assessment Regulation 2000*.

Master planning and subsequent environmental assessment would help to resolve a number of the gaps in the EIS to provide additional certainty for the community, while helping to address the currently unmitigated residual impacts. Dependent upon the findings of the master planning process it is recommended that a precinct wide planning proposal be prepared to clearly define the future land uses and resolve the current permissibility issues presented by the current SIMTA scheme.

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1 Introduction

This section introduces the submission and provides a background to the proposal.

The Sydney Intermodal Terminal Alliance (SIMTA), comprising a consortium of Qube Holdings and Aurizon, plan to construct and operate of an intermodal freight terminal (IMT) and associated infrastructure at Moorebank, NSW. An Environmental Impact Statement (EIS) for the proposed IMT, which addresses the assessment requirements of Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) has been prepared and lodged with NSW Planning and Environment (P&E) for assessment and determination.

The site located within the Liverpool Local Government Area was previously Commonwealth land operating as the Defence National Storage and Distribution Centre (DNSDC). The site is now owned by SIMTA with surrounding land primarily Commonwealth owned. The proposed rail spur passes through a number of different public and privately owned parcels. The site is adjacent to Moorebank Avenue to the west with the Georges River beyond, with the residential suburb of Wattle Grove to the east.

The EIS was placed on public exhibition from 28 May to 26 June 2015. Liverpool City Council (Council) and its community have raised significant concerns about the scale of impacts associated with the proposal and have raised their strongest objection to the development scheme. Cardno (NSW/ACT) Pty Ltd (Cardno) was engaged to prepare a submission on behalf of and in conjunction with Council to the public exhibition period.

1.1 Background

SIMTA obtained Concept Approval (MP 10_0193) as a transitional project under Part 3A of the EP&A Act. The Concept Approval does not permit construction and operation subject to Schedule 2, Condition 1.5 of the Approval, with further approvals being required under Division 4.1 of the EP&A Act. The project is identified as State Significant Development (SSD) subject to *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional SEPP) with an EIS informed by Secretaries Environmental Assessment Requirements (SEARs).

The SIMTA IMT is proposed to accommodate a container freight volume of 250,000 Twenty-foot Equivalent Units (TEUs) per annum. The 250,000 TEU capacity is the maximum permitted freight road volume subject to the Concept Approval. The IMT comprises a rail spur linking the site to the Southern Sydney Freight Line (SSFL), with four sidings on site serviced by trucks via Moorebank Avenue. The SIMTA project is proposed to service Port Botany, with freight received by rail and then distributed via truck (refer to **Figure 1-1** for the Greater Sydney Regional context).

The SIMTA site borders are defined by:

- Vegetated Commonwealth land and the residential suburb of Wattle Grove to the east
- The heavily vegetated Holsworthy Military Reserve, with the East Hills Line Railway beyond to the south
- DNSDC to the north and north east with residential and industrial areas of Moorebank beyond.

Moorebank Avenue is directly to the west, with the School of Military Engineering (SME) beyond. This site is currently being considered for a second IMT by the Commonwealth Moorebank Intermodal Company (MIC). The MIC proposal for a 1.05 million capacity TEU per annum IMT is currently being assessed by (P&E) with a response to submissions report currently on public exhibition. **Figure 1-1** shows the two sites in the context of other IMT's within the Greater Sydney Region, with **Figure 1-2** illustrating the proximity of the two sites. The EIS identifies that discussions associated with integrating the two IMT precincts are ongoing. However, an agreement has not yet been reached, as evident in the SIMTA scheme providing a separate standalone proposal serviced by both road and rail with no connection to the MIC site.

Should agreement be reached between SIMTA and MIC, the physical proximity and a potential common operator of both Moorebank IMT sites suggests that there may be a shared rail link to the SSFL and associated infrastructure. This differs to the current MIC and SIMTA proposals, which identify separate connections to the rail network.

It is acknowledged that the scope of this review is focused on SIMTA's proposal. However, given the proximity of the two IMT's, there is the potential for large scale and wide ranging cumulative environmental impacts. Consequently, such impacts and opportunities for further integration of the proposals are examined within this submission. The consideration of cumulative impacts would ensure the most efficient and coordinated use of the land, while gaining a clear understanding of the potential impacts of both projects on the Liverpool community and Council assets.

1.2 Review Objectives

This review has been undertaken to address the following questions:

- Does the EIS contain adequate investigations and details of the proposed development to inform a valid assessment of the proposal?
- Does the proposal comply with the statutory planning requirements; the Concept Approval (MP10_0193) Schedule 3 Future Assessment Requirements and Appendix 1 Statement of Commitments; and the NSW P&E Secretaries Environmental Assessment Requirements (SEARs)?
- Do the technical investigations comply with best practice guidelines? Are they based on appropriate assumptions and have they drawn valid conclusions?
- What are the impacts on Liverpool's community and Council's assets? Are the proposed mitigation measures sufficient to address the impacts?
- What are the cumulative impacts of two IMTs whether operating as one integrated entity or independently? Are they justified and do they represent the most efficient and orderly use of the land in accordance with the objectives of the Environmental Planning and Assessment Act 1979.
- What are appropriate commitments and conditions of determination to mitigate and manage impacts, should the proposal receive approval?

1.3 Methodology

The tasks identified to meet the project objectives in **Section 1.2** are:

Re-establish the project team comprising all relevant specialists who undertook the peer review of the SIMTA Concept EIS.

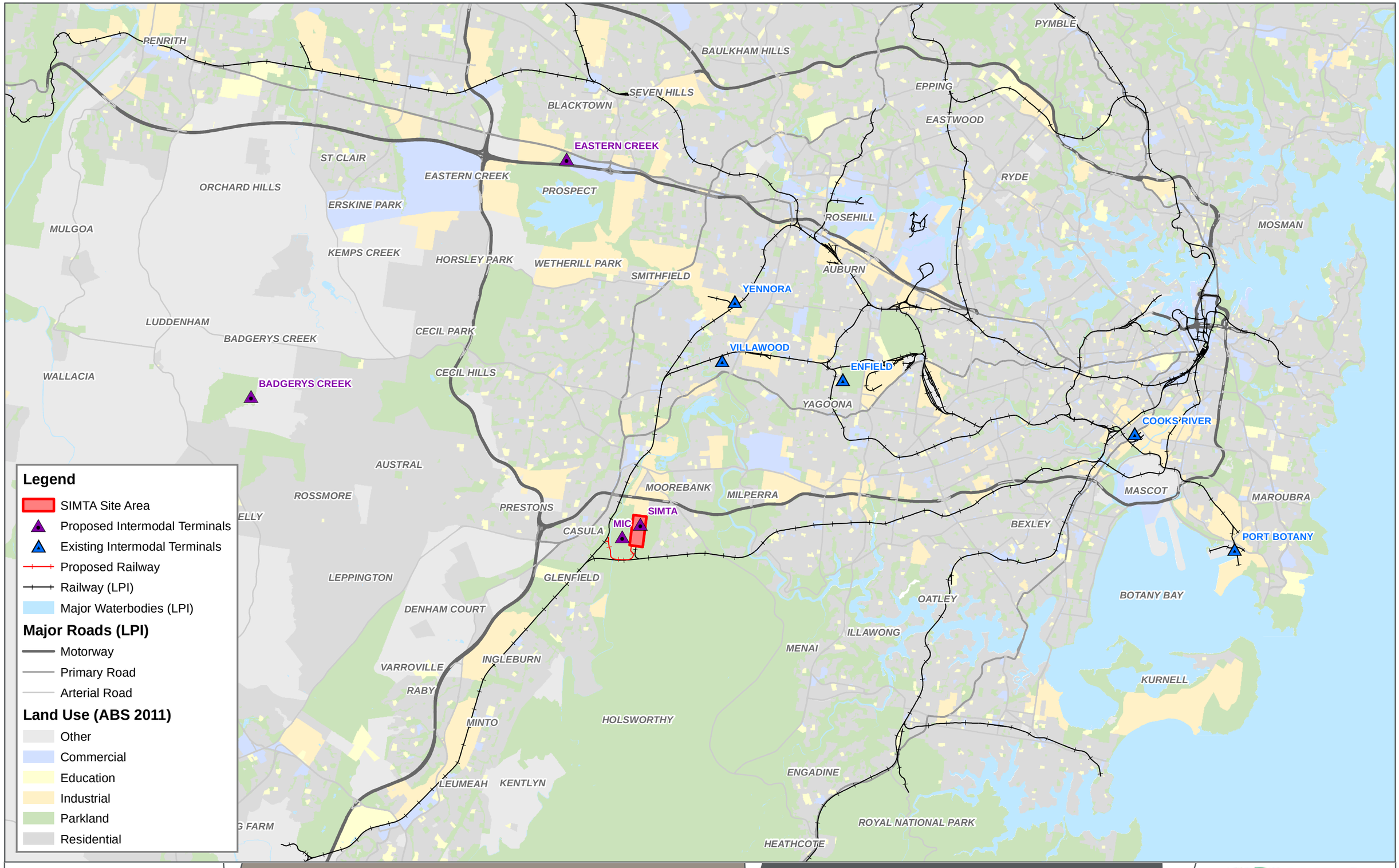
Review the NSW P&E SEARs and the Concept Approval (MP10_0193) Schedule 3 Future Assessment Requirements and Appendix 1 Statement of Commitments

Review the EIS in the context of the government guidelines, relevant legislation and best practice

Identify the implications of the proposal on the surrounds, with particular attention given to impacts on the community and Council assets and in consideration of the proposed MIC development on the adjacent site to the west

Identify opportunities and costs associated with the proposal and subsequently those mitigation and management measures required to address potential impacts

Identify commitments and prepare draft conditions of determination to assist the determining authority should the proposal be considered for approval.



Location Plan : Greater Sydney Context

SIMTA STAGE 1 PROPOSAL PEER REVIEW

FIGURE 1-1

1:160,000 Scale at A3

Kilometres

0 2 4 6 8

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Date: 2015-06-24
Coordinate System: GDA 1994 MGA Zone 56
Project: 82015112
Map: 82015112-GS-002-LocationPlan.mxd 01

FIGURE 1-2

1:15,000 Scale at A3

Metres

0 150 300 450 600

Location Plan - SIMTA and MIC Sites

SIMTA STAGE 1 PROPOSAL PEER REVIEW

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Date: 2015-06-25
Coordinate System: GDA 1994 MGA Zone 56
Project:82015112
Map: 82015112-GS-003-LocationPlan2.mxd 01
Aerial imagery supplied by nearmap (May, 2015)

1.4 Project Team

Cardno has established a project team to undertake a comprehensive review of the EIS and supporting documentation placed on public exhibition by NSW P&E. The project team includes the following experts:

- Strategic and Statutory Planning
- Traffic and Transport
- Rail Infrastructure
- Stormwater and Flooding
- Urban Design, Landscaping and Visual Amenity
- Ecology
- Heritage
- Air
- Noise
- Health
- Greenhouse Gas
- Waste
- Environmental Risks
- Contaminated Land
- Economics
- Social Planning
- Infrastructure
- Civil Engineering
- Geotechnical

1.5 Structure of the Report

This submission has been arranged as follows:

- **Chapter 2** – identifies the key issues associated with the proposal that are applicable across a range of environmental aspects, providing a basis for the subsequent aspect specific reviews undertaken in Chapters 3, 4 and 5.
- **Chapter 3** – assesses the proposal against the statutory planning framework, identifying any changes and implications.
- **Chapter 4** – reviews the technical assessments and recommendations contained within the EIS in accordance with legal and best practice guidelines. The potential impact of the scheme, whether they be positive or negative or no change, with information gaps, mitigation and management measures identified. Impact assessment considers the cumulative impacts resulting from the construction and operation of two IMTs at Moorebank.
- **Chapter 5** – provides a world's best practice review of the overall project.
- **Chapter 6** – summarises and concludes the review to establish the potential outcome for Council and the community, as well as providing recommendations for the next step in the assessment process.

1.6 Limitations

This assessment is based on secondary information (i.e. already readily available) gathered over a limited period, and is therefore subject to limitations. This information has not been individually verified and is therefore subject to the limitations of its original purpose.

This report does not constitute an alternative environmental assessment of the proposal or propose a determination of the application. Rather, it is a peer review to determine if the application has addressed all statutory and legal requirements, and appropriately considered the merits and justifications for the project. This report is intended to guide further discussion with State agencies, Councils, relevant stakeholders, the community and the applicant.

2 Reoccurring Themes

This section identifies the key reoccurring themes associated with the proposal that traverse a number of environmental aspects.

A range of issues were identified during the review, with the key issues being:

> Traffic and Transport

> Noise

> Air Quality

> Hazard and Risk

> Human Health.

The review of these issues, alongside those lesser, but still potentially significant issues has been detailed in **Section 4** of this document. During the assessment of these issues a number of reoccurring themes were identified as discussed in Sections 2.1 – 2.7. These reoccurring themes either created significant impacts individually, or reoccurred throughout the review resulting in potentially cumulative impacts. These reoccurring themes have been identified below and require full consideration and review due to their far reaching impacts and potential to affect the legitimacy of the proposed project. **Figure 2-1** below provides a visual summary of the key impacts.

2.1 Cumulative Effects

The EIS considers a cumulative scenario with SIMTA operating at 250,000 TEU's per annum and MIC operating as per the early works package, which comprises a zero TEU throughput. The Glenfield Recycling Facility is also considered, although quantitative assessment is not provided. A true cumulative assessment would consider the MIC site's operational impacts in conjunction with SIMTA operations, alongside development in the local and regional area.

The EIS notes that the total TEU catchment demand is 1 million TEUs, with this number providing a cap on cumulative throughput. Only limited justification for this demand is provided in the EIS. Furthermore, no assessment is provided for this operating scenario. Furthermore, this assumption of cumulative throughput is deficient. SIMTA and MIC have a potential combined throughput of up to 2.05 million TEUs based on a total staged SIMTA throughput of up to 500,000 TEU, with MIC proposing a throughput of 1.55 million TEUs per annum. Commercial reality would dictate that the IMTs maximise throughput to reach design capacity, rather than stand idle once the ultimate catchment demand identified by the EIS of 1 million TEUs is reached.

There is anticipated to be a doubling of growth in container freight between 2030 and 2040 as identified by the NSW Freight and Ports Strategy, (NSW Government 2013). Given the constraints on Port Botany, this increase can only be met by the opening of new container port capacity at other locations, with Port Kembla being a likely outlet given constraints at the Port of Newcastle. Container freight through Port Kembla is likely to require more IMT capacity in or just outside South West Sydney to transfer cargo from rail to road, with a potential location for this additional capacity being Moorebank. Consequently, the assertion that only a limited throughput of up to 1 million TEUs is anticipated to meet the demand across the two IMT's at Moorebank is not considered sound. Therefore, it is essential that assessments including noise, visual, traffic, air quality, GHG, socio economic and health consider the impacts of both IMTs operating simultaneously, rather than the limited 250,000 TEUs at SIMTA and early works package at MIC. The simultaneous operation at full capacity is likely to have far wider reaching environmental and social impacts than the worst case throughput identified in the EIS.

The lack of coordination to date between the SIMTA and MIC proposals provides a further limitation in the cumulative assessment. The MIC Response to Submissions Report (Parsons Brinkerhoff, 2015) identifies that agreement has been reached between MIC and SIMTA for an integrated precinct wide IMT, whereas the SIMTA EIS identifies the projects operating as two separate entities. The inconsistencies and lack of

certainty does not provide confidence in the level of assessment both for the SIMTA site as a single entity, as well as cumulatively. Consequently, a consistent master planned scheme should be developed and assessed to establish whether an IMT of this scale at Moorebank is reasonable and if the significant environmental impacts can be mitigated preferably on land under the proponents control. Based on the information contained within the EIS, it does not appear that this is currently the case.

2.2 Consistency and Continuity

A common theme throughout the EIS and supporting appendices is the lack of consistency and continuity between each specialist discipline. This lack of cohesiveness throughout the EIS raises questions regarding the level of consideration that has informed the design and whether the SIMTA facility is likely to be constructed.

Common consistency and continuity issues include:

- Assumptions – a number of assessments relied on assumptions from the previous Concept Plan, with no empirical evidence included to provide the level of detail necessary for a project application.
- Variable level of rigour – a number of the assessments performed as part of the EIS have provided varying levels of rigour, with additional information and modelling required to test worst-case scenarios. Traffic, hydrology and biodiversity assessments, in particular, have provided limited assessment of impacts, as has the QS report, which includes a cost breakdown of a $156 million development over two pages.
- Holistic assessment approach – many of the environmental assessments and EIS chapters read as standalone reports, with no holistic understanding of the combined impact of the proposal. Similarly, the wider EIS document does not provide cross-references, where relevant to other studies which would ensure conflicts between mitigation measures and strategies are resolved.
- Cumulative impacts – a major aspect of an EIS of this size is to consider the cumulative impacts of the Stage 1 SIMTA proposal, the MIC proposal and also the cumulative environmental assessments. Cumulative impacts were not consistently assessed across the majority of disciplines.

Due to these consistency and continuity issues, it is questionable whether SIMTA has fully considered this proposal in depth, and whether the proposal will, be constructed.

2.3 Assumptions

Many of the assumptions used to inform the assessments are not identified in the EIS and appended documents. Therefore, the assessment findings cannot be verified, casting doubt on the reliability of the assessment. In some cases the assumptions appear to be deficient, resulting in assessment limitations.

The most significant limitations are within the traffic, transport and accessibility assessment, specifically:

- The traffic impact assessment (TIA) does not provide detailed simulation inputs and outputs associated with modelling the intersections. In a typical TIA, this information would be provided in a detailed appendix. For instance, signalised intersections performance is dependent on the phasing and timing assumptions. The detailed inputs and outputs would allow these simulations to be confirmed and tested independently so that predictions of future performance can be verified.
- The assumption that average intersection performance metrics are an adequate description of intersection performance cannot be verified. Detailed outputs including delays, queue lengths and degree of saturation are typically provided to assess whether the intersections are performing appropriately. Intersection timing and queue lengths must be considered so that they do not generate interactions between intersections. At present, SIMTA provides only average delay and Level of Service (LoS) ratings for the intersections. This could disguise acute problems related to particular traffic movements on the local network approach lanes for example.

- The assumption that the public transport mode share requirement of 20% can be reached without provision of enhanced public transport or private shuttlebus services. This assumption is made in the context of the existing mode share being estimated at 2%.
- The assumption that 70% of vehicles visiting the site will be semi-trailers and the remainder will be B-doubles has not been justified with reference to the composition of the Sydney truck fleet or any other empirical measurement. A higher proportion of smaller vehicles will generate more traffic and potentially greater noise, congestion and air pollution than suggested by the EIS.

These four key assumptions affect the findings throughout the remainder of the EIS, as traffic is key to the noise, air pollution, human health, visual amenity and infrastructure considerations. The project's approach to statutory planning appears to be similarly predicated on an inaccurate assumption regarding the proposed rail link.

- The proposed rail link is assumed to be permissible within the definition of a "*rail freight siding*" even though it's actual role, complexity and potential for connection to the proposed MIC facility suggests that it is better defined as a "*rail infrastructure facility*". This is not a permissible use on most parcels of land traversed by the rail alignment. Therefore the proposed rail link would be almost entirely prohibited.

The geotechnical and contamination assessments rely on assumptions that the project will be fill neutral, with any contamination encountered being manageable on site.

- The project has significant engineering fill requirements for the rail link that may not be available from fill sourced from the site. Should any fill importation or disposal be required, the traffic generation during construction could be significantly higher, with no consideration or assessment provided.
- The RailCorp land is assumed to have manageable contamination. This is in spite of anecdotal reports suggesting that railway sleepers have been burned on the site and that illegal waste dumping may have occurred in the past. The RailCorp land was not sampled during the contamination assessment, with no evidence to support this assumption.
- Contamination of groundwater on the site is assumed to be manageable despite the absence of any strategies and methods for doing so.
- Heavy metal contamination on the SIMTA site itself is not considered a problem because the site will be covered in hardstand at completion. The potential ecological risks of lead contamination were not assessed as a result.

The above comments provide a snap shot of the limitations associated with the assumptions, with further shortcomings discussed throughout **Section 4**. The assumptions are key to project viability, should they prove to be inaccurate then the environmental, social and economic impacts of the proposal could be much greater than anticipated by the EIS. A number of the assumptions are not disclosed in the EIS, therefore it is not possible to assess their validity. Consequently, the EIS does not provide a comprehensive or accurate assessment of the proposal and in its current state the Project should not be approved.

FIGURE 2-1

1:15,000 Scale at A3

Metres

0 100 200 300 400 500

SIMTA Moorebank Impacts Plan

SIMTA STAGE 1 PROPOSAL

PEER REVIEW

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Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2015-06-25
Coordinate System: GDA 1994 MGA Zone 56
Project:82015112_01 Map: 82015112-GS-005-IssuesInfrastructure.mxd 01
Aerial Imagery Supplied by NearMap (June 2014)

2.4 Rail Corridor

The assessment of the proposed rail link has resulted in a number of issues being identified. These issues cover a number of disciplines with additional assessment, additional information and potential rail alignment re-design necessary prior to any determination of the application. These issues include:

- Rail geometry – a number of non-compliances with ARTC standards have been identified throughout Cardno's assessment. Specifically, the design of the rail loop appears to be mainly focused on the northern entry and 650m long trains. This does not correlate with the ARTC's request for the rail link to be able to accommodate 1800m long trains. In particular, the clear distance from the southern SSFL loop to the first cross over is insufficient to hold a 650m long train and the clear distance from the northern SSFL loop to the second cross over is insufficient to hold a 1800m train. This would result in standing trains located within the loop. Solutions to address this include moving the crossovers or the introduction of a parallel line. This is a key aspect that has not be considered and assessed.
- Rail operation – the application has relied on assumptions from the Concept Plan (2013) regarding the IMT trip generation. It was assumed that there will be five trips to Port Botany and five trips from Port Botany spread evenly throughout the day. However, in reality this spread will be contingent on a number of external factors which have not been considered. Additional empirical evidence regarding the capacity of the SSFL is required to confirm the operational environment of the IMT, with negotiation and support from ARTC.
- Land acquisition – a number of land parcels will require acquisition to facilitate the construction of the rail link. There has been no evidence presented in the application to provide certainty around the acquisition policy of SIMTA and the willingness of the landholder to allow SIMTA to construct and operate the rail link.
- Alignment through the Glenfield Waste Facility -- the rail alignment results in the line running through bushland areas, over the Georges River and finally through the Glenfield Waste Facility. The alignment through the Waste Facility will result in the rail crosses existing monitoring wells, stormwater and leachate basins, as well as existing landfill cells. The EIS has provided no demonstrated evidence of consultation with the EPA regarding assessment requirements and agreed upon mitigation measures. Additionally, a number of impacts regarding settlement issues on this material, contamination, and impacts to the Georges River and its riparian corridor have been identified. Further, the alignment along the western bank of the Georges River is within the specified riparian setback zone which requires assessment of soil and water management, soil stabilisation and revegetation works post construction of the rail link.
- Construction impacts – inadequate information has been provided regarding the construction of the rail link and the volume of imported fill needed for the rail embankment. Construction of the rail link is likely to disturb an area greater than proposed cleared corridor, which will require additional information regarding re-vegetation, soil and water management and soil stabilisation to the provided. Furthermore, the Vegetation Management Plan (VMP) requires a limited level of information that would not result in protection of riparian vegetation and water quality of the Georges River during construction. The bulk earthworks strategy does not consider the required volume of imported fill needed for the rail embankment. The cost of importing this large amount of fill will be substantial which needs to be confirmed prior to the finalisation of the bulk earthworks strategy.
- Visual impacts – limited assessment of the visual impact of the rail link along the western bank of the Georges River has been provided. The provision of the rail link along this alignment will fundamentally alter the vista from the Glenfield Farm heritage item, as well as the visual character of the Georges River for recreational users, with recreational use predicted to increase due to the planned upgrade of the Georges River Casula Parklands Precinct.

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SIMTA Rail Link Key Impacts

SIMTA STAGE 1 PROPOSAL PEER REVIEW

Impacts on Georges River foreshore areas

Limited local and regional cumulative assessment

Visual and noise impacts on Glenfield Farm

Increased flood affectation on Moorebank Avenue

Inadequate presentation of flood modelling. Inadequate bank stabilisation measures

Rail Link cannot support 1800m long trains without blocking SSFL

Glenfield Waste Facility risks and impacts not adequately assessed

No modelling of PMF flood and rail link culvert performance

Reduced habitat connectivity

Indigenous archaeology not assessed

Biodiversity and riparian impacts not mitigated adequately

Visual and navigational impacts to users of the Georges River

No assessment of RailCorp land contamination

Future proofing issues from Moorebank Avenue underpass.

Construction earthworks sensitive to availability of suitable fill for rail engineering purposes

GEORGES RIVER

ANZAC CREEK

GLENFIELD CREEK

Airport and East Hills Line

Legend

- SIMTA Stage 1
- SIMTA Concept Area
- MIT Site Area
- Proposed Rail Link
- Railway (LPI)
- Major Watercourses (LPI)

FIGURE 2-2

1:7,500 Scale at A3

Metres
0 50 100 150 200

N

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Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2015-06-25
Coordinate System: GDA 1994 MGA Zone 56
Project:82015112_01 Map: 82015112-GS-006-IssuesRailLink.mxd 01
Aerial imagery supplied by nearmap (June 2014)

2.5 Economic Viability

The EIS does not demonstrate that the IMT provides the highest and best use of the land. With the capital investment value (CIV) of Stage 1 of the Project totalling $156,750,000, it has not been demonstrated that this is the most prudent form of investment in relation to direct and indirect employment opportunities. The EIS has noted that Stage 1 of the Project will create 300 jobs during construction and 40 jobs during operation. It is suggested that this level of investment could result in a number of additional industrial, commercial and mixed use developments that would have far greater employment benefits and lower impacts than the SIMTA development.

In addition, the Quantity Surveyor's (QS) Report does not provide sufficient detail regarding the costs of the development. Cost breakdowns for the IMT and the rail link are both limited to one page, with numerous oversights in costings. Key gaps include:

- The costs of the upgrades to Moorebank Avenue, including the provision of traffic signals at the new entrance to the facility and associated civil works.
- The costs of importing fill for the rail line embankments have not been identified. The geotechnical appraisal identified that a significant amount of imported fill may be required for the rail embankments. This may result in excessive costs to the total project spend.
- The contingency costs associated with contaminated fill on site needs to be critically appraised. The removal of contaminated material on site due to its unsuitable nature and/or contamination will result in significant disposal costs.
- While not specifically part of the QS Report, information regarding land acquisition has not been provided. The acquisition of land for the rail link may prove problematic and expensive, with appropriate detail required to determine the feasibility of the project.

It is suggested that the CIV of the project may be too lean, with a more robust and detailed assessment required. This is vitally important to rectify as it raises a number of questions regarding the feasibility of the development and will have implications for local infrastructure contributions.

2.6 Local Infrastructure Contributions

A major shortcoming of the Stage 1 SIMTA Project Application is the lack of information regarding local infrastructure contributions. The EIS was required to provide an assessment of infrastructure impacts and consideration of any relevant Council Contributions Plan. The infrastructure assessment did not address impacts to local infrastructure, including roads and drainage infrastructure and community and recreation facilities.

Cardno has demonstrated that the *Liverpool Contributions Plan 2009* does not provide an appropriate monetary levy for the proposed development. Consequently, it is recommended that prior to any determination, SIMTA should enter into relevant discussions with Liverpool City Council regarding a works-in-kind or monetary contribution towards local infrastructure works or upgrades. This should be provided within a draft VPA or letter of intent that stipulates the public benefit offering the development would provide off site. This could include a commitment to local road maintenance, upgrades to local community and recreation facilities, or the payment of a lump sum monetary contribution.

Upgrades to Moorebank Avenue are proposed as part of the Stage 1 proposal, but costs regarding these upgrades have not been provided within the QS Report. As part of the negotiations with Liverpool City Council, an appropriate development contribution amount should be agreed to, which would allow the costs of the Moorebank Avenue upgrade to be offset against this rate.

As it stands the proponent is not committing to any additional works or payments towards local infrastructure. Specifically, no commitment to the repairing of road pavements (particularly Moorebank Avenue) have been identified, which will become a maintenance issue for Liverpool City Council and will impact upon a range of surrounding businesses that rely on these roads for transporting their goods.

It is noted that SIMTA has lodged a Section 75W Modification to the Concept Plan approval. A review of contribution mechanisms identifies that a VPA is the best mechanism for local infrastructure contributions to be levied, notwithstanding that a VPA cannot apply to bus routing commitments, which would require a separate agreement. This is a major omission from the application that will have major financial implications for Liverpool City Council.

2.7 Alternatives

This EIS does not provide adequate consideration of alternative IMT sites, nor does it consider any alternative land uses that may be more suited to the site. **Table 2-1** provides an overview of alternative IMT sites in Sydney that are either more economically feasible with lower environmental impact, or sites that are currently operating that have the potential for increased capacity (refer to **Figure 1-1** for IMT locations). With exception to the Western Sydney Airport IMT at Badgerys Creek, the existing IMT facilities could increase overall capacity with a minor investment compared to the costs of the SIMTA development. These upgrades could result in increased capacity prior to the completion of construction of Stage 1 of SIMTA.

Table 2-1 Alternative Intermodal Sites

Alternative Intermodal Facility	Justification
Badgerys Creek/Western Sydney Airport	The government's commitment to the development of Western Sydney Airport at Badgerys Creek will result in a major shift in the way Sydney and in particular Western Sydney, does business. The airport will be the focal point for a major release of employment lands, purpose built industrial and logistics precincts with direct access to air and transport infrastructure. This site also has advantages due to its planned isolation from sensitive residential receivers and major environmental corridors, such as the Georges River. The development of an IMT facility will be highly reliant on new freight rail connectivity to Port Botany, however such capacity is likely given the expansion of employment, housing and industrial activity within the South West Growth Centre and the planned extension of the South West Rail Link.
Enfield	Enfield was originally proposed as a 500,000 TEU facility in 2001. Community opposition and a state government review recommended it be scaled back to 300,000 TEU. The facility commenced operations at the end of 2014. The Enfield Site has superior rail access compared to the SIMTA site. It is approximately 17km from Port Botany by double track rail compared to approximately 40km to the SIMTA site by the mixed single and double track SSFL. The Enfield facility has additional capacity to increase TEU throughout in the future. This expansion would have potential community and environmental impacts, however the magnitude of these should be considered against the community and environmental impacts of the SIMTA proposal.
Chullora	The Chullora IMT currently accepts interstate trains as part of its operation, and has the potential to increase its capacity from 300,000 to 600,000 TEUs per annum. Chullora has been the historical site for rail connected industry for over 70 years, with rail sidings and industrial lands that can be repurposed into a larger IMT facility. Due to the industrial nature of this land, the overall change in environmental impacts would be minimal. The Chullora site is not dependent on a single intersection for the bulk of its road capacity as is the case for the SIMTA proposal, allowing it a greater degree of flexibility and reliability of operation.
Smaller Intermodal Facilities	A number of smaller IMT facilities currently in operation are located through Sydney, including Villawood, Yennora, Cooks River, Minto, Leumeah and Ingleburn. The upgrade of these facilities could result in a theoretical increase in TEU throughput of 500,000.

The SIMTA site is also well-suited to a range of additional land uses. The case for there are detailed within **Table 2-2**. Each land use would require appropriate planning and consultation, however, each would provide employment opportunities that would be comparatively higher than the SIMTA proposal. Further, it is considered that a precinct-wide approach should be implemented, including both the SIMTA and MIC sites.

Table 2-2 Alternative Land Uses for the SIMTA Site

Alternative Land Use	Justification
Moorebank Riverside Vision	Liverpool City Council has identified the highest and best use of the land to the west, which is proposed for the MIC development as a premium riverside residential lifestyle precinct. The construction of the SIMTA site immediately adjacent, even with a light industrial/commercial buffer would severely impact on the future amenity of this area. The vision represents a major land use change to the area and would result in a master planned community approach that includes a town centre, employment lands, a mixture of residential densities and the improvement of the Georges River Foreshore. The benefits of this development would create numerous employment opportunities and the following benefits: i. A development that can support up to 16,500 dwellings ii. Open up the Georges River waterfront to the public iii. Facilitate the development of the Moorebank Rail Station iv. Improved community and environmental outcomes v. Location of key housing located adjacent to existing employment hubs and major transport networks.
Hi Tech Innovation Centre	The industrial nature of the site can be further refined into a high tech innovation centre comprising a number of light industrial uses. Noise, vibration and air quality impacts to surrounding residential areas has been cited as a major potential impact associated with the SIMTA and MIC proposal. Promoting high tech and innovative industries on these sites would encourage job creation with comparatively smaller environmental and community impacts. This Moorebank Innovation Centre could lead the way in the development of a number of current and new industries, well positioned to take advantage of the economic shifts occurring the broader Sydney economy.
Educational Hub	The SIMTA and MIC sites are sufficient in size to support the development of an educational hub that provides tertiary education to the growing population in south west Sydney. The development of a university campus and/or a TAFE campus would ensure long term educational upskilling opportunities for the south western Sydney region. Courses could be targeted to the existing skills within the region to encourage innovation and diversification. Student housing and associated commercial services could also be provided on site which would further generate demand for the provision of the Moorebank Train Station. Appropriate design and landscaping would allow the Georges River waterfront to be opened up to the public. This educational hub would generate ongoing employment and would support future employment pathways for students.
Mixed uses	A mix of uses detailed above could be provided on site. However, the following principles should apply: Residential uses should be provided at the high amenity locations along the Georges River and to the southern area towards the Moorebank Train Station site. Commercial uses should provide a buffer between residential and industrial uses and should front Moorebank Avenue to take advantage of the high visibility the transport corridor provides Industrial uses should be provided towards the north of the site adjacent to existing industrial uses.

Overall, there are a number of viable alternatives to the SIMTA proposal for the site, including alternate IMT facilities and additional land uses on site. For the same amount of investment, future TEU capacity can be met through upgrading of existing IMT facilities or could generate greater employment and public benefit outcomes through alternative land uses on site.

3 Statutory Compliance

This section reviews the proposed scheme against relevant planning and statutory requirements.

Commonwealth, State and Local legislation and policy is applicable to the SIMTA proposal, with the following sub-sections identify these specific legislation and planning policies. The sub-sections review the planning and statutory requirements that have been addressed within Section 5 of the EIS, and consider the proposal's compliance in the context of this review and information provided.

3.1 Approval Pathway

A concept plan has already been approved under the transitional provisions of Part 3A of the EP&A Act. The Concept Approval does not permit any works, and instead identifies the approvals process for subsequent project applications, which seek to implement the approved concept. The approved Concept Plan specifies that project applications are to be assessed under Part 4, Division 4.1 of the EP&A Act and the Environmental Assessment Requirements specified Schedule 3 of the Concept Approval.

Consequently a Preliminary Environmental Assessment (PEA) was been prepared by the proponent and submitted to P&E. The Secretary of P&E has provided SIMTA with SEARs that represent additional conditions and standards that the proposed development must meet. SIMTA has prepared an Environmental Impact Statement (EIS) responding to the SEARS and other required standards and legislation. This EIS is now on exhibition as part of a statutory public consultation process.

3.1.1 Determination of SSD Application

After the exhibition period for the EIS is complete, the applicant is required to prepare a Response to Submissions Report, which will respond to any submissions received during this time. Following this, P&E will provide its assessment report to the Planning Assessment Commission (PAC) for determination.

Any submission received during this exhibition period will be required to be responded to be the applicant in their Response to Submissions Report, and will also be considered by the P&E and the PAC. Compliance with the SEARs issued for the project will determine if the project meets the requirements necessary to gain approval under the SSD approval pathway.

A review of the EIS against the SEARs has been undertaken in each of the relevant specialist assessments at **Section 4** of this document. The assessments illustrate that while the EIS has generally addressed the requirements, there are a number of shortcomings that require further consideration.

3.1.2 Modifications to Concept Approval

The applicant has identified a number of problems with the concept approval which could impede the progress of the project. Consequently they have lodged applications to modify the concept plan approval under Section 75W within the transitional part 3A repeal provisions of the EP&A Act.

Land Description Modification

This seeks to include additional parcels of land within the proposed rail corridor. This modification seeks to ensure the project applies to all relevant land.

Bus Services Modification

This seeks to modify conditions 1.8 and 1.9 within Schedule 2 of the Concept Plan approval and changes to the statement of commitments. This removes the requirement for a VPA to negotiate changes to the 901 bus service prior to determination of the future DAs. The alterations to the statement of commitments go beyond bus services to include removal of all commitments to provide road infrastructure upgrades.

3.2 Legislative Review

3.2.1 Commonwealth Legislation

3.2.1.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The EPBC Act is Commonwealth environment and heritage legislation which applies to matters of national significance. This Act requires approval from the Department of Environment (DoE) for any action that has, will have or is likely to have a significant impact on the nine listed matters of national environmental significance.

These matters are:

i. World Heritage properties

ii. National Heritage places

iii. Wetlands of international importance

iv. Threatened species and ecological communities

v. Migratory species

vi. Commonwealth marine or land areas

vii. The Great barrier Reef Marine Park

viii. Nuclear actions (including uranium mining).

ix. Water resources impacted by Large Scale Coal Mining and Coal Seam Gas development.

The SIMTA intermodal terminal could have impacts on EPBC listed Threatened Species and Communities and consequently SIMTA referred the project to the Federal Minister for the Environment. An approval under the EPBC Act was granted in March 2014 subject to conditions. The proposal is required to comply with the conditions of the approval. The relevant conditions are assessed individually throughout **Section 4** of this submission.

3.2.2 State Legislation

3.2.2.1 Environmental Planning & Assessment Act 1979 (EP&A Act)

The EP&A Act provides the legislative framework for the assessment and approval of the proposed IMT. The EP&A Act defines numerous objectives. The objectives applicable to the proposed development include:

> the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

> the promotion and co-ordination of the orderly and economic use and development of land,

> the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

> ecologically sustainable development, and

> to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

> to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The EIS contains a number of objectives addressing primarily economic aspects. Objectives are identified in Section 1.3 of the EIS and are summarised below.

> *Strategically located on existing and future rail and road freight networks.*

> *Provides capacity for 250,000 TEU to support short-term intermodal demand in SW Sydney and meet strategic rail freight goals.*

> *Assists in minimising road freight congestion between Port Botany and Moorebank on the M5.*

> *Provides economic benefits related to reduced road freight distances and net travel time savings.*

> *Enables growth of freight and logistics industry in SW Sydney.*

> *Is of high quality design and efficiently managed to integrate with the surrounding area.*

The objectives place a clear priority on economic benefits with only minimal consideration of social and environmental issues. The focus of the objectives is also clearly targeted at a regional, state and national scale rather than at a local scale, which is emphasised throughout the project, with wider regional and State level benefits provided as justification for local level impacts. It is noted that regional impacts cannot be quantified as they were not addressed in the assessment.

In contrast, the NSW EP&A Act objectives identified above form the overarching principles for planning in New South Wales and should be used as a guide for the assessment of projects. Social, environmental and local outcomes are key objectives that must be considered in the EIS and subsequently, in the project determination. The EIS documentation does not provide a comprehensive assessment of the social and environmental aspects of the project, therefore failing to satisfy the provisions of the EP&A Act.

The proposed development will result in the loss of endangered ecological communities, increased air pollution within the Moorebank local area, human health impacts and the alienation of land from higher order potential uses.

The proposed use of land is not coordinated with local planning strategies such as the L*iverpool Industrial Lands Strategy* and the *Liverpool Development Control Plan 2008* (DCP), which both identify the subject site for future high tech industry and commercial uses instead of an IMT.

The SIMTA IMT is being proposed against the wishes and objectives of Council, which is counter to the objective of sharing responsibility for environmental planning across government.

The public and community response has been overwhelmingly opposed to the intermodal terminal. These sentiments should be considered in the assessment of this proposal.

Part 4, Division 4.1

Division 4.1 of the EP&A Act provides legal framework under which the proposal will be assessed. The elements of this division are assed in the Table below.

Table 3-1 Review of Division 4.1

Division 4.1 State Significant Development	Summary	Applicability to the Proposal
89C – Development that is State Significant Development	Sets out the rules which identify SSD.	The proposal is identified under the Sta*te Environmental Planning Policy (State and Regional Development) 2011* as SSD.
89D – Minister consent authority for State significant development	Identifies that the Minister for planning is the consent authority for SSD and that the minister can delegate authority to another body such as the Planning Assessment Commission.	The proposal will likely be delegated to the PAC for determination.
89E – Consent for State significant development	Identifies that the Minister may determine an SSD Application by: (a) granting consent subject to modifications and conditions; or (b) Refusing consent.	The proposal is partly prohibited under the Liverpool Local Environmental Plan 2008 (LEP 2008). The proposal can still be approved, but only if

Division 4.1 State Significant Development	Summary	Applicability to the Proposal
	Consent may be granted to proposals which are partly prohibited by an Environmental Planning Instrument. A SSD application which is wholly or partly prohibited may be considered together with a proposed Environmental Planning Instrument which would permit the proposed development.	accompanied by a proposed Environmental Planning Instrument which would enable the proposal to be carried out.
89F – Public Participation	Requires that SSD proposals must be placed on exhibition for at least 30 days and that any person may write submissions.	The proposal is currently on exhibition.
89G – Regulations – State significant development	Allows for the creation of regulations on matters such as: the requirements for Environmental Impact Statements and other matters.	The proposal is subject to these regulations.
89H – Evaluation of development application (s 79c)	Confirms that Section 79C of the EP&A Act applies to the determination of SSD.	The proposal will be assessed against the items in Section 79C of the EP&A Act.
89I – Biobanking – special provisions	Confirms that Biobanking requirements may be applied to SSD.	The proposal will likely be required to purchase and retire biobanking credits to offset impacts on threatened species and communities.
89J – Approvals etc. legislation that does not apply	Identifies authorisations under other Acts of Parliament which are not applicable to SSD.	The proposal is not subject to these authorisations.
89K – Approvals etc. legislation that must be applied consistently	Identifies authorisations under other acts which cannot be refused to an SSD which is substantially consistent with the consent.	These authorisations cannot be refused provided the proposal is substantially consistent with the approved consent.
89L – This Division prevails	Identifies that the provisions of Division 4.1 of Part 4 and the regulations created under those provisions will prevail to the extent of any inconsistency with other provisions or regulations made under this Act.	Other provisions of the EP&A Act and EP&A Regulations cannot override those of this division.

Section 79C Evaluation

This section of the EP&A Act contains the matters which are to be considered by the consent authority when considering a proposal (including SSD under Section 89H).

(a) the provisions of:

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and

(v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979),

that apply to the land to which the development application relates,

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

The assessment undertaken in this document below and within Section 4 identifies that the proposal is not consistent with environmental planning instruments including LEP 2008 and the Council strategic planning.

The environmental assessment at Section 4 identifies a range of impacts on the immediate surrounds that cannot adequately be mitigated to reduce these impacts to an acceptable level. Consequently, the proposal would not satisfy the 79C assessment requirements.

Section 89E

As SSD the proposal must be approved subject to assessment against the requirements of Section 89E of the EP&A Act. The proposal is partly prohibited under the LEP 2008 and must therefore be approved under Sub-section 3 of Section 89E.

Table 3-2 Review of Section 89E

Clauses of Section 89E	EIS	Comment
(3) Development consent may be granted despite the development being partly prohibited by an environmental planning instrument.	The project is partly prohibited but subject to this sub section may still be given approval.	Agreed but only subject to the other sub sections within Section 89E.
(5) A development application in respect of State significant development that is wholly or partly prohibited may be considered in accordance with Division 4B of Part 3 in conjunction with a proposed environmental planning instrument to permit the carrying out of the development. The Secretary may (despite anything to the contrary in section 54) undertake the functions of the relevant planning authority under Part 3 for a proposed instrument if it is initiated for the purpose of permitting the carrying out of the development (whether or not it contains other provisions).	No discussion.	The proposal does not include a draft EPI or refer to an existing draft EPI which would permit the proposal. An existing planning proposal to amend LEP 2008 has been lodged by the MIC, which would permit rail links for their project. It is not clear if that planning proposal would also enable the SIMTA rail corridor.
(6) If the determination under section 56 (Gateway determination) for a planning proposal declares that the proposed instrument is principally concerned with permitting the carrying out of State significant development that would otherwise be wholly prohibited: (a) the proposed instrument may be made only by the Planning Assessment Commission under a delegation from the Minister, and (b) the development application for the carrying out of that development may be determined only by the Planning Assessment Commission under a delegation from the Minister.	No discussion.	PAC determination is anticipated.

3.2.2.2 Environmental Planning & Assessment Regulation 2000 (EP&A Regulation)

The EP&A Regulation contains provisions which may require amendment at short notice without the direct approval of Parliament. The regulations contain relevant provisions such as the form and content of EIS documents submitted as part of proposed SSD.

Schedule 2, Section 7 Content of an environmental impact statement

The Table below reviews the requirements of an EIS under the regulations and evaluates the performance of the proposal's EIS against these requirements.

Table 3-3 EIS Requirements under the EP&A Regulation

An environmental impact statement must contain the following information:	The proposal's EIS provides:	Compliance
(1) An environmental impact statement must also include each of the following:		
(a) a summary of the environmental impact statement,	A summary is provided.	Complies
(b) a statement of the objectives of the development, activity or infrastructure,	Objectives are provided.	Complies
(c) an analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure,	A review of proposal alternatives is provided.	Complies
(d) an analysis of the development, activity or infrastructure, including:		
(i) a full description of the development, activity or infrastructure, and	A full description is provided.	Complies
(ii) a general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and	A comprehensive description of the environment likely to be affected is provided.	Complies
(iii) the likely impact on the environment of the development, activity or infrastructure, and	Assessment is provided of impacts including: i. Traffic and Transport ii. Air Quality iii. Noise and Vibration iv. Hydrology v. Geotechnical and Soil vi. Contamination vii. Biodiversity viii. Indigenous Heritage ix. Non-Indigenous Heritage x. Visual Amenity, Urban Design and Landscape	There are significant gaps and issues identified within the assessment of each of these specific types of environmental impact. These are discussed further in the Environmental Impact Assessment at **Section 4** of this submission.
(iv) a full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and	A range of mitigation measures is provided.	These mitigation measures may be inadequate if the impacts themselves have not been adequately assessed.
(v) a list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out,	A list of required approvals is not provided. However, relevant approvals are described in relation to discussion of Acts related to the proposal.	The required approvals should also be presented in a single list.

An environmental impact statement must contain the following information:	The proposal's EIS provides:	Compliance
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv),	Mitigation measures are discussed within each issue specific section of the EIS.	There is no single compilation of the proposed mitigation measures.
(f) the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4).	The justifications for carrying out the development are set out in section 3 of the EIS.	Complies.
(2) Subclause (1) is subject to the environmental assessment requirements that relate to the environmental impact statement.	The Environmental Assessment Requirements have been considered within the assessment of each issue and the description of the proposal.	In some cases, the Environmental Assessment Requirements have not been assessed with the necessary diligence and detail.
(3) Subclause (1) does not apply if: (a) the Director-General has waived (under clause 3 (9)) the need for an application for environmental assessment requirements in relation to an environmental impact statement in respect of State significant development, and (b) the conditions of that waiver specify that the environmental impact statement must instead comply with requirements set out or referred to in those conditions.	The director general has not waived these requirements.	
(4) The principles of ecologically sustainable development are as follows:		
(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and (ii) an assessment of the risk-weighted consequences of various options,	*"A precautionary principle approach has been applied throughout the preparation of the design of the Proposal and all technical studies associated with the Proposal with intent to minimise environmental impacts."*	Some assessments appear to have used assumptions which do not reflect a worst case scenario.
(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,	*"Overall, the design of the Proposal has incorporated the ESD principle of intergenerational equity through the ensuring that the IMT can be constructed and operated sustainably to ensure that there is no significant on-going impacts on the surrounding community and future generations."*	This is considered only at the scale of greater Sydney. It is unlikely to be found to be true at a local scale. The EIS does not consider the spatial inequities produced by the proposal. Most of the traffic and environmental benefits are produced in the eastern and central areas of Sydney and most of the impacts are felt in and around Liverpool through reduced air quality and visual amenity, as well as increased traffic, congestion and noise.

An environmental impact statement must contain the following information:	The proposal's EIS provides:	Compliance
(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,	*"A comprehensive assessment of the existing local environment at the Proposal site has been undertaken to recognise any potential impacts of the Proposal on local biodiversity."*	This is only considered possible through biobanking to offset the destruction of ecologically significant areas of the site.
(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as: (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste, (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.	*"While it is often difficult to place a reliable monetary value on the residual, environmental and social effects of the Proposal, the value placed on environmental resources within and around the Proposal is evident in the extent of environmental investigations, planning and design of impact and mitigation measures undertaken to inform assessments and to minimise, if not prevent, adverse environmental impacts during construction and operation of the Proposal."*	No comment.

3.2.2.3 Fisheries Management Act 1994 (FM Act)

Although SSD does not require approval under the FM Act, the proposal should consider and respond to the objectives and provisions of the Act to achieve equivalent outcomes.

3.2.2.4 Water Management Act 2000 (WM Act)

Although SSD does not require approval under the WM Act, the proposal should consider and respond to the objectives and provisions of the Act to achieve equivalent outcomes.

3.2.2.5 Rail Safety (Adoption of National Law) Act 2012

The definition of a siding is contained within section 4 of the *Rail Safety National Law (NSW)* which is applied to NSW law through the *NSW Rail Safety (Adoption of National Law) Act* 2012.

> *"**siding** means a portion of railway track, connected by points to a running line or another siding, on which rolling stock can be placed clear of the running line;"*
>
> *"**running line** means a railway track used primarily for the through movement of trains;"*

The proposed rail link is designed to facilitate the through movement of trains from the SSFL to the proposed intermodal terminal. Therefore, the rail link is a running line, not a siding. This distinction is crucial when considering the permissibility of the rail link under SEPP Infrastructure.

3.2.2.6 Protection of the Environment Operations Act 1997 (POEO Act)

The POEO Act regulates ongoing activities with the potential to cause environmental damage and harm. Activities that meet defined criteria may be subject to licensing and ongoing monitoring by the EPA. Schedule 1 of the Act identifies activities which are subject regulation.

"Railway systems activities" are identified in section 33 of schedule 1 as:

> *"(a) the installation, on site repair, on site maintenance or on site upgrading of track, including the construction or significant alteration of any ancillary works, or*
>
> *(b) the operation of rolling stock on track."*

Both of these activities are applicable to the proposed rail link and tracks associated with the IMT. While "*an activity at a freight depot or centre*" is exempted from licensing. The rail link between the proposed IMT and the SSFL is not exempt, therefore an Environmental Protection License is required for that activity.

3.2.2.7 Roads Act 1993 (Roads Act)

The Roads Act regulates activities related to roads and their operation. Works on or within the road require a consent under Section 138 of the Act and may affect works related to the proposed IMT. As noted in the EIS, it is likely that a consent will be required.

3.2.2.8 Threatened Species Conservation Act 1995 (TSC Act)

The TSC Act provides the legislative framework for the planning and assessment of impacts on threatened species, populations and ecological communities. The proposal will have impacts relevant to species and communities protected by the TSC and consequently the proponent has prepared a Flora and Fauna Assessment to consider these impacts.

3.2.2.9 Noxious Weeds Act 1993 (NW Act)

The NW Act aims to reduce the spread and impact of weeds. A Flora and Fauna Assessment and a Riparian Vegetation Management Plan have been prepared to identify and implement measures to manage noxious weeds on the site.

3.2.2.10 Contaminated Land Management Act 1997 (CLM Act)

The CLM Act defines the process by which contamination on land is identified, remediated and regulated. The proponent has completed a Phase 2 Environmental Assessment and Remediation Action Plan for the proposal in compliance with the CLM Act.

3.2.2.11 Ports and Maritime Administration Act 1995 (PMA Act)

The PMA Act at Section 24 identifies that the Minister for Roads and Maritime Services is responsible for the safety of navigation within ports and other navigable waterways. The proposal includes a new railway bridge across the Georges River but does not any assess the bridge's impacts on navigation and recreational uses of the river.

3.2.3 State Environmental Planning Policies

There are a range of *State Environmental Planning Policies* (SEPPs) that relate to this application, with **Table 3-4** identifying these and whether the application has complied with their requirements.

Table 3-4 Review of Applicable SEPPs

Applicable SEPP	Comment	Compliance
State Environmental Planning Policy (State and Regional Development) 2011	The project is defined as SSD under the SEPP and has followed the correct approval process for the proposed development.	Yes
State Environmental Planning Policy (Infrastructure) 2007	The following development is permissible on specified zones pursuant to Clause 81 of the SEPP. *"rail freight terminals, rail freight sidings or rail freight intermodal facilities"* However these permissible uses do not include the more general "rail infrastructure facilities" land use which is defined in Clause 78 of the SEPP to include *"(a) railway tracks, associated track structures, cuttings, drainage systems, fences, tunnels, ventilation shafts, emergency accessways, bridges.."* The EIS refers to the "rail link" and rail sidings separately, suggesting that the proposed rail link is not a "rail freight siding" for the purposes of the SEPP. Secondly, the EIS states that the rail link will be shared with the MIC facility as there will be only one rail link even if the MIC facility is developed. If the rail link is to be shared by two separate facilities each with their own sidings, then it will clearly be operating as a railway running line rather than a mere siding. As noted above, the *Rail Safety National Law (NSW)* provides definitions of sidings and running lines based on their function and purpose. The proposed rail link more closely resembles the definition of a running line and is therefore not a siding. The proposed rail link must be defined as "rail infrastructure facilities" under the SEPP. Railway tracks, bridges and other rail infrastructure facilities are only permissible when carried by or on behalf of a public authority which SIMTA is not. Therefore, the railway link is not permissible under the SEPP when proposed by SIMTA.	IMT component Yes Rail Link component No
State Environmental Planning Policy No 19 – Bushland in Urban Areas	Bushland located in public areas is protected under this SEPP. The proposed rail access corridors that would be required to be constructed as part of the proposal would result in the clearing of vegetation on land zoned RE1 Public Recreation. Consequently, the consent authority is required to consider the removal of this bushland, with respect to: The aims of SEPP 19 a) Be satisfied that the disturbance is essential for a purpose in the public interest and that there is no reasonable alternative b) Be satisfied that the removal of bushland is minimized as far as possible, with any bushland removed as part of construction being replaced upon completion c) The applicant has assessed the impact of the proposal on bushland, with the ecology assessment deficient in a number of areas as discussed at Section 4.10. Specific actions required to ensure that an appropriate level of assessment is undertaken are identified in Section 4.10.	No
State Environmental Planning Policy No 33 – Hazardous and Offensive Development	SEPP 33 provides the assessment criteria for hazards and risk from potentially hazardous and potentially offensive developments. The proposal is considered to be both potentially hazardous and potentially offensive under SEPP 33. As such, the applicant has provided a preliminary hazard analysis in accordance with SEPP 33, which assessed the impact of the risk of the storage and transport of LNG and LPG. The applicant stated that no Dangerous goods would be accepted as freight. The findings from this PHA and the review of the Hazard and Risk section of the EIS (refer to Section 4.5) should inform the conditions of consent.	Yes

Applicable SEPP	Comment	Compliance
State Environmental Planning Policy No 44 – Koala Habitat Protection	SEPP 44 contains provisions relating to the protection of vegetation that provides habitat for koalas. The site has been identified to contain habitat for koalas in the vegetation located on the banks of the Georges River. The EIS has not assessed the proposal against SEPP 44 to ensure that it is compliant.	No
State Environmental Planning Policy No 55 – Remediation of Land	SEPP 55 provides a framework for the remediation of contaminated land, with Clause 9 requiring consent for any remediation works in a heritage, flood or environmentally protected area. The EIS considers the remediation works required as part of the early works package in the EIS. This identified that the works will be performed in accordance with the requirements of SEPP 55 and the *Contaminated Lands Management Act 1997*. Specific conditions regarding the remediation works on site should be provided to ensure the development does not have an adverse impact on the surrounding environment, particularly the Georges River.	Yes
Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment (Deemed SEPP)	The REP provides principles that aim to determine the impacts of development on the Georges River and its tributaries. The proposal would have the potential to impact on the Georges River through hydrological impacts during construction and operation. The application has provided a checklist against the REP principles, informing the hydrological assessment in the EIS. The hydrology review in Section 4.9 has identified a number of shortcomings with the need for further hydraulic and hydrological modelling and assessment to be undertaken to ensure that impacts arising from earth works and infrastructure construction and operation are quantified and reviewed.	No

3.2.4 Local Environmental Plans

The subject site is located within the Liverpool LGA with the provisions of the LEP 2008 applicable to the site. LEP 2008 defines zones under which various land uses and works are permissible or prohibited. The LEP 2008 interacts with other EPIs such as SEPP (Infrastructure 2007) which expand the number of land uses permissible in certain prescribed zones.

The following land use zones applicable to the project site are identified in the **Table 3-5**.

Table 3-5 Applicable Land Use Zones

Zone Name	Relevant Permissible Land Uses	Proposed Land Uses	Permissible?
IN1 – General Industrial	Freight transport facilities, Roads, Storage premises, Transport depots, Warehouse or distribution centres And via SEPP (Infrastructure) 2007: rail freight terminals, rail freight sidings or rail freight intermodal facilities	Rail freight intermodal facilities Rail freight sidings Roads	Permissible with consent.
SP2 - Infrastructure	Environmental protection works; Roads And Railway or Defence purposes as indicated on the land zoning map for particular parcels. And via SEPP (Infrastructure) 2007: rail freight terminals, rail freight sidings or rail freight intermodal facilities	Rail infrastructure facilities	Permissible with consent in parcels identified for “Railway” purposes. Prohibited for parcels identified for “Defence” purposes.

Zone Name	Relevant Permissible Land Uses	Proposed Land Uses	Permissible?
RE1 – Public Recreation	None	Rail infrastructure facilities	Prohibited
W1 – Natural Waterways	None	Rail infrastructure facilities	Prohibited

Therefore, the rail link is not permissible under the LEP 2008. This is addressed in the EIS with reference to Section 89E of the EP&A Act providing for proposals which are "Partly prohibited" to still be granted approval.

Although the EIS argues that the objectives of the RE1 zone have been considered within the proposal, there is no explicit comparison of the proposal to those objectives. Secondly, the W1 zone is ignored completely despite it similarly prohibiting the proposal. Finally, the rail link should not be defined as a "rail siding" as it appears to be better defined as a "rail infrastructure facility" and consequently is not permissible under SEPP Infrastructure.

In June 2014 Council applied to list the DNSDC site as a local heritage item. This amendment is currently progressing through the LEP gateway process and is considered a draft EPI and should therefore be considered in the assessment.

Additionally, the following land classifications under the LEP apply to the site of the intermodal terminal and/or the rail link.

Table 3-6 Other Land Classifications

Land Classification	Liverpool LEP 2008 Clause	Key Sections	Consequence
Environmentally Significant Land	7.6	*"(2) Before determining an application to carry out development on environmentally significant land, the consent authority must consider such of the following as are relevant:* *(a) the condition and significance of the vegetation on the land and whether it should be substantially retained in that location,* *(b) the importance of the vegetation in that particular location to native fauna,* *(c) the sensitivity of the land and the effect of clearing vegetation,* *(d) the relative stability of the bed and banks of any waterbody that may be affected by the development, whether on the site, upstream or downstream,* *(e) the effect of the development on water quality, stream flow and the functions of aquatic ecosystems (such as habitat and connectivity),* *(f) the effect of the development on public access to, and use of, any waterbody and its foreshores."*	The proposed rail link must be assessed subject to these considerations.
Land reservation acquisition map	5.1A	*"(3) Development consent must not be granted to any development on land to which this clause applies other than development for a purpose specified opposite that land in Column 3 of the Table to this clause."*	The proposed rail link would cross land which is subject to acquisition for regional open space. This clause would serve to further prohibit the proposed rail link.

Land Classification	Liverpool LEP 2008 Clause	Key Sections	Consequence
Foreshore building line & Land below the foreshore building line	7.9	*"(2) Subject to the other provisions of this Plan, development may be carried out, with development consent, for the purposes of a building on land in the foreshore area only if:* *(a) the levels, depth or other exceptional features of the site make it appropriate to do so, or* *(b) the development involves the extension, alteration or rebuilding of an existing building that is erected wholly or partly in the foreshore area and the consent authority is satisfied that the building as extended, altered or rebuilt will not have an adverse impact on the amenity or aesthetic appearance of the foreshore, or* *(c) the development is for the purposes of any of the following:* *(i) boat sheds,* *(ii) sea walls,* *(iii) wharves, slipways, jetties,* *(iv) waterway access stairs,* *(v) swimming pools at or below ground level (existing),* *(vi) fences,* *(vii) picnic facilities, cycleways, walking trails or other outdoor recreation facilities.* *(3) Development consent must not be granted to development referred to in subclause (2) unless the consent authority is satisfied that the development:* *(a) will contribute to achieving the objectives for development in the zone in which it is to be carried out, and* *(b) will be compatible in its appearance with the surrounding area, as viewed from both the waterway concerned and the adjacent foreshore areas, and* *(c) will not cause environmental harm, such as:* *(i) pollution or siltation of the waterway, or* *(ii) an adverse effect on surrounding uses, marine habitat, wetland areas, flora or fauna habitats, or* *(iii) an adverse effect on drainage patterns, and* *(d) will not cause congestion of, or generate conflicts between, people using open space areas or the waterway, and* *(e) will not compromise opportunities for the provision of continuous public access along the foreshore and to the waterway, and* *(f) will maintain any historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance of the land on which the development is to be carried out and of surrounding land."*	The proposed rail link will cross the foreshore building line on the Georges River and does not comply with the LEP provisions for development permissible below the line. Primarily, the proposal will not contribute to achieving the objectives of the RE1 zone. The proposal will not be compatible with the appearance of the area. It will be visually intrusive and serve to alienate the area of the Glenfield Waste Facility from the river side parkland. The proposed design of the bridge does not align piers with the existing East Hills line railway bridge and will be a navigation hazard which will conflict with recreational users of the waterway. Consequently, development consent could not be granted to the rail link under this clause.
Acid sulfate soils	7.7	*"1) The objective of this clause is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage."*	The proposal is not expected to drain or expose acid sulfate soils.

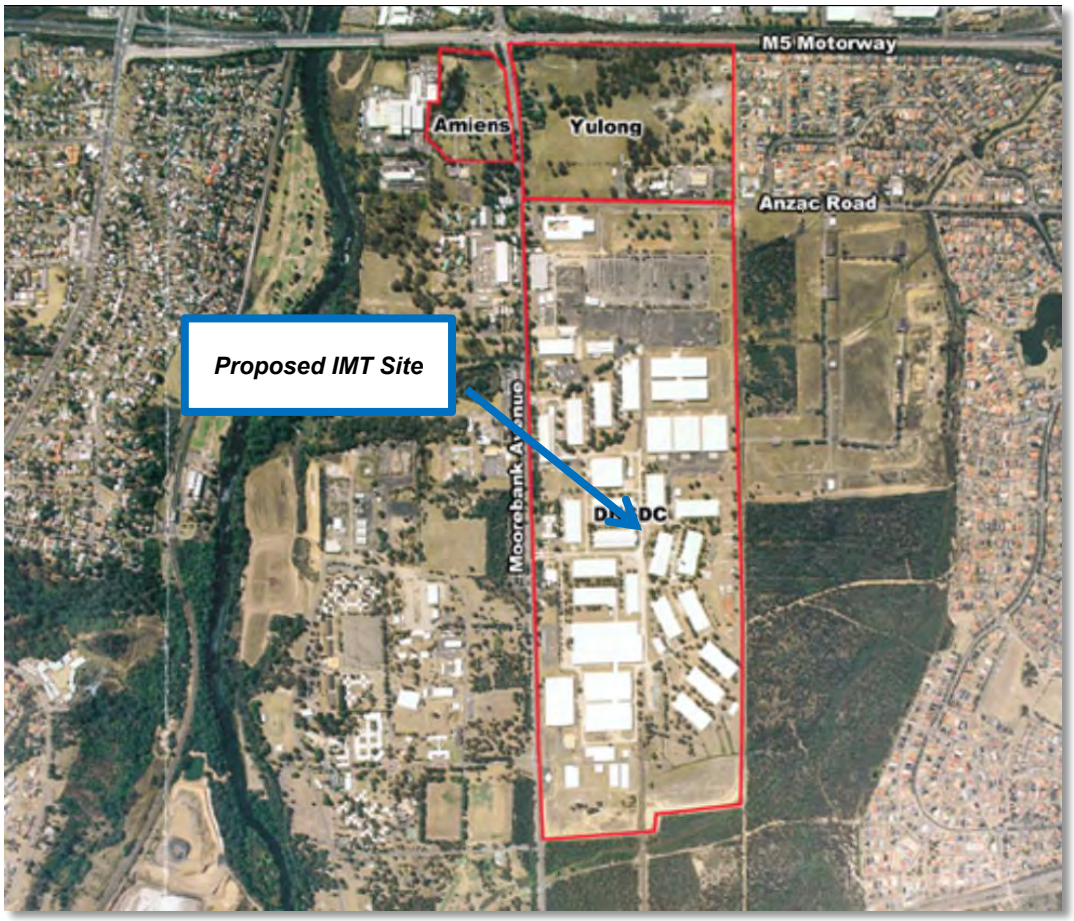
Land Classification	Liverpool LEP 2008 Clause	Key Sections	Consequence
Flood planning area & Flood prone land	7.8, 7.8A	*"(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:* *(a) is compatible with the flood hazard of the land, and* *(b) will not significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and* *(c) incorporates appropriate measures to manage risk to life from flood, and* *(d) will not significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and* *(e) is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding, and* *(f) is consistent with any relevant floodplain risk management plan adopted by the Council in accordance with the Floodplain Development Manual."*	The proposal's own flood modelling indicates an increased flood affectation on Moorebank Avenue and the SME site as a result of the proposal. The erosion protection and bank stability measures proposed are inadequate. Therefore, consent could not be granted to the proposal under this clause.
Heritage	5.10	*"(4) Effect of proposed development on heritage significance* *The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6)."*	The impact of the proposal on the heritage listed defence facilities on the SIMTA site and along the rail link must be considered.

3.2.5 Development Control Plans

The project site (excluding the rail corridor) is zoned IN1 – General Industrial, which is addressed by Part 2.4 of the DCP (refer to **Figure 3-5**), which contains site specific planning guidelines for development in the Moorebank Defence Lands. Controls are provided for development including:

- Setbacks
- Landscaped Area
- Building Design and Layout
- Landscaping and Fencing
- Paving
- Site Furniture
- Planting and Plant Species
- Lighting
- Signage
- Amenity and Environmental Impact

Figure 3-1 Land to which Part 2.4 of the Liverpool Development Control Plan Applies



Source: Liverpool City Council, 2015

Part 2.4 of the DCP was created for the industrially-zoned land in Moorebank noting its potential for future industrial development. The proposed IMT site is currently zoned IN1 – General Industrial and was included as part of this DCP Chapter. As such, it is recommended that the proposal be assessed within the EIS against the specific controls and objectives of the DCP. The DCP also contains elements of the Liverpool Industrial Lands Study (2007), which refers to future high-tech industries and business parks as the desired future use of the precinct.

3.3 Cardno's Assessment

3.3.1 Concept Approval Modifications

A modification to the concept approval is required for SIMTA Stage 1 to become permissible as proposed. This results from the Concept Plan's failure to include land parcels along the rail link. However, the modification to remove the requirement for a VPA on modification of the bus 901 bus service would remove any requirement for public transport provision. Without the 901 bus service VPA there is no requirement to improve public transport and consequently it is not clear how the Public Transport mode share targets can be met. The Traffic and Transport assessment has not been updated to reflect or anticipate the content of the modifications and consequently is no longer an adequate assessment of what is proposed.

The proposed modification of the statement of commitments would remove on responsibility by the proponents to upgrade road infrastructure to support the proposal. This is highly problematic for Liverpool City Council and RMS which will have no mechanism to recover costs associated with enabling the project and mitigating impacts on the community. If these modifications are supported, then major elements of the SIMTA stage 1 proposal will need to be completely reassessed.

3.3.2 Permissibility

The IMT is permissible under the provisions of SEPP infrastructure. However, the proposed rail link is not permissible under the LEP 2008 or SEPP Infrastructure. The proposed rail link is more complex than a siding, will connect to multiple facilities and is better defined as “rail infrastructure facilities” under the SEPP Infrastructure definitions. This is supported by the EIS separate treatment of the rail link and sidings within the IMT, which will be used for storing, loading and unloading trains. While SEPP Infrastructure allows “rail freight sidings” on the SP2 land, it does not allow “rail infrastructure facilities” to be constructed by “any person”. SIMTA is not a public authority and therefore cannot construct “rail infrastructure facilities” under SEPP Infrastructure.

Consequently, the proposed rail link is not permissible on the SP2 land aside from the small area identified for “railway” purposes. Finally, the RE1 zoned land comprising the Georges River Parkland and the W1 zoned Georges River do not permit “rail infrastructure facilities” and are not a prescribed zones for the purposes of the Infrastructure SEPP. The proposed rail link is not permissible for most of its length between the SIMTA terminal and the SSFL. Therefore, the project would require approval under section 89E because it is partly prohibited.

The rail link and the total estimate of the direct costs of the SIMTA project are assessed in the Quantity Surveyor’s Report in Appendix B of the EIS. The rail link is costed at $70,062,482 whereas the IMT itself is costed at $64,302, 727. Consequently, the rail link is not a minor component of the proposed IMT, it is actually the major cost. As noted above, the rail link is not permissible. Therefore, the majority of the proposal is not permissible under Section 89E of the EP&A Act. This is a matter the consent authority should consider when determining the proposal under Section 89E. No draft EPI has been provided by the proponent to address the permissibility of the rail link.

3.3.3 Consent under Section 89E

The EIS argues that the proposal can still receive consent even if partly prohibited under an EPI. The proposed rail link is prohibited. The EIS argues that the objectives of the RE1 zone have been considered, however there is no mention of the W1 zone objectives which similarly prohibit the rail link. Section 89E also suggests that a draft EPI should be provided which would make the proposed development permissible. MIC have lodged a planning proposal to enable works on their site, but there does not appear to have been similar consideration by SIMTA in the EIS.

3.3.4 Fisheries Management Act 1994 and Water Management Act 2000

The EIS does not discuss the objectives and provisions of either the FM Act or the WM Act. Although no approvals are required under these acts due to the provisions relating SSD, these acts do contain valid and reasonable objectives which the proposal should aim to satisfy. **Section 4.11** of this submission provides a more detailed discussion of the proposal in relation to the FM Act and the WM Act.

3.3.5 Ports and Maritime Administration Act 1995

The proposed railway bridge piers do not appear to align with the existing East Hills Railway line bridge. Consequently, the proposed bridge may represent a hazard to navigation of the river. The PMA Act advises that the Minister responsible for Roads and Maritime Services is responsible for the safety of navigation within waterways. The EIS does not provide any discussion of the safety implications for the railway bridge or any advice suggesting that the design of the bridge has incorporated consultation with the relevant authority.

3.3.6 Draft EPIs

The proposal does not consider the potential statutory planning impact of the draft heritage listing of the DNSDC site under the LEP 2008.

3.3.7 State Environmental Planning Policies

SEPP 19 and SEPP 44 do not appear to have been considered within this proposal at all.

3.3.8 Recommendations

The recommendations below are made based on a review of the statutory planning controls, with the following actions required to allow a comprehensive assessment of the proposal:

> The proposal should be assessed against the objectives and provisions of the Water Management Act 2000 and the Fisheries Management Act 1994.

> The proposal should not be granted consent under Section 89E despite partial prohibition, for the following reasons:

- Inadequate assessment against relevant EPIs including SEPP 19, SEPP 44, SEPP Infrastructure and the LEP 2008. As noted above, LEP 2008 has provisions related to the foreshore building line, flood impacts, environmentally sensitive land and land acquisition which outright prohibit the proposal or require assessment.
- Inadequate assessment against the relevant DCP provision for the site, particularly controls related to the design of the proposal.
- Inadequate assessment against the draft amendments to the LEP 2008 which seek to recognise the heritage significance of the site.
- Incompatibility of the proposed rail link under SEPP Infrastructure with the “rail freight siding” definition which renders almost the entire rail link prohibited. The rail link is the major component of the proposal.
- Lack of a planning proposal to amend the land use zoning to allow the proposed SIMTA rail link to be permissible.
- Lack of assessment of the proposed railway bridge against relevant maritime safety legislation.
- The proposed modifications of the concept approval will undermine key mitigation measures such as public transport and road infrastructure upgrades. If these modifications are supported, then much of the Stage 1 SIMTA proposal will need to be reassessed.

4 Environmental Impact Assessment

This section reviews the revised EA in the context of previously submitted comments to establish whether those comments have been adequately addressed.

4.1 Strategic Context and Need

The proposed SIMTA EIS provides analysis of the proposal's strategic context, with this review considering information in the EIS and associated appendices prepared by Hyder Consulting.

4.1.1 Overview of the SIMTA Assessment

The EIS provides a list of each strategy, policy or planning document and assesses the applicability of that strategy to the SIMTA project. These include:

- National Ports Strategy
- National Land Freight Strategy Discussion Paper
- NSW 2021: A plan to make NSW Number One
- A Plan for Growing Sydney
- Draft Metropolitan Strategy for Sydney (2013)
- NSW Long Term Transport Masterplan
- State Infrastructure Strategy
- Draft South West Subregional Strategy
- NSW Freight and Ports Strategy
- Action for Air
- Railing Port Botany's Containers
- Port Freight Logistics Plan

The Liverpool Industrial Land Strategy is also referred to as suggesting an alternative use for the site. The EIS evaluates several alternative uses of the site and concludes that they would generate higher levels of traffic congestion and therefore result in a greater impact than the SIMTA proposal.

The EIS concludes that the proposal is strongly supported by the strategic policy and planning context.

4.1.2 Cardno Assessment

The details of each individual policy require review to ensure that their objectives and considerations are applicable to the proposal.

- **National Ports Strategy**

  The Strategy makes no mention of the SIMTA site or project. The appendix referred as containing a specific reference to Moorebank is not available. The Strategy itself is to be part of the final National Land Freight Strategy which is currently under development.

- **National Land Freight Strategy Discussion Paper**

  This discussion paper specifically supports an IMT at Moorebank. However this must be considered a work in progress, with a final plan still under development.

- **NSW 2021: A plan to make NSW Number One**

  Neither this plan nor its updates make any mention of Moorebank, an IMT at Moorebank or IMTs generally. It cannot be said to support the proposal.

- **A Plan for Growing Sydney (2014)**

- This plan does mention an IMT at Moorebank. However, the proposed Badgerys Creek IMT is given a significantly more prominent role. The rail freight infrastructure to connect the Badgerys Creek IMT to the rest of the rail network is also proposed. The Badgerys Creek IMT is mentioned many times. The Moorebank Intermodal is not given great prominence or priority. The Liverpool City Centre is also

identified as a Regional City Centre which will experience significant growth in population and employment. As this is the most recent policy document released on the subject by the NSW government, it reflects current priorities and strategy.

> **Draft Metropolitan Strategy for Sydney (2013)**

This plan has been superseded by A Plan for Growing Sydney. It was included in the SEARs as it was the most relevant strategic metropolitan plan at the time the SEARs were drafted. Since that time the Commonwealth and State Governments have recommitted to Badgerys Creek Airport and released the Plan for Growing Sydney. The draft 2013 metropolitan strategy has been replaced and is now of negligible value.

> **NSW Long Term Transport Masterplan**

This does refer to an IMT at Moorebank as a key project. . The Moorebank IMT precinct is identified for development, however it also notes significant concerns about the capacity of the M5 at Moorebank to cope with background traffic growth let alone freight.

> **Draft South West Subregional Strategy**

This was produced as part of the superseded 2010 Sydney Metropolitan Strategy. It was designed to function as part of that plan and has no clear strategic role or alignment within the current plan. It should also be noted that it was never finalised and remains in draft form. A new South West Subregional Strategy is in development associated with the Plan for Growing Sydney.

> **NSW Freight and Ports Strategy**

The NSW Freight and Ports strategy does make specific reference to the Moorebank site for use as an IMT and identifies the project has having a high priority.

> **Action for Air**

Neither this plan nor its updates make any mention of Moorebank and cannot be said to support the proposal. The objectives of the policy have relevance the proposal as regards Sydney air quality at a regional scale, however when considered locally it will have a negative effect. Secondly, the lack of warehousing on the site suggests that many containers will require double handling, which has not been assessed as part of the air quality balance for the proposal.

> **Railing Port Botany's Containers**

This policy strongly supports the concept of an IMT at Moorebank. This policy is more than 10 years old and has not been updated to reflect the changing economic and strategic planning circumstances of greater Sydney and Liverpool in particular.

> **Port Freight Logistics Plan**

> The Port Freight Logistics Plan does make specific reference to the Moorebank site for use as an IMT and identifies the project as having a high priority.

> **Liverpool Industrial Lands Strategy**

This strategy considers the future uses for industrial land around the LGA. The SIMTA site is identified for future use as a high-tech industry and business park. This strategic vision has been expressed through the production of the site's DCP which contains similar statements.

Conclusion

Recently there has been a recent shift in the freight infrastructure priorities of the NSW Government away from the Moorebank IMT site and towards a potential IMT at Badgerys Creek. The shift aligns with the announcement of works commencing at Badgerys Creek Airport and changes to the strategic vision for the Liverpool city centre.

The Federal Government does not yet have a complete freight strategy. Consequently these policies must be considered subject to review and change. Many of the older plans cited either have limited relevance to the proposal or are themselves superseded and irrelevant. There is not an overwhelming strategic consensus in support of the proposal.

Consideration of Alternatives

The EIS makes specific reference to the business park land use and more recent proposals for residential and commercial development on the site, identifying that the traffic generated by these alternatives would be much greater than that which would be generated by an IMT. This is based on RMS traffic generating development rates and ignores other considerations such as:

> The accessibility of Casula Station via a future pedestrian bridge,

> A potential railway station on the East Hills Line at the southern end of Moorebank Avenue,

> Proximity of the Liverpool CBD to the site with the potential for a high quality pedestrian and cycleway link along the river.

> Mixed use development leading to a higher containment of trips and travel demand within the precinct.

> Provision of a significant number of jobs near to the Liverpool CBD, which could result in a reduction in average trip lengths across southwest Sydney, potentially creating region wide improvements in air quality.

All of these factors could allow for a much higher mode share by public and active transport compared to the proposed IMT.

Staging

The proposed stage extent is beyond the area indicated for Stage 1 in the approved Concept Plan. The exceedance is small and likely reflects issues discovered in the preparation of detailed designs for the proposal and adjustments to the traffic arrangements.

4.1.3 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-1 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
1. Statutory and Strategic Context – including but not limited to: Addressing the relevant planning provisions, goals and strategic planning objectives in the following:		
a) NSW 2021; b) draft Metropolitan Plan for Sydney (March 2013); c) Draft South West Subregional Strategy; d) Railing Port Botany's Containers; e) Action for Air; f) NSW Freight and Ports Strategy 2013; and g) the Commonwealth's draft National Ports Strategy and National Freight Strategy	These plans support the proposed intermodal terminal at Moorebank.	Whilst some of these plans certainly do support the IMT project, there have been changes to the strategic context recently surrounding the resumption of work on the Badgery Creek Airport site and the IMT proposed there. This is evident in the 2014 Plan for Growing Sydney. Some of the plans included in the SEARS have since been superseded or have replacements being prepared for release such as the 2013 draft Metropolitan Strategy and the draft South West Subregional Strategy. Other policies such as Action for Air and NSW 2021 do not make specific reference to this project or IMTs in general. They may have objectives which can be met by the project, but it is not clear that the proposal will achieve these objectives more effectively than the alternatives.

4.1.4 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> The proposal should not be approved without a more detailed analysis of the site's alternative uses. This analysis should consider potential benefits for the creation or regional open space, high value jobs and the stimulation of investment in better public transport links through a cycle/pedestrian bridge to Casula and a new railway station at Moorebank Avenue. This is necessary to meet the content requirements of an EIS as set out in the EP&A Regulation.

4.2 Traffic and Transport

The proposed SIMTA EIS provides analysis of the proposal's impacts on Traffic and Accessibility. This review considers information in the EIS Section 7 and Appendix L prepared by Hyder Consulting.

4.2.1 Overview of the SIMTA Assessment

The EIS includes a set of Traffic Impact Assessments (TIAs) and Management Plans for the Construction and Operational phases of the project. The TIAs employ a fairly consistent approach that generally comprises:

> **Existing Traffic and Transport Conditions**

Evaluated through collection of traffic counts and intersection queues and reviews of policy, maps and information relevant to the current road network. The traffic counts are placed into Paramics intersection models which calculate delays and Level of Service (LOS).

The operational phase TIA identifies that the intersections of Moorebank Avenue at Heathcote Road and Newbridge Road perform poorly. The other intersections modelled appear to perform well, however only a very limited set of results are provided. No appendices to the report are provided with expanded intersection modelling performance data such as queue lengths per approach provided.

The construction phase TIA reviewed traffic counts on Moorebank Avenue, but did not review intersection performance as this is covered by the operational phase TIA.

> **Future Conditions without the Proposal**

Future conditions are modelled using traffic growth forecasts for 2016 extrapolated from traffic growth observed between 2010 and 2014. These forecast counts are placed into Paramics models which evaluate the performance of each key intersection. The change in performance relative to the baseline is then compared to the baseline.

The operational phase TIA identified that the intersections of Moorebank Avenue at Heathcote Road and Newbridge Road would operate very poorly with future traffic volumes. The upgrade of the intersection at Newbridge Road was proposed and then modelled again with future traffic volumes to demonstrate that the upgrade resolved the intersection capacity issue.

The construction phase TIA did not evaluate future conditions without the proposal as this is already covered by the operational phase TIA.

> **Impact of the Proposal**

Trip generation associated with the proposal is estimated using the trips required to construct the project, staff required to operate the project when complete and freight trips to and from the project when operating. This is then added to the forecast 2016 traffic figures. The resulting traffic totals are modelled in SIDRA for each key intersection. The change in average delay and LOS is reviewed and analysed for each intersection.

The operational phase TIA reviewed the impact of the background traffic growth to 2016, with additional trips generated by the proposed IMT by staff working at the terminal and freight trips generated by terminal operation. With the intersection upgrades identified earlier, none of the intersections were found to operate poorly. The Cambridge Avenue intersection was found to operate slightly better in the AM peak period.

The construction phase TIA reviewed the temporary road network arrangements that would be required during construction and estimated the trip generation by construction of the rail link and intermodal terminal facility. The total traffic volume forecasts are then used to model intersection performance. Two of the temporary site access points on Moorebank Avenue were modelled as priority controlled intersections and found to perform at LOS D. The remainder were found to perform acceptably.

> **Mitigation Measures**

Once the impact of the proposal is assessed, measures are suggested to resolve the impacts identified. These range from changes to intersection signal phasing to major infrastructure upgrades.

The operational phase TIA identifies that the modelled intersections performed adequately and that beyond the identified intersection upgrades no additional mitigation measures were required. The operational phase Traffic Management Plan (TMP) contains general mitigation measures to be implemented to manage and reduce the general impact of traffic. This includes signage, communications, systems for dealing with complaints from the public and incident management procedures.

The construction phase TIA and TMP propose a number of general mitigation measures. They do not suggest any mitigation measures for the poorly performing site access points on Moorebank Avenue, although their final control system has not been identified.

> **Conclusions**

The results generated by previous sections are analysed and used to justify the project. The intersections of Moorebank Avenue with Newbridge Road and Heathcote Road are already performing poorly as a result of background traffic growth unrelated to the proposal.

In both TIAs the proposal was considered to have acceptable impacts on the road network and key intersections.

4.2.2 Cardno Assessment

4.2.2.1 Traffic Assessment

No Assessment of Strategic – Subregional road network modelling

We understand that Roads and Maritime Services (RMS) propose to undertake strategic network modelling of the roads surrounding the SIMTA and MIC sites. This will provide an independent assessment of traffic impacts near the site and assess the need for major upgrades to road infrastructure at a subregional level. The SIMTA Traffic Assessment does not consider the broader network beyond the key intersections and roads which were identified in the SEARs. The SIMTA Stage 1 project cannot be adequately assessed until the results of the independent RMS traffic modelling are released and considered.

Background Traffic Growth and Intersection Performance

The TIA only models traffic growth out to 2016. At this point the SIMTA modelling indicates that background traffic has already grown to cause poor intersection performance on Moorebank Avenue at Heathcote Road and Newbridge Road. As the poor intersection performance cannot be attributed to this proposal, the TIA suggests that the upgrade should be funded by RMS. No indication is provided that the works will be carried out in time to facilitate the operation the SIMTA project. Furthermore, the TIA does not acknowledge that the SIMTA traffic will provide a significant contribution to intersection heavy vehicle movements and expedite the timeframe to reach reduced LOS.

Traffic modelling conducted by Parsons Brinckerhoff for the updated MIC concept plan EIS (Parsons Brinckerhoff, 2015) states that background traffic growth to 2030 will result in almost all modelled intersections performing at LOS F with regards to queueing. This result suggests that numerous intersection and road capacity upgrades will be required to prevent the precinct road network becoming dysfunctional. The strategic value of the Moorebank precinct for a road-rail intermodal may be short lived due to the associated congestion and comprehensive, potentially unfeasible infrastructure upgrades associated.

It is understood that Section 2.3 shows an annual negative growth of 0.9% (2010-2014) on Moorebank Avenue south of Anzac Road. The TIA also indicates that the average annual growth for the last 12 years in the area is approximately 1.2%.

The traffic results shown in Section 3.2, (Tables 3-2 and 3-3) indicate that based on commissioned traffic surveys between November and December 2014 the traffic volumes increase at the same location.

The TIA does not clarify if the local negative growth or the precinct average positive growth rate was applied to the background traffic at the intersections assessed.

No/Minimal Impact Recorded at Most Intersections

The forecast performance of all intersections in 2016 with and without Stage 1 of SIMTA is given in Tables 5-3 and 5-4. SIMTA Stage 1 is forecast to have no impact on the performance of the intersections at Moorebank Avenue at Newbridge Road and Moorebank Avenue at Heathcote Road. The numbers are identical. This appears to be unlikely given that the proposed upgrades do not radically alter the intersections. The other intersections experience minimal change or even an increased LOS in one case despite no other upgrades being proposed. This is an unusual result.

The results provided are the average for each intersection. The average could potentially disguise a re-assignment of delay from the major traffic approach to minor traffic approach through prioritising and signal phasing adjustment. This would result in increased queue lengths on the minor traffic directions without any change in overall queue. These queues could interfere with the operation of other intersections which have not been considered as part of this analysis.

Signalised Intersections

The existing cycle time and phasing at signalised intersections does not appear to be taken into consideration in the modelling of future intersection performance. The TIA does not indicate if existing cycle time and phasing would be retained or modified.

Future conditions on existing signalised intersections (Operational / Construction) are not clear. Signalised intersection details for future conditions are not shown (phasing and timing). It is not clear if cycle time has been optimised or altered.

Trip Generation and Modelling Period

Figure 5-3 of the SIMTA Traffic and Accessibility Impact Assessment shows the forecast Daily Truck Arrival Profile which shows the peak truck arrivals will occur around 14:00. The PM period modelling doesn't begin until 16:00. This means that the times of greatest traffic generation have not been assessed in the existing PM modelling. This is important because the PM peak is broader than the AM peak, often beginning around 15:00. The employee trip generation PM peak is also expected to be between 14:00 and 18:00 as shown in TIA Figure 5-4.

The TIA assumes that 70% of trucks visiting the site will be semi-trailers and the remainder will be B-Doubles. This assumption appears to have been derived from the projected proportions of 20ft and 40ft containers rather than the composition of the Sydney and NSW freight truck fleets which will frequent the IMT. This assumption is crucial because it directly affects the total number of truck movements the proposal will generate and therefore intersection performance, vehicle emissions, noise and other considerations.

Moorebank Avenue – Capacity

The number of lanes on Moorebank Avenue between the Joint Logistics Unit intersection and Anzac Road varies from one to two lanes. It also has an on-road cycling lane south of Anzac Road.

The TIA does not indicate if additional upgrades of Moorebank Avenue adjacent to the SIMTA precinct have been considered. TIA Figure 5-2 shows the access and egress concept design layout for heavy vehicles. However the TIA does not indicate if the proposed two lane exit from the SIMTA precinct will continue along Moorebank Avenue northbound or tie-in with the multilane approach to the Anzac Road intersection. Heavy

vehicles merging could cause increased negative impacts on the Moorebank Avenue corridor, resulting in additional rear end collisions, delays and extended intersection queues.

The TIA does not indicate if the current lane configuration is suitable for the traffic generated by the project or if the additional traffic will impact the capacity of Moorebank Avenue.

M5/Moorebank Avenue Intersection

Turning paths for large vehicles at the intersection of the M5 and Moorebank Avenue are not shown. It is not clear if the current intersection layout will cater for large vehicles to perform turning manoeuvres. Traffic assessment of the M5 / Moorebank Avenue intersection is limited to the LOS and delay time. This does not allow detailed assessment of individual approaches to the intersection or other measures of intersection performance such as queueing.

The TIA indicates that for the inbound movements, 83% of the total of heavy vehicles would approach by the M5 / Moorebank Avenue eastbound exit ramp. Additionally for the outbound movements, 83% of the total of heavy vehicles will use the M5 / Moorebank Avenue westbound entry ramp. Considering that the majority of the heavy vehicle movements will use the right turn lanes on the M5 eastbound exit ramp, the TIA does not indicate if existing lane configuration and lane storage will impact the performance of the intersection.

The TIA's evaluation of the M5 / Moorebank Avenue appears to exclude through traffic volumes.

M5 Weave Conflicts

The intersections of the M5 Motorway with Moorebank Avenue and the Hume Highway at Liverpool are in close proximity. This results in conflicts between vehicles merging onto the M5 from Moorebank Avenue and vehicles exiting the M5 at the Hume Highway. This conflict becomes particularly pronounced for longer heavy vehicles such as those identified for operation out SIMTA.

SIMTA's own catchment modelling and traffic assignment used in the Traffic Assessment (Figure 5-5) reveals that 83% of all container trucks will travel via the M5, heading to the Hume Highway or further west. This suggests that SIMTA traffic will be a significant contributor to the weave issue, which has implications for the traffic congestion and accident risk which will result from the proposal. This issue has not been addressed by the TIA.

Construction Phase Traffic Arrangements

The traffic signalling arrangements have not been determined for the temporary Moorebank Avenue Intersections which will control access to the Rail East Compound and the Georges River Compound. The performance of these temporary intersections if priority controlled, has been modelled in section 5.3.1 of the Construction Phase Traffic Impact Assessment. The results shown in Table 5-4 indicate that these two intersections will perform poorly at LOS D. The accident risk and queueing implications of this have not been assessed.

Bulk Earthworks Traffic Estimates

Traffic generation during the bulk earthworks phase is very sensitive to the fill balance of the site. Although the proposal has been designed to achieve a net fill balance across the project, there is the potential for available fill harvested from the site to be unsuitable for specific applications such as the engineering fill to be used for the rail link. In that case there will be a need to remove the excess fill from site and bring in fill with the required properties. The construction phase traffic assessment does not appear to have considered contingencies related to increased traffic.

4.2.2.2 Public Transport and Active Transport

Seeking Modification to Avoid VPA on 901 Bus Route

The EIS notes that a modification has been sought for the approved concept plan that would remove the requirement for an agreement to modify the 901 bus route to better serve the proposal. This appears to have come about because developer levies cannot be used to support bus services. This is problematic in the context of the MIC proposal. Both SIMTA and MIC have stated previously that they intend to combine their proposals. To date however, each proponent continues to advance the approvals process for each project separately. If in future the projects are combined, it is not clear how conflicting requirements and conditions of approval for the standalone projects might be implemented for the final project.

Removing the public transport commitments from SIMTA Stage 1 could compromise public transport provision for the final IMT at the Moorebank Site. It must also be noted be noted that the proposed modifications to the statement of commitments extend far beyond the removal of a bus route VPA and include the removal of all commitments to road infrastructure provision under a VPA. This is an extraordinary modification which would effectively remove responsibility for infrastructure provision from the proponent.

Public Transport or Shuttle Bus Services for Staff

The proposed IMT would be a major employer in the Moorebank Area. The 901 Bus is currently the only public transport link within walking distance of the site. However, the 901 bus is not frequent enough to attract 20% of staff away from their cars as required by the conditions of the concept approval and assumed by the estimates of SIMTA employee traffic generation. The BTS Journey to Work Explorer contains mode share data for people who work within the Travel zone which contains both the SIMTA and MIC sites.

Table 4-2 BTS Journey to Work Travel Statistics for the Moorebank Travel Zone which covers the SIMTA and MIC intermodal sites

Mode	Mode Share
Vehicle Driver	84%
Vehicle Passenger	6%
Walked Only	4%
Other	2%
Mode Not Stated	1%
Train	1%
Bus	1%
Ferry/Tram	0%

Private vehicles have a combined total of 90% of trips. Public Transport has a combined total of 2% of trips. This is radically different from the 20% public transport mode share which is required by the conditions on the SIMTA concept approval.

To address the current deficiency, the proponent should provide a frequent private shuttle bus service operating between Holsworthy Station, Liverpool Station and the SIMTA site in line with the terms of the Commonwealth EPBC Act approval proposed mitigation measures and the Statement of Commitments attached to the SIMTA Concept approval.

Cyclist Facilities and Infrastructure

The proposal does not discuss the provision of facilities to encourage staff to cycle to work such as bicycle parking and showers. This is consequential as encouraging the use of active transport by IMT staff can help

to minimise traffic impacts on surrounding residential areas. The TIA does not address existing cycling facilities regarding their relocation or maintenance during operation and construction of the proposal.

This is referred to within the Statement of Commitments and Commonwealth EPBC Act attached to the SIMTA Concept approval.

4.2.2.3 Other Matters

Absence of Warehousing

No Warehousing is proposed as part of the Stage 1 SIMTA proposal. Whilst it is acknowledged that this is consistent with the Concept Plan, this will result in the double handling of freight as containers must first be trucked to a secondary warehouse to be unloaded. These extra trips diminish the benefits of the IMT for local congestion, noise, air quality and visual impact. If warehousing facilities were provided on the SIMTA site, it is possible that these truck movements could be largely avoided.

The secondary traffic movements from the SIMTA site should be incorporated into the TIA modelling and assessed to establish the level of impact associated with the proposal not providing warehousing on site.

The absence of a warehousing component as part of Stage 1 of SIMTA could also lead to the growth of warehousing facilities elsewhere in Moorebank, effectively generating an enhanced level of traffic. This could cause the distribution of container traffic from SIMTA to change significantly.

4.2.3 Best Practice Review

Internationally there are excellent examples of IMTs managing traffic to avoid significant problems. The Port Authority of New York and New Jersey implements programs to manage trucks efficiently and minimize their impacts including:

- Use of automatic gates for trucks to minimize idling.
- Requirements for vehicle fleet operators to reduce emissions and fuel use through driver training, vehicle upgrades and phase out of older trucks.
- Service priority given to low emissions trucks, thus encouraging operators to purchase them.
- Assistance in conversion of truck fleets to CNG fuel.
- In-terminal truck driver facilities to discourage drivers from idling their engines.
- Port only road lanes and motorway exits to minimise conflicts between freight and passenger vehicles.

The Port of Rotterdam in the Netherlands implements many of the same measures, but also imposes additional restrictions on the type of vehicles which can access the port. Trucks which do not meet the latest emissions standards are refused entry to the Port. These measures should be considered.

The proposal does not address or consider these strategies and cannot be said to be designed to a world's best practice standard.

4.2.4 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-3 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
1.6 Projects carried out under this this Concept Plan must be operated with the objective of not exceeding the capacity of the transport network, including the local, regional and State road network. The container freight road volume must not exceed 250,000 TEUs, subject to the exception identified in 1.7, which may only be considered after the facility has been in operation.	The EIS for Stage 1 of SIMTA is seeking consent for a maximum capacity of 250,000 TEUs per annum.	
1.7 The movement of container freight by road may exceed the 250,000 TEU limit by up to a further 250,000 TEU, if the consent authority of a subsequent Development Application is satisfied that traffic monitoring and modelling of the operation of the facility demonstrate that traffic movements resulting from the proposed increase in TEU will achieve the objective of not exceeding the capacity of the transport network.	The EIS is not seeking consent for capacity beyond 250,000 TEU.	
1.8 In determining the TEU limit, the consent authority may take account any roadworks or mitigation measures proposed under a Voluntary Planning Agreement to minimise traffic impacts.	Impacts from the facility will be minimal. The impact of the proposal itself is not sufficient to justify upgrades to any intersection. The only upgrades required are the result of background traffic growth.	The minimal impact on the average performance of the intersections could be hiding more severe impacts on particular intersection approaches. No queuing or per approach LOS performance results with the project operating are provided in the TIA.
1.9 Prior to the determination of any future Development Application pursuant to this Concept Plan, the Proponent shall provide written evidence to the Secretary that it has executed a Voluntary Planning Agreement with the relevant authority consistent with terms outlined in the Revised Statement of Commitments, except for the terms relating to road infrastructure upgrades and when they will be carried out.	The TIA suggests that a VPA is required. The EIS itself notes more recent advice from the department that the VPA cannot impose requirements to support or implement bus services.	Without a VPA there is no requirement on the proponent to ensure that public transport is provided for the staff at the site. An alternative public transport provision requirement must be developed. Until the modification of the concept plan approval is determined, the SIMTA stage 1 project cannot be determined.
1.12 The warehousing and distribution facilities must only be used for activities associated with freight using the rail intermodal.	No warehousing proposed in Stage 1.	Warehousing should be included in the Stage 1 proposal to ensure cargo is not double handled. There is no assessment of regional traffic impacts and air quality as a consequence of this double handling.
Traffic & Transport Assessment Requirements from Schedule 3 are duplicated in the SEARs and are dealt with separately.		
Statement of Commitments		
The Proponent commits to negotiating with the relevant agencies/authorities as required to facilitate the staged delivery of the public transport infrastructure in accordance with the Transport Accessibility Impact Assessment:		
• Designing and constructing the central spine road and other site roads to accommodate buses, bus infrastructure and cyclist use for employees.	Not mentioned. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that the facility and background traffic congestion are expected to grow significantly.

Concept Approval Requirements	EIS Response	Comments
• Construction of a covered bus drop off/pick up facility within the site to encourage the use of buses for employees.	Not mentioned. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that the facility and background traffic congestion are expected to grow significantly.
• Review and rationalisation of the locations of Route 901 bus stops in the vicinity of the site to match the proposed northern terminal entry location and enhance accessibility.	The proponent is seeking to amend the Concept Plan approval to remove the requirement for a VPA to negotiate changes to bus services. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that the facility and background traffic congestion are expected to grow significantly.
• Providing peak period and SIMTA shift work responsive express buses to/from the site and Liverpool Station via Moorebank Avenue and Newbridge Roads with frequency dependant on the development of the site.	The proponent is seeking to amend the Concept Plan approval to remove the requirement for a VPA to negotiate changes to bus services. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that the facility and background traffic congestion are expected to grow significantly.
• Providing peak period express buses to/from the site and Holsworthy rail station via Anzac Road, Wattle Grove Drive and Heathcote Road with frequency dependant on the development of the site.	The proponent is seeking to amend the Concept Plan approval to remove the requirement for a VPA to negotiate changes to bus services. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that traffic generated by the facility and background traffic congestion are expected to grow significantly.
• Consulting with relevant bus provider(s) regarding the potential to extend the Route 901 bus through the site via the light vehicle road and increasing peak period bus service frequencies to better match the needs of existing and future employees of the locality with frequency dependent on the development of the site.	The proponent is seeking to amend the Concept Plan approval to remove the requirement for a VPA to negotiate changes to bus services. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	The proponent is actively seeking to remove this commitment. Unless and until the Concept Approval is amended, the project application for Stage 1 of SIMTA should not be determined.
• Consulting with relevant bus providers regarding changes to existing bus stop location and the identification of new bus stop locations if required.	The proponent is seeking to amend the Concept Plan approval to remove the requirement for a VPA to negotiate changes to bus services. The EIS argues that there is insufficient demand for public transport to require upgrades to infrastructure and services.	The proponent is actively seeking to remove this commitment. Unless and until the Concept Approval is amended, the project application for Stage 1 of SIMTA should not be determined.

Concept Approval Requirements	EIS Response	Comments
The Proponent shall encourage walking and cycling by the inclusion of appropriate facilities including under cover bike storage, showers and change facilities.	The EIS and TIA do not mention the provision of cycling facilities for staff.	This specific commitment is not discussed within the EIS or appendices. This is inadequate considering that the facility and background traffic congestion are expected to grow significantly.
The Proponent commits to developing a Construction Traffic Management Plan to minimise the potential impacts of the construction stage(s), including: • Heavy vehicle access routes • Location of construction worker parking • Mitigation measures to avoid any unacceptable impacts on the surrounding land uses. • Mitigation measures to avoid any unacceptable impacts on regular bus services and school bus services operating on roads within the vicinity of the site and pedestrian and cyclist access.	These plans have been prepared and included within Appendix L.	
Commonwealth EPBC Act Approval – Proposed Mitigation Measures		
Traffic		
Construction A Construction Traffic Management Plan (CTMP) will be implemented prior to and during construction of the SIMT A proposal. Construction material will be sourced from within metropolitan Sydney and delivered to the SIMTA site primarily via the M5 Motorway, Hume Highway, M7 Motorway and Moorebank Avenue. Site access and egress for all construction traffic will be via Moorebank Avenue. Construction site entry is proposed just south of the existing signalised intersection, south of Anzac Avenue to minimise construction traffic impacts upon DNSDC. During later stages of construction, a separate egress point would likely be established to the south of the SIMTA site.	A CTMP has been included within Appendix L.	
Operation Operation of the SIMTA proposal would be subject to an approved Traffic Management Plan which would include a Vehicle Booking System to regulate and manage truck arrivals to the SIMTA site and to prevent trucks queuing and waiting on Moorebank Avenue. The Traffic Management Plan will be developed to manage traffic flows in and around the SIMTA proposal and will include the following:	A operations phase TMP has been included in Appendix L.	
• Management measures to control entry to the SIMTA site for the security of freight, and staff. This would include strategies to minimise unauthorised access to the SIMTA site.	Contained in the operations phase TMP.	
• Traffic management measures (e.g. a Vehicle Booking System) to control the arrival of authorized vehicles so that queuing is minimised and vehicles are directed to the correct location within the terminal.	Contained in the operations phase TMP.	

Concept Approval Requirements	EIS Response	Comments
• Measures to control access of staff and visitors so as to maintain safety and appropriate security, particularly for bonded or quarantined material.	Contained in the operations phase TMP.	
• Measures such as short-range radios, GPS and wireless communications would be recommended to maximise the efficiency of access and circulation of vehicles, goods and staff within the SIMTA site.	Contained in the operations phase TMP.	
In addition to the stated Traffic Management Plan, all reasonable steps would be taken to encourage staff to use public transport, walk and cycle to reduce the dependence on travel to/from the SIMTA site by private motor vehicle. SIMTA would assess the feasibility of the provision of a peak-hour express shuttle bus service to and from Liverpool Station via Moorebank Avenue and Newbridge Roads, with a potential expansion to this route over time to include Holsworthy Railway Station.	Not discussed directly in the TIA, TMP or EIS document. The EIS argues that the size of the project does not justify works to improve public transport.	Public transport is not adequately addressed in the EIS or supporting assessments. It does not meet the intent or wording of the Commonwealth proposed mitigation measures.
The combined impact of the bus and rail focused measures would be to achieve specific public transport usage increases as a result of the SIMTA proposal, above those applying across the Liverpool LGA at the present time. If a reasonable proportion of employees live within the region, then substantial trip reduction benefits could be achieved.	Not discussed directly in the TIA, TMP or EIS document. The EIS argues that the size of the project does not justify works to improve public transport.	Public transport use by SIMTA employees is not adequately addressed in the EIS or supporting assessments. It does not meet the intent or wording of the Commonwealth proposed mitigation measures.
A SIMTA employee public transport mode share of about 30 per cent is currently considered feasible, with a significant proportion of employees living locally. This would manifest through a 2-3 per cent increase in the walk mode share. In summary, measures to reduce private motor vehicle trips would include:	Not discussed directly in the TIA, TMP or EIS document. The EIS argues that the size of the project does not justify works to improve public transport.	Public transport use by SIMTA employees is not adequately addressed in the EIS or supporting assessments. It does not meet the intent or wording of the Commonwealth proposed mitigation measures.
• Development and implementation of a travel behaviour change program. • Reduce on-site car parking supply over-time (dependant on proportion of employees living locally and accessibility of public transport). • Consideration of the establishment of Holsworthy Station Express bus services. • Consideration of the establishment of Glenfield Station to Liverpool Station express bus. • Installation of a bus interchange and waiting area. • Bus priority works (establishment of designated bus lanes). • Design and construction of walking and cycleways. • Consideration of the extension of Bus Route 901. • Promote the establishment of Route 870, 871, and 872 bus.	Specific measures and infrastructure to encourage public transport and active transport use by SIMTA employees have not been discussed or reviewed by the EIS or supporting assessments.	Public transport use by SIMTA employees is not adequately addressed in the EIS or supporting assessments. It does not meet the intent or wording of the Commonwealth proposed mitigation measures.
Road network upgrades The broader sub-regional road network will need to be upgraded progressively over the period to 2031 to cater for the forecast increase in traffic volumes which will result from both the SIMTA	This is addressed for the traffic impact of the proposal and the background growth of traffic to 2016.	The impact of the project beyond the 2016 time horizon has not been assessed. Modelling of the broader road network is currently being

Concept Approval Requirements	EIS Response	Comments
proposal and the general growth in population and employment traffic passing through the south-west of Sydney. Capacity improvements are currently proposed by the NSW Roads and Maritime Service on the M5 South West Motorway (widening to three lanes each way between Camden Valley Way at Casula and King Georges Road at Beverley Hills with an upgrade of the M5 South currently ongoing.	Major upgrades will not be required within that time horizon as a result of the project.	conducted by RMS which will authoritatively determine what road and infrastructure upgrades are needed.
Traffic studies conducted as part of the Concept Plan EA (Hyder Consulting, 2013c) identified some road capacity improvements that would be required to cater for the traffic demands from both background and additional traffic generated by the SIMTA proposal as a result of findings presented within Table 42. The study identified the following road network improvements that would be required by 2031 when the SIMTA proposal is operating at full capacity:	This is addressed for the traffic impact of the proposal and the background growth of traffic to 2016. Major upgrades will not be required within that time horizon as a result of the project.	The impact of the project beyond the 2016 time horizon has not been assessed. Modelling of the broader road network is currently being conducted by RMS which will authoritatively determine what road and infrastructure upgrades are needed.
1. Widening of Moorebank Avenue to four lanes between the M5 Motorway/Moorebank Avenue grade separated interchange and the northern access point to the SIMTA site. 2. Some localized improvements would be required around the central and southern access points to the SIMTA site. 3. Concurrent with four lane widening of Moorebank Avenue, the Moorebank Avenue/Anzac Road signal will require some widening at the approach roads. 4. A new traffic signal at the northern access from the SIMTA site to Moorebank Avenue. 5. The central access currently being used by DNSDC will be retained for SIMTA access. 6. Potential upgrades at the M5 Motorway/Moorebank Avenue grade interchange to cater for both background and additional SIMTA traffic growth. 7. Widening at the following ramp locations including: 1. M5 westbound off-ramp. 2. M5 westbound on-ramp. 3. M5 eastbound off-ramp. 4. Moorebank Avenue northern approach. 8. These road network upgrades would be discussed and negotiated with RMS, potentially impacted stakeholders. Input from the community will also be sought.	This is addressed for the traffic impact of the proposal and the background growth of traffic to 2016. Major upgrades will not be required within that time horizon as a result of the project.	The impact of the project beyond the 2016 time horizon has not been assessed. Modelling of the broader road network is currently being conducted by RMS which will authoritatively determine what road and infrastructure upgrades are needed.

4.2.5 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-4 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
5. Traffic and Transport		
A Traffic Impact Assessment that assesses intersection and road network impacts, including impacts on Cambridge Avenue. The traffic assessment shall:		
a. Take into account the guide to traffic Generating Development (RTA)	Included.	
b. Undertake a realistic and justified range of peak hour generation scenarios (to be determined in consultation with TfNSW).	Peak hours are modelled for 07:00 to 09:00 and 16:00 to 18:00.	As noted in the above review, the PM peak scenario modelled does not include the peak output of heavy vehicles from the IMT which is forecast to be between 14:00 and 16:00.
c. Undertake detailed model analysis to confirm network operation and identify intersection upgrade requirements.	Intersection and network modelling has been undertaken. There are no significant impacts once proposed upgrades occur.	As noted in the above review, the weave issues on the M5 between Moorebank Avenue and the Hume Highway have not been addressed or considered in any form. This critical issue must be resolved before any approval can be granted. The TIA has not had the benefit of independent strategic level network modelling conducted by RMS for the whole Moorebank precinct. As noted above, the proposal should not receive consent until the strategic network modelling has been completed. Without it, a full assessment of the future capacity of the road network cannot be made. The TIA indicates the proposal is forecast to have minimal impact on some intersections, no impact on others and in one case actually improve intersection performance. This may be the result of unrealistic modelling assumptions and impractical optimization of traffic signal phasing.
d. Consider the constructability constraints of proposed upgrade(s) at key intersections, such as vehicle sweep paths, geometry and sight lines.	Proposed upgrades have been restricted to those proposed by RMS itself.	No consideration of constructability or safety of these upgrades has been undertaken.
e. Assess the construction traffic impacts, including:		
The identification of routes and the nature of existing traffic on these routes;	Included.	
An Assessment of construction traffic volumes (including spoil haulage/delivery of materials and equipment to the road corridor and ancillary facilities); And	Included.	

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Potential impacts to the regional and local road network (safety and level of service) and potential disruption to existing public transport services and access to properties and businesses.	No significant impacts will be caused by the proposal. Existing public transport services are too limited to suffer significant impacts.	As noted in the above review the weave issues on the M5 between Moorebank Avenue and the Hume Highway have not been addressed or considered in any form. This critical issue must be resolved before any approval can be granted. The TIA has not had the benefit of independent strategic level network modelling conducted by RMS for the whole Moorebank precinct. As noted above, the proposal should not receive consent until the strategic network modelling has been completed. Without it, a full assessment of the future capacity of the road network cannot be made.
f. Assess operational traffic and transport impacts to the local and regional road network, including: 1. Changes to local road connectivity and impacts on local traffic arrangements, road capacity/safety; 2. Traffic capacity of the road network and its ability to cater for predicted future growth and 3. Monitoring of vehicle numbers on Cambridge Avenue	No significant impacts will be caused by the proposal.	As noted in the above review the weave issues on the M5 between Moorebank Avenue and the Hume Highway have not been addressed or considered in any form. This critical issue must be resolved before any approval can be granted. The TIA has not had the benefit of independent strategic level network modelling conducted by RMS for the whole Moorebank precinct. The proposal should not receive consent until the strategic network modelling has been completed. Without it, a full assessment of the future capacity of the road network cannot be made.
g. Give consideration to the use of heavy vehicles able to move two 40 foot containers	Considered briefly as a possibility for the future.	The assessment is very limited. It notes that these vehicles may be permissible in Sydney in future. No assessment of additional safety issues has been undertaken.
h. Provide an outline operational Traffic Management Plan to manage vehicle movements to and from the site, including contingency measures should the M5 and Moorebank Avenue be obstructed	Included.	
Provide an updated Traffic Management And accessibility plan including; Measures to prevent heavy vehicles accessing residential streets to maintain the residential amenity of the local community; 4. Public transport; 5. Cyclist facilities; and 6. Driver code of conduct.	The Traffic Impact Assessment notes that the VPA to modify the 901 bus route will be delivered as a condition of the concept approval. The EIS itself notes that the VPA cannot be used to support a bus service and that a modification is being sought to remove the VPA requirement.	As noted in the above review, the proposal seeks to amend the Concept Plan approval to remove the Bus service VPA. An alternative public transport servicing strategy must be developed. At present, the Stage 1 proposal contains no alternative mechanism for delivery public transport accessibility to the site. There is no discussion of provision of facilities on site during construction or operation to support staff who might choose to cycle to work.
The Traffic Impact Assessment must identify upgrades and other mitigation measures required to achieve the objective of not	No significant impacts will be caused by the proposal.	As noted in the above review the weave issues on the M5 between Moorebank Avenue and the Hume

Secretary's Environmental Assessment Requirements	EIS Response	Comments
exceeding the capacity of the following intersections and roads: 7. Moorebank Avenue/Newbridge Road 8. Moorebank Avenue/ Heathcote Road 9. Cambridge Avenue 10. M5 Motorway/ Moorebank Avenue 11. M5 Motorway/ Heathcote Road; and 12. M5 Motorway/ Hume highway		Highway have not been addressed or considered in any form. This critical issue must be resolved before any approval can be granted. The TIA has not had the benefit of independent strategic level network modelling conducted by RMS for the whole Moorebank precinct. The proposal should not receive consent until the strategic network modelling has been completed. Without it, a full assessment of the future capacity of the road network cannot be made.

4.2.6 Recommendations

The recommendations below are identified to address the shortcomings and impacts associated with traffic and transport to allow a comprehensive assessment of the proposal:

- A determination should not be made until the RMS road network modelling has been completed and considered.
- The forecast LOS and queue lengths data used for each approach for the intersections modelled is required to allow comprehensive review.
- The signal phasing and timing data used to model signalised intersection performance is required to allow comprehensive review.
- Additional PM Peak Traffic Modelling should be conducted to include the time between 14:00 and 16:00. Additional traffic modelling should be conducted for a range of vehicle type proportions such as a scenarios where 80%, 90% and 100% of freight is moved via semi-trailers. This will allow the full range of potential impacts from traffic to be assessed.
- The TIA should discuss Moorebank Avenue and its lane configuration with specific focus on current and future capacity requirements.
- The TIA should perform a more detailed evaluation of the M5 and Moorebank Avenue intersection addressing lane configurations for large vehicles, lane storage and through traffic.
- The TIA should address the issue of weaving on the M5 and determine if additional infrastructure or motorway upgrades are required. Stage 1 of SIMTA should not be determined without consideration of microsimulation modelling associated with the increased accident rate and congestion issues that could arise due to the amplification of conflicting traffic movements on the M5.
- Public Transport and Active Transport requirements should be maintained for the SIMTA project to ensure that any future combined IMT with large staff and warehousing operations has a consistent set of requirements and conditions. Stage 1 of SIMTA should not be approved without an adequate public transport servicing strategy supported by infrastructure, services and facilities. Provision should be made for cyclists on site and on Moorebank Avenue as required by the Concept Plan conditions of approval and Statement of Commitments. If the Concept Approval requirements for public transport provision cannot be enforced, then the project should not proceed.
- The full impact of using priority controlled intersections on Moorebank Avenue during the construction phase should be assessed. Alternative intersection control systems such as signals or traffic controllers should be considered with assessment of construction traffic impacts and mitigation strategies prior to determination. .

> The secondary traffic movements from the SIMTA site associated with the need to unload and sort container freight off site should be incorporated into the TIA modelling and assessed to establish the level of impact associated with the proposal not providing warehousing on site.

4.3 Air Quality

The proposed SIMTA EIS provides analysis of the proposal's impacts on Air Quality. This review considers information in the EIS at Section 8 and the *Air Quality Assessment* at Appendix M prepared by Environ (2015).

4.3.1 Overview of the SIMTA Assessment

The Air Quality Impact Assessment (AQIA) provides a quantitative impact assessment of air emissions and pollutants arising from the Stage 1 SIMTA Proposal. The Environ assessment builds on the previous AQIA (PEL 2013) submitted for Concept Approval (MP10_0193) and considers the range of emission sources and pollutants which arise from the construction and operational phases of the Project.

The EPBC Act Approval (No. 2011/6229) and Part 3A *Concept Approval (No. 10_0193)* involved the preparation of design and environmental assessment documentation, including an Air Quality Impact Assessment (AQIA) (PEL, 2013). The AQIA presented dispersion modelling predictions for key transport-related pollutants (nitrogen dioxide (NO2) and particulate matter (PM)).

The AQIA provides an assessment of the construction and operational phases of the following aspects of Stage 1:

> Truck processing, holding and loading areas (entrance and exit from Moorebank Avenue)

> Rail loading and container storage areas (installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively)

> Administration facility and associated car parking (light vehicle access from Moorebank Avenue)

> The rail line (located within the Rail Corridor, including a connection to the IMT, traversing of Moorebank Avenue, Anzac Creek and Georges River and connection to the SSFL)

> Ancillary works (vegetation clearing, remediation, earthworks, utilities installation/connection, signage and landscaping).

The EIS (Hyder 2015) has been prepared to provide an overall assessment of the potential environmental impacts associated with the construction and operation of the proposal, including Air Quality impacts.

4.3.2 Cardno Assessment

The AQIA has been undertaken based on a series of stated assumptions. The assessment models impacts associated with three operating scenarios which include.

> **Scenario 1**: manual loading and unloading of trains and trucks using reach stackers and/or large forklifts at an operational capacity of 250,000 TEU per annum.

> **Scenario 2**: unloading and loading of trains and trucks via an electric gantry crane system at an operational capacity of 250,000 TEU per annum.

> **Cumulative Scenario**: taking into account the first stage of construction and operations for the MIC Proposal and the operation of the Stage 1 Proposal at operational capacity of 250,000 TEU per annum.

The accuracy of the assumptions is a key constraint on the assessment, and on the subsequent accuracy of predicted impacts.

> It is noted that the worst case assumptions in the Traffic Assessment at Section 7 of the EIS fall short of identifying a rigorous worst case scenario. Therefore the assumptions for traffic volumes and movements which feed into the modelling undertaken as part of the AQIA will need further review and updating to ensure no unacceptable additional impacts are likely prior to determination.

> The air quality standards for PM_{10} and $PM_{2.5}$ contained in the Ambient Air Quality NEPM are 50µg/m^3 and 25µg/m^3 respectively and although the existing modelling results show predicted impacts below these levels the AQIA should be reviewed and amended if any changes to traffic assumptions are required.

> The AQIA clearly identifies that the existing background air quality with respect to particulate matter is high, and approaches the relevant air quality goals. This means that future development in the area may be restricted, and that continuing to meet air quality criteria will become more challenging in the area. With this in mind, it is suggested that ongoing control of particulate emissions, and $PM_{2.5}$ emissions in particular should be a high priority for both Council and the proponent.

> Key controls relate to limiting the idling time and use of diesel powered equipment associated with the site. It is recommended that efforts are made to use cleaner technologies wherever possible to limit $PM_{2.5}$ emissions, and that innovative and international best practice measures are adopted including the use of electrified plant and equipment.

Therefore the assumptions contained within the Traffic Assessment (refer **Section 4.2** of this review) in terms of total vehicle movements, along with associated flow on effects on congestion, noise, air quality and human health are inaccurate and fall well short of providing a worst case scenario to address the uncertainty.

4.3.2.1 Best Practice Review

A detailed IMT operational best practice review of process design, emission control and management measures with related benchmarking has been included as Appendix C of the AQIA. The best practice review has used the SEARs as a guide for aspects to review and assess.

The “Best Practice Review for Air Quality” considers a range of emission control and fuel efficiency improvement aspects that include:

> Fuel Efficiency Improvements (Locomotives):

- Implementation of Driver Assistance Systems (DAS) to increase efficiency of driving (i.e. slower acceleration and gradual deceleration) and optimal setting selection needs to be considered as part of existing locomotive fleet upgrades and during maintenance activities.
- Idle reduction technologies such as automatic shut-down/startup systems, auxiliary power units (APU)/Generator sets and electrification needs to be considered as part of existing locomotive fleet upgrades and during maintenance. Anti-idling operational polices have also been outlined in Section 5 of the Best Practice Review for Air Quality and these should be implemented as part of the operational management requirements for the site.
- Electronically Controlled Pneumatic (ECP) Brakes have not been deemed suitable for SIMTA Stage 1 as existing rolling stock will be utilised. This has not been deemed to be an effective emissions reduction or fuel saving technology and so benefits are not great for associated costs to implement.
- Improved aerodynamics on intermodal container trains has been considered even though the expected emission reduction potential is considered to be low.

> Retrofitting or after-treatment (Locomotives):

After-treatment systems which should be considered to be retrofitted to locomotives include:

- Diesel particulate filters to capture diesel particulates preventing their discharge from the exhaust.
- Selective catalytic reduction which is an active emission control measure that injects a reducing agent (usually urea) through a catalyst into the exhaust stream (reducing NOx emissions to N2, CO2 and H2O).

- Selective catalytic reduction with diesel particulate filters are a control measure that can achieve reductions in PM and NOx.
- Exhaust gas recirculation, which reduces NOx through lowering oxygen concentration in the combustion chamber as well as through heat absorption.

A range of other aspects have been reviewed including acceptable thresholds for idling and predicted annual, daily and cumulative air pollutants from non-renewable fossil fuels consumed.

4.3.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-5 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Any future Development Application shall include a comprehensive air quality impact assessment for each stage of the proposal, including: a) An assessment in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2005)* (or its later version and updates;	Section 8.1 -*Air Quality* Air Quality Impact Assessment (refer Appendix M)	A detailed Air Quality Assessment report, prepared by Environ, has been prepared to support Stage 1 of the SIMTA Proposal. The AQIA (Environ 2015) in the EIS states that the assessment follows guidelines recommended in the NSW Environment Protection Authority (EPA) *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* ("the Approved Methods") (NSW EPA, 2005a).
b) Taking into account the final project design with consideration to worst-case meteorological and operating conditions;	Section 8.3 -*Air Quality – Potential Impacts* Air Quality Impact Assessment (Appendix M) A detailed account of the baseline meteorological data selected for modelling is outlined in Section 5 of the AQIA. Section 7 provides a summary of worst case operating conditions used as assumptions in the AQIA.	Questions raised in relation to the robustness of the traffic impact assessment (refer Section 7) will impact on worst case traffic volume assumptions in the AQIA. These assumptions are critical inputs for the air emission modelling undertaken by Environ and therefore this aspect needs review to ensure that a true worst case operating condition is reflected.
c) Quantitatively assessing the prediction emission of: i. Solid particles; ii. Sulphur oxides; iii. Nitrogen oxides; and iv. Hydrocarbons.	Section 8.1 -*Air Quality – Potential Impacts* Air Quality Impact Assessment (Appendix M) All noted emissions in the SEARs were assessed from construction and operational phases, including heavy machinery, locomotives and truck (road transportation) sources have been assessed in sections 7, 8 & 9.	The quantitative emission predictions are in question as assumptions relating to model inputs arising from traffic volumes and routes have been identified as an issue.
d) Assessing cumulative air impacts at a local and regional level (including but not limited to contemporaneous operations such as those of the proposed Commonwealth Government MIT; and	Section 8.3 – *Air Quality – Potential Impacts* Section 19-*Cumulative Impacts* Air Quality Impact Assessment (Appendix M). Cumulative predictions of construction air quality impacts are presented in Table 27 with cumulative predictions for	It was noted that the MIC EIS did not include a cumulative scenario for 250,000 TEU at SIMTA. Environ have dismissed this potential issue as they considered that as a higher TEU throughput was assessed, including warehousing, the cumulative scenario for the 250,000 TEU scenario would not result in exceedances of the impact assessment criteria.

Concept Approval Requirements	EIS Response	Comments
	operational phase presented in Table 28. Three difference cumulative scenarios have been modelled in consideration of the MIC Proposal in Section 9.6, which include: 1.5 million TEU at MIC with warehousing and northern rail access. No TEU throughput at SIMTA (warehousing only). Million TEU at MIC with warehousing and southern rail access. 0.5 million TEU at SIMTA plus warehousing. 0.5 Million TEU at MIC with warehousing and southern rail access. 1 million TEU at SIMTA plus warehousing. The modelling showed that under all cumulative scenarios, above there were no additional exceedances of the impact assessment criteria at any of the surrounding receptors described in the EIS.	This appears to be a reasonable assumption which is further supported by similar modelling scenario results presented in the MIC EIS and cumulative results have been presented for PM_{10}, $PM_{2.5}$ and NO_2 in Tables, 32, 33 and 34.
e) A comprehensive air quality management plan that includes at least the following information:	An Air Quality Management Plan has been included in Appendix D of the AQIA (Appendix M).	No comment
i. Explicit linkage of proposed emission controls to the site specific best practice determination assessment and assessed emissions;	The proposed emissions controls listed in Section D3.1 are taken from the best practice determination and are informed by the AQIA.	No comment
ii. The timeframe for implementation of all identified emission controls;	Timeframes for emissions controls are outlined in Section D3.1.	No comment
iii. Proposed key performance indicator(s) for emission controls;	Environmental inspection reports, response log and community complaints log will be used to track environmental [SIC] performance.	No comment
iv. Proposed means of air quality monitoring including location (on and off-site), frequency and duration;	Section D3.3 states that modelling predictions presented in the report indicate that the risk of adverse air quality impacts from the Stage 1 Proposal are low. The incremental increase in key pollutants at the surrounding residential areas would be largely indistinguishable from the existing background and project specific air quality monitoring is therefore not considered necessary. No off site air quality monitoring has been prescribed for either the construction or operational phases of the project.	There is no off-site air quality monitoring proposed in the AQIA or within the Air Quality Management Plan. Due to the large scale clearing and bulk earthworks required during construction it is recommended that off-site monitoring of particulate matter be undertaken to ensure that potential dust impacts are identified and managed if required. The location of such monitoring should consider prevailing wind direction and sensitive receivers to ensure that potential impacts to the surrounding community are minimized.
v. Poor air quality response mechanisms;	Section D2.3 and D3.3 provide an overview of monitoring requirements.	The detail in the response plans is lacking as event based scenarios should form part of the CEMP and OEMP (i.e. what to do in event of truck emission observations, dust escape or other potential air pollution event).

Concept Approval Requirements	EIS Response	Comments
vi. Responsibilities for demonstrating and reporting achievement of key performance indicator(s);	Section D2.2 and D3.3 provide an overview of site environmental responsibility.	Further detail on site responsibilities for reporting achievements or failings against key performance indicator(s) is required to address this requirement.
vii. Record keeping and complaints response register; and	Complaints management is covered in Section D2.4 and D3.4. Record keeping and reporting is outlined in Section D2.5 and D3.5.	No comment
viii. Compliance reporting.	Record keeping and reporting is outlined in Section D2.5 and D3.5.	Further detail on the compliance reporting requirements is required, including examples of any document templates, checklists etc. that will be used.
Statement of Commitments	**EIS Response**	**Comments**
The Proponent commits to undertaking a review of national and international 'best practice' for the design and operation of intermodal facilities to identify reasonable and feasible management strategies to reduce air quality and noise impacts associated with construction and operation of the intermodal terminal development stages of the proposal.	Section 10 – *Best Practice Review* Air Quality Best Practice Review (Appendix M)	Procurement policies need to consider minimum standards for design criteria and performance objectives which align to the best practice review. This policy should be applied to procurement of any new plant, equipment, vehicles, associated upgrades and ongoing maintenance.
The Proponent will undertake an air quality monitoring programme during the initial phases of both construction and operation of the SIMTA site in accordance with the Air Quality Impact Assessment and including: • Nuisance Dust • Air Emissions – PM10 and Nitrogen dioxide	Section 8 – *Air Quality* Section 22 – *Compilation of Mitigation Measures*	The AQIA states that no monitoring will be undertaken as predicted impacts are believed to be below criteria. The statement of commitments clearly state that a monitoring will be undertaken during the initial phases of both construction and operation of the SIMTA site for: • Nuisance Dust • Air Emissions – PM10 and Nitrogen dioxide.
The Proponent shall consider the need to develop a vehicle efficiency and emissions reduction program for the facility to encourage good maintenance and efficient vehicle selection, taking into account the results of the air quality monitoring programme.	Section 10.1 – *Best Practice Review – Air Quality* Table 17 of the AQIA has included driver training for fuel efficiency as part of the emission reduction strategy.	Feedback of results from any fleet monitoring needs to be included in operational initiatives and an emissions reduction program to constantly seek improvements to fuel and vehicle efficiencies. Rather than the proponent considering the need for a vehicle efficiency and emissions reduction program, this should be a continuous improvement requirement to operate SIMTA.
The Proponent commits to the preparation of a Construction Environmental Management Plan prior to the construction of each stage to provide air quality and dust management/ mitigation procedures to be adopted during each of the construction phases of the development.	Section 22 – *Compilation of Mitigation Measures* Preliminary Construction Environmental Management Plan (Appendix I)	The CEMP should consider and include any relevant recommendations.
The Proponent commits to the preparation of a Greenhouse Gas Management Plan for the three major stages of the development in accordance with the provisions of the Greenhouse Gas Assessment.	A Greenhouse Gas and Climate Change Assessment has been undertaken, however, this does not include a Management Plan.	A Management Plan has not been prepared as discussed at Section 4.10.

4.3.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-6 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
3. Air Quality – including but not limited to: A comprehensive air quality impact assessment including:	A detailed Air Quality Impact Assessment (AQIA) report, prepared by Environ Australia Pty Ltd (Environ), has been prepared to support Stage 1 of the SIMTA Proposal.	No comment
An assessment in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (2005) (or its later version and updates);	The AQIA (Environ 2015) in the EIS states that the assessment follows guidelines recommended in the NSW Environment Protection Authority (EPA) *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* ("the Approved Methods") (NSW EPA, 2005a).	The *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2005)* has been the guideline used for quantitative assessment of air pollutants in the AQIA.
Taking into account the final project design with consideration to worst-case meteorological and operating conditions;	Table 17 of the AQIA (Environ 2015) outlines a range of assumptions included in the assessment which includes conservative worst case operational scenarios (i.e. locomotive and vehicle idle times, travel distances, fuel consumption assumptions, peak times, emission factors, equipment /vehicle and machinery type, maximum potential operating conditions). Three potential operating scenarios were also modelled as part of the AQIA which included: Scenario 1: manual loading and unloading of trains and trucks using reach stackers and/or large forklifts at an operational capacity of 250,000 TEU per annum. Scenario 2: unloading and loading of trains and trucks via an electric gantry crane system at an operational capacity of 250,000 TEU per annum. Cumulative Scenario: taking into account the first stage of construction and operations for the MIC Proposal and the operation of the Stage 1 Proposal at operational capacity of 250,000 TEU per annum. The operational phase of the Stage 1 Proposal has been assessed in terms of potential impacts from PM10, PM2.5, NOx, CO, SO2 and VOCs. Additional emission control strategies include: Idle reduction strategies as a mitigation measure for locomotives have considered cold weather scenarios as worst case (refer Section 5.2 of AQIA). Air quality impacts (i.e. dust) during periods of dry and windy conditions can be controlled by limiting clearing, stripping, topsoil clearing and excavation particularly during dry and windy conditions and by increasing the moisture content of the soil (i.e. water cart usage).	As noted previously the assumptions do not include worst case traffic movements (refer Section 7) and therefore worst case operating conditions are not fully considered in the AQIA.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Quantitatively assessing the predicted emission of: – Solid particles; – Sulphur oxides; – Nitrogen oxides; and – Hydrocarbons.	A quantitative assessment of emissions using numerical plume dispersion modelling has been included in Section 7 & 9 of the AQIA (Environ 2015). Solid Particles Construction dust was modelled as three separate size fractions particle geometric mean diameter of 15 µm, PM10 a particle geometric mean diameter of 5 µm and PM2.5 with a particle geometric mean diameter of 1 µm. Diesel emissions during operations were modelled using a particle geometric diameter of 1 µm for both PM10 and PM2.5 as it was assumed that PM2.5$_5$ emissions are 97% of the PM10 emissions. Sulphur oxides (SO_2) The predicted NO_2, CO and SO_2 concentrations are presented in Table 29 of the AQIA. The predicted NO2 concentrations are based on the conservative assumption that 100% of NO is converted to NO2, both for short-term and annual average predictions. This simplified (and conservative) conversion method can be applied in this case because predictions are well below the relevant impact assessment criteria. Nitrogen oxides (NO_x) Daily and hourly varying background concentrations for 2013 are used to predict cumulative short-term PM and NOx. NOx emissions from locomotives travelling and idling as well as Container handling and road transport were included in the quantitative assessment of impacts. Hydrocarbons (VOC) The maximum predicted incremental concentrations of 1,3-butadiene, benzene and PAHs (expressed as 99.9th percentiles) are presented in Table 31 of the AQIA. Emission factors presented as total hydrocarbons (HC) are converted to VOCs using a conversion factor of 1.053 (US EPA 2009a). Emission rates for the individual VOCs are then derived based on the speciation profiles used in the NSW GMR emissions inventory.	No comment
Assessing cumulative air impacts at a local and regional level (including but not limited to contemporaneous operations such as those of the proposed Commonwealth Government MIT; and	Section 9 of the EIS provides a summary of cumulative impacts. PEL (2013) presented an assessment of regional impacts by comparing the marginal effects of the SIMTA Project on emissions from road vehicles (articulated trucks only) and railway locomotives on the Port-Botany-Moorebank corridor. The approach uses the change in total pollutant emissions as a proxy for regional air quality. The analysis showed that there would be reductions in emissions of NOx, PM10 and CO2 associated with the transfer of freight from road to rail. The absolute net effects were placed into context by comparing them with emissions from all sources in Sydney in 2008 (NSW EPA,	No comment

Secretary's Environmental Assessment Requirements	EIS Response	Comments
	2012c) and found that the changes in emissions would be negligible when considered at the regional level. It was therefore concluded that the impacts on regional air quality would also be negligible. No further assessment of regional impacts is presented as part of this assessment.	
A comprehensive air quality management plan that includes at least the following information: Explicit linkage of proposed emission controls to the site specific best practice determination assessment and assessed emissions; Explicit linkage of assumed engine standards and operational management systems; The timeframe for implementation of all identified emission controls; Proposed key performance indicator(s) for emission controls; Proposed means of air quality monitoring including location (on and off-site), frequency and duration; Poor air quality response mechanisms; Responsibilities for demonstrating and reporting achievement of key performance indicator(s); Record keeping and complaints response register; and Compliance reporting.	Further summary of where items are covered in the AQIA and EIS are provided above in Table 4.5.	Detailed comments are provided above in Table 4-6.
An assessment of construction related impacts including dust and wind erosion from exposed surfaces and proposed mitigation measures and safeguards to control dust generation and other airborne pollutants and to minimise impacts on nearby receptors.	Environ has included an assessment of construction phase impacts in Section 10.1 of the AQIA and have outlined a range of proposed controls in in the Air Quality Management plan in Appendix D of the AQIA. The proposed controls are targeted to a range of site activities which include: Clearing, site preparation and excavation Construction of rail link and Georges River Crossing Demolition of existing structures Haulage and heavy plant and equipment movements Wind erosion. Proposed controls include: Modification of work practices Limiting extent of clearing Using water sprays for dusty activities (particularly during dry and windy conditions) Defined vehicle routes and speed limits of 30km/hr Dirt track out (shaker grids, wheel cleaning and road cleaning) Cover all trucks leaving site	No comment

Secretary's Environmental Assessment Requirements	EIS Response	Comments
4. Best Practice Review – including but not limited to: The preparation of a comprehensive review of intermodal operational best practice process design, emission control and management measures that might feasibly and reasonably be applied to each stage of the project, and to benchmark those measures against best practice. The review should:	To address the requirement for the completion of a Best Practice Review, Environ reviewed emission reduction measures and recommended reasonable and feasible air quality management measures for the Stage 1 Proposal.	No comment
clearly demonstrate that the Proponent will at each project stage adopt and implement best practice facility and process design and management measure to the extent that is reasonably practicable, to minimise operational air pollutant and noise emissions at the terminal and on the rail link;	Air Quality Best Practice Review (Appendix M) contains a summary of best practice emission controls for SIMTA in Section 6. This section contains a range of operational management strategies that propose to utilize automation technologies and truck reservation/appointment systems to improve operational efficiencies and reduce truck idling times.	No comment
include a detailed evaluation of feasible and reasonable mitigation and management measures including:	Air Quality Best Practice Review (Appendix M) provides a review and evaluation of feasible and reasonable mitigation and management measures.	No comment
assessment of best practice international emission standards for locomotives and non-road plant and equipment;	Air Quality Best Practice Review (Appendix M) provides an assessment of international emission standards for locomotives and non-road plant and equipment. This includes a review of US and EU standards and diesel fuel regulations, including recent changes and fuel type performance.	No comment
assessment of retrofit opportunities for older vehicles, locomotives and equipment;	Section 3 of the Air Quality Best Practice Review (Appendix M) provides an assessment of "Emission reduction for in-service locomotives and considers engine upgrades and repowering with alternate drivetrain technologies, fuel efficiency improvements and retrofitting case-studies.	No comment
maintenance and operational practices for vehicles, locomotives and equipment;	Section 3 of the Air Quality Best Practice Review (Appendix M) has considered maintenance and operational practices for vehicles, locomotives and equipment.	No comment
electrification of terminal plant;	Section 4 of the Air Quality Best Practice Review (Appendix M) has considered the electrification of terminal plant. Table 6 provides a summary of emission reduction options for container handling which includes electrification and hybrid technologies. Electrified gantry crane systems would come close to eliminating all container handling emissions (although some diesel equipment may be needed). Generally, WSG crane systems are implemented at facilities designed to handle a large volume of containers (i.e, more than 750,000 per year) (CARB, 2009). Electric rechargeable technologies are limited to small forklifts.	Further ongoing review and consideration of electrification opportunities should be explored throughout the life of the SIMTA IMT. As battery storage, regenerative energy storage systems and electric motor technology improves, the viability of other vehicles and equipment being electrified is likely to increase too.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
reduction of 'long-duration' idling of diesel locomotives, prime movers and cargo handling equipment through:	Section 5 of the Air Quality Best Practice Review (Appendix M) has identified that idle reduction devices are more commonly implemented on locomotives and yard trucks, however demonstration projects are underway for ports in the US, for example installation of preheaters on reach stackers and container forklifts. Best practice idle reduction strategies are also discussed in Section 5.2 of the Air Quality Best Practice Review.	Ongoing review and consideration of 'long-duration' idle reduction methods, strategies and technologies should be considered throughout the life of the SIMTA IMT. The outcomes of any identified international demonstration projects may provide important performance benchmarking for SIMTA operations to ensure that best practice and continuous improvement philosophies are adopted.
driver/operator training about how to reduce air quality impacts associated with 'long-duration' idling;	Section 6 of the Air Quality Best Practice Review (Appendix M) provides an overview of the best practice measures to reduce air quality impacts which includes driver training and communications on anti-idling policies.	No comment
automatic engine shut down/start up system controls whereby engine stopping or starting is implemented without operator action;	Table 7, Section 6 of the Air Quality Best Practice Review (Appendix M) outlines that unnecessary 'long-duration' idling on locomotives can be avoided through driver training and the use of an electrified locomotive shifter. Also the SIMTA idle reduction policy will be outlined in operational management plans for the site that will apply for locomotives, trucks and container handling equipment As locomotives are replaced and /or overhauled, the installation of automatic engine shut down/start up systems (AESS) will be considered as part of the upgrade.	No comment
'shore power connection' being electricity mains plug-in points for enabling locomotives and trucks to switch over to mains power and shut down main engines otherwise used to generate power required for: transport refrigerated units/containers; cabin climate control; and other accessories and equipment.	Section 3 of the Air Quality Best Practice Review (Appendix M) identifies that auxiliary power and electrical shore power is a recommendation under the *Australasian Railway Association (ARA) Rail Industry Safety and Standards Board (RISSB) developed Draft Exterior Environment Standards in 2008*. The feasibility of implementation for this recommendation is reviewed in Section 3.2, Table 5, which identifies that the advantages are a low / medium emissions reduction with moderate fuel savings. Also the implementation difficulty and cost were determined to be low.	As an existing locomotive fleet will be deployed as part of SIMTA Stage 1, the upgrades to incorporate auxiliary power and electrical shore power connections should be considered as part of future maintenance programs.
the application of queuing theory to minimise truck loading/unloading wait times and resultant queuing and idling in the terminal facility and on access roads.	Section 5 of the Air Quality Best Practice Review (Appendix M) provides an overview of the queuing and idle management proposed. Best practice idle reduction strategies are also discussed in Section 5.2 of the Air Quality Best Practice Review. A distribution and logistics management center will incorporate a truck reservation and terminal Gate Appointment System to ensure that truck loading/unloading times are minimized.	No comment

Secretary's Environmental Assessment Requirements	EIS Response	Comments
c) Define an acceptable threshold where idling becomes 'long-duration' using an evidence based approach; and	Section 6.4 of the Air Quality Best Practice Review (Appendix M) provides an overview of the long duration idling threshold. Locomotives were assumed to idle continuously during loading /unloading, which is estimated to take up to two hours. Emissions in the AQIA were therefore estimated based on every train idling for two hours, modelled for every hour of the year. Trucks were assumed to spend approximately 30 minutes of every visit processing, waiting or loading/unloading, although this does not necessarily mean continuous idling.	No comment
d) include predicted annual cumulative, daily and one minute amounts of air pollutants emitted and non-renewable fossil fuel consumed (by typical diesel locomotives, prime movers, fixed body trucks, yard trucks/holsters and cargo handling equipment expected to regularly operate at the terminal) as the basis for defining the term 'long-term' duration idling as it would apply to the terminal facility.	Emission estimates for all sources are presented in the AQMP, however not necessarily linked to definition of long duration idling. This is discussed in Section 6.4 which states: *The SEARs include an evidence based approach to determine an acceptable threshold where idling becomes long duration. The evidence presented in AQA indicate that the air quality risk is low using the conservative assumptions for locomotive and truck idling. It is therefore not considered necessarily to present any additional evidence for a specific long duration idling threshold, different to what has been assumed and modelling in the AQA.*	No comment

4.3.5 Recommendations

The recommendations below should be addressed prior to determination:

> The AQIA needs to be reviewed to address the inadequacy of worst case assumptions relating to:
  - The number of vehicle movements
  - Operating hours of plant and equipment
  - Fuel source and environmental performance of each plant item
  - The assumptions on which the AQIA is based should become minimum performance standards.

> It is recommended that efforts are made to use cleaner technologies wherever possible to limit PM2.5 emissions, and that innovative and international best practice measures are adopted including the use of electrified plant and equipment.

> Firm commitments need to be made to improve the effectiveness of the transport fleet (rail and road) in reducing air quality emissions by:
  - Increasing the utilisation of rail transport where possible
  - Seeking opportunities to incorporate international best practices in rail and road transport (i.e. regenerative braking systems, Euro emission standards, retrofitting of improved emission control on old equipment, ensuring emission control best practices considered at design and procurement stages across the project).

> The AQIA contradicts the Statement of Commitments noting that no monitoring will be undertaken, whereas the Statement of Commitments clearly states that an air monitoring campaign will be undertaken during the initial phases of both construction and operation of the SIMTA site for:
  - Nuisance Dust
  - Air Emissions – PM10 and Nitrogen dioxide.

> The location of such monitoring should consider prevailing wind direction and sensitive receivers to ensure that potential impacts to the surrounding community are minimized.

> The proponent should make all air quality monitoring results publically available on a centralized project website or via project update email newsletters that the public can subscribe to.

> The Air Quality Management Plan for any future development stages will need to ensure best practice Emission controls are implemented where deemed feasible. All Air Quality Management Plans should also include:

- Detailed response plans should be prepared to provide an outline of response in the event of poor air quality conditions.
- Further detail on site responsibilities for reporting achievements or failings against key performance indicator(s) is required to address this requirement.
- Further detail on the compliance reporting requirements is required, including examples of any document templates, checklists etc. that will be used.

> Event based scenarios of what to do in event of truck emission observations, dust escape or other potential air pollution event should form part of the CEMP and OEMP.

> As an existing locomotive fleet will be deployed as part of SIMTA Stage 1, the upgrades to incorporate auxiliary power and electrical shore power connections should be considered as part of future maintenance programs.

> Further ongoing review and consideration of electrification opportunities should be explored throughout the life of the SIMTA IMT. As battery storage, regenerative energy storage and electric motor technology improves the viability of other vehicles and equipment being electrified is likely to increase too.

> Rather than the proponent considering the need for a vehicle efficiency and emissions reduction program as part of the statement of commitments, this should be a fundamental continuous improvement requirement to operate SIMTA.

4.4 Noise and Vibration

The proposed SIMTA EIS provides analysis of the proposal's impacts on nearby sensitive receivers from noise and vibration. This review considers information in the EIS Section 9 and Appendix N prepared by Wilkinson Murray.

4.4.1 Overview of the SIMTA Assessment

The previous Acoustic assessment of the proposed SIMTA site was also undertaken by Wilkinson Murray in 2013 and reflected the concept design for the entire site. The outcome of the review undertaken by Cardno identified a number of significant issues relating to operational and construction noise and vibration impacts to the nearest noise sensitive receivers that required clarification and further detailed review. This revised assessment relates to Stage 1 project approval and as such we would expect a higher level of detail to be included in this assessment.

The Stage 1 assessment has addressed some of the primary issues identified in the review of the previous 2013 assessment, however, a number of these issues remain. The baseline noise monitoring undertaken for the 2013 assessment has been referenced for four locations within Wattle Grove, Casula and Glenfield, to represent existing noise sensitive receiver locations. However, none of this information is referenced in the Stage 1 report, and details have not been provided regarding how the background noise monitoring was obtained. It therefore appears that additional monitoring has not been carried out for the existing SME site adjacent to the subject site, even though this was flagged in Cardno's previous assessment as potentially containing sensitive receivers at least until this facility has been relocated.

Information regarding the type and estimated quantity of typical plant and equipment that will be used on site has been provided for the Stage 1 assessment, with estimates similar to those for the plant and equipment in the previous assessment.

A construction noise assessment has been detailed in the revised assessment and has been based on condensed construction phases of work. At this stage of the project, additional detail should be included to allow for an accurate review of the predicted results. Location of sources and prediction calculation modelling assumptions need to be included.

A cumulative noise assessment has been undertaken to address cumulative noise impacts from the operation of both the SIMTA site and the adjacent proposed MIC site. Wilkinson Murray have not addressed issues raised in the previous review citing the same conclusions as stated in the previous 2013 review. They have further assessed the cumulative effects of Stage 1 operations and construction activities occurring at the MIC site. There is no justification as to why the Stage 1 operation versus MIC construction scenario has been assessed as the worst case. It is noted that a number of assumptions have been made in the assessment but not stated or clarified in the report.

4.4.2 Cardno Assessment

Cardno's review of the Stage 1 acoustic assessment has considered findings and recommendations of our previous review of the 2013 assessment along with assumptions/ input data used for both assessments. The review has identified that some of the key issues previously raised have not been addressed. The review has also shown that additional assessment and clarification of assessment input data is required to thoroughly address potential noise impacts from the SIMTA Stage 1 proposal. The key issues from our review are provided below in **Table 4-7**.

As a general comment, some key input data such as the number and type of train noise sources and the existing traffic noise levels on Moorebank Avenue appear to be omitted from the report.

In addition there is no reference to where the existing noise data was obtained from to determine the existing (rating background levels) RBLs . We assume this was taken from the previous 2013 assessment but there is no confirmation of this. Therefore, it cannot be confirmed if affected weather data has been integrated into calculations correctly as commented upon in Cardno's review of the 2013 assessment. To allow a comprehensive assessment, noise measurement data or at least a reference to a previous report containing this information should be included. The entire basis of the assessment rests on this information, as this is used to determine the assessment criteria.

Weather, including wind and rain are to be excluded from the assessed noise levels as per the NSW INP. If extraneous noises and weather effects have not been appropriately excluded from the dataset, assessed noise levels that form the basis of the project specific noise criteria may be skewed higher or lower. This will then affect subsequent noise mitigation treatments.

Table 4-7 Acoustic issues

Report Section	Acoustic issue identified by Cardno	Significance to the Acoustic assessment
General	A section on the existing noise environment has been omitted from the report and therefore previous comments regarding whether the weather affected data had been removed in accordance with INP requirements could not be reviewed. In addition it appears that no further noise monitoring was carried out at the SME site as recommended in Cardno's previous review.	The entire basis of the assessment (criteria) is determined from the noise monitoring data obtained from site. This should be included in the report, along with additional monitoring data for the SME site, or at least some commentary to explain why this is not required.
1.5 (Sensitive receivers)	It is understood that the current Commonwealth land proposed for the MIC site is currently utilised as educational facilities by the SME. This land is understood to also have residential accommodation. The stage 1 assessment has still not identified these receivers and does not appear to have undertaken baseline noise measurements at or	Whilst the assessment notes that the Commonwealth land occupied by the SME is zoned 'SP2 Infrastructure (defence)', the SME site is in use and may also be in use when the SIMTA site is being constructed/ operational. The site is required to be assessed for construction and operational noise and vibration impacts to noise sensitive receivers. This was

Report Section	Acoustic issue identified by Cardno	Significance to the Acoustic assessment
	in the vicinity of the site along Moorebank Avenue. As a result, these receivers have not been assessed.	previously identified in the 2013 review but has not been subsequently addressed.
2.1 (Noise Criteria)	The assessment of the relevant noise criteria does not appear to have taken account of any existing industrial noise in the area as per the INP requirements which may result in a lower amenity and therefore adopted assessment criteria being appropriate.	This will affect whether the noise levels as a result of operations from the site are exceeding the INP criteria.
2.3 (Road Traffic Noise Criteria)	Two different criteria appear to have been adopted for assessment of road traffic noise. The first indicates that traffic from the project should not increase existing traffic noise levels by more than 2 dB(A), the second states the RNP noise criteria for 'residential land uses' from 'Existing Roads'. It's not clear why the second criteria has been stated in the report, as the first is the correct criteria to apply based on existing traffic noise levels which may be currently significantly below the Existing Roads criteria.	The criteria should be based on the existing road traffic noise levels + 2dB(A), rather than maximum RNP existing roads criteria. Wilkinson Murray to confirm what the existing road traffic noise levels are and provide a comparison with and without the project so that actual impacts can be determined.
3.2.1 (Operational noise sources)	There are a number of plant items that have been listed in Table 6-1 (operational noise sources). It is unclear whether the sound power levels take into account transient noise events such as shunting of train locomotives on site for example? It is understood that the data has been sourced from the Client however are the source sound power levels based on a Standard or are these derived from existing plant in an equivalent (or representative) facility?	The L_{Aeq} noise level descriptor has been used to represent the average noise emission level of the plant items over a 15 minute period. In addition, based on previous experience there has been discrepancy between the quoted theoretical sound power data for plant and equipment and the same plant and equipment tested on-site. There is a risk that theoretical sound power levels may result in potentially lower modelled noise impacts so it is considered more appropriate to use actual measured source noise levels where feasible to minimise this risk. Wilkinson Murray to state the source of this noise data.
3.2.1 (Operational noise sources)	Other relevant noise sources such as truck reverse beepers have not been included in the assessment. Whilst it appears that efforts have been made to reduce the area where reversing would be required, this is likely to occur at times and can be a significant source of annoyance. Other sources not assessed are noise associated with staff movements, mobile plant (forklifts etc.), diesel generators, chillers etc.	When assessing the cumulative effects of noise impact from site operations, the missing sources may contribute to an unpredicted exceedance. Sources such as reverse beepers which are tonal or intermittent should also have the relevant penalties applied in accordance with the INP / AS1055.
3.2.2 Operational noise assessment	It is not clear why some operational impacts have been assessed against amenity criteria and some against the intrusiveness criteria. Generally the most stringent of the two (after the amenity criteria has been adjusted for existing noise contribution from industrial noise) would be adopted and used as the basis for assessment for all operational sources associated with the site. The worst case operational 15 minute period should be assessed against the most stringent of either the amenity or the intrusiveness criteria, unless a good reason is presented for this not to occur (no or significantly reduced operations at night etc.)	The report could be understating the level of predicted exceedances.

Report Section	Acoustic issue identified by Cardno	Significance to the Acoustic assessment
3.2.2 Operational noise assessment	The predicted noise levels do not appear to correlate with standard distance loss and calculation checks. For example, a reach stacker has a sound power level of 106 dB(A) there are 6 of them (114 dB(A)), but only assumed to run 50% of the time (111 dB(A)). Reduce by 50% to account for half located on the eastern side and half on the western side. This indicates an LAeq sound power level for the eastern stackers alone of 108 dB(A). The distance to NCA3 is 220m indicating a resultant noise level assuming no screening of 53 dB(A). Table 3.2 indicates a predicted level of 33 dB(A) at NCA3, and the contour maps show a similar value. This is therefore assuming no other contributions from the site are influencing the noise level at NCA3 and 20 dB(A) of screening is being achieved by topography. This seems unlikely.	If predictions have not been calculated correctly the predicted impacts could be significantly higher than stated in the report.
3.3 (Sleep Disturbance Assessment)	There is no explanation or base information to allow review of the source of the Sleep Disturbance screening level. In addition standard spherical spreading calculations indicate that for a distance of 220m (from the site to NCA3), there should be a distance loss of approximately 55 dB(A). This indicates a predicted level at the receiver of 63 dB(A). The predicted level in the report is 49 dB(A). We therefore assume that significant shielding between the proposed container stacking and the receivers has been allowed for and no clear line of sight exists between the source and receiver.	If predictions have not been calculated correctly the predicted impacts could be significantly higher than stated in the report.
3.3 (Sleep Disturbance Assessment)	Sources assessed for Sleep disturbance have not been assessed elsewhere against the INP Intrusiveness or amenity criteria. This assessment does not address cumulative impacts of all of these sources. These sources should be included in the operational assessment or justification why they have been left out. The sleep disturbance assessment also should state whether noise penalties for impact noise sources have been added to the assumed sound power level and what the reference source of this noise level is.	This is a major noise source and impacts could be higher than predicted if penalties have not been included.
3.4 (Road traffic noise assessment)	The assessment states that existing traffic noise levels exceed RNP noise criteria for existing roads on Moorebank Avenue but not what these existing road traffic noise levels area. It also states that the monitoring was carried out in 2016 which we assume is a typing error. Traffic noise measurement data should be reported.	This information is required to determine the applicable road traffic noise criteria
3.4 (Road traffic noise assessment)	As per review comments made regarding the 2013 assessment, there is no reference to: Which year has been modelled as “current”; Which year has been modelled as the “Future” – with the development; General annual vehicular traffic growth (background growth) on Moorebank Avenue and the M5 motorway and if this is included in the projected “future” road traffic predictions.	Predicted impacts as a result of the development alone cannot be determined from the information provided.

Report Section	Acoustic issue identified by Cardno	Significance to the Acoustic assessment
	"future" traffic volumes without the development should be included so that the increase with respect to the development can be reviewed. The information provided in the report does not allow this to be reviewed. Clarification is required to determine net impacts of road traffic noise from the site and reassessment to the SME site is also required.	
3.5 (Rail noise assessment)	It is unclear if the Railcorp noise data used for the rail noise assessment is of rail cars loading and unloading on site, diesel locomotives idling or takes into account shunting of rail cars and other transient events such as containers etc. being dropped onto hardstand areas. The assessment also does not identify at what location within the proposed rail balloon loop the assessment was taken. Source sound power levels (and conditions, i.e. rail cars shunting etc.) have not been documented other than a single reference in the sleep disturbance section of the report (Refer Section 6.2). In this section, an LAmax sound power level of 118dB(A) is referenced for these activities. For assessment of LAeq noise levels from rail activities, the assessment should clearly state the sound power levels used so that the assessment inputs and outcomes can be verified.	Predicted noise levels could be too low as some sources may not have been incorporated.
3.5 (Rail noise assessment)	The predicted rail noise levels exceed the criteria at receiver NCA3. There are assertions that these receivers will be impacted by high levels of rail noise anyway, but existing levels from the SSFL are not provided for a comparison. Actual existing rail noise levels are required to validate this assumption. Impacts on the adjacent SME have also not been considered.	The level of exceedance and associated loss of amenity at NCA3 could be considerable without a quantitative assessment of the predictions against existing rail noise given the predicted exceedance of criteria. Particularly given that the predicted exceedance due to curve squeal at this location is 11 dB(A).
3.6 (Construction noise assessment)	The construction noise assessment does not include modelling inputs and assumptions and does not indicate where the sources have been located on the site, or source to receiver distance assumptions. More information is required to confirm the stated results of "noise emissions would be expected to comply with the ICNG NMLs during all works periods at all receivers"	Potential under-prediction of construction noise impacts may have occurred depending on where the assessed sources have been located.
3.7 (Construction vibration assessment)	Only vibration from rollers has been assessed. The assessment states that other sources would be expected to produce less vibration and have therefore not been assessed. We recommend that piling should also be assessed as this can cause significant levels of vibration.	Levels of vibration, and in particular cumulative vibration may have been under estimated.
7 (Cumulative Noise Assessment)	From the previous assessment it was understood that the total TEU demand in the area is currently 1,000,000, with the assumption of a 50/50 split in capacity. This cumulative assumption is considered simplistic, indicating a low noise impact as a	The assessment is considered conservatively low and does not represent a worst case scenario. A doubling of capacity to 1,000,000 TEUs on the SIMTA site may increase noise emission from this site by at least 3dB(A) should the two sites be integrated. However it is noted that the Federal site is closer to residents at

Report Section	Acoustic issue identified by Cardno	Significance to the Acoustic assessment
	result. This has not been commented on or amended for the Stage 1 assessment. The capacity and location of plant items on the adjacent Federal site is now available but this has not been considered in the cumulative assessment.	Casula and impact may be higher as a result of peak capacity on both sites. Therefore the impacts are not appropriately addressed, which may impact the effectiveness of noise mitigation treatments recommended in the report such as earth berms (heights and extent).
7 (Cumulative Noise Assessment)	Stage 1 operational impacts have been assessed against construction works at the MIC but no other cumulative impacts have been assessed. Cumulative levels have been assessed against Amenity criteria rather than the most stringent of either the amenity or intrusiveness criteria.	Results do not represent the worst case scenario and predicted exceedances may be significantly higher.
7 (Cumulative Noise Assessment)	It is unclear if the cumulative assessment has been reviewed and documented under temperature inversion conditions, as the report has identified that temperature inversions will occur at the site.	Temperature inversion can add to noise impact levels. If the cumulative assessment has not taken this into account, the predicted noise levels documented in the report may be lower than expected.

As noted in above, clarification is required in relation to future predicted road traffic volumes, including further assessment and consideration of vehicular traffic noise impact on the SME.

The acoustic assessment has identified that further information will be required to assess noise impact and confirm in more detail noise mitigation measures for Stage 1, should the amended assessment identify further predicted exceedances.

In general the assessment and supporting information lacks modelling input data. The documentation package should be expanded to include this information to allow an adequate level of assessment to be made. Baseline inputs for the Concept Plans should be clarified/ detailed to provide a more thorough assessment of the project noise and vibration impacts.

4.4.2.2 Best Practice Review

The SEARs Best Practice Review requirements are addressed in the Table below.

Table 4-8 Acoustic Best Practice Review

SEARs Requirements	EIS Response	Comments
The preparation of a comprehensive review of intermodal operational best practice process design, emission control and management measures that might feasibly and reasonably be applied to each stage of the project, and to benchmark those measures against best practice. The review should: a. Clearly demonstrate that the Proponent will at each project stage adopt and implement best practice facility and process design and management measure to the extent that is reasonably practicable, to minimise operational air pollutant and noise emissions at the terminal and on the Rail link;	WM Report 12186-S1 VerB Final	
The following noise requirements shall be included in the best practice review: a. Determine the number of maximum noise events at residences due to freight train operations on the Rail link (including curve squeal noise);	**Section 5.2**	**Section 5.2** has not addressed this issue.
b. Identification of all feasible and reasonable measures to minimise and mitigate noise impacts from the operation of the terminal and Rail link such as:		

SEARs Requirements	EIS Response	Comments
i. Use of locomotives that meet or exceed Australian and international benchmarks for low noise operation;	**Section 5.2**	Addressed
ii. Use of automatic rolling stock wheel defect detection and response systems;	**Section 5.5**	**Section 5.5** is noted to address this issue.
iii. Permanently coupled wagons with low noise equipment such as steering bogies;	**Section 5.3**	**Section 5.3** suggests the use of articulated couplings but does not address use of steering bogies.
iv. Noise attenuated enclosures for reversing vehicles; and,	**Section 4.1**	**Section 4.1** discusses that this is not a feasible mitigation measure and that the assessment has identified that operational noise complies with the adopted criteria. However our review indicates that reversing beepers have not been considered in this assessment and therefore this statement is contradictory.
v. Alternative options to the use of traditional 'beeper' style reversing/movement alarms.	**Section 4.1**	Addressed.
c. Assessment of an ongoing noise compliance and response system including a framework for on and off-site monitoring during operation.	**Section 5.5**	Addressed.

4.4.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-9 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
The EIS shall demonstrate that the proposal is consistent with the Concept Plan approval MP 10_0193 dated 29 September 2014 (as modified).	Section 9.4 - Noise and vibration – Mitigation Measures Noise & Vibration Impact Assessment (Appendix N), Section 2	
Any future Development Application shall include an updated assessment of noise and vibration impacts. The assessment shall:		
a. assess construction noise and vibration impacts associated with construction of the intermodal facility including rail link, including impacts from construction traffic and ancillary facilities. The assessment shall identify sensitive receivers and assess construction noise/vibration generated by representative construction scenarios focusing on high noise generating works. Where work hours outside of standard construction hours are proposed, clear justification and detailed assessment of these work hours must be provided, including alternatives considered, mitigation measures proposed and details of	Section 9.4 - Noise and vibration – Mitigation Measures Noise & Vibration Impact Assessment (Appendix N), Section 3.6 and Section 3.7	The construction noise assessment does not include modelling inputs and assumptions and does not indicate where the sources have been located on the site, or source to receiver distance assumptions. More information is required to confirm whether the stated results of "noise emissions would be expected to comply with the ICNG NMLs during all works periods at all receivers"

Concept Approval Requirements	EIS Response	Comments
construction practices, work methods, compound design, etc.		
b. assess operational noise and vibration impacts and identify feasible and reasonable measures proposed to be implemented to minimise operational noise impacts of the intermodal facility and rail link, including the preparation of an Operational Noise Management and Monitoring Plan; and	Section 9.4 - Noise and vibration – Mitigation Measures Noise & Vibration Impact Assessment (Appendix N), Section 3.2, and Section 4	Sources and key modeling input assumptions have been omitted from the assessment. Therefore a rigourous review of the assessment is not possible with under-prediction of exceedances potentially occurring and subsequent provision of inadequate mitigation measures.
c. be prepared in accordance with: NSW Industrial Noise Policy (EPA 2000), Interim Construction Noise Guideline (DECC 2009), Assessing Vibration: a technical guide NSW Government Department of Planning and Environment 9 (DEC 2006), the Rail Infrastructure Noise Guideline (EPA 2013), Development Near Rail Corridors and Busy Roads Interim Guideline (DoP 2008), and the NSW Road Noise Policy 2011.		The assessment is not strictly in accordance with the INP, RNP Methodologies or the ICNG, due to omissions in assessment of some sources and input information assumptions, and adoption of separate amenity intrusiveness, and sleep disturbance criterion for different types of sources.
> All site-dedicated locomotives must meet EPA Noise Limits for Locomotives contained within the NSW operational rail licences for operation of new or substantially modified locomotives operating on the NSW network; and	Site dedicated locomotives are not proposed for the Proposal. Section 9.4 - Noise and vibration – Mitigation Measures Section 10 – Best Practice Review Noise & Vibration Impact Assessment (Appendix N), Section 3.5	The report states that all locomotives will comply with the EPA Noise limits but does not provide justification for this.
> Any future application shall include a train noise strategy including, but not limited to, train operational procedures and driver training that minimise noise on the rail link and within the intermodal terminal.	Section 9.4 - Noise and vibration – Mitigation Measures Section 10.2 – Best Practice Review - Noise Noise & Vibration Impact Assessment (Appendix N), Section 3.5.2	Addressed

4.4.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-10 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
An updated assessment of noise and vibration impacts. The assessment shall:		
> Assess construction noise and vibration impacts associated with construction of the intermodal facility including Rail link, including impacts from construction traffic and ancillary facilities. The assessment shall identify sensitive receivers and assess construction noise/vibration generated by representative construction scenarios focusing on high noise generating works. Where work hours outside of standard construction hours are proposed, clear	Section 9.3 - Noise and vibration – Potential Impacts Noise & Vibration Impact Assessment (Appendix N), Section 3.6 and Section 3.7	The construction noise assessment does not include modelling inputs and assumptions and does not indicate where the sources have been located on the site, or source to receiver distance assumptions. More information is required to confirm the stated results of "noise emissions would be expected to comply with the ICNG NMLs

Secretary's Environmental Assessment Requirements	EIS Response	Comments
justification and detailed assessment of these work hours must be provided, including alternatives considered, mitigation measures proposed and details of construction practices, work methods, compound design, etc.;		during all works periods at all receivers"
> Assess operational noise and vibration impacts and identify feasible and reasonable measures proposed to be implemented to minimise operational noise impacts of the intermodal facility and Rail link, including the preparation of an Operational noise Management and Monitoring Plan;	Section 9.4 - Noise and vibration – Mitigation Measures Noise & Vibration Impact Assessment (Appendix N), Section 3.2, and Section 4	Sources and key modeling input assumptions have been omitted from the assessment. Therefore a rigourous review of the assessment is not possible with under-prediction of exceedances potentially occurring and subsequent provision of inadequate mitigation measures.
> Be prepared in accordance with: NSW Industrial Noise Policy (EPA 2000), Interim Construction Noise Guideline (DECC 2009), Assessing Vibration: a technical guideline (DEC 2006), the Rail Infrastructure Noise Guideline (EPA 2013), Development Near Rail Corridors and Busy Roads Interim Guideline (DoP 2008) and the NSW Road Noise Policy 2011;	Section 9 - Noise and vibration Noise & Vibration Impact Assessment (Appendix N), Section 2	The assessment is not strictly in accordance with the INP Methodology or the ICNG, due to omissions in input information assumptions, and adoption of separate amenity intrusiveness, and sleep disturbance criterion for different types of sources.
> All site-dedicated locomotives must meet EPA Noise Limits for Locomotives contained within the NSW operational rail licences for operation of new or substantially modified locomotives operating on the NSW network; and e) Any future application shall include a train noise strategy including, but not limited to, train operational procedures and driver training that minimise noise on the Rail link and within the intermodal terminal.	Site dedicated locomotives are not proposed for the Proposal. Section 10 – Best Practice Review Noise & Vibration Impact Assessment (Appendix N), Section 3.5	The report states that all locomotives will comply with the EPA Noise limits but does not provide justification for this.
> Any future application shall include a train noise strategy including, but not limited to, train operational procedures and driver training that minimise noise on the rail link and within the intermodal terminal.	Section 9.4 - Noise and vibration – Mitigation Measures Section 10.2 – Best Practice Review - Noise Noise & Vibration Impact Assessment (Appendix N), Section 3.5.2	Addressed.

4.4.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> Input data, including sound power levels of plant, rail noise etc. and climatic conditions, should be clearly documented for clarity in the acoustic assessment so that input data, assumptions and noise mitigation treatments can be properly verified. Additional tables and references in the report are required to allow comprehensive assessment.

> Additional construction and operational noise and vibration assessment is required for the SME site. It is anticipated that some liaison with the Department of Defence for the SME site may be required to determine location of residential accommodation on the SME site to enable acoustic assessment for these noise sensitive receivers.

- Existing rail noise impacts at NCA3 should be determined to confirm the assumption that the proposal will have little effect on these receivers as they are already subject to high levels of rail noise.
- Existing road traffic noise levels on Moorebank Avenue should be included in the assessment and clear methodology and assumptions stated to back up the predicted results and assumptions that there will be less than 1 dB(A) increase in noise levels due to Stage 1 operations.
- Cumulative noise impacts require reassessment for all receivers once consolidated input data is available. This should include impacts including the peak output on both sites and associated site generated road traffic.
- Adjustments (additional column(s)) are recommended in the cumulative noise assessment section (Table 7-1) to distinguish operational noise emissions from the SIMTA site and a separate column for combined noise impacts. As stated previously, the assessment should indicate if the documented noise impact is inclusive of temperature inversions, alternatively, provide two separate tables, i.e. one under neutral conditions and the second under temperature inversion conditions to clearly identify potential noise impacts under worst case conditions.

4.5 Hazard and Risk

The proposed SIMTA EIS provides analysis of the proposal's impacts on Hazard and Risk. This review considers information in the EIS prepared by Hyder Consulting (2015).

4.5.1 Overview of the SIMTA Assessment

The *Hazard and Risks Assessment* prepared for the SIMTA Concept Plan Approval assessed the potential hazards and risks associated with development of warehousing and distribution facilities and ancillary services. To meet the SEARs, the hazard and risk analysis assessment of the Stage 1 Proposal has also been carried out in reference to the following legislative reference documents:

- SEPP No 33-Hazardous and Offensive Industries
- HIPAP No. 4-Risk Criteria for Land Use Planning
- HIPAP No. 6-Guidelines for Hazard Analysis
- HIPAP No. 10-Land Use Safety Planning.

The first stage of determining the SEPP 33 requirements, and in particular to determine if a Preliminary Hazard Analysis (PHA) is required is to undertake screening tests, such as dangerous goods quantity/ distance thresholds. Hazardous materials are substances falling within the classification of the *Australian* Code for Transportation of Dangerous Goods by Road and Rail (Dangerous Goods Code).

Industries or projects determined to be hazardous or potentially hazardous require the preparation of a PHA in accordance with clause 12 of SEPP 33. Section 18.3.2 'Operational risk screening of the EIS states that is was decided by SIMTA, as per the Concept Plan Approval, that the Stage 1 Proposal would not receive or store dangerous goods (classes 5.1, 5.2, 6.1 and/or 8) in quantities greater than the screening thresholds identified in *Applying SEPP 33*. The preliminary risk screening provided in Section 18 and 20 of the Stage 1 SIMTA EIS identified that the Stage 1 SIMTA Proposal was not "potentially hazardous" and therefore a PHA is not required at this stage.

The following key potential hazards and risks were identified to potentially be evident during the construction and operation of the SIMTA Project:

- Traffic and Access
- Dangerous goods
- Bushfire
- Contamination (asbestos in existing structures and the soil as well as unexploded ordnances)

> Noise and Vibration

> Air Quality

> Flooding

> Visual and Urban Design

> Utility Servicing.

4.5.2 Cardno Assessment

The EIS outlines events that could occur during construction and operational phases that pose a potential hazard and risk to the environment and community, which include:

> Gas leak (natural gas, LNG, LPG and carbon dioxide) Fire/explosion

- Asphyxiation
- Odour

> Loss of containment of flammable/combustible or corrosive liquids

> Vehicle accident during the transport of potentially hazardous material to the site

> Contamination

> Flooding

> Bushfire

> Inappropriate waste disposal.

Overall the risk assessment has been treated as a standalone review within the EIS and the outcomes have not been integrated into all aspects of the specialist assessments and vice versa. There are some key areas of risk which have been reviewed in more detail below.

Traffic and Access

The SIMTA Stage 1 Proposal involves the construction and operation of road, rail and site infrastructure to support container freight transport to and from the site, and does not include warehousing facilities. Therefore the key aspects in relation to the transport of dangerous goods is the transport to and from Port Botany along the Port Botany Rail link/ SSFL and Rail link to the MIC and from the IMT to destinations in the south west region via container trucks.

Risks and hazards to community safety and congestion are also a concern for a major transport hub development at the SIMTA and MIC sites during both construction and operational phases. The impacts of traffic on existing road capacities and the traffic environment have been assessed in more detail in **Section 4.2**.

The construction phase traffic, noise and health impacts relating to bulk earthworks in the rail corridor in the vicinity of the waste facility and bridges is lacking in detail in relation to the proposed construction strategy and general assumptions arising from the construction requirements. This introduces risks from traffic movements, contamination, geotechnical, bulk-earthworks, air quality and noise impact perspectives.

It has been found that there are risks to the broader sub-regional road network with any increase in traffic flows and movements of heavy vehicles. Further transport modelling is understood to be proposed by the RMS to provide an independent assessment of traffic impacts near the site and to understand the need for any major roadway and intersection upgrades that may be required. Cardno has found that that the SIMTA Stage 1 project cannot be adequately assessed until the results of the independent RMS traffic modelling are released and considered.

Some of the traffic growth assumptions used in the TIA were also found to in conflict, as the TIA does not clarify if the local negative growth or the precinct average positive growth rate was applied to the background

traffic at the intersections assessed. These assumptions are critical to the overall forecast performance of the traffic environment and there are significant risks associated with the use figures that are not worst case assumptions.

Mitigation of the risks to the safety of cyclists through the promotion of safe cycleways for the community and staff members has not been adequately addressed in the SIMTA Stage 1 EIS.

The absence of a warehousing component as part of Stage 1 of SIMTA could also lead to the growth of warehousing facilities elsewhere in Moorebank, effectively generating an enhanced level of traffic. This could cause the distribution of container traffic from SIMTA to change significantly which is an important risk that needs further review prior to determination.

As the SIMTA Stage 1 Proposal does not include warehousing, there would be no unpacking (destuffing) of containers at the Stage 1 site, thus reducing the risk of exposure to dangerous goods in this locality, however the use of other interim sites for this purpose until subsequent stages of the SIMTA Proposal have been development has not been adequately addressed.

Dangerous Goods

Dangerous goods pose a risk to the health and safety of employees and contractors working on the Proposal site and the community surrounding the site, if not handled correctly as they may be explosive, flammable, combustible, spontaneously combustible, oxidising, water-reactive, toxic or corrosive.

As the customers of the SIMTA Stage 1 Proposal have yet to be confirmed, the quantities and types of goods transported to, and stored temporarily on the site cannot currently be quantified. It is therefore important to note that the potential of transport or storage of dangerous goods at the site during Stage 1 (or any subsequent stages) cannot be excluded.

A key finding noted in the EIS is that off-site property damage from explosion or fire is unlikely from an incident arising from the site, however materials in transit were not assessed in any detail as part of the risk review in Table 21.3 of the EIS.

The EIS states that dangerous goods likely to be used on site are not present in quantities that would give rise to risks to the public or off-site assets, but might cause workplace health and safety risks to personnel on site or risks to the biophysical environment. The EIS states that these risks can be managed within safe levels by the appropriate use of engineering design and controls, good management practices and appropriate disposal methods for wastes.

It is highly recommended that residual risks are recorded in a project risk register to keep an account of all construction and operational phase risks and their mitigation measures for all Stages of the Proposal. The 'hierarchy of controls' for risks during design, construction and operations should be applied to 'Eliminate' risks as a top priority as outlined in this NSW WorkCover guideline, to manage health and safety risks:

http://www.workcover.nsw.gov.au/__data/assets/pdf_file/0009/15201/how-manage-work-health-safety-risks-code-of-practice-3565.pdf

Bushfire

Bushfire impacts are considered in Section 20.3 of the EIS, with Cardno's review at **Section 4.10**. The *Bushfire Protection Assessment* adequately addresses the requirements of PBP, 2006 for the SIMTA Stage 1 proposal. The setbacks from any potential bushfire prone vegetation is large so there will be no requirements for additional vegetation management and there is adequate space for safe operational access and egress from the site in an emergency event and the utility services are in place that will meet the needs of fire fighters.

The bushfire risks associated with the rail corridor have also been briefly addressed. The mitigation of these risks needs to be comprehensively covered in future construction and operational management plans. Vegetation Management Plans and Landscaping Plans will also need to take bushfire risk into consideration.

The EIS also states that bushfire risk is not increased by the operation of both the SIMTA Project and MIC Proposal, assuming standard controls are implemented at both sites during construction and operation,

particularly associated with the performance of bushfire hazard reduction activities along boundaries and performance of hot works during declared bushfire seasons and on total fire ban days.

The Project site has been identified as containing bushfire prone land (as mapped by Council). Key bushfire threats were identified from the Liverpool Bushfire Prone Land Map which shows that the buffer zone to Category 1 Bushfire Prone Vegetation located on the land to the east and south of the site, as well as to the west of Moorebank Avenue extends into the site.

Contamination

Historic information notes that landfilling may have occurred in the southern areas and illegally dumped building waste materials were observed by Golders & Associates (2011). Additionally, historic information notes that potential unexploded ordinance (UXOs), associated with the former grenade range may exist in this area. The potential for contamination and UXOs were also identified by Parsons Brinckerhoff (2014) in relation to the MIC site. Therefore the likelihood of encountering asbestos containing material (ACM) and other contaminants, including UXOs or munitions during the contaminated land remediation works of the project has been identified in Section 13 of the EIS, which outlines the specific findings of a *Phase 2 Environmental Site Investigation* (Phase 2 ESA) and *Remediation Action Plan* (RAP) for the SIMTA Stage 1 site.

The previous assessment of the existing site conditions included an audit of Asbestos Containing Material (ACM) by Hibbs & Associates Pty Ltd (2002) which found that ACM was present in approximately 15 percent of all buildings on the SIMTA site and provided a qualitative assessment of the risk to occupants of the buildings in which ACM was identified. Section 18 of the EIS covers the management of asbestos in existing buildings, and hazards and risks associated with the transport, storage and handling of dangerous goods. The management of asbestos in the soil and the potential for other soil contamination is covered in Section 13. The EIS has identified that the demolition of buildings containing asbestos on the SIMTA site and the MIC site has the potential to cause impacts upon human health if not handled, transported and disposed of in an appropriate manner.

The EIS assessed the potential cumulative impact from asbestos and site contamination to be low. All the proposed contamination clean up and waste disposal works would be undertaken in accordance with the RAP and as per State and Federal guidelines and legislative requirements.

Considering the previous uses on site the risks and hazards associated with exploding ordinance and/or munitions during construction works should be reviewed and covered in more detail in subsequent risk assessments for the project to ensure safety for construction workers and the community. The RAP outlines the details of the site remediation requirements which should be completed prior to construction of SIMTA Stage 1.

Noise and Vibration

Risks and hazards associated with noise and vibration include sleep disturbance, general loss of amenity for sensitive receivers as well as physical damage to structures. The noise and vibration assessment for the SIMTA Proposal was undertaken by Wilkinson Murray and are detailed in Section 3.6 and Section 3.7 of the EIS. Section 9.4 of EIS also provides a summary of mitigation measures relating to noise and vibration impacts.

The construction noise assessment does not include modelling inputs and assumptions and does not indicate where the sources have been located on the site, or source to receiver distance assumptions.

The acoustic assessment states that all locomotives will comply with the EPA Noise limits but the findings of the review in **Section 4.4** notes that no justification is provided for this finding. Cardno has also found that sources and key modelling input assumptions have been omitted from the assessment. Therefore a rigorous review of the assessment is not possible with under-prediction of exceedances potentially occurring and subsequent provision of inadequate mitigation measures.\

The fact that assumptions are not clearly defined is a significant risk which should be addressed to allow assessment.

Additional construction and operational noise and vibration assessment is also required. Some further liaison with the Department of Defence is recommended to determine location of residential accommodation on the MIC site to enable acoustic assessment for these noise sensitive receivers.

The risks of acoustic impacts arising from worst case meteorological conditions also should consider temperature inversions to clearly identify potential noise impacts under worst case conditions.

Air Quality

The risks and hazards from air quality are related to the health and wellbeing of the community as well as the general amenity of surrounding urban, residential, commercial and industrial environments. The Air Quality Impact Assessment (AQIA) in the EIS has been reviewed in detail in **Section 4.3**. The main aspects of the Air Quality risks and hazards arise from the following activities:

> Construction

- Bulk earthworks and dust emissions
- Construction machinery operation and exhaust emissions
- Delivery vehicle movements and related exhaust emissions

> Operations

- Transport via road and related air emissions
- Transport via rail and related air emissions
- General operational equipment emissions from site.

The outcomes of the AQIA form a key part of the Preliminary Screening Health Risk Assessment (HRA) completed in Section 20 of the EIS. Health risks are reviewed in more detail in **Section 4.6**. The assumptions used in the quantitative impact modelling within the AQIA are highly reliant on the findings of the traffic assessment and therefore conservative worst case assumptions need to be used as the basis for the impact assessments.

Predicted air emissions were assessed in the form of:

> Solid particles or Particulate Matter (PM)

> Sulphur oxides (SO2);

> Nitrogen oxides (NOx); and

> Hydrocarbons (VOC).

Epidemiological studies have shown that a wide range of health effects are associated with exposure to PM. The cancer risk due to diesel emissions, benzene, 1,3-butadiene and PAHs were also calculated for the local area in Section 20 of the HRA.

An air quality best practice review was provided in Appendix M of the EIS, which provides an assessment of international emission standards for locomotives and non-road plant and equipment, as well as best practice mitigation and management measures.

Flooding

The proposed SIMTA EIS provides analysis of the proposal's impacts on Flooding and Stormwater. **Section 4.9** of this report provides a detailed review the hydrology assessment.

It is noted that flood risk and associated impacts would be mitigated through increased provision of OSD storage. Swales and culverts would be designed to adequately convey flows from adjacent properties across the SIMTA site to mitigate flood impacts offsite.

Anzac Creek is dealt with separately with a focus on the impact of the proposed rail link. Flooding impacts for ARI 100 year and PMF flood scenarios are simulated using a TUFLOW model. Flood impacts are

interpreted to be minor. The existing culvert underneath the Anzac Creek rail spur is assumed to be 25% blocked in line with previous Council modelling. A worst case scenario would model this culvert at a higher level of blockage consistent with that at which the proposed culvert was modelled.

The impact of the proposed rail link on the Glenfield Waste Disposal Facility is considered. It is concluded that up to a 100 year ARI flood, the waste facility will not flood. Under an extreme flood event, the Glenfield Waste Disposal Facility could flood and consequently the rail link and bridge must be designed to permit the flow of water to spread the flood load out across flood plain.

Stormwater Quality is assessed and the measures chosen to achieve required water quality targets include gross pollutant traps and rain gardens. The proposed OSD basins are intended to function as the rain gardens, however it is not clear how the OSD basins can perform both functions adequately or that the water quality targets will be met by the proposed measures under all conditions. The evident risk is that a combination of rain gardens and OSD basins could result in the large scale release of accumulated pollutants during a large storm event. This does not appear to have been considered and no mitigation measures are proposed. Also, the growth of vegetation and the accumulation of sediment within the OSD basins could lead to greater blockage of downstream culverts during a large storm event. This does not appear to have been considered or mitigated by the proposal.

Cumulative impacts of both the MIC proposal and future Stages of SIMTA on flooding, water quality and water balance for the precinct have not been discussed.

Bank stability is a key risk area for long term water quality in the Georges River and has not been adequately addressed. The SIMTA analysis of bank stability only includes the construction phase. It suggests that clean fill will be used to augment and form banks without discussing what sources and types of fill are appropriate for use.

Visual and Urban Design

The visual and urban design aspects of the proposal have the potential to impose impacts on the surrounding community for many years to come. The main risks of long term community impact are attributable to poor urban design and integration with existing infrastructure, poor choice of landscaping materials and form, poor aesthetics, built form, connectivity, and operational impacts from lighting and visual pollution. Section 17 of the EIS provides the detailed visual, landscape and urban design impact assessment to support the proposal. **Section 4.14** of this report provides a detailed review the visual and urban design assessment.

Further information is required to ensure that the proposal will not unduly impact on the existing surrounds. This includes clarity around the maximum container stacking heights; visual character of landscaping works and potential visual impacts to items of heritage value such as the heritage listed Glenfield Farm Homestead.

Risks to the value and appeal of existing recreational areas along the Georges River, and proposed enhancement works by Council to improve the community amenity in this area, will be increased unless the proponent can provide better information on how integrated landscape plantings and features will mitigate this risk.

The cumulative impacts of the entire SIMTA and MIC intermodal development need to be assessed to ensure the risks to community infrastructure are minimized. Also additional assessment should be carried out to consider the visual impacts of the development from any potential residential uses on the MIC site, due to the possibility that the MIC site will not be developed for the purposes of an intermodal

A commitment to the procurement of high energy efficiency, directional lighting materials should be provided by the applicant via a sustainable procurement strategy.

Utility Servicing & Infrastructure

The proposed SIMTA EIS provides analysis of the proposal's impacts on Property and Infrastructure. This review considers the information in the EIS in Chapter 4 *Proposal Description* and Chapter 20.4 *Property and Infrastructure*. These sections provide an overview of aspects relating to the rail design, engineering and utilities strategy, along with identifying the range of properties and land uses surrounding the site that will be affected by the development during construction and operation.

The following are the two key supporting studies undertaken to support the EIS:

> Utilities Strategy Report prepared by AECOM (2015) – Appendix H of EIS

> Rail Access Report and Rail Engineering Drawings prepared by AECOM (2015) – Appendix F of EIS

Utilities

The Utilities Strategy Report (AECOM 2015) determined that all necessary utilities are located within the vicinity of the site, and can all be made available to service the SIMTA Stage 1 proposal.

The report identified the expected utility demand for each utility by the Stage 1 proposal and the wider SIMTA development. The Stage 1 demand for utilities was discussed with the relevant service providers:

1. Water and Sewer – Sydney Water

Communications – NBN/Telstra

Electricity – Endeavour Energy

Gas – Jemena

As a result of the above discussions, it was determined that there is existing capacity in the utility infrastructure surrounding the site.

Cardno has identified that the assessment fails to appropriately identify if the capacity of surrounding utility infrastructure will be sufficient for future stages of the SIMTA development in conjunction with the MIC proposal. The applicant has provided estimates of the capacity needed by all three stages of the SIMTA development; however they have not considered any of the cumulative impacts on services if early stages of the MIC proposal are developed at the same time.

Section 4.15 of this report provides a detailed review the property and infrastructure assessment and identifies areas of risk around property acquisition, funding arrangements for utility servicing and infrastructure upgrades required to enable Stage 1 and the subsequent stages of development to occur without being a long term cost burden to Council and the local community.

Rail Infrastructure

The SIMTA Proposal will utilize the Southern Sydney Freight Line (SSFL) to provide the logistical link between Port Botany and the site. The *Rail Access Report* and Rail Engineering Drawings prepared by AECOM (2015) provides an overview of the proposed rail link, including its geometry, alignment and operation.

A number of design, constructability, access, operational and maintenance issues have been raised in the detailed Property and Infrastructure review in **Section 4.15**.

Road Infrastructure

The SIMTA proposal is located along Moorebank Avenue, which will provide the main vehicular access to the site. Due to the increased traffic capacity and traffic generation the facility will provide, a number of road and infrastructure upgrades are required.

The large Moorebank Industrial Precinct is located to the north of the Moorebank Avenue and M5 Motorway Interchange, with this intersection representing the major access point to this industrial precinct. Poor performance and level of service of the M5 Motorway and Moorebank Avenue Interchange, along with damage to Moorebank Avenue as a result of increased truck movements as a result of the SIMTA proposal may result in delays, congestion and damage to the road. These will also have risks and implications for the functioning of surrounding businesses.

The risks in relation to infrastructure have been identified as including:

1. Sufficient capacity to support the proposal (rail and road)

2. Increased congestion (rail and road)
3. Decreased level of safety (for cars, heavy vehicles and cyclists)
4. Land acquisition requirements (rail and road)
5. Funding arrangements for required upgrades and ongoing maintenance of infrastructure (rail, road, drainage and utilities).

The abovementioned risks have been acknowledged in a range of detailed assessments that support the EIS, however there have been some areas where insufficient review and consideration has been provided which are highlighted in other sections of this report.

For instance, the following questions have resulted from this review:

> Will SIMTA apply for a right of carriageway over the affected property, or will they formally acquire the rail corridor?

> If SIMTA is to acquire the land to support infrastructure upgrades, how will this be facilitated?

> Is there any evidence of in-principle agreements with the landowners?

> What are the detailed funding arrangements (either monetary of in-kind) for all required infrastructure upgrades?

Cumulative Impacts

In regards to cumulative impacts of hazards and risks the EIS states that the separation distance between the operations of the SIMTA and MIC Proposals significantly reduces the potential for any hazardous or dangerous goods hazard to be exacerbated by the concurrent operation of both facilities.

4.5.2.1 Best Practice Review

To meet the SEARs, the hazard and risk analysis assessment of the Stage 1 Proposal has been carried out in accordance with the SEPP 33 Guidelines, Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 (Risk Criteria for Land Use Planning), HIPAP No. 6 (Guidelines for Hazard Analysis), and HIPAP No. 10 (Land Use Safety Planning).

A SEPP 33 screening assessment has shown that none of the material present on-site will be stored or handled in quantities that trigger any of the screening criteria and a preliminary hazard analysis has been undertaken.

In order to ensure the requirements of HIPAP No. 4 *Risk Criteria for Land Use Planning,* HIPAP No. 6 *Guidelines for Hazard Analysis* and HIPAP No. 10 *Guidelines for Hazard Analysis* are appropriately addressed the following risk assessment and management requirements should be prepared to ensure the facility considers constructability and commissioning risks and hazards:

> Fire safety study

> Emergency plan

> Hazard and operability study (HAZOP)

> Updated hazard analysis should be undertaken during the design phase of the project

> Construction safety study

> Safety management plan

Regular hazard audits should also form part of the ongoing construction and operational management requirements.

Further review of emergent risks and hazards and extensive consultation should continue during the construction and operational phases of SIMTA Stage 1, as well as future stages as more detail on project design aspects become known. The following agencies and organisations should be consulted to ensure any residual risks and hazards to environmental and human health are considered and addressed appropriately:

- Council
- EPA
- NSW Health
- RailCorp
- NSW/Fire and Rescue
- NSW Ports
- WorkCover
- RMS.

Although the qualitative risk and hazard reviews have been generally carried out in accordance with statutory SEPP guidelines and Australian Standards referenced in the EIS, world's best practices for hazard and risk avoidance and controls should form the basis of construction and operational management across the Proposed Development. A new IMT of the scale proposed and within the existing environmental context should aim to set a benchmark of risk and hazard avoidance and management. Further benchmarking of world's best practice for management of risk and hazards should therefore be considered in this and any future development applications.

Additional details are provided in the individual specialist assessments addressing how world's best practices should be applied across the planning, design and operations of the IMT.

There is an acknowledgement that due to the complex nature of the logistics involved in container goods handling, there is likely to be some residual risk of 'unknown dangerous goods are present from time-to-time'. The control of this risk is therefore reliant on third party elements such as customs (for incoming goods), material acceptance procedures, physical inspections and the like to ensure such goods are not accepted into the facility. Further clarification should therefore be provided to detail how these third party processes will integrate across the entire IMT (including risks and hazards associated with the adjoining MIC site). This will include plans for maintaining separation from sensitive receivers and any proposed operational procedures to ensure that potential risks of 'unknown dangerous goods' are managed appropriately. The acceptance procedures will need to cover goods source locations (i.e. Port Botany or freight forwarding companies) to ensure that risks in transit are minimized.

Although a range of potential environmental and safety risks and hazards have been identified and assessed for the Stage 1 proposal, it is evident that a range of further detailed hazard and risk assessments will need to be undertaken in subsequent detailed design stages of the project to ensure that all potential hazards and risks are identified and managed accordingly. The project cannot safely proceed without due consideration of these hazards and risks.

4.5.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-11 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Any future Development Application shall be accompanied by a preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development and Applying SEPP 33* (DoP 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the proposal. Should preliminary screening indicate that the proposal is 'potentially hazardous,' a Preliminary Hazard Analysis (PHA) must be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011) and *Multi-Level Risk Assessment* (DoP 2011).	A preliminary risk screening is provided in Section 20 of the EIS. The preliminary screening identifies that the Proposal is not "potentially hazardous" and therefore a PHA is not required.	No comment

Concept Approval Requirements	EIS Response	Comments
The PHA should: a) Estimate the risks from the facility;	Section 18-*Hazard and Risk section determined that a PHA is not required.*	No comment
b) Be set in the context of the existing risk profiles for the intermodal facility and demonstrate that the proposal does not increase the overall risk of the area to unacceptable levels; and	Section 18-*Hazard and Risk section determined that a PHA is not required.*	No comment
c) Demonstrate that the proposal complies with the criteria set out in the *Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning.*	Section 18-*Hazard and Risk section determined that a PHA is not required.*	No comment
Statement Of Commitments		
General Requirements Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional environmental impacts are identified through this risk analysis, an appropriately detailed impact assessment of the additional environmental impacts shall be included as part of the Development Application.	Section 21 - *Environmental Risk Analysis* An Environmental Risk Assessment (ERA) was undertaken for the Concept Plan Approval, which identified: a) Potential environmental impacts associated with the Project, environmental performance criteria and development standards. b) Control measures and any significant residual impacts. c) The nature and extent of environmental impacts likely to remain after the implementation of control measures.	No comment
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include: a) Adequate baseline data;	Sections 7 – 21 – Impact assessment (Existing Environment)	No comment
b) Consideration of potential cumulative impacts due to other development in the vicinity;	Section 19 - *Cumulative Impacts*	No comment
c) Measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment;	Section 7 – 21 – Impact assessment (Mitigation measures) Section 22-*Compilation of Mitigation Measures.* Contingency measures include management of air quality and dust control issues, disturbance of land fill cells, unexpected contamination finds, traffic roadway blockages (i.e. M5 or Moorebank Ave), specific contingency details outlined in the RAP and general construction related contingency plans for works on the Rail Link and in the Glenfield Waste Facility.	Reference to any specific mitigation measures and contingency plans should be included in the CEMP.
d) A health impact assessment of local and regional impacts associated with the development, including those health risks associated with relevant key issues ; and	Section 20.1 - *Human Health* Health Impact Assessment (**Appendix O**)	Potential health impacts need to be considered and managed in the CEMP and OEMP.

Concept Approval Requirements	EIS Response	Comments
e) Consideration of the cumulative impacts of this proposal with the adjacent Moorebank Intermodal Terminal proposal.	Section 19 - *Cumulative Impacts*	Risks of including the MIC and SIMTA projects as an integrated facility should be reviewed and better understood. If a single operator was to take control of the site the inter-dependency of the construction and operational risks need to be reviewed on an ongoing basis as the detailed designs for subsequent stages are developed.
Hazards and Risks - Asbestos The Proponent will develop an asbestos management plan for the SIMTA proposal containing a risk assessment undertaken in accordance with Code of Practice for the Management and Control of Asbestos in the Workplace (NOHSC, 2005).	Section 18 – *Hazards and Risk* This aspect will need be addressed prior to demolition and/or construction.	No comment
Where the management plan recommends the removal of asbestos from site all works will be undertaken in accordance with the Code of Practice for the Safe Removal of Asbestos (NOHSC, 2005), including the development of an asbestos removal control plan and an emergency plan.	Section 18 – *Hazards and Risk* This aspect will be addressed prior to demolition and/or	No comment
Hazards and Risks - Dangerous Goods The Proponent commits to undertaking a preliminary hazard assessment either during the preparation of the subsequent detailed planning applications (where tenants and purposes have been defined) or by tenants during the operational phase of development, as required by State Environmental Planning Policy No. 33 Hazardous and Offensive Development (SEPP No. 33).	Not applicable – no warehousing proposed at this stage. This aspect will be addressed prior to occupation of buildings by tenants proposing to store, handle or transport dangerous goods.	No comment
Once the level of risk has been identified the aim will be to reduce the risk to 'as low as reasonably possible' (ALARP) through the application of specific operational management procedures that would form part of a framework for managing risks, captured within the facility's Hazard and Risk Management Plan and Emergency Response Plan.	Not applicable – no warehousing proposed at this stage. This aspect needs to be addressed prior to occupation of buildings by tenants proposing to store, handle or transport dangerous goods.	No comment
Should unacceptable levels of risk be identified during the Preliminary Hazard Assessment (PHA), SIMTA will require potential tenants to demonstrate measures to reduce the risk to an acceptable level prior to acceptance of tenancy.	Not applicable – no warehousing proposed at this stage.	No comment
The Proponent will require all tenants to disclose the anticipated type and quantity of goods entering the SIMTA site prior to award of tenancy. Prior to commencement of a lease on the SIMTA site, all tenants that would handle dangerous goods would be required to sign on to SIMTA's Hazard and Risk Management Plan and the Emergency Response Plan for the site.	Not applicable – no warehousing proposed at this stage. This aspect will be addressed prior to occupation of buildings by tenants proposing to store, handle or transport dangerous goods.	No comment
These plans will be reviewed regularly and updated as goods entering the site may change with the tenancies. The requirements in the *Code of Practice for storage and handling of dangerous goods (Work Cover NSW, 2005)* would be adopted in these plans as a minimum.	Not applicable – no warehousing proposed at this stage. This aspect will be addressed during operation.	No comment

Concept Approval Requirements	EIS Response	Comments
Hazards and Risks - Spills The Proponent commits to the preparation of a Construction and Operational Management Plan prior to the commencement of site operations for control/mitigation and management of any spillage/leaks etc.	Section 22 – *Compilation of Mitigation Measures*	No comment
Hazards and Risks - Unexploded ordnance The Proponent commits to undertaking and remediation (where necessary) prior to the commencement of construction.	Section 4 – *Proposal Description* Section 13 - *Contamination* Phase 2 ESA & Remediation Action Plan (Appendix R)	No comment
Hazards and Risks - Bushfire Management The Proponent commits to incorporating the key objectives identified by the Rural Fire Service (RFS) into relevant future design stages, in accordance with the following principles: > Afford occupants of any building adequate protection from exposure to a bush fire. > Ensure safe operational access and egress for emergency service personnel and residents > Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in asset protection zones (APZs) > Ensure that utility services are adequate to meet the needs of fire fighters.	Section 20.3-*Bushfire* Bushfire Protection Assessment (Appendix W) has provided sufficient coverage of the concept approval requirements.	The mitigation of bushfire risks needs to be comprehensively covered in future construction and operational management plans.
The Proponent commits to the development of a Bushfire Management Plan for both the construction and operational phases of the SIMTA proposal that aligns with the requirements of the local RFS Bushfire Management Committee operational plans of management.	Section 20.3-*Bushfire* Section 22 – *Compilation of Mitigation Measures* Bushfire Protection Assessment (Appendix W)	No comment
General Requirements Notwithstanding the above listed issues, future Development Applications shall include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional environmental impacts are identified through this risk analysis, an appropriately detailed impact assessment of the additional environmental impacts shall be included as part of the Development Application.	Section 21-*Environmental Risk Analysis*	A project wide risk register shall be maintained to record and capture all risks, hazards and required mitigation measures identified by all studies completed to date. This will need to be a 'live' document that is updated as more design details are developed and as the full picture of the overall development comes to light. The latest version of the risk register should accompany any subsequent development applications for future stages.

4.5.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-12 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Hazard and Risks A preliminary risk screening completed in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* and *Applying SEPP 33* (DoP 2011), with a clear indication of class, quantity and location of all dangerous goods and hazardous materials associated with the proposal. Should preliminary screening indicate that the proposal is 'potentially hazardous,' a Preliminary Hazard Analysis (PHA) must be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis* (DoP 2011) *and Multi-Level Risk Assessment* (DoP 2011).	A preliminary risk screening is provided in Section 20 of the EIS. The preliminary screening identifies that the Proposal is not "potentially hazardous" and therefore a PHA is not required.	No comment
The PHA should: a) Estimate the risks from the facility;	Section 18-*Hazard and Risk section determined that a PHA is not required.* Also Section 21 provides an Environmental Risk Assessment (ERA) to identify the key environmental impacts associated with construction and operation of the Proposal.	No comment
b) Be set in the context of the existing risk profiles for the intermodal facility and demonstrate that the proposal does not increase the overall risk of the area to unacceptable levels; and	Section 18-*Hazard and Risk section determined that a PHA is not required.*	No comment
c) Demonstrate that the proposal complies with the criteria set out in the *Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning*.	Section 18-*Hazard and Risk section determined that a PHA is not required.*	No comment

4.5.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

Traffic

- SIMTA Stage 1 should not be determined until the results of independent RMS traffic modelling are released and considered in the overall assessment. This will ensure that potential risks from broader sub-regional traffic impacts and risks are understood and managed appropriately.
- Detailed traffic management plans and appropriate road and intersection upgrades will need to be prepared with each subsequent stage of the development application to ensure that risks and hazards from congestion and heavy vehicle interactions with the community are managed appropriately.
- Risks associated from the transit of dangerous goods and/or potentially hazardous materials are not included in the risk assessment matrix. It is recommended that this aspect be considered and assessed to ensure that the appropriate level of risk is assigned and appropriate mitigation measures are outlined, which should form part of procedures associated with the freight acceptance criteria to minimise risks along transit corridors.

Air Quality

> There are risks associated with the predicted air quality emissions if the assumptions used in the TIA are not worst case as the AQIA is highly reliant on the findings of the traffic assessment. Therefore conservative worst case assumptions need to be used as the basis for the impact assessments and if any changes are required to the TIA then the AQIA will need to be reviewed as well to ensure alignment.

> A detailed Air Quality Management Plan shall be prepared to cover any future development stages, which is to consider best practice emission controls to avoid unnecessary risks to the community.

Health

> The proponent shall continue to review and assess health risks and proposed mitigation measures throughout the detailed subsequent design phases of the project.

> The Health Impact Assessment and HRA should be reviewed and revised to allow complete assessment if any revisions to either the noise and/or air quality impact assessments is undertaken.

Noise

> Further detailed Noise Impact Assessments shall ensure that risk of impacts at all residential receivers have been included in the acoustic assessment, including new land releases at Glenfield and Casula and areas where noise exceedance is currently experienced. This should also include any Defence housing or accommodation in the vicinity.

> In the detailed operational phase noise assessment, further consideration should be given to the assessment of cumulative noise impacts as the risk still remains that the SIMTA site and the MIC sites may operate simultaneously. The assessment of the cumulative impacts should be based upon the approved use of both the SIMTA and MIC sites to ensure that the worst case scenario is considered.

> The risks of acoustic impacts arising from worst case meteorological conditions also should consider temperature inversions to clearly identify potential noise impacts under worst case conditions.

Contamination

> Undertake all site remediation works and further investigations of areas of environmental concern as detailed in the RAP, prior to construction commencing on SIMTA Stage 1.

> Any investigations will need to be based on the detailed design of the proposed development to identify the extent of contamination, and what, if any, remediation activities are needed. The remediation of areas of the site would be best matched to the development of the site and considered as part of the future design. Based on these investigations, detail any requirement for remediation, monitoring and other management measures as well as risk to offsite sensitive receivers from impacted sediments, surface water and groundwater.

> A Contamination Management Plan should be prepared as part of the CEMP (in accordance with the revised Statement of Commitments) for managing expected and unexpectedly encountered contaminated materials during construction.

Waste

> Further information should be provided so that the potential impact of any generated waste streams can be quantified and associated risks assessed.

Bushfire

> The mitigation of bushfire risks needs to be comprehensively covered in future construction and operational management plans. This consideration is particularly relevant to the performance of bushfire hazard reduction activities along boundaries and performance of hot works during declared bushfire seasons and on total fire ban days.

> Vegetation Management Plans and Landscaping Plans will also need to take bushfire risk into consideration.

> The EIS also states that bushfire risk is not increased by the operation of both the SIMTA Project and MIC Proposal, assuming standard controls are implemented at both sites during construction and

operation, particularly associated with the performance of bushfire hazard reduction activities along boundaries and performance of hot works during declared bushfire seasons and on total fire ban days.

Flooding

> The proposed on site detention basin structures need to consider the flood impacts and the viability of combined Rain Gardens and OSD basins as well as the detail of the proposed stormwater treatment plan. A management plan for testing and maintaining the system in acceptable condition should be provided. The impacts of vegetation on the OSD volumes also need to be considered to ensure risks associated with ineffective basin volumes are considered.

> A more detailed design of the proposed railway bridge including the location and orientation of bridge piers and the height of the bridge deck, should be provided before determination. The impacts of the bridge on flooding and navigation of the river should be assessed and considered further.

> Culvert blockage in flood modelling should be modelled consistently with an understanding that the proposal must be assessed against a worst case scenario. Specifically, the Anzac Creek flood modelling should use a 50% blockage factor consistently across all existing and proposed culverts regardless of previous modelling.

> Water balance should be provided in greater detail including: changes in runoff to the particular catchments of the precinct and groundwater.

> Cumulative stormwater and flooding impacts of SIMTA and the MIC proposals should be discussed as part of a precinct wide water balance assessment to ensure that shared infrastructure can cope.

> Long term river bank stability should be addressed in more detail to allow assessment prior to determination as erosion is a key risk to water quality that needs to be considered.

Visual and Urban Amenity

> Additional assessment should be carried out to consider the visual impacts of the development from potential residential / mixed use development sites within the visual catchment of the site.

> Further information is required to ensure that the proposal will not unduly impact on the existing surrounds. This includes clarity around the maximum container staking heights; visual character of landscaping works and potential visual impacts to items of heritage value such as the heritage listed Glenfield Farm Homestead.

> Risks to the value and appeal of existing recreational areas along the Georges River, and proposed enhancement works by Council to improve the community amenity in this area will be increased unless the proponent can provide better information on how integrated landscape plantings and features will mitigate this risk.

> The cumulative impacts of the entire SIMTA and MIC intermodal development need to be assessed to ensure the risks to community infrastructure are minimized. Also additional assessment should be carried out to consider the visual impacts of the development from any potential residential uses on the MIC site, due to the possibility that the MIC site will not be developed for the purposes of an intermodal

> A commitment to the procurement of high energy efficiency, directional lighting materials should be provided by the applicant via a sustainable procurement strategy.

Utilities and Infrastructure

> The proponent needs to identify if the capacity of surrounding utility infrastructure will be sufficient for future stages of the SIMTA development in conjunction with the MIC proposal. There is no consideration of any of the cumulative impacts on utilities if early stages of the MIC proposal are developed at the same time.

> The following questions have resulted from this review in relation to utilities and infrastructure:

- Will SIMTA apply for a right of carriageway over the affected property, or will they formally acquire the rail corridor?
- If SIMTA is to acquire the land to support infrastructure upgrades, how will this be facilitated?
- Is there any evidence of in-principle agreements with the landowners?

- What are the detailed funding arrangements (either monetary of in-kind) for all required infrastructure upgrades?

Dangerous and Hazardous Materials

> Considering the past history of use on the site. Unexploded Ordinance (UXOs) and munitions have been identified as being likely to be present on site. Any future hazard and risk assessments should clearly identify and cover the potential for these items to be encountered in relevant areas of the site.

> Further liaison with third party organisations and authorities involved in the goods supply chain (i.e. customs and road/rail transport companies) to ensure that formal goods and material acceptance procedures are developed during the operational phase of the Terminal to manage risks and hazards associated with unknown or uncontrolled dangerous or hazardous materials that can potentially be transported by road or rail to the site.

Cumulative Impacts

> The SIMTA proposal needs consider the cumulative impacts of the adjoining MIC proposal as the SIMTA Stage 1 application is an effective enabler for the entire intermodal project and thus the risks and hazards from the whole development need to be considered. Emergent hazards and risks relating to cumulative impacts arising from construction and operational activities such as earthworks, rail/traffic movements, air quality, noise, social impacts and visual amenity need to be constantly identified, recorded, reviewed, and mitigated as appropriate.

Best Practice

> A detailed project wide risk register (covering any cumulative risks associated with adjoining MIC and subsequent stages of SITMA) should be developed, regularly reviewed and maintained throughout the detailed planning, design, construction and operational phases

> Further hazard and risk assessments that benchmark world's best practice on intermodal terminals should be undertaken in subsequent detailed design stages of the project to ensure that all potential hazards and risks are identified and managed accordingly through future detailed design, construction and operational phases.

> Even though a PHA has been determined to be not required from the preliminary risk screening, it is highly recommended that the following risk management measures have been carried out and are in place prior to construction and/or operations commencing:

- Fire safety study
- Emergency plan (including all construction areas, site operations including rail and road transport corridors)
- Hazard and operability study (HAZOP)
- Updated hazard analysis should be undertaken throughout the design phases of the project
- Construction safety study
- Safety management plan.

General Risk Management

> Prior to the determination of the Stage 1 proposal and any subsequent development applications, the Proponent shall develop a detailed risk and hazard register to identify and record all hazards and risks that will emerge during further detailed design stages and subsequent development applications. The register shall include a range of mitigation measures and controls that are considered throughout the detailed planning, design, construction and operational phases to ensure all residual risks are recorded and managed to safe and acceptable levels. The most current version of the hazard, risk and mitigation controls register shall be included in any future stage development applications for review. This is a critical aspect of risk management from the Stage 1 proposal as the requirement will set the scene for subsequent stages and provide a complete risk and control register for the overall development.

> Detailed Hazard and Operability Studies (HAZOPs) shall be undertaken by a suitably experienced and multi-disciplinary team during the detailed design phases of the terminal infrastructure to ensure that

logistical processes, hazardous material storage areas are reviewed against appropriate design standards and to evaluate problems that may present risks to personnel, equipment and the community.

> Safety in Design (SID) reviews should be undertaken by suitably experienced and qualified design team members during the detailed design phases of the terminal infrastructure to ensure that constructability, operability hazards and lifecycle risks are reviewed against appropriate design standards and to evaluate problems that may present risks to personnel, equipment and the community.

> The detailed design will need to ensure that appropriate separation distances from sensitive receivers are maintained between road and rail haulage routes to ensure risks from uncontrolled dangerous or hazardous materials are minimised.

> Reference to any specific mitigation measures and contingency plans from the EIS and RAP should be included in the CEMP covering construction works.

> As the approval of SIMTA Stage 1 will be an enabler for subsequent stages, all future development applications shall consider Hazard and Risk impacts and perform the following:

- Risk screening in accordance with the requirements of SEPP 33 will need to be undertaken for any subsequent stages of the SIMTA project to determine if provided if activities are “potentially hazardous” which will require the preparation of a Preliminary Hazard Analysis (PHA) to support a development application.
- Clearly demonstrate that the Proponent will at each proposed project stage; review, adopt and implement benchmarked best practice risk and hazard assessment and management measures to ensure the facility design and operational management provides a world class intermodal facility that is committed to ensuring the safety of its workers and the broader community.
- Perform consultation with relevant authorities and organisations involved in the goods supply chain, including but not limited to, the following authorities and road/rail transport companies:
  - Customs
  - Liverpool City Council
  - NSW Health
  - NSW/Fire and Rescue
  - WorkCover
  - EPA
  - RailCorp
  - NSW Ports
  - Roads and Maritime Services.

This will ensure that formal goods and material acceptance procedures are developed to manage risks and hazards associated with unknown or uncontrolled or unknown dangerous or hazardous materials that can potentially be transported by road or rail to the site.

4.6 Health Impacts

The proposed SIMTA EIS provides analysis of the proposal’s impacts on human health. This review considers information in the EIS at Section 20.1 and Appendix O prepared by Pacific Environment (2015).

4.6.1 Overview of the SIMTA Assessment

The Screening Health Impact Assessment (HIA) prepared by Pacific Environment has considered the issues raised by the community through consultation for the Concept Plan Approval and has examined the potential impacts of operational phase of SIMTA Stage 1 on the local and regional community. The HIA has been

prepared in accordance with the *Health Impact Assessment Guidelines 2001* (enHelath, 2001) and *Health Impact Assessment – A Practical Guide 2007*.

The HIA reviewed the demographics of the population and baseline health status of the community surrounding the Proposal site and found there are no significant differences between the indicators within those suburbs and the rest of Sydney and NSW; meaning that there are no underlying health issues that would make these suburbs more susceptible to potential health impacts from the Proposal (Hyder 2015).

A health risk assessment (HRA) was conducted to assess the air quality and noise impacts on the health of the surrounding suburbs, based on the outcomes of the air and noise modelling undertaken by Environ and Wilkinson Murray, respectively.

In relation to air quality a range of health outcomes were investigated including increases in mortality and morbidity such as hospital admissions as well as increases in cancer risk due to potential exposure to air toxics and diesel emissions. The HRA was conducted using predicted air pollution levels modelled for the apparent worst case scenario without mitigation measures to reduce emissions from the SIMTA Stage 1 operations being implemented. The assumptions used in the AQIA and Noise Impact Assessment (NIA) are derived from the TIA, therefore any issues with the assessment undertaken in these reports will have the potential to affect the findings of the HIA.

The increase in risk due to air pollution from the SIMTA Stage 1 operations are considered low and in most cases are deemed negligible. The HIA found that cancer risk form the air toxics are well below acceptable risk level set by international agencies. As the unmitigated impacts identified in the AQIA were used in the HIA to ensure conservative worst case assumptions, the implementation of best practice measures as outlined in the AQIA will lead to further reductions in air pollution levels and the associated health risks.

The noise HRA has investigated the impact of noise from the operations of the SIMTA Stage 1 Proposal and rail noise on sleep disturbance and cognitive development in children using the World Health Organisation (WHO) community noise guidelines. The noise modelling which forms the basis of the HRA was undertaken for the apparent worst case scenario without actions being implemented to mitigate noise from the SIMTA Stage 1 operations and associated rail movements. It was found that the noise from the operations at the site meets the WHO criteria.

There are some small exceedances of the sleep disturbance criteria from the rail noise; however, with the implementation of the best practice measures outlined in the Noise and Vibration Impact Assessment (Wilkinson Murray, 2015), these exceedances will be minimised and the risk to health of the local community is considered low.

The Proposal site is surrounded by the suburbs of Casula, Wattle Grove, Glenfield and Moorebank in south western Sydney. A review of the demographics of the population and the baseline health status in the HIA has found that there are no significant differences between the indicators within these communities and the rest of Sydney and NSW. The HIA also notes that there are no apparent underlying health issues that would make these communities more vulnerable to the effects of environmental factors, such as air pollution or noise from the Proposal's operations than the rest of Sydney.

4.6.2 Cardno Assessment

To support the EIS, JBS&G Australia Pty Ltd undertook a review of previous investigations to aid the development of a Sampling, Analysis and Quality Plan as well as a preliminary site inspection to verify the information provided in previous reports. Following completion of the desktop survey, JBS&G undertook a Phase 2 Environmental Site Assessment (ESA) of the proposal site. The assessment identified bonded asbestos materials, heavy metal impacted soils, potentially hydrocarbon impacted soils and Light Non-Aqueous Phase Liquids (LNAPL) in two groundwater wells across the site, with four locations of contamination identified as requiring remediation.

The Phase 2 ESA for the MIC site (Parsons Brinckerhoff, 2014a) identified the potential for unexploded ordinance (UXO) within the Golf Course land, which forms part of the rail corridor. The Phase 2 ESA noted that artefact finds within the Golf Course land comprised inert explosive ordnance waste (EOW). However, the Assessment noted that there remains a limited potential for remnant UXO or EOW containing high explosive or other energetic material (Parsons Brinckerhoff, 2014a). Consequently, an unexpected finds

protocol should be put in place to address works encountering UXO or EOW, with appropriate management strategies and waste removal protocol's put in place.

A remediation action plan (RAP) was also developed for the Stage 1 Proposal which formed an Appendix in the Phase 2 Contamination Assessment. A detailed review of the contamination assessment has been provided in **Section 4.8**.

Also a detailed review of the noise and vibration assessment has been provided in **Section 4.4** and a review of the air quality assessment has been provided in **Section 4.3**.

Effects from Noise Impacts on Health

The main health effects associated with environmental noise are:

- Cardiovascular disease
- Cognitive impairment
- Sleep disturbance
- Tinnitus
- Annoyance
- Hearing Impairment.

A range of sensitive receivers were identified in the Noise and Vibration Assessment with noise impacts assessed against both the construction and operational phases of the project. RBLs at sensitive receiver locations representative of each of the four NCAs were established in accordance with the INP (EPA, 2000). The assessment assumed the Stage 1 Proposal will operate on a 24/7 basis with activity levels varying throughout the day. Rail noise predictions were made for all trains travelling between the Stage 1 site and the SSFL. Previous assessments and approval of the SSFL are understood to account for freight movements generated by an intermodal terminal facility in the Moorebank area. Therefore, no assessment was undertaken of noise emissions from movements on the SSFL generated by the Proposal (Wilkinson Murray, 2015).

The WHO has established guidelines for community noise to protect against the key health outcomes. The results of the assessment against this guideline indicate that all the hazard quotients were less than 1.0 for operational noise and therefore do not pose an unacceptable risk.

Sleep disturbance hazard quotients from rail noise were also calculated and the results show that some hazard quotients greater than 1.0 for sleep disturbance, especially with L_{Aeqmax}, and cognitive function were identified. It is noted that these values only marginally exceed 1.0 which indicates that the noise from the rail noise associated with the operations from the Stage 1 Proposal may result in a small increase in the risk of the health outcomes in the local community.

It is noted that construction noise risk in the Noise and Vibration Assessment was not assessed against the WHO guideline to the same level of quantitative rigor as the operational noise risk. There was also no assessment of the impact of the noise from the Stage 1 proposal on regional noise impacts. Therefore a quantitative assessment of the associated health risk could not be undertaken.

The Noise and Vibration Assessment has shown that the impact of the Stage 1 operations and associated rail noise would have a minor impact on noise levels in the local area. The health risk assessment for noise has shown that there is potentially a small increase in the risk of sleep disturbance associated with rail noise. The predicted noise levels used in this assessment have been derived without mitigation measures considered and represent the worst case exposures.

Given that the local impacts from noise and vibration were found to be insignificant, the impact on regional noise will also be insignificant, with the HIA concluding that the associated health risk would also be insignificant.

Effects from Air Quality Impacts on Health

The main health effects associated with air quality impacts ($PM_{2.5}$, PM_{10} and NO_2) are:

- Respiratory disease
- Cardiovascular disease
- Cardiac disease
- Pneumonia and bronchitis.

A HRA has been conducted to assess the air quality and noise impacts on the health of the local community. For the Air Quality Assessment a range of health outcomes were investigated including increases in mortality and morbidity such as hospital admissions as well as increases in cancer risk due to exposure to air toxics and diesel emissions. The health effects of particles linked to ambient exposures have been well studied and reviewed by international agencies (Toxikos 2015). According to the Air Quality Assessment (Environ, 2015) conducted for the Stage 1 Proposal the main sources of NO_2 are locomotives (travelling and idling), trucks (travelling and idling) and container handling.

The results of the HRA found that the increase in risk due to air pollution from the operations of the Proposal are low and in most cases negligible. The cancer risk form the air toxins are well below acceptable risk levels set by international agencies.

The HRA states that the implementation of best practice measures as outlined in the Air Quality Assessment report will lead to further reductions in air pollution levels and the associated health risks.

4.6.2.1 Best Practice Review

The best practice review conducted as part of the Noise and Vibration Assessment recommends a range of options that can be implemented to reduce noise levels from the rail movements. The reduction in noise through the implementation of these measures will result in reducing the risk to the health of the local community.

4.6.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-13 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Soil and Water d) include a contamination assessment in accordance with the guidelines made under the *Contaminated Land Management Act 1997* and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:	Section 13-*Contamination* Phase 2 Environmental Site Assessment & Remediation Action Plan (Appendix R)	No comment
i. the potential environmental and human health risks of site contamination on the project site;	Section 20.1-*Human Health Screening Health Impact Assessment* (Appendix O) *Phase 2 Environmental Site Assessment & Remediation Action Plan* (Appendix R) considers health investigation levels, health screening levels and ecological investigation and screening levels using the NEPC (1999) NEPM guidelines. Asbestos is present in three buildings located within the Stage 1 site. Demolition of structures which include ACM has the potential to release asbestos fibres into the atmosphere causing harm to human health.	No comment
Statement Of Commitments		
Health The Proponent will undertake further health impact assessments for lodgement with each of the detailed planning applications for the three major stages of the development, including: Discussion of the known and potential developments in the local region;	Section 20.1-*Human Health Screening Health Impact Assessment* (Appendix O) Provide with the planning applications for the three major stages of the Concept Plan	A HIA and HRA have been provided for SIMTA Stage 1. All subsequent stages will need specific health impact assessments to be submitted to support the planning application.
An assessment of the impact on the environmental values of public health; and assessment of local and regional impacts including health risks.	*Phase 2 Environmental Site Assessment & Remediation Action Plan* (Appendix R) considers health investigation levels, health screening levels and ecological investigation and screening levels using the NEPC (1999) NEPM guidelines. Also assessments made for WQ against ANZECC guidelines to ensure environmental values are not impacted. It is noted that the drinking water guidelines are not considered to be relevant to the site given its commercial / industrial use. Section 20.1-*Human Health Screening Health Impact Assessment* (Appendix O) provides a detailed assessment of the impact on public health and local and regional health impacts.	No comment
Health impact assessments will be undertaken with reference to the Centre for Health Equity Training, Research, and Evaluations' practical guide to impact assessment (August 2007).	Section 20.1-*Human Health Screening Health Impact Assessment* (Appendix O) provides a detailed assessment of the impact on public health and local and regional health impacts in reference to the Centre for Health Equity Training, Research, and Evaluations' practical guide to impact assessment (August 2007).	No comment

4.6.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-14 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Health Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include:		
> adequate baseline data;	Appendix O *Health Impact Assessment* has referenced the data provided by the specialist air quality and noise & vibration assessments.	As the air quality and noise/vibration assessments are dependent on the findings of the traffic impact assessment for key assumptions, any changes or revisions to the findings of the traffic assessment will require a review and potential update to the HRA/ HIA report.
> consideration of potential cumulative impacts due to other development in the vicinity;	Section 20.1 - *Human Health Health Impact Assessment* (Appendix O) Although the operational impacts have been assessed quantitatively the noise impact study has not fully considered the construction stage impacts and	The HRA/HIA report is dependent on the satisfactory findings of both the air quality and noise reports. Any changes or revisions to the findings of the traffic assessment will require a review and potential update to the HRA/ HIA report..
> measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment;	Section 20.1 - *Human Health Health Impact Assessment* (Appendix O) Section 7.4, Section 9.4 and Section 22 of EIS. The noise and air quality assessments have included a range of mitigation measures which will reduce the risk of health impacts.	No comment
> a health impact assessment of local and regional impacts associated with the development, including those health risks associated with relevant key issues; and	Section 20.1 - *Human Health Health Impact Assessment* (Appendix O)	No comment
> consideration of the cumulative impacts of this proposal with the adjacent Moorebank Intermodal Terminal proposal.	Section 20.1 - *Human Health Health Impact Assessment* (Appendix O)	Any issues identified in the assessment of cumulative assessments in the traffic, noise/vibration and air quality assessments will unduly impact on the findings of the health impact assessment.
Soil and Water l) Include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility.	Section 13 -*Contamination* Phase 2 Environmental Site Assessment & Remediation Action Plan (Appendix R)	No comment

Secretary's Environmental Assessment Requirements	EIS Response	Comments
The assessment shall include: i. the potential environmental and human health risks of site contamination on the project site;	Section 13 -*Contamination* Phase 2 Environmental Site Assessment & Remediation Action Plan (Appendix R)	No comment

4.6.5 Recommendations

The recommendations below are identified to address health impacts and allow a comprehensive assessment of the proposal:

> The implementation of best practice measures as outlined in the Air Quality Assessment report will lead to further reductions in air pollution levels and the associated health risks. These measures will need to be committed to, with subsequent monitoring and reporting to ensure that implementation takes place across both the construction and operational phases of the project.

> Due to the linkages between assumptions and predicted impact data across the various traffic, noise and air quality assessments and the findings of the HIA and HRA, any revisions to the outputs of the specialist assessments will need to be reviewed against the findings and conclusions of the HIA and HRA prior to determination.

4.7 Geotechnical and Soil

The proposed SIMTA EIS provides analysis of the proposal's impacts on soil and ground conditions. This review considers information in Section 12 of the EIS prepared by Hyder (2015) including Appendix Q: *Geotechnical Interpretive Report* (GIR) prepared by Golder Associates (Golder).

4.7.1 Overview of the SIMTA Assessment

The EIS (Hyder, 2015) comprises a summary of the Concept Plan Assessment, an assessment of the existing environment or current site conditions with consideration to the geology and soils, along with an assessment of the potential impacts and mitigation measures relating to construction and operation of the Proposal.

Scope of Investigation:

The methodology and findings of the Geotechnical Investigation (GI) are included in the Golder Geotechnical Data Report (GDR) which has not been provided for review; however a summary of the GI has been provided in the GIR.

The scope is generally broad and targeted at the Stage 1 site, including a potential borrow area for fill material to raise site levels across Stage 1 along with the proposed rail spur alignment including an area within the Glenfield Waste Facility. In general the scope comprised:

> Boreholes and rock coring along the proposed rail spur and targeting areas of proposed bridges.

> Machine excavated test pits within the Stage 1 site, at the proposed borrow area, along the proposed rail spur and within the waste facility. Several of the test locations could not be completed due to access restraints.

> Cone Penetration Test (CPT) across the Stage 1 site.

> Seismic refraction profiling across the Georges River adjacent the proposed rail bridge location.

> Laboratory soil and rock testing.

Existing Environment: Geology & Soils

A geotechnical model is presented in the EIS based on geological mapping and subsurface investigation by Golder and is generally summarised as surficial topsoil and filling overlying alluvium, which is underlain by the Ashfield shale and the Hawkesbury sandstone. The following commentary regarding the geological and soil conditions across the site are provided in the EIS:

- The Stage 1 site and potential borrow area has been filled to depths of up to 1.2m. The alignment of the proposed rail spur is generally filled with depths of up to 7m in the vicinity of the waste facility. Some sections of the rail alignment were unable to be investigated due to access constraints.
- Quaternary Age alluvial sediments overly Tertiary Age fluvial deposits on the eastern bank of the Georges River, underlain by the Ashfield Shale and Hawkesbury Sandstone to the east of the river, while adjacent to the river and to the west of the river, alluvial deposits overly the directly Hawkesbury Sandstone. In general, the Ashfield Shale overlies the Hawkesbury Sandstone or Mittagong Formations in areas of higher elevation. No fault zones or dykes were observed.
- Alluvial soils have generally been characterised as very loose to loose sands or silts or very soft to soft clays overlying medium dense to very dense sands and silty sands, and very stiff to hard silty clays. Soils are likely to be susceptible to stream bank erosion, wind erosion and surface water erosion in exposed areas. The soils are not considered to be acid sulfate soils based on desktop assessment and field indicators. An exposure classification in the range of non-aggressive to moderate has been adopted for buried steel and concrete structural elements.
- Depth to bedrock in the Stage 1 site inferred as 23 m below the existing ground level from CPT data. Rock depths across the majority of the site are variable and strengths vary from very low to low in the weathered zone of the Ashfield Shale, and medium strength or higher in the Hawkesbury Sandstone or below the highly weathered zone in the Ashfield Shale.

Potential Impacts and Mitigation Measures for Construction & Operation

The predominant potential impact from the construction identified by the EIS is the risk of erosion following exposure and disturbance of the soils during earthworks. The potential for sediment laden runoff and dust generation from stockpiled soils has also been noted.

The bulk earthworks strategy prepared by Hyder and summarised in Section 12 of the EIS provides estimates of material quantities that generally shows that with the exception of engineered fill required under the gantry paths in the IMT, an earthworks balance has been achieved. No consideration to other engineered fill such as pavements and rail embankment construction has been included. It appears that all materials won on site have been assumed to be suitable for re-use.

The construction of the Stage 1 site has been assumed to comprise in essence, winning material from the borrow area and filling over (and potentially re-working) existing fill; however the assumption is that the underlying geology i.e. natural alluvium and rock would not be disturbed. The importance of appropriate erosion management has been identified due to the large site and length of the construction program.

The EIS has also identified the following potential impacts related to the construction of the bridge/culvert crossing of the river and creek and within the floodplains:

- Bank erosion and scour resulting in increased downstream sedimentation from removal of vegetation or around temporary work structures
- Erosion of the constructed piling/crane platforms or abutment fill.
- Release of sediment from installation of bored piles.
- Increased downstream sediment loads from disturbance of creek channel beds

No assessment of the potential impact from the construction of the rail spur has been conducted as further geotechnical assessment is required to inform the design based on existing embankments, slopes and containment cells. The EIS considers that the rail link across the waste facility would predominately not require disturbance of the underlying/existing soils.

The potential impacts from the operation are identified as minimal due to the Stage 1 site and rail link being predominately 'stabilised' with hardstand, railway ballast and landscaping. The issue of turbulence between the piers causing scouring of the bank and subsequent siltation has been identified and addressed through design considerations including implementation of scour protection.

The mitigation measures generally provide a framework for further assessment; however they are only broadly introduced as the following:

> Further geotechnical investigations along the rail link and Glenfield Waste Facility has been suggested to inform inclusions to the CEMP.

> Soil and Water Management Plan and Sediment Control Plans to be developed to address the above potential impacts.

> Conducting works for the Georges River Bridge in accordance with a Project Specific Procedure (PSP) to reduce the environmental impacts.

> Reuse of excavated material on site where possible in accordance with the Remediation Action Plan (RAP) or Contamination Management Plan (CMP) or otherwise classified in accordance with the Waste Classification Guidelines.

> Further development of the Bulk Earthworks strategy by the Contractor.

4.7.2 Cardno Assessment

The GDR and GIR has been conducted for the purpose of obtaining preliminary information to inform further development of the concept design and aid in addressing the SEARs. As discussed above, the scope is generally broad and as such, Golder have specified that further investigation will be required. Notwithstanding this, there are some data gaps which should be addressed at the preliminary stages.

Overall Scope of Investigation

As discussed, to provide a detailed assessment of the recommendations and assumptions made in the GIR, a review of the GDR would be required however the following comment can be made based on the information in the GIR.

> Access constraints have provided a limitation to the scope of the investigation and some sections of the proposed rail spur alignment have been virtually excluded from subsurface assessment. These sections comprise of the alignment to the north of the existing East Hills line between Georges River and Moorebank Ave, and the heavily vegetated area to the south of the DNSDC site ('Boot Toe land') where the investigation was limited to hand auger bores. Assuming the hand auger holes are shallow, they are considered to provide limited information and as such, the length of proposed rail alignment with no specific subsurface investigation is significant, in the order of 1 km.

> The borehole that provides data for the Anzac Creek crossing appears to be outside the identified 'Wetland area', with only one hand auger hole in the vicinity of the creek.

> There is a variation in investigation methodology from the Stage 1 site and the different sections of the proposed rail spur. While it is appreciated that an inferred subsurface profile is made from CPT data, there has been no boreholes drilled to significant depth adjacent CPT locations, with the closest borehole near Anzac Creek. The intrusive investigation in the Stage 1 site appears to be limited relatively shallow test pits.

> The extensively disturbed terrain around the Glenfield Waste Facility appears to have inhibited the investigation somewhat. The majority of the test pits did not penetrate to the natural profile due to the depth of the fill. Golder conducted three boreholes along the proposed rail alignment around the waste facility and this was supplemented by review of logs from monitoring wells installed by Consulting Earth Scientists (CES, 2007). It has been noted that the logs by CES do not provide detailed geotechnical logging however the information has been used to refine the geotechnical model.

Acid Sulfate Soils

The Department of Land & Water Conservation (DLAWC) Acid Sulfate Soil Risk Map for Liverpool indicates that the site is in the vicinity of an area of low probability of acid sulfate soils at depths of greater than 3 m below the ground surface. The proposed rail alignment also appears to cross this zone.

Although the assessment considers the Australian Soil Resource Information System (ACLEP, 2015) which indicates an extremely low to low probability of the presence of acid sulfate soil materials, the confidence level of the information is stated as 'very low' or 'unknown'. Considering this level of uncertainty, some intrusive sampling and testing should have been part of the GI or the environmental assessments but has not been referenced in the EIS and does not appear to have been conducted.

Salinity

A review of the Department of Infrastructure, Planning and Natural Resources: Salinity Potential in Western Sydney Map (2002) indicates that the site is situated within an area of moderate salinity potential. This indicates that scattered areas of scalding and indicator vegetation have been noted but no concentrations of salinity have been mapped.

No details of the salinity assessment have been included in the EIS. The GIR notes that the Ashfield Shale is known to be affected by saline groundwater conditions.

Erosion Potential

It is appreciated that the nature of the Proposal and the expected earthworks would provide suitable compaction and generally a cover to potentially erodible soils; however it appears that the risks of erosion where soils would be exposed has only been assessed based on limited Emerson class testing by Golder. The testing indicates that there is a low erosion potential with site observations providing contradictory indications.

The EIS identifies existing topsoil won from the Stage 1 site and surrounding area could be reused for landscaping however no specific assessment of the dispersion potential or sodicity of these soils has been conducted.

In general, the EIS states that erosion would be manageable with appropriate measures in a suitable CEMP including erosion and sediment management control plans along with a bulk earthworks management strategy. This is generally suitable however additional geotechnical information is expected to be required to inform the progress/development of these plans.

Geotechnical Design Parameters

The geotechnical design parameters included in the GIR (Appendix Q of the EIS) are considered to be generally suitable but are preliminary in nature as the exact parameters could only be determined following finalising of the concept design. In general, the adopted material and strength parameters appear to be typical; however review of the GDR would be required to provide critical appraisal.

There is however a notable limitation in the coefficients provided for retaining wall design in the Unit 3B (very stiff clay), 4A (residual shale soil) and 5A (residual sandstone soil). The at-rest coefficient provided for these units (K_0 of 1.73) is erroneous, and in general, the active and passive earth pressure coefficients for all units appear to have been factored somewhat.

Earthworks

The Golder GIR provides several options and a broad discussion on the suitability and risks associated with each option for the treatment of existing fill on the Stage 1 site. In general the options are fairly typical and provide a variety of lower risk and lower cost options; however a significant constraint is presented in that development of a preferred option "will require consideration of contamination issues and geotechnical issues, as the preferred geotechnical solution may not be possible due to contamination constraints".

Contamination issues may provide the overarching constraint to the earthworks solution and are discussed further in discussed in Section 4.8.2. Notwithstanding this, all the options presented with the exception of excavation and replacement of all of the fill, require significant assessment, prior to, during and following the earthworks to confirm the suitability of the geotechnical design for the construction/structural design assumptions

Bulk Earthworks strategy

The bulk earthworks strategy provided in the EIS requires more careful consideration of several aspects at the preliminary stage. In general, it appears that the bulk earthworks strategy considers that all material won on site have been assumed to be suitable for re-use. Where adequate consideration is not made, significant budget under-estimates are likely to be made in relation to material and earthworks. Prior to the contractor progressing the bulk earthworks strategy, it may be prudent to produce an earthworks management plan or earthworks guidelines that considers both geotechnical and contamination aspects of site won material with respect to the proposed design and suitability in the specific material application.

The following aspects and considerations appear to be absent in forming assumptions for developing the bulk earthworks strategy:

- Soil contamination: not all soil won on site may be suitable for reuse and there is no consideration in the bulk earthworks strategy of the potential impacts of mobilising contaminated soils and or contaminating groundwater from exposing contaminated soils. Some material is expected to be required to be removed from site which is not considered in the material balance calculations. Where reuse on site won existing filling is proposed, the remediation requirements of the RAP shall be considered in the bulk earthworks strategy. Where the material is required to be removed from site, the cost for assessing the material under the Waste Classification Guidelines and appropriate disposal should be considered, with the deficit in the earthworks balance to be addressed with additional site won material or import.
- The earthworks solutions presented by Golder do not appear to have been considered into the bulk earthworks strategy, with the exception of an engineered fill importation requirement for beneath gantry paths within the Stage 1 site. This may prove to result in costly modifications to the required earthworks solution.
- Engineered fill import requirements for rail embankments: Significant import of structural and capping material would be required for constructing the rail embankment to an ‘earthworks level’ prior to import of ballast.
- The source of the liner materials for stormwater detention ponds: Golder have recommended that site won or imported materials could be utilised in construction but that ponds would need to be lined as on-site soils are generally unsuitable.
- Volume of material that would be spoiled during sorting: An unknown volume of oversize or otherwise unsuitable filling may be encountered within the existing fill profile and would either need to be processed on site or removed.
- The volume of other construction materials ancillary to ‘bulk earthworks’ material: Although such materials would not fall into the bulk earthworks balance, a significant cost for a project of this size is expected from the pavement construction material, ballast, backfill material for trenches, retaining wall backfill, etc.

The broad assumptions that have been made in the bulk earth works strategy create significant deficiencies, with the potential for extensive budget overruns. There will also be a significant cost in import of material for the engineered fill for rail embankments and this has not been considered.

Rail link in Glenfield Waste Facility

It is appreciated that the assessment conducted along the proposed rail spur in the waste facility is preliminary in nature due to the number of variables that are unknown. Golder have suggested that once the concept is more clearly defined, assessment of the suitability of the geotechnical information is made, and further investigation may be required. Cardno consider the further investigation is considered a necessity nonetheless.

The following constraints to the construction of a rail spur in this area have been identified:

- Construction over deep filling, of variable composition and thickness, with variable compaction levels and in some areas identified as poorly compacted.
- Proximity of a rail embankment to the river bank which has the potential to cause instability in the river bank and vice versa.

> Potential instability in the former quarry faces and fill that form the foundation for or interact with the proposed embankment.

With consideration to the above constraints, several options to address potential settlements have been presented in the GIR and include supporting the track on piles extending into the rock; preloading the proposed alignment; a stiffened soil raft; or modifying the design to reduce levels minimising the net surcharge loading. The options presented are fundamentally suitable however the following considerations should be made:

> Supporting the track on piles is a relatively low risk but significantly higher cost option that is unlikely to be adopted.

> Preloading is feasible however assessment of the stability and the geometric constraints for batters of preload material would be required prior to consideration. In addition, the availability of material for use in preloading and how that would fit in with the earthworks construction program should be considered in a bulk earthworks strategy. It may be difficult to manage preload material considering the potential volume of material required, and the potentially limited space for manoeuvring and staging.

> A stiffened soil raft solution is a higher risk option but may also present a relatively high cost solution depending on the quantity of geosynthetic reinforcing that may be required.

In general, there are several options to consider for the design of the rail spur in the vicinity of the waste facility including but not limited to those above as considered by the GIR. An important consideration is that the constraints to both design and construction have not been sufficiently assessed and the most efficient solution may still prove to be a significantly higher cost than expected.

The rail embankment also would intersect the completed capped landfill cell and whether this could actually be disturbed in earthworks does not appear to have been considered. The embankment also appears to encroach significantly into the existing leachate containment dam with no discussion regarding this geotechnical and constructability aspects of this in the EIS.

Other comments

> In general, the preliminary comment for pavements, footing construction and options, for the Stage 1 site are suitable for assessment to inform a concept design; however further investigation would be warranted to inform a detailed design. More specifically, the design parameters for footing design may need to be confirmed by additional boreholes at exact footing locations, and as noted in the GIR, additional geotechnical analysis will be required nonetheless.

> The geotechnical recommendation for cut and fill slopes for permanent batters in fill and alluvium has been recommended as 1(v):2(h) however no consideration has been made to maintenance requirements for vegetation as erosion protection and whether this is possible with the proposed batter slopes. Furthermore, depending on results of additional assessment into erodibility of site soils which have been proposed to be utilised as topsoil cover, there may be a requirement to provide flatter batters to reduce the risk of erosion. The source of material for landscaping and erosion protection has not been considered and is discussed further in Section 4.9.2.

> The settlement predictions for the Stage 1 site appear reasonable however appraisal of the CPT data would be required to critically evaluate.

> The use of material from the proposed borrow area appears to be assumed as a general fill and consideration to the actual suitability would be dependent on the proposed earthworks methodology e.g. there may not be a potential to use site won clay material where dynamic impact rolling is proposed in lieu of conventional compaction.

> There is no consideration to the difficulty of tying into existing rail lines from a geotechnical, drainage and constructability perspective.

4.7.2.1 Best Practice Review

Best practice appears to generally have been adopted for the geotechnical investigation; however the GDR was unable to be reviewed to provide a full appraisal of the field and laboratory testing methodology. In

general the methodology of the areas that have been investigated appears suitable but best practice would comprise better correlation between varying investigation methodologies (i.e. CPT and borehole data). Further to this, some of the data used in the GIR comprises subsurface information of which has not been logged with geotechnical detail, and this may contribute to misleading or geotechnical inaccurate assumptions.

The data gaps in relation to the areas that have not been investigated also preclude the EIS from providing an adequate assessment to support the Proposal from a soil and geotechnical perspective.

4.7.3 Compliance with Concept Plan Approval and Commitments

A review of the EIS response in relation to the Statement of Commitments is provided in the Table below. Note, the Concept Plan Conditions of Approval associated with soil and geotechnical aspects are consistent with the SEARs for the Proposal and are addressed in the section below.

Table 4-15 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Detailed assessment of all environmental issues, including geotechnical, ecological, stormwater/flooding and contamination.	The EIS includes a GIR by Golder Associates addressing the geotechnical requirements in the Statement of Commitments	The GIR is generally of sufficient detail however comprises of some data gaps as discussed above.
Identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils.	Limited desktop acid sulfate soil assessment.	No intrusive assessment including sampling and testing.

4.7.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-16 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
9. Soil and Water g) Undertake an assessment of surface water quality during construction (including reference to water quality objectives for the relevant catchment where objectives have been determined), including an identification of works that may impact water quality, and a summary of proposed mitigation measures in accordance with Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom) and Volume 2 (DECC 2008);	Included but limited	Assessment of the erosion potential is limited and assumes that standard management procedures would be sufficient. No assessment into the salinity characteristics and impact from the Proposal
j) Identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils.	Included but limited. The geotechnical report (Appendix Q) generally covers some of the further investigation requirements.	Sections of the proposed rail spur alignment not assessed or not assessed to a suitable level. Limited investigation in both the Stage 1 site and in the Glenfield Waste Facility area. Limited desktop acid sulfate soil assessment with no intrusive assessment. Further work would be required. No assessment into the salinity characteristics and impact from the Proposal Assessment of the erosion potential is limited and assumes that standard

Secretary's Environmental Assessment Requirements	EIS Response	Comments
		management procedures would be sufficient.
k) Include a bulk earthworks strategy detailing the volume of spoil to be extracted from the site, planned reuse and amount of material to be imported.	Included but limited	Virtually no consideration to the actual suitability of the site soils for reuse from a geotechnical or contamination perspective. Where site soils are not suitable, appropriate waste classification is required and the material disposed of at a licenced facility. No consideration to the significant volume of engineered fill required for the rail embankment. The earthworks or ground improvement solutions presented in the geotechnical report require further assessment and their requirements do not appear to have been considered in the bulk earthworks strategy.

4.7.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

1. Further geotechnical investigation to address the identified data gaps such as the lack of investigation in inaccessible areas, inadequate investigation methodology in some areas (where hand augers were used), provision of a correlation between boreholes and CPT data, further assessment and in site testing (both intrusive and CPT) in the Glenfield Waste Facility. The additional information should be incorporated into the Golder GIR to further refine the geotechnical model and provide more accurate data for the design.

Further analysis and modelling of the impacts and expected settlements of the proposed embankment considering various options and their expected costs should be conducted prior to determination of the project. As identified in the GIR, a detailed stability assessment considering the proposed cut and fill and interaction with existing fill and natural soils/slopes would need to be conducted prior to finalising the design. As stated above and identified in the Golder GIR, an extensive field investigation laboratory testing program is required, which should inform a stability modelling/analysis. The scope shall be defined following determination of the geometry of the proposed alignment. Consideration of the impacts on the waste facility from a contamination perspective i.e. the requirements of a RAP/CMP would also need to be considered in any further assessments.

Acid sulfate soil assessment should be conducted in accordance with the NSW Acid Sulfate Soil Manual. The investigation shall comprise intrusive sampling and testing to provide confirmation that alluvial soils within the development are not actual or potential acid sulfate soils, or otherwise. The investigation should encompass alluvial soils within the development area or along the alignment of the rail spur that may be disturbed by site works including but not limited to dewatering, earthworks or footing/pile construction. The investigation should include (as a minimum) detailed laboratory analyses.

A Salinity Assessment should be conducted and where appropriate, a saline soils management plan should be included in the CEMP.

Additional assessment of the erosion potential of the soils particularly around existing water courses and of material proposed to be used in landscaping or in exposed embankment material whether short term (i.e. over the construction period) or long term.

Amendment of the geotechnical design parameters and a review of the GDR should be undertaken prior to determination of the project.

The earthworks or ground improvement solutions presented in the geotechnical report require further assessment. The requirements do not appear to have been considered in the bulk earthworks strategy. The bulk earthworks strategy requires reassessment and should as a minimum consider following:

a. The bulk earthworks solutions and constraints from both an environmental and geotechnical perspective i.e. the volume of material that would be suitable for re-use on site from a contamination perspective that would also be a geotechnical sound option as general fill.

b. Critical appraisal of the potential volume of material that may need to be removed from site due to the unsuitable nature or contamination.

c. The cost of disposal of material including any required assessment (and laboratory testing) of soils in accordance with the RAP/CMP.

d. The costs of import of material to replace excavated soils or fill that is not suitable for reuse.

e. Volume of the required import for engineered fill for the rail embankment and associated costs.

f. Clarification as to where the soil won from the proposed borrow area is to be used should be made and assessed by the geotechnical designer as it's suitability for various fill applications shall be confirmed prior to finalising of the bulk earthworks strategy.

4.8 Contamination

The proposed SIMTA EIS provides analysis of the proposal's impacts on Contamination. This review considers information in the EIS Chapter 13 and Appendix R prepared by JBS&G Australia Pty Ltd (JBS&G).

4.8.1 Overview of the SIMTA Assessment

JBS&G undertook a review of previous investigations to aid the development of a Sampling, Analysis and Quality Plan as well as a preliminary site inspection to verify the information provided in previous reports. Following completion of the desktop survey, JBS&G undertook a Phase 2 Environmental Site Assessment (ESA) of the proposal site. A total of forty-one (41) test pits and five (5) soil bores were sampled across the Project site. Four (4) groundwater bores were also installed and sampled across the site. Access to the Railcorp-owned land was not available during the intrusive investigations, and as such no data is provided in the Phase 2 ESA.

The assessment identified bonded asbestos materials, heavy metal impacted soils, potentially hydrocarbon impacted soils and Light Non-Aqueous Phase Liquids (LNAPL) in two groundwater wells across the site, with four locations of contamination identified as requiring remediation.

Brief commentary on the location, nature and considered risk of each contaminant of concern is provided in section 13.3.1 "*Construction - Existing contamination"* followed by a description of typical contaminants which may be present within the inaccessible RailCorp land.

Generic remediation options are summarized from the Remedial Action Plan (RAP) for each of the areas of contamination as well as a description of the analytes that future intrusive investigations should target within the RailCorp land. A brief summary of the unexpected contamination and contingency process is outlined, with further details of contingency and remediation methods contained in Appendix R.

Mitigation methods to be employed during the remedial works are described in section 13.4.2 "*Construction"* which also includes brief descriptions of procedures to be included in the contamination management plan, contingency measures in the event of the disturbance of landfill cells and brief, summarised mitigation measures for managing residual risks of contamination following the implementation of remedial actions.

4.8.2 Cardno Assessment

Due to the inaccessibility of the RailCorp land there is the potential for unidentified contamination to exist. Anecdotal evidence of illegal waste dumping and burning of railway sleepers in this area indicates that the

potential for contamination is high. The assumption of any contamination present within this area being readily manageable is insufficient without intrusive investigation works being undertaken. This approach creates a high level of unresolved risk that should be addressed prior to determination.

A number of assumptions have been made throughout the assessment based upon the current design plans. In the case that the final design differs from its current form, a review will need to be undertaken to confirm that conclusions made within the Phase 2 ESA are still relevant.

Heavy metal and LNAPL contamination have been identified in groundwater across the site. While (Multi-Phase Extraction) MPE has been outlined as a remediation method for the LNAPL contamination, no indication as to the expected effectiveness of MPE have been provided. Furthermore, while it is recommended within the RAP that the effectiveness be assessed via the installation of groundwater monitoring wells, no indication of the required remediation level for the measures to be considered effective is provided. More information regarding the actions which will be taken if remediation of LNAPL contaminated groundwater is found to be ineffective should also be provided.

Heavy metal contamination has been identified in a number of wells across the site, with some located in close proximity to waterways. The heavy metal contamination has been disregarded as typical of urban Sydney areas, however not enough monitoring has been carried out to support this claim. Further assessment of the extent of groundwater contamination is required to provide a better indication of the potential human and ecological risks associated with the heavy metal contamination.

A number of soil materials have been identified for potential re-use on site following remediation through landfarming or sampling to ascertain their suitability, consideration is required should soils not meet the adopted on site re-use criteria. If this were to occur significant financial costs associated with disposing of materials off site and importing clean fill, as well as time burdens associated with changes to design may occur. This worst case scenario costing should be considered as part of the project to determine if this site is feasible for the proposed use of the site and its associated project budget.

The Phase 2 ESA for the MIC site (Parsons Brinckerhoff, 2014a) identified the potential for unexploded ordinance (UXO) within the Golf Course land, which forms part of the rail corridor. The Phase 2 ESA noted that artefact finds within the Golf Course land comprised inert explosive ordnance waste (EOW). However, the Assessment noted that there remains a limited potential for remnant UXO or EOW containing high explosive or other energetic material (Parsons Brinckerhoff, 2014a). Consequently, an unexpected finds protocol should be put in place to address works encountering UXO or EOW, with appropriate management strategies and waste removal protocol's put in place.

4.8.2.1 Best Practice Review

Best practice was generally identified to be implemented, with sampling undertaken as per the National Environment Protection Measures (2013). However, review of the sample locations showed a lack of sub slab borehole locations within the existing buildings. Further boreholes advanced beneath building slabs, either before or after building demolitions, would provide a better indication of potential contamination across the site.

Furthermore, the lack of testing within the RailCorp land comprises a major gap in the assessment, which needs to be resolved.

4.8.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-17 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Include a contamination assessment in accordance with the guidelines made under the *Contaminated Land Management Act 1997* and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:		
i. the potential environmental and human health risks of site contamination on the project site	Considers contamination at the site to not be widespread and generally to be manageable with four contamination locations identified as requiring remediation.	The contamination within the stormwater basin and leachate pond in the northern portion of the Glenfield Waste Facility is unknown as no sampling of sediments or soils have been undertaken. Disregarding heavy metal contamination of groundwater on the site as typical to urban Sydney is not suitable. Further assessment of the potential human and ecological risks associated with the heavy metal contamination is required, especially considering the close proximity to ANZAC Creek.
ii. a Remediation Action Plan;	Remedial Action Plan addresses identified areas of contamination	Remedial Action Plan does not apply to the RailCorp land where anecdotal evidence of potential unidentified contamination exists. While there are proposed remediation methods for the LNAPL contamination of groundwater, there is no guarantee of the effectiveness of MPE on the site. More indication of at what level remediation will be considered effective is required, as well as what actions will be taken if remediation is found to be ineffective.
iii. consideration of implications of proposed remediation actions on the project design and timing;	Remediation actions can be carried out prior to, or in parallel with construction.	Unidentified finds of contaminants such as asbestos will result in construction delays as remediation actions cannot be carried out in parallel with construction in affected areas. Unknown contamination in RailCorp land where anecdotal evidence that contamination exists poses unidentified contamination risks, and therefore delays. While hydrocarbon impacted soils are intended to be remediated by landfarming, and the remaining backfill materials to be sourced on site, consideration needs to be given to the potential cost implications if soil materials intended for backfill do not meet the adopted on site re-use criteria and require offsite disposal.

Concept Approval Requirements	EIS Response	Comments
iv. A Phase 2 environmental site assessment of the project site including rail corridor.	Phase 2 Environmental site assessment carried out by JBS&G	Data gaps are present within the assessment due to inaccessible areas (RailCorp land). The assessment of ecological risks posed by identified contaminants, in particular heavy metals relies heavily on the assumption of the majority of the site being hardstand with little to no access to soils or vegetation. Section 13.2.3 – Results of the EIS states seven samples exceeded of the LOR, however only five samples are identified in Table 13-3.
Statement of Commitments		
Confirming what, if any, actions were taken in regards to the Milsearch (2002) recommendations and the associated low risk ordnance issues;	An unexploded ordnance assessment undertaken as part of the Phase 2 assessment by Parsons Brinckerhoff in 2014 identified explosive ordnance wastes which were confirmed to be inert. Based on specialist advice by G-Tek, the Moorebank site is considered to have a very low potential to contain UXO/EOW containing high explosive or other energetic material	An unexpected finds propotocal for UXO/EOW is required should this material be encountered during works.
Undertaking further investigations in the areas of environmental concern likely to be impacted upon by the proposed development. These investigations will be based on the detailed design of the proposed development to identify the extent of contamination, and what, if any, remediation activities are needed. The remediation of areas of the site (if any) would be best matched to the development of the site and considered as part of the future design.	a) Phase 2 site assessment addresses areas of environmental concern which are likely to be impacted. b) The design of the Rail link currently indicates no disturbance to existing landfill cells, however this may change during detailed design, hence consideration of potential impacts to this site should be considered.	i. The inaccessible RailCorp land has not been subject further investigation and poses an unknown contamination risk as no further investigations have been undertaken. ii. No comment
Developing a Contamination Management Plan with detailed procedures on: - Handling, stockpiling and assessing potentially contaminated materials encountered during the development works; > Landfill gas management during the excavation, handling, and stockpiling of waste materials, if excavation is required during the development, in the area of the Glenfield Quarry and Landfill; > Assessment, classification and disposal of waste in accordance with relevant legislation.	A contamination management plan would be developed for the proposal to address detailed procedures. Generic procedures are provided in the RAP.	A detailed contamination management plan is required for contaminants throughout the site to ensure that potential contamination risks can be appropriately managed.
Undertaking a Phase 2 intrusive environmental site assessment of the proposed rail corridor lands, with an objective to assess the risk posed to the detailed design and construction of the rail corridor by the areas of environmental concern identified within this report. The Phase 2 intrusive investigation would include a program of soil and groundwater sampling	Phase 2 intrusive environmental site assessment identified various contaminants of environmental concern. Inaccessible areas are assumed to conform to typical rail related environments and be easily managed if contamination is found to exist.	No Phase 2 intrusive investigations were undertaken within the RailCorp land. Without an intrusive Phase 2 environmental site assessment the potential risks cannot be confidently identified and are purely based upon the assumption that minimal excavations will be required in this area, which has not been confirmed,

Concept Approval Requirements	EIS Response	Comments
completed in accordance with the guidelines made or approved by the EPA under s105 of the Contaminated Land Management Act 1997		and that the area will be a typical rail environment. No assessment of groundwater within this area is provided.
A contingencies plan for unexpected contaminated materials, such as materials that is odorous, stained or containing anthropogenic materials that may be encountered during site works	A contingency plan is outlined in the RAP, with the unexpected finds protocol described in Figure 7.1	No comment

4.8.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-18 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
The proponent shall identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils	Previous study by Golder (2011) reported there is a low probability of acid sulfate soils. Fill identified throughout the site at varying depths by previous investigations	No comment.
The assessment shall include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:		
i. the potential environmental and human health risks of site contamination on the project site	Considers contamination at the site to not be widespread and generally to be manageable or of low ecological risk.	Unknown contamination within the stormwater basin and leachate pond in the northern portion of the Glenfield Waste Facility as no sampling of sediments or soils have been undertaken. Disregarding heavy metal contamination of groundwater on the site as typical to urban Sydney is not suitable. Further assessment of the potential human and ecological risks associated with the heavy metal contamination is required, especially considering the close proximity to ANZAC Creek.
ii. a Remediation Action Plan;	Remedial Action Plan addresses identified areas of contamination	Remedial Action Plan does not apply to the RailCorp land where anecdotal evidence of potential unidentified contamination exists. While there are proposed remediation methods for the LNAPL contamination of groundwater, there is no guarantee of the effectiveness of MPE on the site. More indication of at what level remediation will

Secretary's Environmental Assessment Requirements	EIS Response	Comments
		be considered effective is required, as well as what actions will be taken if
iii. consideration of implications of proposed remediation actions on the project design and timing;	Remediation actions can be carried out prior to, or in parallel with construction.	Unidentified finds of contaminants such as asbestos will result in construction delays as remediation actions cannot be carried out in parallel with construction in affected areas. Unknown contamination in RailCorp land where anecdotal evidence of contamination exists poses unidentified contamination risks, and therefore delays. While hydrocarbon impacted soils are intended to be remediated by landfarming, and the remaining backfill materials to be sourced on site, consideration needs to be given to the potential cost implications if soil materials intended for backfill do not meet the adopted on site re-use criteria and require offsite disposal.
iv. A Phase 2 environmental site assessment of the project site including rail corridor.	Phase 2 Environmental site assessment carried out by JBS&G	Data gaps are present within the assessment due to inaccessible areas (RailCorp land). The assessment of ecological risks posed by identified contaminants, in particular heavy metals relies heavily on the assumption of the majority of the site being hardstand with little to no access to soils or vegetation.

4.8.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

- Intrusive investigations are required in inaccessible areas, such as the RailCorp-owned land, prior to construction to identify potential contaminants of concern;
- Ecological risk is assumed to be low based upon the assumption that hardstand areas will cover the majority of the facility. Confirmation is required upon release of the final design plans, and if not, further evaluation of the ecological risks posed by identified contaminants, in particular lead, needs to be undertaken; and
- Advancement of boreholes beneath existing building slabs should be undertaken.
- More information regarding the actions which will be taken if remediation of LNAPL contaminated groundwater is found to be ineffective should be detailed prior to determination of this project.
- Further assessment of the extent of groundwater contamination is required to provide a better indication of the potential human and ecological risks associated with the heavy metal contamination.
- The options and implcations for soil remediation should be considered should soils not meet the adopted on site re-use criteria. A contingency plan should be developed to inform the determination of this assessment to detail the measures that will be in place should the soil targeted for re-use not be

suitable for the site. This should include a proposed remediation strategy for the material that would require to be taken off site.

> Prepare an unexpected finds protocol to address works encountering UXO or EOW.

>

4.9 Hydrology

The proposed SIMTA EIS provides analysis of the proposal's impacts on Flooding and Stormwater. This review considers information in the EIS and Appendix P prepared by Hyder Consulting.

4.9.1 Overview of the SIMTA Assessment

The SIMTA Stormwater and Flooding Assessment considers issues separately in location and thematically specific subsections.

The first section is a brief review of the concept plan flood study, focusing on the existing and post construction flooding conditions. Flood impacts would be mitigated through increased provision of OSD storage. Swales and culverts would be designed to convey flows from adjacent properties across the SIMTA site to mitigate flood impacts offsite.

Anzac Creek is dealt with separately with a focus on the impact of the proposed rail link. Flooding impacts for ARI 100 year and PMF flood scenarios are simulated using a TUFLOW model. Flood impacts are interpreted to be minor.

The Georges River and the proposed rail bridge are considered. Three scenarios for construction of the Georges River Rail Bridge are modelled with the resulting impacts compared. The scenarios modelled include: a 6 span bridge with piers not aligned hydraulically, a 6 span bridge with piers that have been aligned hydraulically and a 5 span bridge with hydraulically aligned piers. The results are interpreted as confirming that hydraulically aligned piers do mitigate some flood impacts, but that the 5 span and 6 span bridges are otherwise equivalent.

The impact of the proposed rail link on the Glenfield Waste Disposal Facility is considered. It is concluded that in up to a 100 year ARI flood, the waste facility will not flood. Under an extreme flood event, the Glenfield Waste Disposal Facility could flood and consequently the rail link and bridge must be designed to permit the flow of water to spread the flood load out across flood plain.

Stormwater Quantity assesses the size and location of detention basins, culverts and other stormwater flow structures proposed for the site. A large on site detention basin is proposed to the east of the SIMTA site which provides the bulk of the site's OSD and drains east into Anzac Creek. A smaller western storage is proposed between SIMTA and Moorebank Avenue which drains north and west via an existing channel through the SME site and into the Georges River. The rail link provides a range of measures along its length to capture and discharge stormwater.

Stormwater Quality assesses the measures chosen to achieve required water quality targets. Two measures are proposed: gross pollutant traps and rain gardens.

The Site Water Balance section confirms that the proposal has a limited internal demand for water and will produce a very large amount of runoff. The site runoff is predicted to increase due to the expansion of paved area on the site as a result of the proposal.

The assessment concludes with a number of key recommendations related to the findings of previous sections.

4.9.2 Cardno Assessment

4.9.2.1 Anzac Creek

The following comments relate to Anzac Creek:

> Flood maps should be added / amended to illustrate the following:

- Post construction Anzac Creek flood conditions, as is provided for the existing scenario (i.e. depths, extents and elevations).
- Show areas of "was dry now wet" in the flood impact maps provided.

> The post construction PMF modelling demonstrates increased flood affectation of Moorebank Avenue and the SME site where the MIC facility is proposed. Increases are quoted as up to 150mm on Moorebank Avenue. This is considered a significant increase on a public road, and is inconsistent with the reported conclusion that the proposal results in "*negligible flood impacts within the Anzac Creek catchment area*". It is also not clear how far south the PMF impacts extend. It should be confirmed whether impacts extend to affect the existing rail line to the south. It is recommended that the following be undertaken:

- Assess existing trafficability of Moorebank Avenue, to determine whether the predicted increase will reduce trafficability of the road.
- Assess duration of flooding of Moorebank Avenue (particularly flooding which is not trafficable as defined by FDM 2005), for both existing and developed scenarios.
- Extend the PMF impact map provided to ensure the full extent of flood impacts are illustrated (e.g. to the south).

> The EIS notes that the Anzac Creek flood model was 'adjusted' to provide results. More detailed is required as to how the model was adjusted, and how results compare to those derived by Council.

> The EIS notes that a number of blockage scenarios were incorporated within the Anzac Creek flood model, and that 25% was adopted for the EIS assessment. Clarity is required as to why this value was deemed appropriate from the range of scenarios available.

> Furthermore, it's not clear as to why 50% blockage was applied to the developed scenario, as opposed to 25% applied to the existing scenario.

> It is understood that DRAINS hydrology was input into the hydraulic model (TUFLOW) for discharge from the SIMTA area, while RAFTS hydrology was input into the hydraulic model for the remaining catchments. It is suggested that this modelling configuration be reviewed in detail (with more detail / outputs provided in the EIS for reference) to ensure that all catchments have been appropriately accounted for.

> The SEARs require an assessment of the impacts to flood velocities and durations as a result of the proposal. This has not been addressed in the EIS report.

4.9.2.2 Georges River

The following comments relate to the Georges River:

> The proposed rail link bridge piers do not align with the existing bridge piers on the East Hills Line railway bridge. This will impede navigation of the river by boats and other watercraft which typically use the Georges River for recreational purposes. This should be rectified before determination and may require updated modelling.

> Modelling results and maps for the 100 year ARI and PMF events within the Georges River have not been provided in a form consistent with those provided for Anzac Creek. At a minimum, maps should be generated to present flood extents and elevations for the 100 year ARI and PMF events.

> HEC-RAS modelling was undertaken, and compared to previous MIKE-11 hydraulic modelling for the catchment, with results showing good parity. However, it is suggested that agreement between results should be checked for a range of storm events rather than just the 100 year ARI (e.g. PMF).

> Results for the Georges River bridge options indicate identical results for options 2 and 3 (6 spans and 5 spans, respectively). Clarity is required as to how these options produce identical results, and why 6 spans was chosen given 5 spans produced the same result.

> Results for the Georges River bridge option 2 indicate afflux of approx. 30mm upstream. This should be reviewed in terms of how this affects freeboard of the existing rail bridge immediately upstream.

> Bridge / culvert structures required along the Georges River floodplain (for events >100 year ARI) have not been modelled. The proposed railway embankment will be an obstruction to flow for such events, and result in impacts to flooding. These impacts need to be quantified and presented for transparency. Flood mitigation required (in the form of bridges / culverts) needs to be designed and modelled at this stage to ensure that impacts can be managed in a way which is feasible. Postponing such design until future stages of this assessment is considered to be a risk to the project, and flooding outcomes. It is not clear as to why this assessment has been overlooked, while other bridge structures have been modelled, optimised, and flood impacts quantified and presented.

> The SEARs require an assessment of the impacts to flood velocities and durations as a result of the proposal. This has not been addressed in the EIS report.

4.9.2.3 Water Quantity & Quality

The following comments relate to water quantity and quality:

> Modelling results and maps for the proposed Open Waterways have not been provided in a form consistent with those provided for Anzac Creek. At a minimum, maps should be generated to present flood extents and elevations for the 100 year ARI and PMF events.

> It is not clear how the integrated OSD / rain garden operates hydraulically, i.e.

- Has the infiltration rate of the bioretention filter media been accounted for in assessing the OSD volume available?
- What are the outlet structure configurations, e.g. low-flow outlet(s), high-flow weir(s)?
- What is the intended extended detention depth of the rain garden component, and how is this regulated?

> For the OSD waterway, a number of structures and obstructions are indicated in HEC-RAS sections presented. It is not clear what these structures and obstructions are representing. Flow area is shown on both sides of the obstructions. It's not clear how this is occurring (e.g. surcharge). The HEC-RAS sections also don't seem to show a wall on the western channel bank, therefore it's not clear how much (if any) freeboard is achieved. It is noted that Council requires a minimum 300 mm freeboard to the 100 year ARI level in OSD structures.

> The report notes that a spillway is required on the northern extent of the proposed OSD, however no details are provided. It is suggested that configuration details be provided for review.

> For the Eastern and Southern waterways, a number of HEC-RAS sections show little (or no) freeboard within the channels, with flows overtopping in places. Consider widening channels to ensure adequate conveyance and freeboard.

> It is noted for the Southern waterway that the grade is too flat to drain effectively, and that soak away / subsoil drainage may be required. It is suggested that bioretention be considered in this area, should that assist with a subsequent reduction in bioretention required in the OSD waterway.

> Sensitivity analyses have been undertaken for the roughness and climate change scenarios, to assess impacts to flooding within the Open Waterways. Results have been presented with a range of estimated increases predicted. Discussion is required as to what the implications of these increases are, particularly when a number of Open Waterway sections are shown to have achieved little (or no) freeboard with which to accommodate such increases.

Rainwater tanks have not been proposed as a water quality measure. It is suggested that this be further assessed, to quantify potential benefits to water quality and reductions in bioretention required (or more explanation provided as to why they are no longer proposed). Other benefits to site water balance are discussed below.

4.9.2.4 Site Water Balance

The following comments relate to site water balance:

> The site water balance is discussed too briefly and cannot be said to meet the relevant SEARs which require "a detailed and consolidated site water balance".

> The concept design included provision for rainwater tanks as part of the WSUD strategy. The EIS notes that the demand for water is relatively small for Stage 1, and stormwater harvesting has not been proposed on this basis. However, the relatively small demand (approx. 410kL/year) means that achieving a high reliability of supply is likely. Incorporation of rainwater tanks would have the following benefits:

- Reduce runoff volumes
- Improve water quality / reduce need for bioretention
- Reduce operational costs in offsetting potable water requirements
- Provide an outcome consistent with WSUD principles

4.9.2.5 Other

The following additional comments are made:

> Bank stability has not been adequately addressed. The SIMTA analysis of bank stability only includes the construction phase. It suggests that clean fill will be used to augment and form banks without discussing what sources and types of fill are appropriate for use. Fill sourced from elsewhere on site may not have sufficient nutrient and organic content to support vegetation. Therefore, fill used to build or stabilise channel banks should be subject to extensive testing and evaluation to ensure that it is suitable. It is stated that re-vegetation will not be conducted and that this will be left to natural regrowth. Finally, there are no proposed erosion control measures which will operate over the medium term until vegetation has established. The EIS treatment of bank stability is wholly inadequate.

> Cumulative impacts of both the MIC proposal and future Stages of SIMTA on flooding, water quality and water balance for the precinct have not been discussed.

4.9.3 Best Practice Review

> Flood maps should be provided for all modelled scenarios in all floodplains. These should include:

- Pre and post construction flood conditions.
- "Was dry, now wet" areas
- The full extent of changes to the PMF and 100 year ARI flood impacts resulting from the proposal including on adjacent land.
- Flood velocities

> Flood Modelling should:

- Model culvert blockage factors based on a worst case scenario and justify the use of a specific blockage factor based on empirical evidence and best practice.
- Assess the duration of inundation and any changes resulting from the proposal.
- Assess any loss of freeboard resulting from the proposal.

- Assess the trafficability impacts on any roads which will be subject to increased flood affectation.

> Stormwater & OSD assessment should include:

- A detailed explanation of how the OSD will operate hydraulically.
- Assess the spare capacity of the OSD system and channels with a view to the operation of the system under future climate conditions.

> Water Balance

- Should be assessed in detail with division of water flows into specific catchments and storages.

4.9.4 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-19 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Concept Plan Conditions of Approval - Soil and Water		
Any future Development Application for stage 1 shall include an assessment of soil and water impacts for the entire site including rail link. The assessment shall:		
a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on Georges River and Anzac Creek;	Water quality and quantity are assessed in the relevant sections of the EIS Stormwater and Flooding assessment. Issues related to groundwater have been dealt with in the geotechnical assessment.	Pre-construction and post construction flood impacts have not been presented consistently. The modelling of flood impacts on Anzac Creek uses different blockage rates for the proposed culvert and the existing culvert. They should be using consistent blockage rates. Modelling results and maps for a 100 year ARI and PMF flood of the Georges River have not been provided in the same form as they were for Anzac Creek. This means that any impacts of the proposed rail link on other properties and the existing rail link cannot be assessed.
b) assess flooding impacts and characteristics, to and from the project (including rail link), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: i. hydraulic modelling for a range of flood events; ii. description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii. an assessment of afflux and flood duration (inundation period) on property; and iv. consideration of the effects of climate change, including changes to	Flood impacts have been assessed for the SIMTA facility and rail link. Impacts have been assessed as minimal given the suggested mitigation measures.	Anzac Creek PMF flooding impacts are predicted to increase on Moorebank Avenue and on the SME. This is not consistent with the statement that flood impacts are negligible. Modelling results and maps for a 100 year ARI and PMF flood of the Georges River have not been provided. Bank stability has not been adequately addressed. The SIMTA analysis of bank stability only includes the construction phase. It suggests that clean fill will be used to augment and form banks without discussing what sources and types of fill are appropriate for use. It is stated that re-vegetation will not be conducted and that this will be left to natural regrowth. This is wholly inadequate.

Concept Approval Requirements	EIS Response	Comments
rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures.		Duration of inundation has not been assessed.
Statement of Commitments - Stormwater and Flooding		
The Proponent will incorporate stormwater quantity and quality management measures into the detailed applications in accordance with the objectives and performance standards outlined in the Stormwater and Flooding Environmental Assessment report and including:	Water quality and quantity are assessed in the relevant sections of the EIS Stormwater and Flooding appendix.	Specific comments are included below.
a) Preparation of a Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP) for both the construction and operation phases.	Operational phase plans are not mentioned. Construction phase plans are not provided, but there is stated a commitment to provide them before construction begins.	An outline of the operations phase plans and strategies to be implemented should be included in the EIS prior to determination.
b) Implementation of management plan strategies prior to commencement of the staged construction phase	Construction phase plans are not provided, but there is stated a commitment to provide them before construction begins.	An outline of the construction phase plans and strategies to be implemented should be included in the EIS prior determination.
c) Monitoring and review performance of sediment and water control structures during construction and operation phases	Not discussed. May be the subject of erosion management plans.	There are no commitments to ongoing monitoring and management of the stormwater infrastructure.
The proponent commits to providing a multi-cell culvert (with elevated 'dry' cells and recessed 'wet' cells) to facilitate aquatic and terrestrial fauna movement in accordance with Witheridge (2003) and Part 7 (Division 3) of the Fisheries Management Act works (including the 1994 (FM Act).	These are provided with the proposed Anzac Creek culvert.	No comment.
The Proponent will prepare and update a flood emergency response plan as necessary to address the staged development of the site. Details are to be provided prior to the construction of each of the three major stages of the development.	A commitment is made to develop FERPs prior to construction.	No comment.
The proponent will investigate opportunities to minimise the number of piers located within Georges River during detail design development.	This is evaluated and found to have minimal advantage in terms of flood impacts.	The proposed rail link bridge piers do not align with the existing bridge piers on the East Hills Line railway bridge. This will impede navigation of the river by boats and other watercraft which typically use the Georges River for recreational purposes. A reduced number of piers could reduce the impact on navigability of the river.
Commonwealth Approval - Proposed Mitigation Measures		
Hydrology		
The following mitigation measures will be adopted for the SIMTA proposal to mitigate potential impacts on hydrology, water quality and flooding resulting from construction and operation of the SIMTA proposal.		

Concept Approval Requirements	EIS Response	Comments
Rainwater tanks will be installed to collect roof water from the warehouses on the SIMTA site, and will be used for non-potable water demands such as toilet flushing and outdoor use.	Rainwater tanks are not included.	There are opportunities and advantages for the use of stored rainwater on site such as: a) Reduced water consumption b) Decreased need to provide other OSD capacity. c) Reduce runoff volumes d) Reduce operational costs e) Better align with WSUD principles
Pre-treatment measures will be incorporated into the site stormwater design, including buffer strips and gross pollutant traps where deemed appropriate.	Gross pollutant traps are included as features to improve water quality.	No comment.
Bio-retention systems will be incorporated into the site stormwater design, including rain gardens and bioswales, where deemed appropriate. These structures will also act as on-site detention basins, minimising the velocity and volume of flows leaving the site during storm events. Bio-retention systems will be designed to achieve the pollution reduction targets set out in the Liverpool DCP.	These are included as described.	It is not clear how the OSD waterway and rain garden will function hydraulically. Key details relating to high-flow and low-flow weirs and other outlet structure information is not provided. Spillway details are not provided. The eastern and southern waterways show little or no freeboard in places, with some instances of overtopping. Channels should be widened to better accommodate expected flows. This should be considered in conjunction with the sensitivity analysis. Rainwater tanks have not been proposed, despite obvious benefits as discussed elsewhere.
On-site stormwater detention will be designed to achieve flood management in accordance with the flood modelling results outlined in the Flood Study and Stormwater Management report prepared by Hyder Consulting (Hyder Consulting, 2012a) and as updated within the Stormwater and Flooding Assessment (Hyder Consulting, 2012b).	This is achieved as described.	It is not clear how the OSD waterway and rain garden will function hydraulically. Key details relating to high-flow and low-flow weirs and other outlet structure information is not provided. Spillway details are not provided. The eastern and southern waterways show little or no freeboard in places, with some instances of overtopping. Channels should be widened to better accommodate expected flows. This should be considered in conjunction with the sensitivity analysis. Rainwater tanks have not been proposed, despite obvious benefits as discussed elsewhere.
The following design principles will be adopted during the design phase of the Georges River bridge: Bridge design will comply with the requirements of Australian Standard 5100:2004 - Bridge Design and RailCorp Engineering Standard ESC 310 - Underbridges.		
Bridge piers will be located and orientated to align with the piers of the existing East Hills Railway Line bridge.	The bridge remains subject to detailed design.	The bridge modelled does not align its piers with the existing bridge and there is ambiguity over the number of piers to be used. A more detailed design which

Concept Approval Requirements	EIS Response	Comments
		meets this criteria should be submitted prior to determination.
The bridge deck height will match the height of the existing East Hills Railway Line bridge	The bridge will be no lower than the existing bridge.	The concept design of the proposed bridge shows a close match in terms of height to the existing bridge.
Bridge piers will be designed and orientated to avoid the formation of largescale turbulence or the erosion of the bed and banks of the waterway.	Detailed design of the bridge has not yet been conducted. Scour protection will be installed to prevent major erosion.	Detailed modelling of the bridge's impacts on turbulence and erosion does not appear to have occurred.
Light penetration under bridges to encourage fish passage will be maximised.	Discussed in relation to bridge width.	The bridge's materials and structure do not appear to have been considered. Light penetration could be improved through the use of a more open structure.
Use and extent of those bed and bank erosion control measures that may reduce aquatic habitat values or inhibit the regrowth of natural in-stream and bank vegetation will be minimised.	These are discussed in relation to the construction phase.	The post works erosion protection measures are inadequate. Specifically, the proposal suggests that vegetation regrowth would occur naturally rather than through replanting and no artificial erosion control measures are described which would operate between the end of construction and the regrowth of vegetation.
During construction of the Georges River bridge the following management approaches will be adopted:		
Works across the bed of the Georges River will be staged to minimise the total disturbance at any given time and to allow the full bypassing of stream flows around the works to maintain fish passage.	This will be as described.	No comment.
The management principles outlined in Managing Urban Stormwater (Landcom 2004) for sites with high erosion potential will be implemented.	This will be as described.	No comment.
The following design principles will be adopted for design and sizing of the culverts across Anzac Creek: Fish passage requirements will be considered when selecting the type of culvert.		
Where practical, culverts will be aligned with the downstream channel to minimise bank erosion.	This will be as described.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
A multi-cell culvert design will be considered with a combination of elevated "dry" cells to encourage terrestrial movement, and recessed "wet" cells to facilitate fish passage.	This will be as described.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in section 4.11 of this submission.
Altering the channel's natural flow, width, roughness and base-flow water depth through the culvert's wet cells will be avoided where possible. Wet cells will aim to have a minimum water depth of 0.2-0.5 metres to facilitate fish passage.	This detail is not provided.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.

Concept Approval Requirements	EIS Response	Comments
The culvert will be designed to maximise the geometric similarities of the natural channel profile from the bed of the culvert up to a flow depth of 0.5 metres ("Low Flow Design") as a minimum.	This detail is not provided.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
Where conditions allow, the construction of pools will be considered at both the inlet and outlet of the culvert to assist in the dissipation of flow energy and to act as resting areas for migrating fish.	This detail is not provided.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
If a low-flow channel is constructed within the base slab of the culvert, the channel will extend across the inlet and outlet aprons.	This detail is not provided.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
Debris deflector walls may be used to reduce the impact of debris blockages on fish passage.	Debris deflectors are indicated on the concept culvert design.	No comment.
Rock protection and/or the formation of a stabilised energy dissipation pool at the outlet will be considered if necessary to assist in minimising erosion to avoid the formation of a perched culvert and damage to the stream bed and banks.	This detail is not provided.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
The design of the crossing will refer to the detailed engineering guidelines provided in Fairfull and Witheridge (2002).	This will be as described.	Fish passages as described in the EIS will not meet the relevant NSW guidelines. This is further described in **Section 4.11** of this submission.
The following management measures will be implemented during works in and adjacent to Anzac Creek to mitigated potential impacts on water quality during construction:		
All reasonable efforts will be taken to program construction activities during those periods when flood flows and fish passage is not likely to occur. As a minimum requirement, fish migrations and breeding periods, as advised by NSW DPI, will be avoided.	This will be as described.	No comment.
Temporary sidetrack crossings will be constructed from clean fill (free of fines) using pipe or box culvert cells to carry flows, or a temporary bridge structure.	This will be as described.	The quality and source of clean fill should be established before it is used. As described elsewhere in this section, the use of fill around watercourse should be controlled so that inappropriate fill materials are avoided.
All temporary works, flow diversion barriers and in-stream sediment control barriers will be removed as soon as practicable and in a manner that does not promote future channel erosion.	This will be as described.	This is inadequate given that there is likely to be a need for erosion protection and prevention measures between the end of construction and the regrowth of vegetation.
The construction site will be left in a condition that promotes native revegetation and shading of habitat pools.	This will be as described.	Natural regrowth will not proceed rapidly enough to minimise erosion. Without revegetation and active management, the channels could be overtaken by weeds and fast growing species which do not represent the original ecology of the channel.

Concept Approval Requirements	EIS Response	Comments
The management principles outlined in Managing Urban Stormwater (Landcom 2004) for sites with high erosion potential will be implemented.	This will be as described.	No comment.
A flood emergency response plan would be prepared and updated as necessary to address the staged development of the site.	This will be as described.	No comment.
A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP) will be implemented for the construction and operation phases of the development, with monitoring and review performance of sediment and water control structures during construction and operation phases. The SWMP and ESCPs will be developed in accordance with the principles and requirements of Managing Urban Stormwater (Landcom, 2004).	This will be as described.	The operations phase plans have not been committed to in the EIS. Management procedures relating to the ongoing maintenance of stormwater detention infrastructure, erosion prevention and vegetation establishment have not been discussed.
Stage 1A The DRAINS and TUFLOW modelling of Stage 1A indicate that the proposed drainage and OSD will provide adequate capacity to mitigate potential flood impacts of the Stage 1 A development.	This will be as described.	DRAINS and RAFTS were used in conjunction with TUFLOW, but not consistently across the site. This should be reviewed given that this could introduce inconsistencies into the modelling results. Detailed inputs and outputs should be provided to enable this to be assessed in more detail.

4.9.5 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-20 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
An assessment of soil and water impacts for the entire site including rail link. The assessment shall: a) Assess impacts on surface and groundwater flows , quality and quantity; with particular reference to any likely impacts on Georges River and Anzac Creek;	Water quality and quantity are assessed in the relevant sections of the EIS Stormwater and Flooding appendix. Issues related to groundwater have been dealt with in the geotechnical appendix.	Pre-construction and post construction flood impacts have not been presented consistently. The modelling of flood impacts on Anzac Creek uses different blockage rates for the proposed culvert and the existing culvert. They should be using consistent blockage rates. Modelling results and maps for a 100 year ARI and PMF flood of the Georges River have not been provided in the same form as they were for Anzac Creek. This means that any impacts of the proposed rail link on other properties and the existing rail link cannot be assessed.
b) Assess flooding impacts and characteristics, to and from the project (including rail link),with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank	Flood impacts have been assessed for the SIMTA facility and rail link. Impacts have been assessed as minimal given the suggested mitigation measures.	Anzac Creek PMF flooding impacts are predicted to increase on Moorebank Avenue and on the SME. This is not consistent with the statement that flood impacts are negligible.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
stability, through flood modelling, including: i. hydraulic modelling for a range of flood events; ii. description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii. an assessment of afflux and flood duration (inundation period) on property; and iv. consideration of the effects of climate change, including changes to rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures.		Modelling results and maps for a 100 year ARI and PMF flood of the Georges River have not been provided. Bank stability has not been adequately addressed. The SIMTA analysis of bank stability only includes the construction phase. It suggests that clean fill will be used to augment and form banks without discussing what sources and types of fill are appropriate for use. It is stated that re-vegetation will not be conducted and that this will be left to natural regrowth. This is wholly inadequate. Duration of inundation has not been assessed. The impact of climate change has not been assessed in relation to the available capacity of the drainage channels which in some cases already appear to be overtopping.
c) Include a detailed and consolidated site water balance;	A detailed site water balance is provided.	The water balance provided is extremely simple. It does not include impacts on groundwater or identify any changes in the spread of water between the different catchments on the site.
d) Include details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction;	Water supply details are provided. The project itself does not have significant water requirements.	There is potential for further use of the collected water to improve aspects of the proposal's sustainability.
e) Assess potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts;	Cumulative impacts have been assessed with the water balance.	No discussion of cumulative flooding, water quality, water quantity or balance occurs.
f) address drainage issues associated with the development / site, including stormwater, drainage infrastructure and incorporation of Water Sensitive Urban Design measures;	Stormwater drainage infrastructure incorporating WSUD has been assessed.	This is correct, however the rain gardens and OSD basins have not been presented with their hydraulic details. Some existing drainage channels have been identified as already overtopping, but the consequences of this do not appear to have been assessed.
g) undertake an assessment of surface water quality during construction (including reference to water quality objectives for the relevant catchment where objectives have been determined), including an identification of works that may impact water quality, and a summary of proposed mitigation measures in accordance with Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom) and Volume 2 (DECC 2008);	Construction phase mitigation measures and issues relating to surface water quality have been assessed.	No comment.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
h) consideration of stormwater management during operation of the site with the objective of maintaining or improving existing water quality;	This is dealt with in the sections on water quality and water balance.	Stormwater management during the operational phase is addressed through proposed drainage infrastructure. However, no discussion occurs surrounding the maintenance and ongoing management of that infrastructure.
i) consider whether the existing sewerage system can cater for the proposal and whether environmental performance of the existing system will be impacted;	The existing sewer system is able to cope with the proposed loads given that is has coped with the existing use of the site.	There is no discussion of the size and capacity of the sewer infrastructure serving the site. It is not clear if it retains sufficient capacity to support future stages or the cumulative impacts of the SIMTA and MIC proposals.
j) identify and assess the soil characteristics and properties that may impact or be impacted by the project, including acid sulfate soils;	Addressed in section 4.7 of this submission.	
k) include a bulk earthworks strategy detailing the volume of spoil to be extracted from the site, planned reuse and amount of material to be imported; and	Addressed in section 4.7 of this submission.	
l) include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:	Addressed in section 4.7 of this submission.	
i. the potential environmental and human health risks of site contamination on the project site; ii. a Remediation Action Plan; iii. consideration of implications of proposed remediation actions on the project design and timing; and iv. a Phase 2 environmental site assessment of the project site including rail corridor.	Addressed in section 4.7 of this submission.	

4.9.6 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

- A more detailed design of the proposed railway bridge including the location and orientation of bridge piers and the height of the bridge deck, should be provided before determination. The impacts of the bridge on flooding and navigation of the river should be assessed and considered. The proposed bridge piers should align with those of the existing bridge.
- Additional information should be provided to explain why the 5 and 6 span bridge options produced such similar flooding impacts.
- The proposed railway embankment will be a flood obstacle for flood events greater than 100 year ARI flood of the Georges River. These should be assessed and quantified for transparency and to ensure they are adequately mitigated.
- The impact of the proposal on the freeboard of the existing bridge should be assessed.

> Flood maps should be added / amended to illustrate the following:

- Post construction Anzac Creek flood conditions, as is provided for the existing scenario (i.e. depths, extents and elevations).
- Show areas of “was dry now wet” in the flood impact maps provided.
- Duration of flood affectation.

> Increases in flood affectation on Moorebank Avenue, the SME site and any other area which will experience increased flood affectation as a result of SIMTA Stage 1, should be fully mapped and assessed.

- Assess existing trafficability of Moorebank Avenue, to determine whether the predicted increase will reduce trafficability of the road.
- Assess duration of flooding of Moorebank Avenue (particularly flooding which is not trafficable as defined by FDM 2005), for both existing and developed scenarios.
- Extend the PMF impact map provided to ensure the full extent of flood impacts are illustrated (e.g. to the south).

> The EIS notes that the Anzac Creek flood model was ‘adjusted’ to provide results. More detailed is required as to how the model was adjusted, and how results compare to those derived by Council.

> The EIS notes that a number of blockage scenarios were incorporated within the Anzac Creek flood model, and that 25% was adopted for the EIS assessment. Clarity is required as to why this value was deemed appropriate from the range of scenarios available.

> It’s not clear as to why 50% blockage was applied to the developed scenario, as opposed to 25% applied to the existing scenario. This decision should be justified in the context of evaluating a worst-case scenario.

> It is understood that DRAINS hydrology was input into the hydraulic model (TUFLOW) for discharge from the SIMTA area, while RAFTS hydrology was input into the hydraulic model for the remaining catchments. It is suggested that this modelling configuration be reviewed in detail (with more detail / outputs provided in the EIS for reference) to ensure that all catchments have been appropriately accounted for.

> The SEARs require an assessment of the impacts to flood velocities and durations as a result of the proposal. This should be provided.

> HEC-RAS modelling was undertaken, and compared to previous MIKE-11 hydraulic modelling for the catchment, with results showing good parity. However, it is suggested that agreement between results should be checked for a range of storm events rather than just the 100 year ARI (e.g. PMF).

> Cumulative stormwater and flooding impacts of SIMTA and the MIC proposals should be discussed as part of a precinct wide water balance assessment to ensure that shared infrastructure can cope.

> Site water balance should be assessed I greater detail with assessment of changes in flow to individual catchments and storages including groundwater.

> Use of water tanks should be evaluated and discussed.

> Bank stability should be addressed in detail in the EIS and appendix. The proposed natural regrowth of vegetation will be too slow to mitigate erosion in the medium term and risks the establishment of weeds and fast growing species that will not represent the current ecology. The use of fill should be subject to extensive testing, must not contaminate the watercourse and must be suitable for supporting native vegetation through adequate nutrient and organic content.

4.10 Greenhouse Gas and Climate Change

The proposed SIMTA EIS provides analysis of the proposal's impacts on Greenhouse Gas (GHG) and Climate Change (CC). This review considers information in the EIS Section 20.5 prepared by Hyder (2015).

4.10.1 Overview of the SIMTA Assessment

The EA informing the Concept Approval included a GHG and CC risk assessment (Greenhouse Gas Assessment, Hyder, 2013). The GHG assessment identified that the project would generate approximately 16,597 tCO2-e during site preparation and construction, with a further 196,201 tCO2-e embodied within construction materials. The IMT would generate 53,668 tCO2-e per annum during operation.

The CC assessment undertaken as part of the Concept Approval identified a total of eight priority, which are either 'extreme' or 'high' climate change risks, along with associated adaptation measures. The GHG and CC assessments informed the Revised Statement of Commitments identified in **Table 4-19** below.

The GHG and CC Impact Assessment (Hyder, 2015) includes a quantitative assessment of potential Scope 1, 2 and 3 GHG emissions and a qualitative assessment of the potential impacts of the emissions on the environment. Construction emissions would result from fuel combustion in machinery, electricity consumption, transportation of materials to and from the site, vegetation clearing and embodied energy within construction materials, which would be the major emissions contributor.

Operations would generate emissions through the transport of freight, as well as energy use and fuel consumption from facilities and machinery within the IMT and Rail Corridor. The Assessment notes that the proposal would result in a net reduction in transportation emissions due to trains replacing truck movements between Port Botany and the IMT. Two operational scenarios were assessed, with Scenario One comprising trains and trucks loaded/unloaded using forklifts and reach stackers, whereas Scenario Two assumes the use of gantry cranes resulting in higher GHG emissions than Scenario One.

The CC Assessment provided an analysis of the potential impacts of CC on the Proposal in an unmitigated and mitigated scenario, with the unmitigated scenario resulting in 4 high, 11 medium and 1 low uncontrolled CC risks by 2090. However, once adaptive responses were implemented the CC risks would be lowered with no high risks, nine moderate risks and seven low risks.

4.10.2 Cardno Assessment

The GHG assessment calculations identified that the Stage 1 Project would generate approximately 16,597 tCO2-e during construction, plus 196,201 tCO2-e embodied in construction materials, with 53,668 tCO2-e per annum generated once operational. This volume of emissions whilst insignificant in comparison to National and State emissions is still a substantial additional volume of emissions occurring as a result of the development.

The EIS looks to reduce the significance of the emissions generated through a comparison against National and State emissions. A more appropriate emissions comparison would result from a review of the emissions generated by SIMTA versus other similar developments both within Australia and internationally to gain an insight into whether the proposal is best practice as required by the SEARs.

A meaningful comparison of the estimated emissions volume would provide a more transparent assessment and demonstrate whether the proposal achieves international best practice. The identification of the emission levels produced by other terminals utilising best practice methods will also provide a target or key performance indicator which the project can use to report against.

The GHG and CC assessments rely on management and mitigation measures to achieve outcomes for both GHG emissions and CC adaptation that are deemed reasonable both in the EIS and supporting Appendix X. The CC assessment notes that once these measures are implemented CC impacts would be reduced from 4 high and 11 medium risks to zero high risks and four medium risks, with the remainder identified as low risk. The GHG assessment identifies a range of measures for reducing emissions during design, construction and operation, with a commitment made to prepare a GHG Management Plan as required by the Concept Plan Conditions of Approval.

The identified risk management strategies for GHG and CC are identified in Appendix A of the *Greenhouse Gas and Climate Change Impact Assessment* (Hyder, 2015), (Appendix X of the EIS). The header to the table at Appendix A states:

> ***"The following table provides a summary of the potential mitigation measures, climate change adaptive measures and the management strategies that could be considered for the Proposal. Management and mitigation measures have been identified for key GHG and climate change risks. Measures have been identified for each key stage of the Proposal; including detailed design, procurement, construction, and detailed design".***

This statement contains two key caveats including '*potential mitigation measures'*, '*that could be considered'*, which absolve SIMTA of the need to adopt any of the measures identified within Appendix A. It is essential that these measures are adopted if the GHG and CC impacts are to be managed to at least meet the levels identified within the EIS. Furthermore, the measures themselves contain further caveats and are generic, which even if they were committed to does not allow the benefit to be quantified.

The level of detail provided in the management and mitigation measures for GHG and CC is inadequate. No clear commitments or guidance is provided. As a minimum clearly defined strategies should be committed to. Furthermore, given the requirement for best practice it is recommended that the project be assessed against the Infrastructure Sustainability (IS) rating scheme for infrastructure (Infrastructure Sustainability Council of Australia [ISCA]), with the intent of achieving a 'Leading' rating.

The EIS fails to consider GHG emissions in the cumulative context of neighboring proposed developments, particularly with respect to the MIC development and the Glenfield Waste Services Materials Recycling Facility. The issue of cumulative impacts in regards to GHG emissions should be assessed in detail in order for the project to be adequately assessed as not resulting in significant impacts resulting in adverse effects on the environment and impact on future generations.

4.10.2.1 Best Practice Review

The SEAR's at Item 4 request '*a comprehensive review of intermodal operational best practice process design, emission control and management measures'*. Further, Item 4 b) i. states '*assessment of best practice international emission standards for locomotives and non-road plant and equipment'*. Due to the size of the Project and potential for impact on the surrounding environment it is considered that the requirement for international best practice in relation to emissions should extent to construction and operation across the site.

The EIS does not reference international best practice in the Project design or operational framework, with only general considerations for mitigation and management rather than solid commitments to reduce GHG emissions. SIMTA should commit to a number of practices to move towards best practice including:

- Installation of renewable energy systems such as photovoltaic (PV) cells, which would substantially reduce the Scope 2 emissions associated with the operational phases of the project. Following the commitment of the installation of these renewable energy sources GHG calculations should be undertaken incorporating the use of these devises. These calculation should be used to develop emission targets which can be utilised in auditing, reporting and developing site improvements to further reduce emissions.
- Commitment to sustainable procurement, with environmental and social aspects included into a procurement process and associated commitments that are publicly stated. This is particularly important if SIMTA and MIC are to be operated as one entity, to allow the community to understand how public funds are being spent and to illustrate that public/private partnerships are leading the way in the reduction of GHG emissions.
- Commitment to implementation of mitigation and management measures to treat all extreme and high CC risks so that none remain.
- Commitment to model energy use during the concept design stage and subsequent identification of reduction targets for emissions associated with Scope 1, Scope 2 and land clearing from the reference

footprint of 25 percent. A publicly available monitoring regime should be put in place to ensure targets are achieved.

> Monitoring and modelling should be subject to internal auditing.

4.10.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-21 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
The Proponent commits to the preparation of a Greenhouse Gas Management Plan for the three major stages of the development in accordance with the provisions of the Greenhouse Gas Assessment.	Details identified within **Section 11**.	A Greenhouse Gas Management Plan has not been prepared, with only risk management strategies identified. A Management Plan should be prepared with firm commitments identified. Refer to Discussion in **Section 4.10.2**.
The Proponent will where applicable implement the controls and mitigation measures summarised in the Climate Risk Assessment report and including: Incorporate climate change sensitivity analyses for 20 per cent increase in peak rainfall and storm volumes into flood modelling assessment to determine system performance;	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.
Incorporate appropriate flood mitigation measures, where practical within the design to limit the risk to acceptable levels;	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.
Consider the impacts of climate change on system performance, and where practical incorporate adaptive capacity measures within the design to limit the risk to acceptable levels;	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.
Use of appropriate materials and engineering design capable of withstanding potential impacts posed by storm damage;	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.
Incorporate appropriate strategic protection zones, including asset protection zones into design to limit bushfire risk to acceptable levels, where required;	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.
Control of performance of hotworks on total fire ban days during construction and operation, particularly within any defined asset protection zones;	Details identified within **Section 11**.	Refer to discussion in **Section 4.17**.
Maintain track stability through regular maintenance, use concrete sleepers in place of wooden ones and use preventative measures in the event of heatwaves (e.g speed restrictions, warehouse ventilation for improved heat removal); and	Details identified within **Section 11**.	Refer to discussion in **Section 4.17**.
Consider further assessment of Marginal Abatement Cost Curves to assess commercial opportunities of reducing reliance on single energy source.	Details identified within **Section 11**.	No firm commitments provided. Refer to discussion in **Section 4.10.2**.

4.10.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-22 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
The preparation of a comprehensive review of intermodal operational best practice process design, emission control and management measures that might feasibly and reasonably be applied to each stage of the project, and to benchmark those measures against best practice. The review should: Include a detailed evaluation of feasible and reasonable mitigation and management measures including: Assessment of best practice international emission standards for locomotives and non-road plant and equipment'	No best practice review undertaken for GHG emissions and associated GHG and CC impacts.	An international best practice review should be undertaken with measures identified to achieve international best practice. Commitments should be made to monitor and publish results to confirm that international best practice targets for GHG and CC emissions are achieved.

4.10.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

- A GHG strategy should be developed with binding measurable commitments made to ensure GHG emission reductions are considered and addressed throughout the planning, design and procurement stages of the Project and ensure that high efficiency and low GHG emission impact equipment, materials and fuels are utilised during the construction and operational phases.
- The design, construction and operational phases of the Project should be assessed against the IS rating scheme for infrastructure (ISCA), with the intent of achieving a 'Leading' rating.
- The assumptions used in the GHG assessment of future construction and operational phases should be validated during the detailed assessment of each phase to ensure the subsequent detailed design and planning requirements are aligned within initial emission estimates.
- A review of GHG emissions from operating IMTs globally using best practice methods should be undertaken and the resulting emissions compared to establish a benchmark of international best practice. This information should then be utilised to develop site specific targets which will be committed to and implemented through an auditing process to track and improve on site emission reduction systems.
- The impacts of the neighbouring development proposals, including the MIC and Glenfield Waste Services Materials Recycling Facility proposals need to be considered in a cumulative GHG and CC assessment. Cumulative impacts are not addressed, which creates a significant hole in the assessment and is not in line with best practice environmental standards.
- Renewable energy systems such as photovoltaic (PV) cells should be installed, which would substantially reduce the Scope 2 emissions associated with the operational phases of the project. Following the commitment of the installation of these renewable energy sources GHG calculations should be undertaken incorporating the use of these devises. These calculation should be used to develop emission targets which can be utilised in auditing, reporting and developing site improvements to further reduce emissions.
- A commitment to sustainable procurement should be made, with environmental and social aspects included into a procurement process and associated commitments that are publicly stated. This is particularly important if SIMTA and MIC are to be operated as one entity, to allow the community to understand how public funds are being spent and to illustrate that public/private partnerships are leading the way in the reduction of GHG emissions.

> A commitment to the implementation of mitigation and management measures to treat all extreme and high CC risks should be made so that none remain.

> A commitment should be made to model energy use during the concept design stage and subsequent identification of reduction targets for emissions associated with Scope 1, Scope 2 and land clearing from the reference footprint of 25 percent. A publicly available monitoring regime should be put in place to ensure targets are achieved.

> Monitoring and modelling should be subject to internal auditing.

4.11 Biodiversity

The proposed SIMTA EIS provides analysis of the proposal's impacts on Biodiversity. This review considers information in the EIS at Section 14 and Appendix S – *Biodiversity Assessment Report* (BAR) prepared by Hyder Consulting (2015).

4.11.1 Overview of the SIMTA Assessment

Hyder have developed the BAR with the aim of meeting the requirements of the OEH *Framework for Biodiversity Assessment* under the NSW *Biodiversity Offsets Policy* for Major Projects and the SEARs. The BAR follows on from the *Flora and Fauna Assessment* (Hyder Consulting, 2013e) which was undertaken for the Concept Plan Approval. This included the identification of five vegetation types within the Concept study area including four threatened ecological communities (TECs) listed under the *Threatened Species Conservation Act 1995*:

> Castlereagh Scribbly Gum Woodland in the Sydney Basin bioregion.

> Castlereagh Swamp Woodland.

> River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions.

> Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregions.

Two threatened plant species listed within the EPBC and TSC Acts were also identified:

1. *Persoonia nutans* (Nodding Geebung)
2. *Grevillea parviflora subsp. parviflora* (Small-flower Grevillea)

Four threatened fauna species listed under the TSC Act and/or EPBC Act were also recorded:

1. Eastern Bent-wing Bat (*Miniopterus schreibersii oceanensis*)
2. Southern Myotis (*Myotis macropus*)
3. Eastern Free-tail Bat (*Mormopterus norfolkensis*)
4. Grey-headed Flying Fox (*Pteropus poliocephalus*)

The Concept Cpproval identified through the use of seven-part tests under the TSC Act that *Persoonia nutans* was the only species likely to be significantly impacted as a result of the proposal.

Two fish species under the *Fisheries Management Act 1994* were identified through a search of the EPBC Act Protected Matters Search Tool. These are:

1. Black Rockcod (*Epinephelus daemelii*)
2. Macquarie Perch (*Macquaria australasica*)

Terrestrial surveys were repeated in the Rail Corridor, SIMTA site, Southern Boot Land and the riparian corridor adjoining the Glenfield Waste Facility as part of the BAR. Aquatic surveys were not repeated.

In the BAR potential threatened flora and fauna species were identified through the credit calculator for predicted flora credit species. Two flora and four fauna species were identified as occurring or likely to occur in the proposed works area and so were considered candidate credit species. Ecosystem credit species were also identified based on Plant Community Types (PCTs) found in the study area. 20 credit species were identified based on the PCT information.

Commonwealth listed species identified as known or likely to occur in the study area were assessed in accordance with EPBC requirements provided under a controlled action approval (EPBC EIS Approval Number 2011/6229). As such an Assessment of Significance in accordance with *Significant Impact Guidelines 1.1. – Matters of National Environmental Significance* (DotE 2013) was not undertaken.

Habitat connectivity within the BAR defined the study area as isolated due to the presence of barriers such as Moorebank Avenue, the East hills Rail Line, the SSFL, chain-mesh fencing around the SIMTA site, the Glenfield Waste facility, Southern Boot Land and the MIC site.

Proposed impacts to ecology include:

- Removal of 0.76ha (4%) Castlereagh Scribbly Gum and Agnes Banks Woodland in the Sydney Basin Bioregion
- Removal of 0.05ha (1%) Castlereagh Swamp Woodland
- Removal of 0.03ha (4%) Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South-east Corner bioregion
- Removal of 0.41ha (6%) River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast Sydney Basin and South-east Corner bioregion
- Removal of 11 (4%) *Persoonia nutans*
- Removal of 641 (8%) *Grevillea parviflora* subsp. *parviflora.*
- Impacts to aquatic habitat due to during construction activities such as pier construction
- Removal of 0.11ha of instream vegetation and 0.32ha of riparian vegetation
- Impacts on the regional and State significant biodiversity links, namely Cumberland Plain Priority Conservation Lands (PCLs) (regional biodiversity link) and the 50 m riparian corridor of the Georges River (State significant biodiversity link).

A Biodiversity Offset Strategy (BOS) was prepared in accordance with OEH's Frame*work for Biodiversity Assessment* under the *NSW Biodiversity Offsets Policy for Major Projects* and was included as an appendix of the BAR. Offsetting requirements were identified for *Persoonia nutans* (847 credits), *Grevillea parviflora subsp. parviflora* (9615 credits), Eastern Pygmy Possum (15 credits), Southern Myotis (28 credits), Eastern Freetail-bat (28 credits), Eastern Bentwing-bat (150 credits) and Grey-headed Flying-fox (53 credits). Offsetting areas have been proposed and three potential offset measures have been provided for consideration with the priority being to secure additional native vegetation lands adjacent to the impact area for establishment as offset sites under a Biobanking Agreement.

A Threatened Flora Species Management Plan (TFSMP) was prepared to guide the management of two threatened flora species: *Grevillea parviflora* subsp. *parviflora* and *Persoonia nutans* and is also included as an appendix to the BAR.

In consultation with the NSW Office of Water (NOW), a Vegetation Management Plan (VMP) was prepared to guide the restoration of riparian vegetation in the riparian zones of the Georges River and Anzac Creek. The VMP is also included in the appendices of the BAR.

The EIS states that all recommended mitigation measures in these plans would be adhered to during construction and operation.

4.11.2 Cardno Assessment

The body of the Biodiversity Assessment report lacks recognition of the need for connectivity between the Boot Land and the neighboring habitat corridors. Based on the EIS assessment, the project does not consider the ecological environment through which the rail link passes and the need for retaining these habitats within the Sydney Basin (see also best practice review below). This should have been considered not only in the concept rail alignment and design, through measures such as a raised rail to limit on ground impacts, but also in considering the improvement of the surrounding bushland as part of the proposal. This includes removing existing barriers such as fences and proposing to undertake rehabilitation works in the surrounding Boot Land area. Conversely, the project focuses on the sole objective of providing a rail link associated facilities with little consideration of the environment around it.

Due to the national scale of the proposed development, this project should not only modify the design of the rail alignment to ensure a greater preservation of this habitat during both construction and also during the ongoing future use of this area. It is noted that some parcels surrounding the rail alignment have been listed as potential offset areas however this only comprises of a small portion of the land, which are disjointed ensuring that any remediation works occurring on these lands such as weed removal will be unsuccessful due to the effects of neighboring unprotected land areas. Should this project proceed, the ability for the rail alignment to pass through the Boot Land area should be tied to a strong commitment for ongoing and intensive rehabilitation of the remaining Boot land area, including the introduction of measures to improve connectivity with neighboring habitat corridors.

The EIS states that "*The impacts to the Georges River Riparian Corridor are considered unlikely to fall into the category of impacts requiring further consideration as they:*

- *Will not result in a gap greater than 100m between two areas of moderate to good condition native vegetation with a patch size greater than 1 ha.*
- *Will not remove over-storey cover and mid-storey cover vegetation within the state significant biodiversity link to create a gap in over-storey cover vegetation greater than 100 m.*
- *Will not create a hostile barrier within the state significant biodiversity link."*

It is not stated what this criteria is based on or why standard criteria as defined in the WM Act and the FM Act have not been used in this consideration. Whilst this development is being considered as a State Significant Development project it does not specifically require approvals under these Acts, the project in regards to impacts on riparian corridors should still be assessed in accordance with the requirements of these Acts with suitable mitigation measures developed in accordance with the relevant State guidelines.

4.11.2.1 Biodiversity Offset Strategy

The BOS does not provide details as to how the credits generated have been calculated or the assumptions on which the quantities are based. Due to this lack of information the number of credits generated cannot be assessed. To allow adequate assessment of the offsetting proposal presented, a detailed BOS should be provided including details on the assumptions and methods used to derive the resulting credits.

The BOS identified a deficit in the required ecosystem credits for the ecological community *Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain*, and the threatened species *Persoonia nutans* and *Miniopterus scheibersii oceanensis*. In order to address the deficit for *Hard-leaved Scribbly Gum – Parramatta Red Gum heathy woodland of the Cumberland Plain* and *Persoonia nutans* an Expression of Interest was placed on the Biobanking Credits wanted register (4 May, 2015). To address the deficit for *Miniopterus scheibersii oceanensis* it is proposed to use species credits for other threatened microchiropteran bat species to offset this species under the variation rules of the OEH's *Framework for Biodiversity Assessment* under the *NSW Biodiversity Offsets Policy for Major Projects*. The BOS should include a commitment to try and address this deficit with like for like species to ensure the project will not contribute to the community and species being placed at risk of extinction.

The BOS proposes to use Commonwealth Land to offset the proposed development. There is no discussion provided which indicates that this land will be approved by the Commonwealth for this purpose. The BOS also

does not discuss whether the use of the Commonwealth Land will result in discounting of the credits associated with the land as no detail on how the credit are calculated was provided.

4.11.2.2 Threatened Flora Species Management Plan

The management strategies and actions propose to "investigate" the translocation and propagation of the threatened flora species. The use of the term investigate as a management strategy in a plan is extremely problematic, especially when these "actions" are used as justification for the impacts on these threatened flora species being acceptable, and being used in the calculations of the Biodiversity Offset Strategy. There are no details on where the proposed plants are to be planted or translocated to (e.g. previously degraded areas with the same topography, areas that currently contain stands of native bushland, or even the areas that contain the populations that are preserved in the offset strategy).

Management strategies proposed also include active weed management to prevent weed spread. There is no further detail offered on how these works will be undertaken, how they will be monitored (e.g. success rates, percentage covers, etc.), what controls will be put in place to minimise disturbances to threatened flora species or any baseline assessment on the weed presence in the offset areas.

The document also proposes to maximise connectivity across cleared areas of threatened flora habitat. The particular action is to "consider" operating the rail line without safety fencing. This action is highly unlikely to be adopted, however, the connectivity between the threatened flora species would not be improved if the safety fence was removed as clearing would still occur.

A recommended management action is to retain topsoil and seed bank from the impacted rail link areas that contain the threatened flora species. This topsoil would then be used to rehabilitate areas after construction has been completed. There is no detail on where these rehabilitation areas are, there is no scientific analysis on how effective this would be (in all likelihood the seed bank would be destroyed by the composting effect of storing the topsoil in a stockpile) and there are no performance criteria to assess the effectiveness of this action. It is also recommended to fence areas of habitat for threatened flora species. There is no detail on the type of fencing to be used or the location and extent of fencing.

The use of fire or other disturbance mechanisms to maintain habitat quality and viability within the threatened flora species offset areas has also been recommended as a mitigation measure. There is no detail on how this will be implemented or the desired outcomes of the action.

A recommended management action is to improve or maintain the recruitment of the threatened flora species within the offset areas through an undertaking of a regular population census. This action will not improve or maintain the recruitment of flora species (simply counting plants does nothing in particular). There is also no mechanism in place if the census reveals there is a loss of species numbers (through edge effects or changes in water table or habitat conditions).

The performance criteria provided in the management plan, gives no real measurable outcomes and as such fails to provide a standard of protection which needs to be upheld as part of the proposed works.

4.11.2.3 Riparian Vegetation Management Plan (VMP)

The VMP lacks specific detail of the recommendations proposed. In addition to not being written in accordance with the *Guidelines for Vegetation Management Plans on Waterfront Land* (OEH, 2010) as discussed below, there is no way a contractor could prepare a cost estimate for the proposed works unless there are works details and quantities provided in the Plan.

The VMP has no detailed plans or diagrams. The only images used to guide the proposed works are Figures 3 and 4. These figures show the proposed VMP site boundaries only and do not include the required details, such as existing riparian vegetation types, condition, proposed areas of disturbance and proposed rehabilitation measures.

The site establishment and protection of native vegetation, recommends "exclusion fences" to be installed. There is no detail on the extent or location of this fencing. There is also no explanation of what "exclusion fences" are in the text of the report. There is a mention of "high visibility plastic fencing" in Table 9 however there is no specific detail on what this fencing actually is and how it is to be installed.

Weed control, has no clear direction on timing, quantities or performance criteria. Vague terms such as "ideally", "planning', "sufficient time", "should" and 'long-term' are used in the text without the use of any hard numbers, quantities, commitments or distinct time frames.

Weed control methods briefly mention the use of "mechanical control" for the species Lantana camara. There is no detail provided on what constitutes this machine and to what extent this machine can impact on the riparian vegetation. The use of very small machines could be used to achieve cost effective outcomes, however, there are no real restrictions outlined in the VMP on the size of the machine, how critical root zones of native trees will be protected, or whether trucks will also be allowed into the riparian zones covered in the VMP. Given that these areas have been identified as containing endangered ecological communities, the strict control, or even complete exclusion of machines is appropriate.

The proposed revegetation includes no details on the areas requiring re-vegetation and proposed quantities of trees, shrubs or ground covers required for this revegetation work. This detail is essential to the success of the proposed works as a seed collection and plant propagation program has been recommended. The quantum of plants required is essential to these works. There is also no indication of different planting zones within the riparian zone. Plant species composition required at the toe of the banks of the riparian zone is vastly different to the floodplain areas 50m from the top of the bank.

Revegetation, states "*hydromulching of highly disturbed, unstable slopes with native grass seeds may be undertaken if considered appropriate*". The use of this treatment needs to be specifically addressed and shown on a plan. The appropriate time to consider this treatment approach is when the VMP is being prepared. Allowing this type of detail to be determined during construction shows a lack of understanding of the need to stop sediments entering the waterways. The use of the word "may" is not appropriate in a document that is meant to clearly communicate the works required for the proposal.

Soil erosion control and drainage works, states "*advice will be sought*" as to whether stabilisation is required where work is adjacent to the creek banks. These details should be known already and the core revegetation areas would most likely be post construction of the creek bank areas. Comprehensive details need to be provided in this section of the VMP and clearly displayed on a Plan.

Table 9 states "*Soils excavated from Anzac Creek corridor must be disposed of in accordance with the guidelines in the Alligator Weed Control Manual (DPI 2007), as it will likely contain fragments of Alligator Weed"*. This action is not mentioned in the body text. This action will have considerable cost implications. Quantifying volumes of soil to be removed needs to occur to ensure this action is properly costed. This action may also need to be incorporated into other management plans associated with the proposal to ensure it is understood by the construction contractors.

The VMP does not consider the impact of the entire section of the rail link situated on the western bank of the Georges River (from the northern loop track to the Georges River Bridge crossing). This section of the rail link is situated within the specified riparian setback zone (the Georges River the riparian setback is comprised of a 40m Critical Riparian Zone and a 10m Vegetated Buffer). This section of the rail link needs to be assessed for soil and water management, soil stabilization and re-vegetation works post construction of the rail link.

The monitoring, review and reporting components do not include details of the time in which the monitoring is to be completed, what reporting is required, who will receive the reports, and how any changes determined through the review process will be implemented (i.e. who is the consent authority that approves the proposed changes).

4.11.2.4 Best Practice Review

The Boot Land is located within the Cumberland Plain Priority Conservation Lands as identified in **Figure 4-1**. The Assessment report identified that in addition to resulting in the loss of habitat within the PCL "*The Rail link would potentially be fenced and therefore would create an additional barrier to connectivity between the remaining patch of bushland west of the Rail link and remnant bushland within the Boot Land.*"

The PCL is listed for protection within the *Cumberland Plain Recovery Plan* (DECCW, 2011) which identifies the significance of this land and the need for not only its protection but also to ensure connection between the remaining fragments of this community. The Assessment report recognises the presence of the PCL across the Boot Land and that it will be impacted by the rail link but does not discuss how the reduction of this impact

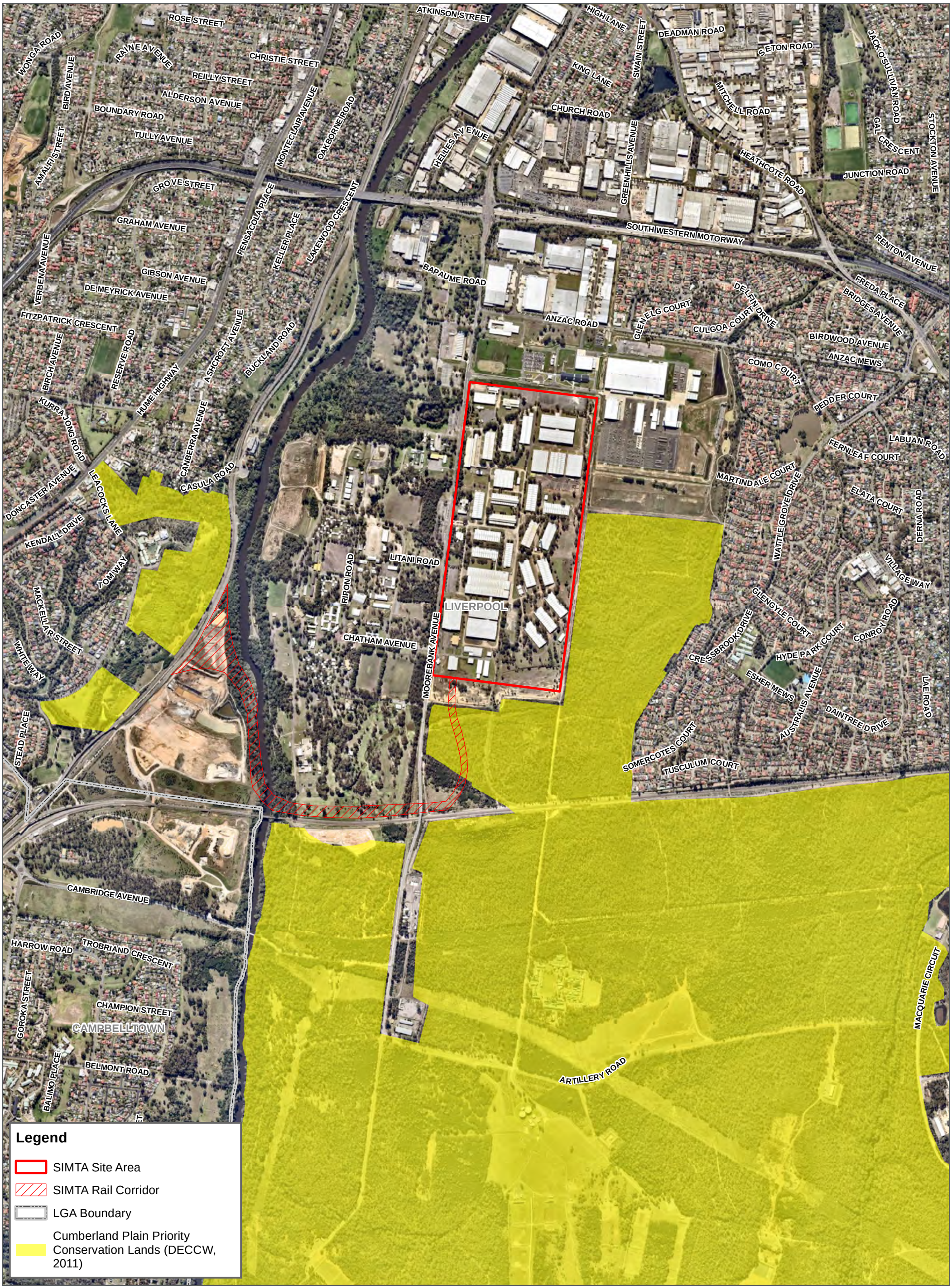
was considered through the design nor does it discuss the use of mitigation measures to protect this land. The only mitigation measures in regards to connectivity provided in the Assessment report are in regards to riparian connectivity and do not consider the PCL. Considering the inclusion of this land within the project area which is to be cleared and isolated as a result of the proposed works, assessment of Cumberland Plain under the TSC Act is required in addition to the management, assessment and inclusion of best practice mitigation measures in accordance with the Recovery Plan.

The VMP notes that the content of the VMP would be reviewed and updated "*as necessary prior to construction of the Proposal*". The VMP provided no approval pathway for any of these changes to occur. Given the lack of detail in the VMP and the very real possibility of substantial changes occurring to the VMP during the design and construction process, a section defining how to review and update the VMP needs to be included. This chapter should outline who is responsible for approving changes to the VMP and the approval pathway required for these changes.

In accordance with the *Guidelines for Vegetation Management Plans on Waterfront Land* (OEH, 2010) a detailed plan is to be prepared that clearly shows the vegetation to be retained along the rail corridor, the footprint of construction activities, fencing or other protection measures to control construction activities and areas of proposed re-vegetation. Vegetation species composition, planting layout and densities should be described. This detail needs to be measurable or quantifiable. The areas of proposed re-vegetation is to be divided into distinct zones that represent the distinct zones of a riparian corridor.

The potential for erosion to occur in the riparian zone is highly likely due to the extent of construction activities. Stabilising the soil in the construction zones of the riparian corridor will therefore be essential. The VMP currently has no detail on the measures required for soil stabilisation.

A comprehensive photographic record of the site should be undertaken (or be recommended to be part of the proposed VMP works) to assist with the reporting and monitoring requirements of the VMP. A cost estimate needs to be prepared for the VMP. The current VMP would be impossible to cost due to the lack of detail, vague language used and un-measurable outcomes. All proposed works need to be clearly defined and quantified.



Legend

- SIMTA Site Area
- SIMTA Rail Corridor
- LGA Boundary
- Cumberland Plain Priority Conservation Lands (DECCW, 2011)

Liverpool city council
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FIGURE 4-1

1:16,000 Scale at A3

Metres
0 100 200 300 400

Cumberland Plain Priority Conservation Lands

SYDNEY, NSW

Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2015-06-25
Coordinate System: GDA 1994 MGA Zone 56
Project: 82015112
Map: 82015112-GS-001-ConservationLands.mxd 01

4.11.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-23 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Any future Development Application shall include a Flora and Fauna assessment. The assessment shall: a) assess impacts on the biodiversity values of the site and adjoining areas, including Endangered Ecological Communities and threatened flora and fauna species and their habitat, impacts on wildlife and habitat corridors, riparian land, and habitat fragmentation and details of mitigation measures, having regard to the range of fauna species and opportunities for connectivity (terrestrial, arboreal and aquatic) across the rail link between the site and the EHPL;	A Biodiversity Assessment has been undertaken to meet this requirement.	The Biodiversity Assessment does not adequately assess impacts on wildlife habitat corridors and habitat fragmentation. See discussion above.
b) include a Vegetation Management Plan that has been prepared in consultation with the NSW Office of Water;	A Riparian Vegetation Management Plan has prepared. The NSW Office of Water requested that a VMP was to be prepared which "details the riparian corridor areas affected by the proposal and the regeneration/rehabilitation of riparian vegetation".	The VMP lacks sufficient detail regarding the proposed regeneration/rehabilitation of the disturbed riparian vegetation.
c) document how impacts to the *Persoonia nutans* and the *Grevillea parviflora subsp. Parviflora* flora species have been minimised through the detailed design process;	A Threatened Flora Species Management Plan has been prepared.	The Management Plan lacks sufficient detail to be effectively implemented. See section 4.11.2.
d) include the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed to address residual impacts, in particular the following should be considered: ▪ As stipulated in principle 2 of *'NSW offset principles for major projects (state significant development and infrastructure)',* for terrestrial biodiversity, established assessment tools, such as the BioBanking Assessment Methodology (BBAM), are considered best practice; ▪ the Biodiversity Offset Strategy will be undertaken in accordance with the *'NSW offset principles for major projects (state significant development and state significant infrastructure)';* and • Offsets shall be identified, and demonstrate that they can be secured.	A Biodiversity Offset Strategy has been prepared for the proposal.	The BOS lacks details on how their credits were calculated which makes critical assessment of the results of the BOS difficult. See Section 4.11.2.
Statement of Commitments	**EIS Response**	**Comments**
The Proponent will undertake further detailed assessment to establish the potential biodiversity impacts of the proposed rail link and measures to mitigate its potential impacts. The investigations shall incorporate the mitigation	Summarised in Table 9 of the VMP	Whilst these are identified for riparian corridors, measures are not specifically identified

Concept Approval Requirements	EIS Response	Comments
measures listed within Section 5 of the Flora and Fauna Assessment and as summarised below: • Site establishment, earthworks and rail construction;		for the general development area.
• Soil disturbance related to site establishment, earthworks and rail construction;	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Vegetation clearance for rail construction, access and maintenance tracks;	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Construction in riparian areas/in proximity to watercourse;	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Construction of pavement, slabs and building structures;	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Hot works (including vegetation clearing requiring heat producing equipment);	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Alteration to air quality and noise environments; and	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
• Operation of the SIMTA proposal.	Biodiversity Assessment references this is addressed in Section 6	Mitigation measures to directly address this are not included in the assessment.
The Proponent shall prepare and implement a Threatened Species Management Plan for the *Persoonia nutans* and *Grevillea parviflora* subsp. *parviflora* populations within the rail corridor that would be affected by the rail link	A Threatened Flora Species Management Plan has been prepared.	The TFSMP lacks sufficient detail to be effectively implemented. See section 4.11.2.
The Proponent will update the *Preliminary Biodiversity Offset Strategy* (Hyder Consulting 2013) in accordance with the NSW offset principles for major projects (state significant development and state significant infrastructure) and continue to consult with the Department of the Environment (DOTE) through the project approval processes.	A Biodiversity Offset Strategy has been prepared for the proposal.	N/A
The offset package will be secured before any clearing of endangered ecological communities or threatened species is carried out.	The Biodiversity Offset Strategy provided only options and had not secured a specific option in the documents provided.	Documents should state that if offset package is not secured what is the associated risk to project.
The Proponent will implement the following measures to protect the aquatic flora and fauna as part of the applications for the detailed planning applications (where relevant and applicable): • Implementation of design principles for friendly fish passage.	This is discussed in Section 6.2.1 of the Biodiversity Assessment.	This section should include reference to the guideline and how they have been implemented into the design.
• Implementation of Construction and Operation Management Plans for maintenance of structures in riparian and aquatic zones.	Table 39 details measures to be implemented for riparian and aquatic zones.	The document does not specifically identify that these measures are to be included in the CEMP and OEMP.
• Minimise siltation of the Georges River during construction through implementing the water quality mitigation measures detailed within the Stormwater and Flooding section of the Statement of Commitments	This is included in Section 6 of the Biodiversity Assessment.	These measures are discussed in section 4.9 of this review.

Concept Approval Requirements	EIS Response	Comments
• Thorough assessment of any development within the Anzac Creek CSWL community, including potential impacts on groundwater quality and quantity.	Not mentioned in any of the documents prepared since the concept EA.	This has not specifically been undertaken.
• Lantana removal within nominated construction zones to reduce degradation of streamside vegetation and offset any potential impacts to aquatic biodiversity.	The VMP states “Mechanical control of dense infestations may be undertaken where practicable, otherwise manual removal is recommended.”	Details on what this will included and a commitment to undertake this has not been provided.
• The proposed rail link (located within the rail corridor) is exempt from the requirement for an a WM Act controlled activity approval from NOW as a transitional Part 3A project; however the detailed design of the rail link will seek to conform to the objects of the WM Act and its associated guidelines.	The VMP does not include a summary against the relevant guidelines under the WM Act.	As discussed above the provided documents do not comply with the WM Act and associated guidelines.
• The riparian setback for Anzac Creek, as specified by NOW, is 30 metres (20 metre CRZ and 10 metre VB), while for Georges River the riparian setback is likely to be a minimum of 50 metres (40 metre CRZ and 10 metre VB).	Riparian setback for Anzac Creek does not meet the recommended 30 metres. The riparian setback for the western side of the Georges River does not meet the recommended 50 metres.	Justification needs to be made as to why the riparian setback for Anzac Creek has not been met. The exact setback that has been determined for the proposal needs to be shown in a cross section of the creek showing top of bank, and CRZ distances and VB distances for both banks of the creek. Justification needs to be made as to why the western bank riparian setback for Georges River has not been met. Soil stability and re-vegetation of this area needs to be considered to ensure no sediment is discharged into Georges River.
• Riparian corridors will be appropriately revegetated to restore and/or maintain ecological, functional and habitat values and impede surface flows and drop sediment before it reaches the waterways.	Revegetation is discussed in Section 4.4 of the VMP.	As discussed above adequate detail is not provided of the proposed revegetation works.
• Water quality and quantity issues will be managed during the construction phase through the implementation, inspection and maintenance of best practice soil and water management techniques which will be defined in the CEMP for sedimentation and erosion control during construction.	Water quality and quantity are assessed in the relevant sections of the EIS Stormwater and Flooding appendix.	See discussion in section 4.9.
• Water quality and quantity issues will be managed during the operation phase through the implementation, inspection and maintenance of Water Sensitive Urban Design (WSUD) measures such as rainwater tanks, grass filter strips, swales and bio retention.	Stormwater drainage infrastructure incorporating WSUD has been assessed in the EIS and Appendix P.	See discussion in section 4.9.

A review of the commitments associated with the Commonwealth Approval is provided below.

Table 4-24 Mitigation Commitments under the Commonwealth Conditions of Approval

Concept Approval Requirements	EIS Response	Comments
The Part 3A Guidelines for Threatened Species Assessment (DEC & DPI 2005) require the fauna description and justification of measures to mitigate adverse effects arising from development proposals. Primary consideration should be given to measures to avoid or minimise impacts; where avoidance and mitigation are not possible, offset strategies may be considered as a last resort. The steps in the avoid, mitigate and offset approach are as follows: • Avoid areas of high biodiversity value wherever possible; • Mitigate actions and safeguard values identified for retention by prescribing appropriate controls; and • Compensate for or offset the removal of biodiversity values .	The Biodiversity Assessment includes a Biodiversity Offset Strategy.	The Biodiversity Assessment and relating EIS chapter considers the development as avoidable without detailed discussion in accordance with the Part 3A guidelines. Whilst this development is being assessed under Part 4 of the EP&A Act is should still be consistent with the commitments of the concept approval. The proposal is using the last resort approach of offsetting.
Avoid • The identified ecological values should be avoided as far as practicable • The construction footprint of the SIMTA proposal and construction access requirements should be reduced as far as possible to minimise impacts. • Avoid Endangered Ecological communities where possible . • Avoid known locations of threatened flora species where possible . • Avoid important fauna habitat features such as large hollow bearing trees where possible.	Measures to Avoid are discussed in Section 6.1 of the Biodiversity Strategy	Whilst there is some discussion of avoiding areas of high ecology significance, the project specifically runs a railway line through the middle of an area containing two protected plant species. The potential for avoidance of these areas is not discussed, nor is there discussion regarding avoidance of hollow bearing trees
Mitigate • Install appropriate drainage infrastructure (e.g. sediment basins, diversion drains), sediment and erosion controls prior to the commencement of construction. • Clearing of vegetation is not to be undertaken during overland flow events . • Clearly identifying sensitive areas and areas for construction and managing clearing such that clearing activities are constrained to these approved areas only. • Locate soil or mulch stockpiles away from watercourses and key stormwater flow paths to limit potential transport of these substances into the watercourses via runoff. • Dust suppression activities to be undertaken where appropriate . • Stabilisation of disturbed areas, including revegetation in accordance with the VMP, is to be undertaken as soon as practicable after disturbance. • Emergency response protocols and procedures for implementation in the event of a contaminant spill or leak to be clearly articulated in the Construction Environmental Management Plan. • Spill kits to be located to allow for timely response to uncontained spills. Site inductions are to include a briefing on the use of spill kits.	Measures to Mitigate are discussed in Section 6.6 of the Biodiversity Strategy	These measures are directly copied into Table 39 of the Biodiversity Assessment with no details provided on how these measures will be carried out. Only timing and responsibility is provided.

Concept Approval Requirements	EIS Response	Comments
• Management of weeds in and adjacent to cleared areas will occur in accordance with a Weed Management Plan. This plan will include details relating to the monitoring, management and where necessary eradication of weeds, disposal of green waste, and vehicle/plant weed wash down protocols if required. • Management of noxious weeds are to be undertaken in accordance with the Noxious Weeds Act 1993. • Equipment used for treating weed infestation will be cleaned prior to moving to a new area within the project site to minimise the likelihood of transferring any plant material and soil. • Soil stripped and stockpiled from areas containing known weed infestations are to be stored separately and are not to be moved to areas free of weeds. • Fauna microhabitat such as logs should be removed from areas to be cleared and relocated to suitable nearby bushland areas in the presence of an ecologist. • Consider the installation of nest boxes in woodland vegetation in the rail corridor that may offer alternative nesting habitat to hollow dependent species recorded in the study area. • High visibility plastic fencing is to be installed to clearly define the limits of the works area to not further encroach on fauna habitat. • Undertake a pre-start up check for sheltering native fauna of all infrastructure, plant and equipment and/or during relocation of stored construction materials. • Undertake a two-stage approach to clearing: o Remove non-hollow bearing trees at least 48 hours before habitat trees are removed. o Hollow bearina trees are to be knocked with an excavator bucket or other machinery to encourage fauna to evacuate the tree immediately prior to felling. o Felled trees must be left for a short period of time on the ground to give any fauna trapped in the trees an opportunity to escape before further processing of the trees. o Felled hollow bearing trees must be inspected by an ecologist as soon as possible (not longer than 2 hours after felling). • Site inductions are to include a briefing regarding the local fauna of the site and identification of protocols to be undertaken if fauna are encountered. • If any pits/trenches are to remain open overnight, they are to be securely covered, if possible. Alternatively, fauna ramps (logs or wooden planks) are to be installed to provide an escape for trapped fauna. • Clearance of native vegetation should be minimised as far as is practicable. • Consider retention of some. or all, of the remnant scattered E. sclerophylla over patches of shrub and grass cover in the cleared grassland immediately south of the SIMTA site, in landscaping works.		

Concept Approval Requirements	EIS Response	Comments
• The extent of, and limitations to, vegetation clearing would be clearly identified on construction plans. • Any additional construction areas, such as site offices, construction stockpile locations and machinery/equipment laydown areas are to be located, where possible, within existing cleared or disturbed areas. • Extent of clearing should be fenced with highly visible temporary fencing to minimise any extension of clearing beyond the area necessary. • A VMP should be prepared prior to construction, detailing restoration, regeneration and rehabilitation of areas of native vegetation in study area. The VMP should also detail appropriate management for the potential habitat of threatened plant species in the study area, including monitoring during and after construction works to ensure impacts are minimised. • As soon as possible rehabilitation will commence where possible. Management of land disturbed as a result of construction works will occur in accordance with a VMP. • High visibility plastic fencing is to be installed to clearly define the limits of the works area as to not further encroach on EEC and locations of threatened flora species. • Fencing is to be installed delineating threatened species habitat to be retained. Appropriate warning signage is to be installed along this fencing at regular intervals. Site inductions are to include a briefing on the presence of threatened species and its habitat, its significance and locations and extents of no-go zones. • Design and construction of rail crossings over Anzac Creek and Georges River to be in accordance with Fish Passage Requirements for Waterway Crossings (Fairfull and Witheridge 2003). • Minimise clearing and disturbance to the riparian zone where possible. • Install appropriate drainage infrastructure (e.g. sediment basins, diversion drains). sediment and erosion controls prior to the commencement of construction. • Construction disturbance areas will be clearly demarcated to avoid accidental clearing or stockpiling in riparian vegetation. • Landscaped zones to capture gross pollutants and oil and grits from pavement. These areas can be regularly maintained to remove rubbish and can be renewed on a regular basis. • Bio-retention installed in base of channels and swales proposed to capture and store stormwater. This will consist of bio-filtration layers. planting and subsoil collection and drainage. • Hot work not to be undertaken on declared total fire ban days. • Vehicles and plant should not block fire trails. • Bushfire awareness included in staff induction and in toolbox talks pre-commencement. • Directional lighting will be used where lighting is required in construction areas.		

Concept Approval Requirements	EIS Response	Comments
• Frequent maintenance of construction machinery and plant will be undertaken to minimise unnecessary noise. • Dust suppression activities to be undertaken where appropriate. • Speed limits will be developed so as to minimise the potential for fauna to be struck by a vehicle within the SIMTA site. All vehicles and plant in operation on the SIMTA site are to adhere to site rules relating to speed limits. • If an animal is injured, contact one of the following local wildlife rescue agency (e.g. WIRES) and/or veterinary surgery immediately • Until the animal can be cared for by a suitably qualified animal handler, if possible minimise stress to the animal and reduce the risk of further injury by: o Handling fauna with care and as little as possible. o Covering larger animals with a towel or blanket and o Placing in a large cardboard box. o Placing small animals in a cotton bag, tied at the top. • Keeping the animal in a quiet, warm, ventilated and dark Weed infestations that are identified during the operation of the SIMTA proposal are to be managed in accordance with the removal methods outlined in the Weed Management Plan.		

4.11.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-25 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
12. Biodiversity *– including but not limited to:* *A Flora and Fauna assessment. The assessment shall:* • *Assess impacts on biodiversity values of the site and adjoining areas, including Endangered Ecological Communities and threatened flora and fauna species and their habitat, groundwater-dependent ecosystems, impacts on wildlife and habitat corridors, riparian land, and habitat fragmentation and details of mitigation measures, having regard to the range of fauna species and opportunities for connectivity (terrestrial, arboreal and aquatic) across the rail link between the site and the East Hills Rail Line*	A Biodiversity Assessment has been undertaken to meet this requirement.	See concept approval requirements above
• Consider the OEH's Threatened species Survey and Assessment Guidelines (www.environment.nsw.gov.au/threatenedspecies/surveyassessmentg dlns.htm) any relevant draft or recovery plans, Fish Passage Requirements for Waterway Crossings Policy and Guidelines for	Sections 5 and 6 of the Biodiversity Assessment.	The use of *Fish Passage Requirements for Waterway Crossings Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI) is not discussed in the Biodiversity Assessment.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Fish Friendly Waterway Crossings (DPI) and Commonwealth Significant Impact Guidelines		
• Include a Vegetation Management Plan that has been prepared in consultation with the NSW Office of Water	A Riparian Vegetation Management Plan has prepared. The NSW Office of Water requested that a VMP was to be prepared which "details the riparian corridor areas affected by the proposal and the regeneration/rehabilitation of riparian vegetation".	The VMP lacks sufficient detail regarding the proposed regeneration/rehabilitation of the disturbed riparian vegetation.
• Document how impacts to the Persoonia nutans and the Grevillea parviflora subsp. parviflora flora species have been minimised through the detailed design process	A Threatened Flora Species Management Plan has been prepared.	The Management Plan lacks sufficient detail to be effectively implemented. See section 4.11.2.
• Assess and document impacts related to the proposed project in accordance with the Framework for Biodiversity Assessment (OEH 2014), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the Threatened Species Conservation Act 1995; and	Section 1.1 of the Biodiversity Assessment states that the document has been prepared in accordance with the framework.	Whilst the document has been prepared generally in accordance with the framework, the level of detail associated with the mitigation measures provided in the assessment and appendices does not indicate how the measures will be achieved and in many cases what it involves.
• Include a comprehensive offset strategy, in accordance with the NSW Biodiversity Offsets Policy for Major Projects including the Framework for Biodiversity Assessment (OEH 2014), consistent with the 'avoid, minimise or offset' principle.	A Biodiversity Offset Strategy has been prepared for the proposal.	The BOS lacks details on how their credits were calculated and if the proposed offsetting land is available for use which makes critical assessment of the results of the BOS difficult. See Section 4.11.2.

4.11.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> Should this project proceed, the ability for the rail alignment to pass through this Boot Land area should be tied to a strong commitment for ongoing and intensive rehabilitation of the remaining Boot land area including the introduction of measures to improve connectivity with neighboring habitat corridors.

> The Assessment should define how the proposed impacts on riparian and aquatic habitats have been considered in accordance with the *Fisheries Management Act* 1994 and *Water Management Act* 2000 and how mitigation measures have been employed in accordance with the guidelines associated with these Acts.

> The BOS should include a commitment to try and address this deficit with like for like species to ensure the project will not contribute to the community and species being placed at risk of extinction.

> Greater detail should be provided on the proposed mitigation measures such as weed control and propagation and transplanting of the threatened flora species so that the proposed methodologies can be assessed prior to determination.

> Mitigation measures provided in the Threatened Species Management Plan and Vegetation Management Plan need to be reviewed due to not only a lack of detail, but an apparent lack of understanding of the justification for those mitigation measures. The proposed mitigation measures should be well founded and rely on best practice standards.

- A Vegetation Management Plan needs to be developed in accordance with the *Guidelines for Vegetation Management Plans on Waterfront Land* including detailed plans detailing areas of vegetation, proposed mitigation measures and proposed rehabilitation of the riparian corridor.
- The design of the rail alignment should be modified to ensure a greater preservation of habitat
- A comprehensive photographic record of the site should be prepared (or be recommended to be part of the proposed Vegetation Management Plan works) to assist with the reporting and monitoring requirements of the Vegetation Management Plan. A cost estimate needs to be prepared for the Vegetation Management Plan.
- A specific assessment addressing the commitment to thoroughly assess any development within the Anzac Creek CSWL community, including potential impacts on groundwater quality and quantity should be undertaken.
- The Biodiversity Offsetting documents should identify what the risk to the project and alternative approach would be if an offset package is not secured
- The section of the rail link situated along the western bank of the Georges River (from the northern loop track to the Georges River Bridge crossing) is situated within the specified riparian setback zone requiring assessment of soil and water management, soil stabilization and re-vegetation works post construction of the rail link.

4.12 Non Indigenous Heritage

The proposed SIMTA EIS provides analysis of the proposal's impacts on non-indigenous heritage. This review considers information in the EIS and Appendix U – *Non-Indigenous Heritage Impact Assessment* prepared by Artefact Heritage.

4.12.1 Overview of the SIMTA Assessment

The SIMTA Stage 1 footprint was identified to include two heritage listed items:

- The DNSDC – Listed on the Commonwealth Heritage List and protected under the EPBC Act.
- The SME Complex – Listed under Liverpool LEP 2008 and protected under the Heritage Act 1977 and the EP&A Act.

The proposed rail link proposed as part of Stage 1 also passes the Glenfield Farm, which is listed on the State Heritage Register. The Impact Assessment identified that the SIMTA site will no longer be protected under the EPBC Act once Defence cease to lease the site and the NSW Heritage Council has advised that the site will not be nominated for listing on the State Heritage Register at this time. However, the Artefact report does recognise that the SIMTA site is in the process of being listed as a local heritage item in the Liverpool LEP 2008.

Impacts resulting from the Stage 1 works will include the following:

- The removal of five World War 2 (WWII) structures, the original road and open drain alignments
- Impacts to potential archaeological material associated with former structures
- Impacts to underground water mains and sewerage lines dating to the 1940's
- Significant impacts to the setting and context of the remaining WWII-era buildings
- Major impact on the heritage significance of the SIMTA (former DNSDC) site
- Visual and noise impacts to the listed Glenfield Farm

The study concludes that there are no non-indigenous heritage constraints within the proposed rail corridor with Glenfield Farm located immediately to the west. Archival recording is identified as potentially occurring for the entire SIMTA site with a Heritage Interpretation Strategy prepared prior to completion of construction outlining interpretive measures for Stage 1 in the context of the SIMTA site as a whole. A Heritage

Management Plan and unexpected finds protocol are also identified as potentially occurring in line with the relevant guidelines for inclusion in the Construction Environment Management Plan.

4.12.2 Cardno Assessment

The level of impact as a result of the removal of the five WWII buildings has been described by the Impact Assessment as a major impact to heritage significance of the SIMTA site as a whole, as well as the associated direct impacts to the structures for removal. Despite this high level of significance being recognised in the Artefact Impact Assessment, no attempts have been made to adaptively reuse these structures based on structural and compliance issues. No consideration has been made of the integration of these buildings into the proposed works with only a black and white approach being used identifying the structures in their current context and subsequently their removal, along with future stages of the SIMTA project removing all WWII structures from the site. Although only 5 of the WWII buildings are identified for removal in Stage 1, there are no commitments to conserve or adaptively reuse any of the significant buildings on site. A clear undertaking for some adaptive reuse across the site is required.

Consideration should be given to the integration of these buildings into the proposal to allow the heritage significance to remain to a limited degree. This approach has been successfully undertaken through maintaining key features such as remnant walls and building features. Examples include the Bushells Building in The Rocks, Sydney, as well as the Egan Street building in Newtown where historic remnants have been integrated into the new development with the site then reused. This approach retains the heritage items in an industrial context, allowing future generations to interpret the items.

The proposed rail link is proposed to pass immediately to the west of the Glenfield Farm State Heritage Register listed item. The Impact Assessment states that the proposed development will result in potential impacts to the views of the property and noise impacts associated with the proposed rail movements. This impact is disregarded in the Impact Assessment due to existing impacts already occurring in the rail corridor. This approach does not consider the cumulative impact of these works and should be considered to allow adequate assessment of this impact to take place. Furthermore, it is anticipated that movements on the SIMTA spur line are likely to be slower than on the SSFL or East Hills Lines with locomotives potentially stopped on the spur line while other locomotives are moving into and out of the four on site sidings. The location of container freight standing on the spur immediately adjacent to Glenfield Farm would create a far greater visual impact than the current fleeting views offered by freight carriages on the SSFL.

The Impact Assessment Report and associated chapter in the EIS have identified “possible” undefined mitigation measures to address impacts on non-indigenous heritage items. As a Stage 1 project application, this approach is unacceptable, with clearly defined mitigation measures required to be committed to prior to approval of this development. In addition to this, the use of a Historic Interpretation Strategy has been discounted in the EIS chapter on non-indigenous heritage which states that this strategy is “subject to a suitable area being located”. Again at this stage of the development clear commitments should be provided including a defined location for the interpretive display and examples of what might be included in the display. The current strategy does not provide any confidence that this should occur.

In accordance with the Concept Plan Approval, if any archaeological deposit or item of heritage significance is located within the study area and is at risk of being impacted, the NSW Heritage Council should be notified. The EIS does not identify that any consultation has occurred, with the only reference being the inclusion of a copy of the submission from Liverpool Council to the NSW Heritage Council State Heritage Register Committee associated with the proposed local heritage listing. No communication has been provided within the Impact Assessment or the EIS to indicate communication with the relevant heritage authorities regarding the level of impact associated with the proposed Stage 1 works. This lack of communication suggests that the “potential” mitigation measures have not been verified by a certified agency suggesting a greater level of agency input is required prior to determination of the proposed Stage 1 development.

Whilst there is mention of the SIMTA site currently in the process of being listed under the Liverpool LEP there is no discussion provided of how this listing fits within the current proposal. As to this process is in progress with public notification undertaken, the proposed development should consider the relevant actions which will be required as part of this listing and the associated ramifications on the proposed development.

4.12.2.1 Best Practice Review

As discussed above, the Stage 1 proposal has ignored the opportunity to integrate the existing WWII structures into the proposed development. The Heritage Council of NSW Guideline titled *New Uses for Heritage Places: Guidelines for the Adaption of Historic Buildings and Sites* identifies the need and opportunity for new developments on historic sites to integrate architectural design and archaeology to ensure the preservation of the historic value of the site. This Best Practice approach has not been considered in the proposed development and considering the proposed and future proposed "Major" impacts on the SIMTA site, it is highly recommended that the use of this approach be required to consider and retain the WWII heritage associated with the site. This will also work to compliment the proposed listing of the site as being o local historical significance under the Liverpool LEP.

4.12.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the **Table4-26**.

Table 4-26 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
The Proponent commits to undertaking the recommendations within the Non-Indigenous Heritage report and including: ▪ Preparing a Statement of Heritage Impact (SoHI) for submission to the Minister for Planning and Infrastructure as part of staged planning applications at State level;	Undertaken by Artefact Heritage	Statement of Heritage Impact (SOHI) Guidelines (OEH) state that "A SOHI needs to explain how the heritage value of an item is to be conserved, or preferably enhanced, by the proposed development". The response to this states that only five of the twenty WWII structures are to be removed. Earlier in the document it mentions that all of the buildings are likely to be removed as part of the greater project and so the SOHI should reflect the greater impacts to this heritage item.
▪ Commencing discussions with the appropriate heritage bodies regarding the potential listing of the DNSDC site on the National Heritage List or the State Heritage Register;	Letter of correspondence provided in Appendix A of the Impact Assessment Report.	The decision made by the NSW Heritage Council State Heritage Register Committee it noted to be made on the basis that the WWII buildings are currently under the protection of the EPBC Act. Whilst attachments to the correspondence were not provided an application should be submitted noting that protection under the EPBC Act may cease in the near future as mentioned in the assessment report.
▪ Preparing a Statement of Heritage Impact for each stage, including the legal status of the site and advice on required actions depending on whether the site is listed or unlisted at the time that approval is sought;	Provided in Table 6 of Section 8.6 of the Impact Assessment Report.	The Statement of Heritage Impacts in Section 8.6 of the Impact Assessment Report does not state the legal status of the site nor does it state required actions based on the legal status of the site. There is no discussion in the Impact Assessment Report with regards for the need or lack of need to obtain permits or consult with relevant authorities.
▪ Development of an overall mitigation strategy for the DNSDC site, which may be based on Table 3 of the Non-Indigenous Heritage report.	Potential mitigation measures are descripted in Section 8.7 of the Impact Assessment Report. The mitigation strategy is included in Section 8.7 and discuss the use of archaeological monitoring and a Heritage Interpretation Strategy are proposed along with Heritage Management Plan for inclusion in the CEMP.	There are no defined commitments in regards to developing a Heritage Interpretation Strategy, it is simply proposed. With the EIS stating it is subject to a suitable area being located. Clear details of the archaeological monitoring are also not provided with recommendations using none committal language.

Concept Approval Requirements	EIS Response	Comments
▪ Undertaking further archaeological assessment and investigation or monitoring, where required in areas designated as having archaeological potential that would be impacted by the proposal. The SoHIs for each stage should address the archaeological potential within the development area for each stage; and	The need for further monitoring is identified within the Impact Assessment Report as a potential mitigation measure based on the archaeological potential identified in the Assessment.	No investigations or monitoring were undertaken as part of the Stage 1 Impact Assessment Report. The need for monitoring is identified but there are no commitments to undertake the identified work. There is also very limited information available about the monitoring required.
▪ If any archaeological deposit or item of heritage significance is located within the study area and is at risk of being impacted, the NSW Heritage Council should be notified and a heritage consultant/archaeologist should be engaged to assess the item to determine its heritage significance.	Based on the information provided the NSW Heritage Council has not been notified about the proposed impacts associated with the Stage 1 works.	In accordance with this condition, the relevant heritage authority should be contacted detailing the level of impact associated with the Stage 1 works. No evidence has been provided to suggest this has been undertaken.
The potential visual impact of the proposed rail corridor shall be mitigated by the use of screening vegetation and terracing or earth mounding to soften the impact of the flyover.	In regards to non-indigenous heritage there is no discussion of the use of visual mitigation measures. Discussion of these measures has been included in **Section 4.14** of this review.	Due to the disregarding of impacts to Glenfield Farm and the lack of cumulative discussion on the impacts to this historical site the absence of mitigation measures for this historical site is deemed unacceptable. Further discussion of visual impacts is included in **Section 4.14** of this review.

4.12.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-27 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Consider impacts to historic heritage. For any identified impacts, the assessment shall: i. include a statement of heritage impact;	Provided in Table 6 of Section 8.6 of the Impact Assessment Report	As discussed above in **Table 4-26**.
ii. be undertaken by a suitably qualified heritage consultant(s);	Impact Assessment Report has been undertaken by Artefact Heritage a qualified heritage consultancy.	Whilst heritage consultant are listed in the Impact Assessment Report specific qualifications and experience have not been identified.
iii. outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures). Mitigation measures should include (but not be limited to) photographic archival recording and adaptive reuse of buildings or building elements on site); Note: Where historical excavation is proposed, the heritage consultant undertaking the assessment must meet the NSW Heritage Council's Excavation Director criteria.	Potential mitigation measures are descripted in **Section 8.7** of the Impact Assessment Report.	The mitigation measures provided in the Impact Assessment Report are potential mitigation measures only, with no defined commitments made to undertake these mitigation measures. Adaptive reuse of the building is not considered in the potential mitigation measures.

4.12.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

- An overall heritage strategy (incorporating photographic archival recording, conservation, adaptive reuse and interpretation) is required to ensure the conservation of the site heritage significance. The current piecemeal assessment results in poor heritage outcomes.
- Retention of the heritage listed buildings, with integration into the scheme should be the intent with justification provided where this goal is not achieved. Building retention and integration into the future built form should be detailed in the Heritage Management Plan for the site
- Impacts to Glenfield Farm, particularly in relation to movements along the rail spur should be assessed, with consideration of the cumulative impacts associated with both MIC and SIMTA, rather than being disregarded based on existing impacts from the rail corridor.
- Mitigation measures should be redefined as clear measurable commitments rather that generic measures utilised in the project.
- Agency consultation should be undertaken to verify the appropriateness of the proposed works in the context of the heritage setting, with agency responses considered prior to determination.
- Discussion should be included within the proposal regarding the potential for the SIMTA site to be listed as a local heritage item under the Liverpool LEP and how the proposed works fit within this local heritage framework.

4.13 Indigenous Heritage

The proposed SIMTA EIS provides analysis of the proposal's impacts on Indigenous Heritage. This review considers information in the Chapter 15 of the EIS and Appendix T prepared by Archaeological and Heritage Management Solutions (AHMS).

4.13.1 Overview of the SIMTA Assessment

The Stage 1 Aboriginal Heritage Impact Assessment follows on from the Impact Assessment undertaken as part of the Concept Approval. The Stage 1 Impact Assessment focuses only on the Stage 1 rail corridor in the vicinity of previously identified Potential Archaeological Deposits (PADs). No Aboriginal places are registered within the Stage 1 area of the SIMTA site. As part of the Stage 1 assessment process Aboriginal consultation was undertaken along with a review of previous studies and the completion of a series of test excavations along the Stage 1 rail corridor. These test excavations focused on the eastern bank of the Georges River and either side of Anzac Creek (identified as PADs 2 and 3). The test excavations included 13 test pits each comprising an area of $1m^2$ separated by 20m across the PAD area.

28 Aboriginal objects were recovered from the test pits associated with the Georges River which was classified as having a low-level of past activity on the upper slopes and ridge areas. These areas were also described as being characteristic of occupation in the last few thousand years, which was confirmed by statistical analysis as having an age of 3, 400 years. The lower assemblages were found to provide evidence of the earliest activity on the Georges River with an age of 18,000 years.

The Impact Assessment identified that PAD 3 was found not to contain cultural material and was recommended to be delisted. PAD 2 was re-considered as part of this study, resulting in it being redefined to the elevated areas immediately above the Georges River and renamed MA14. This consisted of an artefact scatter and deposits that were considered in the report to have high research potential and of local significance.

The report identified that ~20% of MA14 would be directly impacted by the Stage 1 rail link. Given the site's significance an archaeological salvage program is proposed. No other impacts to Aboriginal sites or objects were identified as part of this assessment.

4.13.2 Cardno Assessment

The proposed rail alignment runs along the edge of the Glenfield Waste Facility, parallel to the remnant riparian vegetation zone of the Georges River. The project does not discuss the level of impact associated with this neighbouring riparian zone, which has not been assessed for archaeological significance in either the Concept EA or the Stage 1 EIS. The Concept EA does however mention that this area, referred to as Area 1, was identified by Aboriginal participants as an area of cultural interest and as such is listed as an Area of Cultural Value.

The SEARs specifically require that "*impacts to Aboriginal heritage sites identified within or near the project should be assessed*". The concept approval in states "*Areas of the study area in close proximity to Georges River and the south western most corner of the proposed rail corridor, which could not be adequately investigated due to access issues, should be investigated further*." Whilst the use of construction fencing around this area has been considered in the Stage 1 EIS, the extent of impacts to the significance of this area has not been determined. As the assessment of this site has not been undertaken as part of the Stage 1 Assessment, the requirements to assess sites "near" the proposal in accordance with the SEARs has not been met.

A site named PAD 1 was also identified as occurring in the Concept EA, which has been dismissed by the Stage 1 Assessment due to assessment of this site by the MIC proposal. The conclusion of the Aboriginal Heritage Assessment for the MIC Concept states that "*Surface artefacts have been recorded at MA1 (PAD 1)…..Salvage of surface artefacts should be undertaken prior to any impacts of these areas."* As discussed above the SEARs require sites near the project to be assessed. Therefore, greater justification as to why PAD1 has been removed from the assessment should be provided and reviewed prior to determination, with assessment subsequently undertaken. The southern extent of PAD1 has also not been determined suggesting that the PAD has the potential to be located closer to the proposed railway corridor than indicated by the test pitting currently undertaken. The MIC Concept Assessment also identified that this site meets the threshold for listing on the Commonwealth Heritage list under criterion i of the Commonwealth Heritage List criteria reinforcing the need for greater consideration of this site.

The extent of State agency consultation appears to be limited. Comprehensive consultation with OEH on heritage matters is required prior to assessment and determination.

4.13.2.1 Best Practice Review

No impacts to Aboriginal heritage were identified for the operational phase of Stage 1 and as such no mitigation measures for operation were provided in the EIS chapter. The Impact Assessment recommends that in line with best practice "*SIMTA should advise all relevant personnel and contractors involved in … operation of the Stage 1 Proposal of the relevant heritage considerations, legislation and recommendations identified*". This mitigation measure which should be included in the CEMP and OEMP has not been included in the EIS chapter suggesting that the EIS is deviating from the suggestions of the specialist report.

As mentioned in the Impact Assessment, the Best Practice methodology as stated in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH, 2010), is to avoid harm to heritage sites as the best possible outcome. The EIS does not consider the redesign of the rail alignment to avoid or limit the impact to site MA14. This is a key step in the due diligence process and needs to be considered prior to determination.

4.13.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-28 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
The Proponent commits to the implementation of the following General Mitigation Measures in the *Aboriginal Cultural Heritage Assessment* and including: > Consultation between SIMTA and relevant Registered Aboriginal Parties (RAPs) throughout the design and construction of the SIMTA proposal;	Consultation with the RAPs has been undertaken during the Stage 1 design. Consultation is proposed to be maintained with the RAPs during the finalisation of the proposal.	Consultation between SIMTA and RAPs during construction is not discussed in either the Impact Assessment or the EIS Chapter.
> Where possible, SIMTA should aim to avoid impacting any known Aboriginal heritage objects, sites or places and places that have potential Aboriginal heritage or cultural values, throughout the life of the SIMTA proposal;	There is no discussion in the EIS chapter associated with reviewing the design to avoid or limit impacts on site MA14. The Impact Assessment states that the preferred outcome is to redesign the project where possible to avoid impacts to heritage sites though this is not included in the EIS chapter.	See discussion in Best Practice Review Section above.
> Where impact cannot be avoided, SIMTA should choose partial impact rather than complete impact wherever possible and ensure that appropriate measures to mitigate impacts are developed and implemented as required and as appropriate during design, construction and operation of the various stages of the SIMTA proposal;	As discussed above the EIS and Impact Assessment do not include detail of any process to choose partial over complete impact.	See discussion in Best Practice Review Section above.
> If relocation of any element of the SIMTA proposal outside area assessed in this study is proposed, further assessment of the additional area(s) should be undertaken to identify and appropriately manage Aboriginal objects/sites/places that may be in this additional area(s);	The proposal is within the original concept area	No comment.
> In the event that previously undiscovered Aboriginal objects, sites or places (or potential Aboriginal objects, sites or places) are discovered during construction, all works in the vicinity of the find should cease and SIMTA should determine the subsequent course of action in consultation with a heritage professional, relevant Registered Aboriginal Parties and/or the relevant State government agency as appropriate;	The unexpected finds protocol will be detailed in the CEMP.	The unexpected finds protocol should be developed in the EIS and considered prior to determination. Lack of an identified unexpected finds protocol during approval conflicts with the Due Diligence Guidelines (OEH, 2010) which includes the process that should be undertaken in the event a previously undiscovered object or place is discovered.
> Should suspected human skeletal material be identified, all works should cease and the NSW Police and the NSW Coroner's office contacted. Should the burial prove to be archaeological of Aboriginal origin, consultation with a heritage	The unexpected find protocol including human remains will be detailed in the CEMP.	As discussed above.

Concept Approval Requirements	EIS Response	Comments
professional, relevant RAPs and/or the relevant State government agency, should be undertaken by SIMTA; and		
> SIMTA should ensure that any reports or documents for the SIMTA proposal concerning Aboriginal heritage comply with applicable statutory requirements (those currently applicable are outlined in this report), are prepared in accordance with best practice professional standards and, where appropriate, ensure findings are provided to OEH AHIMS Registrar and the relevant RAPs.	Provided documents state that the Impact Assessment has been undertaken in accordance with the relevant legislation, with appropriate documents provided to OEH and RAPs.	A review in accordance with best practice standards are described above. Evidence has not been provided of the submission of the Impact Assessment to OEH and RAPs.
The Proponent commits to the implementation of the following Site Specific Mitigation Measures: > To ensure cultural values of land affected by the rail link are appropriately characterised and assessed, Aboriginal consultation should continue to be undertaken in accordance with applicable guidelines and requirements;	As discussed above consultation during construction has not been included in the Stage 1 proposal.	As discussed above.
> Where potentially impacted by the proposed rail link footprint, the artefacts identified in Transect I on the SIMTA site, and Transect 7 immediately south of the SIMTA site, should be collected by RAPs in conjunction with a heritage professional before construction commences. A Care and Control Agreement should be completed between SIMTA and the RAPs regarding the future of the artefacts (it is usually preferred that they be reburied nearby);	Transect 1 is not discussed in the Stage 1 reports. Transect 7, also known as PAD 3 was identified to contain no cultural materials and was recommended to be delisted.	Detail should be provided as to why transect 1 was not discussed in the Stage 1 reports and why further investigation should not occur in that area.
> Given the extensive historical disturbance within the remainder of the SIMTA site, it is considered that the likelihood of the presence of intact or significant Aboriginal objects and/or sites is low and no further archaeological investigations are warranted in these remaining areas;	Mentioned in the Stage 1 EIS and Impact Assessment.	N/A
> In relation to the proposed rail link footprint, with the exception of PADs 1 - 3 (Figure 33), it is considered that the likelihood of the presence of intact or significant Aboriginal objects and/or sites is low and no further archaeological investigations are warranted in the remaining areas;	Mentioned in the Stage 1 EIS and Impact Assessment.	As discussed the extent of PAD 1 has not been determined.
> Areas within 50 metres of the eastern and western banks of the Georges River, should not be impacted without further assessment; and	Not discussed in the mitigation measures for Stage 1.	Should be included in the Stage 1 mitigation measures.

Concept Approval Requirements	EIS Response	Comments
> The detailed application for the first stage of works shall include test excavations in each of PADs 1 - 3 in accordance with current archaeological practice and any relevant guidelines to determine the nature, extent and significance of any Aboriginal archaeological deposit. Such testing would be undertaken under Section 75U of the Environmental Planning and Assessment Act 1979, and be used to inform the assessment of these areas prior to lodgement of the subsequent staged application.	Test excavation in accordance with the Act was undertaken for PADs 2 and 3.	As discussed earlier further testing is required at PAD1 to determine its extent and significance.
Where the detailed design of the rail link would result in disturbance to a potential archaeological deposit or an area of potential archaeological value the detailed application for that stage of works shall include test excavations in those areas that may be disturbed in accordance with current archaeological practice and any relevant guidelines to determine the nature, extent and significance of any Aboriginal archaeological deposit. Such testing would be undertaken under Section 75U of the *Environmental Planning and Assessment Act 1979*, and be used to inform the assessment of these areas prior to lodgement of the subsequent staged application.	Discussed in section 5 of the EIS.	As discussed above the extent of sites occurring near the proposed alignment has not been identified. Adequate testing of MA14 has been undertaken however the findings of this investigation have not been integrated in the design of the Stage 1 rail corridor.

4.13.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-29 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
An assessment of the heritage impacts of the proposal. The assessment shall: a) Consider impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed. Where impacts are identified, the assessment shall demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures);	Provided through the Impact Assessment.	As discussed above adequate assessment of the site near the proposed alignment has not been discussed. Mitigation measures during operation have also not been provided.

4.13.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

- Investigations of Area 1 should be undertaken to determine the extent of significance of this area and if this significance will be directly impacted by the proposal.
- Further investigations should be undertaken at PAD1 to determine the southern extent of the site and to determine the level of impact that will occur at the site as a result of the proposed neighbouring rail alignment.
- Comprehensive consultation with OEH on heritage matters is required prior to assessment and determination.
- Photographic Archival Recording should be prepared to cover the entire site prior to the commencement of any works;
- The EIS should commit to ensuring that contractors are trained to understand the relevant heritage considerations, legislation and recommendations to ensure that impacts are minimised and responded to during construction and operation. .
- Redesign of the proposed alignment should be considered to ensure impacts to site MA14 are minimised, if not avoided. If further design improvements cannot be achieved it should be discussed and explain why.
- Ongoing consultation with Registered Aboriginal Parties during construction of Stage 1 should be committed to prior to determination.
- An unexpected find protocol in accordance with the Due Diligence guidelines should be included in the Impact Assessment and EIS with a commitment to include the protocol in the CEMP.
- Details should be provided prior to determination as to why Transect 1 was not considered in this proposal as per the recommendations in the Concept Approval.
- Mitigation measures should define Areas within 50 metres of the eastern and western banks of the Georges River. There areas should not be impacted without further assessment.

4.14 Visual and Urban Design

The proposed SIMTA EIS provides analysis of the proposal's impacts on Visual Amenity, Urban Design and Landscape. This review considers information in the EIS Chapter 17 Visual Amenity, Urban Design and Landscape and Chapter 4 Proposal Description and the following detailed assessments, included as Appendices:

- Visual Impact Assessment prepared by Reid Campbell (2015) at Appendix V
- Light Spill Assessment prepared by AECOM (2015) at Appendix V
- Landscape Plan prepared by Groundink (2015) at Appendix E.

4.14.1 Overview of the SIMTA Assessment

Chapter 17 of the EIS is an overview chapter that combines the specialist visual and light spill impact assessments and the landscaping concept plan into an overall visual amenity, urban design and landscape assessment. The following sections detail the key built form characteristics of the proposal in accordance with the Concept Plan approval, as well as outlining the visual impacts, light spill impacts and the mitigation measures proposed.

4.14.1.1 Key Built Form Characteristics

The subject site is zoned IN1 General Industrial by the Liverpool LEP, with a 15 m height limit being the main built form control for the site. However, subject to the Concept Plan approval, the heights and setbacks listed within the Urban Design and Landscape Report (Reid Campbell, 2013) prepared for the Concept Plan, are the key built form controls for the purposes of this application. The main built form controls, many of which are relevant to visual impacts, include:

- Height:
  - 32 m for materials handling equipment (i.e. gantry cranes)
  - 30 m for a control tower
  - 21 m for a warehouse
  - 15 m for other buildings
  - 5 containers high for container storage
  - 8 m for administration and ancillary operational facilities
- Building Setbacks (relevant to this application):
  - 18 m to the front property boundary to Moorebank Avenue
  - 2.5 m to the side and rear boundaries for any building or hardstand area
- Landscaping:
  - A bio retention swale is required along the Moorebank Avenue frontage
  - Landscape buffer planting is required along the development boundaries and shall be consistent with surrounding species
- Building Design:
  - Provide a high quality landscape corridor fronting Moorebank Avenue. The quality and finish of any building within the terminal is also to be of high quality
  - Building forms are to be articulated using roofs and eaves, with articulation to long otherwise blank walls and promoting an attractive public interface.

The proposed Stage 1 development provides the key built form descriptions at Chapter 4 of the EIS and in the submitted architectural plans. The key built form, setback, building and structure heights and proposed landscaping as part of the Stage 1 application include:

- Container storage and gantry cranes – In the container storage areas on site, containers are proposed to be stacked up to five high, totaling an approximate height of 13 m. Gantry cranes during the operation of the facility would operate within an envelope of 32 m in height.
- Administration building – an administration building is proposed along the western boundary of the site, which will cover approximately 500m^2 and be one storey in height.
- Lighting – lighting is proposed on site to provide 24 hour operations. The pole lighting will be a maximum height of 21 m.
- Landscaping – landscaping is proposed on all boundaries of the site, with each setback used as a vegetative buffer to the facility. The western and southern boundary includes the use of trees that are consistent with the surrounding character of the area.
- Setbacks – the main setback to Moorebank Avenue is an 18 m wide setback that includes a bio retention swale and vegetative screen planting.

The above built form of the development is in accordance with the Concept Plan Approval.

4.14.1.2 Visual Impacts

Chapter 17 of the EIS provides the key findings from the Visual Impact Assessment, located at Appendix V of the EIS. The Visual Impact Assessment does not specifically follow the structure listed within the best practice guidance note the *RMS Guidelines for Landscape Character and Visual Impact Assessment*, however it does assess the impacts of the development in a similar manner. Broadly speaking, the visual impact assessment performs the following key tasks:

- Performs a brief site analysis and defines the visual character of the site and its surrounds
- Performed a viewshed analysis to identify the visibility of the project within its landscape (its visual catchment. This was supported via GIS and a site inspection.
- Key viewpoints within the visual catchment are identified to both the project site and the rail link
- The impacts of the development are defined under a criteria including:
  - Adaptation – The adaptation of the landscape and visual amenity that is likely to change as a result of the proposal
  - Sensitivity – The sensitivity of the viewpoint to change. For instance, the duration of views and the perceived importance of the view
  - Impact – A qualitative assessment of the adaptation and sensitivity of the view point
- Visual impacts are considered via photomontages of existing and proposed scenarios
- A cumulative impact analysis is completed
- Mitigation strategies are developed which cover construction and operation.

The assessment identified 8 locations within the visual catchment of the site that would be impacted by the project. These are identified in **Table 4-30**.

Table 4-30 Visual Impacts of the SIMTA Proposal

View Number	View Location	Assessed Visual Impact
View 08	Corner of Yulong Close and Anzac Road	Low / Moderate Impact
View 18	Moorebank Avenue (southern extent of the Project Site)	Low / Moderate Impact
View 19	Moorebank Avenue (south of the Project Site)	Low / Moderate Impact
View 20	Moorebank Avenue (west of the Project Site)	Low / Moderate Impact
View 23	Corner of Moorebank Avenue and Road Marked DS NNSW LMA on the MIC Site.	Low / Moderate Impact
View R01	Moorebank Avenue Rail Overpass (looking west)	Moderate Impact
View R02	Moorebank Avenue Rail Overpass (looking east)	Moderate Impact
View R12	South of the proposed Georges River Rail Link Crossing	Moderate Impact

Chapter 17 provides photomontages illustrating the impact from each of these viewpoints. The Assessment concluded that the SIMTA development will have very limited visual impacts to surrounding communities and developments. This is primarily due to the distance to visual receivers, the existing visual barriers (including existing vegetation) and the topography of the surrounding area.

Additionally, potential cumulative impacts have been assessed as being negligible, with the proposed adjacent MIC development considered to provide a “visual shield” to the SIMTA proposal.

4.14.1.3 Light Spill Impacts

The Light Spill Study prepared by AECOM (2015) developed the lighting strategy for the proposal in accordance with AS/NZS 1680.5:2012 Australian and New Zealand Interior and workplace lighting, Part 5: outdoor workplace lighting and AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting.

The lighting strategy for the site is proposes the use of high pressure sodium lighting due its ability to provide higher energy efficiency and lower visual impact compared to other lighting sources such as LED.

The pole height on the SIMTA site is proposed to be a maximum of 21 m , with 4 poles at this height. The remainder of lighting poles will be either 18 or 13.5 m high.

The relevant standard for the assessment of light spill is AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting which states that 25 lux is the limit for light spill before curfew at the boundary of adjoining residential properties, and 4 lux at the windows of adjoining residential properties. The lighting design for the SIMTA site shows that light spill from the site is predominantly contained on site, with the 0.1 lux contour extending off site in some areas.

The study concluded by stating that the proposed lighting strategy on site, including light source type, luminaire make and model, luminaire aiming, pole positions and heights will have no major impact, with light spill below the limits stated in AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting.

4.14.1.4 Mitigation Measures

The mitigation measures proposed by the applicant are framed around implementation measures during the construction and operation of the facility. These include:

- Construction:
  - Retaining existing vegetation where possible
  - Early planting of tree species to improve visual buffers
  - Setting back large equipment from site boundaries
  - Cut off and directed lighting would be used to minimize glare and light spill
- Operation:
  - Landscape planting to soften the appearance of the site, including:
    - Use of local species, particularly as understory planting to enhance habitat values
    - Use of trees along southern and western boundaries to provide uniform canopy cover
  - Building materials will be of high design quality with compatible finishes and materials

4.14.2 Cardno Assessment

The visual impact and light spill impact assessments, along with the landscaping design, have been carried out in a competent manner using industry standard processes and technology. Despite this, Cardno has concerns regarding the outcomes of the assessments and associated recommendations for mitigation measures. These are detailed below.

4.14.2.1 Assumption that use is in keeping with existing character of the area

Many of the comments and conclusions provided in the assessment state that the IMT facility reflects and will continue the historical use of the site for industrial purposes, with any visual impacts essentially the same as the existing scenario.

This conclusion is limited, as despite the IMT facility being industrial in nature, the visual appearance of the facility will be fundamentally different. Specifically, the existing use on site comprises military-style warehouses that are one and two storeys in height, comprised of grey finishes. The proposed development will include gantry's up to 32 m in height, with stacked containers that will vary in colour and appearance.

The photomontages showing the simulated views of the SIMTA proposal do not indicate any colour variation for container stacking, noting them as a recessive grey element.

Therefore, the argument that the proposed use is essentially the same as the existing use on site is flawed. Consequently, the visual impact assessment should be comprehensively updated to better consider the visual appearance of the container stacking prior to determination. This additional assessment may result in either locating the containers away from the Moorebank Avenue frontage, reducing container stacking heights, or the introduction of additional landscape buffer planting.

4.14.2.2 Cumulative Impact with the MIC Development

The assessment has concluded that cumulative impacts resulting from the construction of the MIC and SIMTA proposals would be significant to receivers adjacent to the MIC development and that its construction will provide a “visual shield” to the bulk of the SIMTA proposal. The Visual Impact Assessment conducted a cumulative impact assessment, however this was limited by its inability to provide appropriate building envelopes on site.

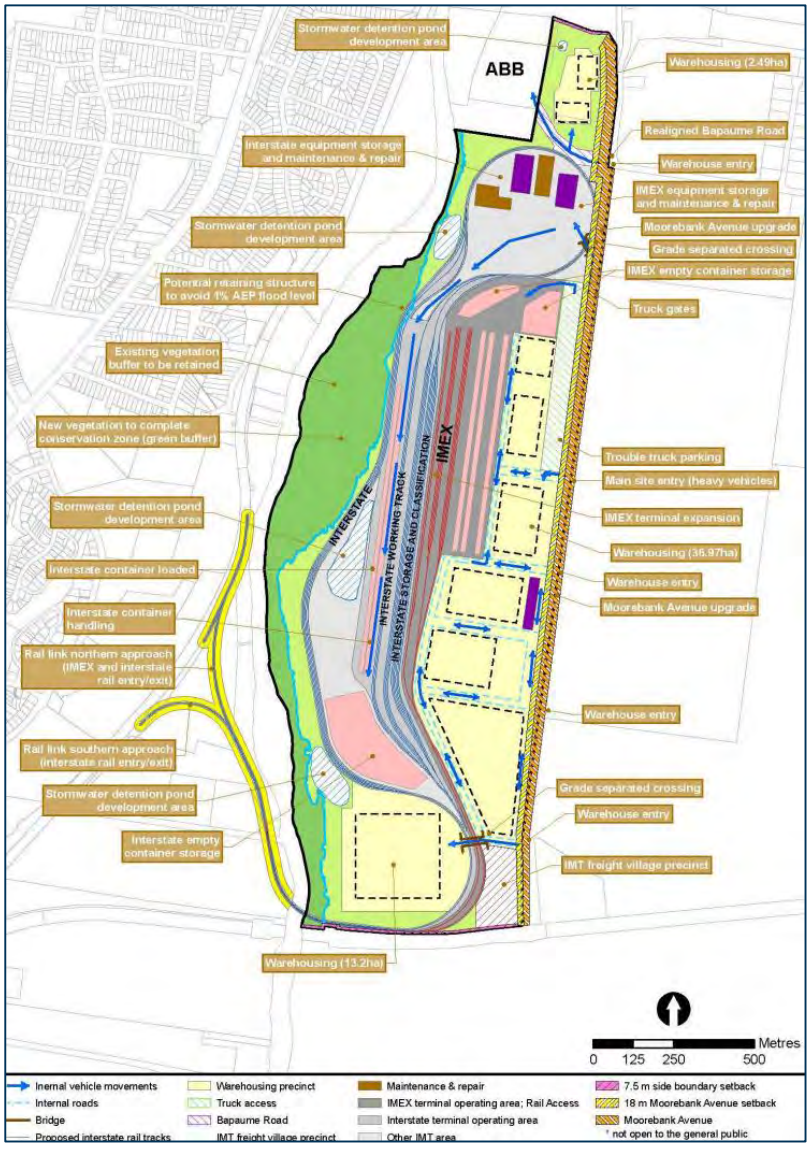
The assessment noted that it was limited by the extent of publicly available information associated with the MIC proposal. Consequently, the simulated visual impacts have been restricted to broad site boundary outlines, without any consideration of building envelopes and or tree removal (refer to **Figure 4-2**).

Figure 4-2 Cumulative Visual Impact, Casula Public Park

Source: Reid Campbell, 2015

Cardno has reviewed the publically available information associated with the MIC proposal and has determined that the maximum height proposed is 21 m. The MIC proposal also noted the indicative locations of the main buildings and structures on site (refer to **0**).

Figure 4-3 Proposed MIC Site Layout



Source: Parsons Brinkerhoff, 2014

The visual / urban design assessment should have considered these building envelopes in its cumulative impact assessment to determine how tree clearing associated with the MIC development will make the SIMTA site more visible, particularly the 32 m high container gantry's. The SIMTA gantry's are 11 m higher than any structure on the MIC site, creating a high likelihood of visual impact from the SIMTA proposal, which would also be of significance to sensitive receivers to the west of the site beyond the MCI land.

Therefore, the visual / urban design assessment should have modelled the 21 m high building envelopes on the MIC site. This would have provided a more thorough and detailed cumulative impact assessment based on the highest potential impact scenario. This should be provided prior to any determination.

4.14.2.3 Assumption that tree planting along Moorebank Avenue will mitigate visual impacts

The applicant has stated that the provision of vegetative buffer planting along Moorebank Avenue will mitigate the impacts of bulk and scale from the development. However, it is noted that on the submitted landscape concept plan, a number of significant tree species along Moorebank Avenue are identified for removal. Consequently, the proposed planting of mature tree species will take some 20-30 years to reach full maturity, allowing them to then satisfy their screening purpose.

In the short to mid-term, there is the strong possibility that the full scale of the development will be visible along Moorebank Avenue, representing a moderate to high visual impact. Similarly, views from public spaces in Casula may have additional view impacts compared to those identified in Reid Campbell's assessment.

An example of the vegetative planting buffer showing tree species at full maturity is shown at **Figure 4-4**. This scenario may take up to 30 years to be realized, priort to the tree species to reaching maturity, with no short-term mitigation measure identified.

Figure 4-4 Photomontage of Screen Planting, Moorebank Avenue

Source: Reid Campbell, 2015

Consequently, short and mid-term strategies regarding appropriate screen planting should be further developed prior to determination, as the planting of mature tree species is considered to be an expensive undertaking that may not be implemented by the proponent.

4.14.2.4 Impacts with respect to likely future mixed use development in the locality

There is significant local and State agency support for renewal of existing industrial lands on the Georges River for mixed use purposes. Notably, Cardno is aware of an initiative to rezone a 25 hectare industrial site to the north of the SIMTA/MIC sites, adjacent to the M5 Motorway. Impacts on views from this site and other such sites along the Georges River foreshore have not been considered in the visual impact assessment, based on the context of future development scenarios.

4.14.2.5 Impacts with respect to additional uses on the MIC Site

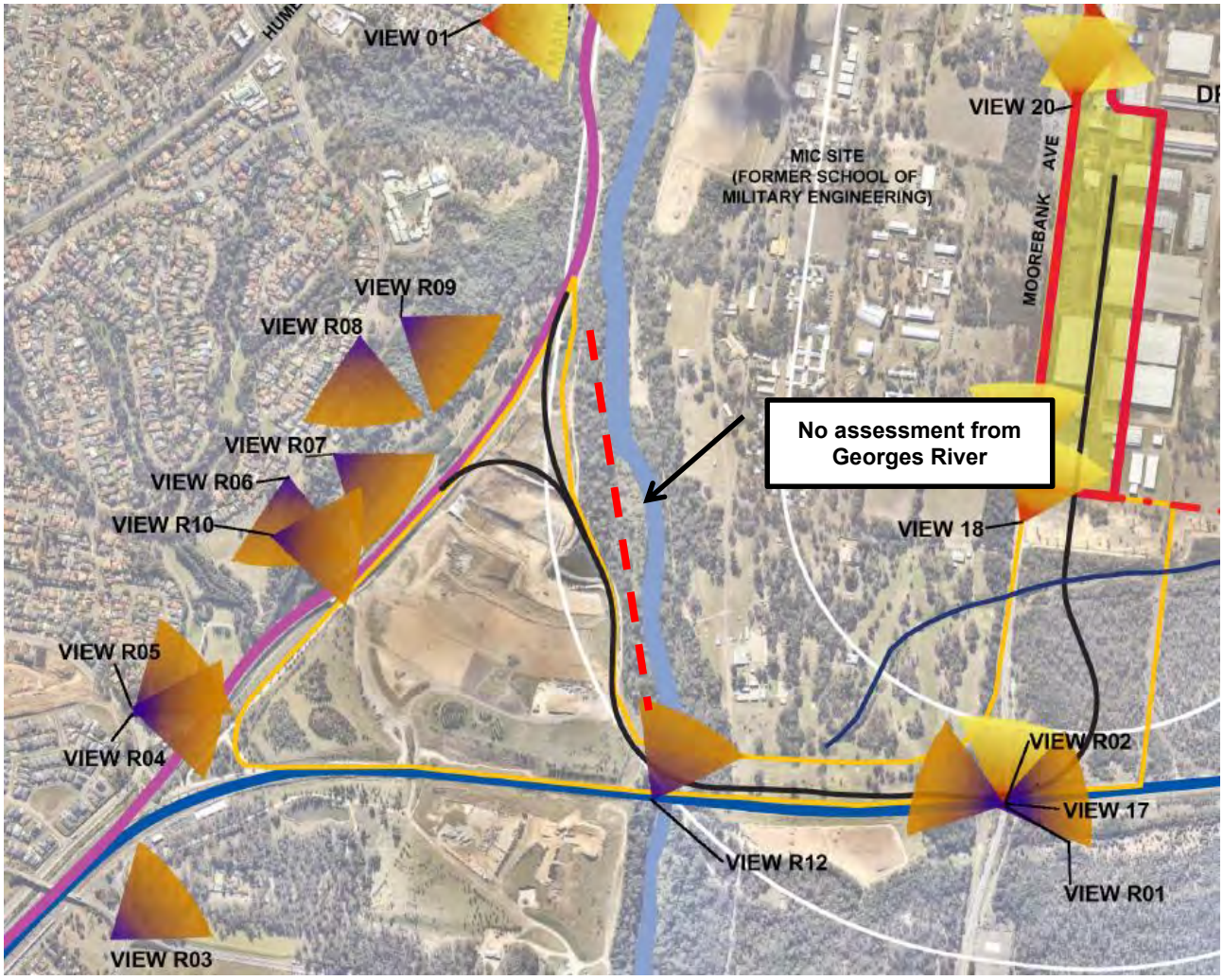
A number of recent press releases and policy stances from Liverpool City Council have noted that the highest and best use of the MIC site would be a mixture of residential and commercial uses. This would result in a number of potential sensitive receiver points being located immediately to the west of the SIMTA site.

The Visual Assessment and EIS generally is written assuming that an IMT on the adjacent land to the west is a foregone conclusion with no alternate uses considered. The visual impact assessment should therefore consider potential impacts to residential uses on the MIC site and identify potential additional mitigation measures should an alternate use occur.

4.14.2.6 Impacts with respect to the proposed rail link / rail corridor

The visual impact assessment has not considered the visual impacts from the proposed rail link / rail corridor to a sufficient standard. The assessment has identified a number of sensitive receivers surrounding the rail link, however this has not considered users of the Georges River (refer to **Figure 4-5**).

Figure 4-5 Location of Receivers with Viewpoint to Rail Link



Source: Adapted from Reid Campbell, 2015

The proposed rail link runs along the western bank of the Georges River, which is used for a number of recreational activities throughout the year. The visual character of this section of the river will be fundamentally changed with the applicant providing no detail regarding specific mitigation measures to minimise the visual impact of the rail corridor. It is unknown whether the existing vegetation along this bank will provide a sufficient barrier.

The visual impact assessment should therefore be updated to include an assessment of the likely impacts to the visual character of this section of the Georges River prior to any determination.

4.14.2.7 Impacts with respect to the State Heritage listed Glenfield Farm

The visual impact assessment has not included any reference to, or assessment of, impacts to the State heritage listed Glenfield Farm. The Glenfield Farm site, including the homestead and barn, is located immediately to the west of the where the proposed rail link will connect into the existing SSFL. The introduction of this additional rail infrastructure within the visual catchment of this facility has the potential to impact upon the heritage significance of the area.

The visual impact assessment has not considered these impacts. Consideration should be given to updating the assessment from View R09 to fully consider the visual impact to Glenfield Farm brought about by the additional rail infrastructure prior to the determination of the application.

Additionally, as this rail link leads into four sidings on the SIMTA site, there is the high likelihood that the appearance of idling trains will be present along lengths of this rail link while waiting to enter the facility from the SSFL. These impacts have not been considered as part of the assessment.

4.14.2.8 Planning controls for container stacking

It is noted that the proposal is in accordance with the maximum height and setback controls permitted by the Concept Plan approval. However, there has been no specific limitation placed on the allowable height of container stacking. The Stage 1 EIS has stated that containers will be limited to a height of 5 containers or a total of 13 m.

The impact due to any increased height above this will dramatically influence the visual character along Moorebank Avenue. Consequently, any future determination and/or commitment by the proponent should limit the height of containers to a maximum of 5 (i.e. 13 metres) as stated by the proponent in their Stage 1 application.

4.14.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-31 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Concept Plan Approval		
Buildings footprints/setbacks and building/structure heights are to be generally consistent with Section 04.5 and 04.6 of the Urban Design and Landscape Report (Appendix E of the EA)	The design of the Stage 1 proposal is in accordance with the key height and setback requirements as defined by the Concept Plan Urban Design and Landscape Report.	Firmer commitments and/or conditions of consent should be enacted to ensure container heights are limited to a height of 5 containers, as identified in **Section 0**.
The maximum GFAs for the following uses apply: • 300,000m^2 for the warehousing and distribution facilities • 2,100m^2 for the terminal administration offices and ancillary operational facilities • 8,000m^2 for the freight village	The application will provide an administration facility on site that has a GFA less than 2,100m^2. The freight village and warehousing and distribution facilities do not form part of the Stage 1 project application.	Proposal is in accordance with the Concept Plan approval.
Statement of Commitments		
The Proponent commits to the preparation and submission of a Landscape Management Plan with the detailed applications for the three major stages of the development that address each of the objectives and design principles contained within the Urban Design and Landscape report and the following mitigation measures:	A Landscape Master Plan has been prepared by the applicant which adheres to the main requirements of the Urban Design and Landscape Report tied to the Concept Plan Approval.	Proposal is in accordance with the Statement of Commitments.
High quality landscaping throughout the site, which will reinforce and extent the surrounding natural context and ecological qualities into the site.	The application provides a landscape master plan which provides a range of species including native species to match the landscaped profile of the site with the predominant landscape character of the area.	Proposal is in accordance with the Statement of Commitments.

Concept Approval Requirements	EIS Response	Comments
Inclusion of an 18 metre wide corridor of screening vegetation and a bio-retention swale along the Moorebank Avenue frontage, which will utilize a selection of native tree species with dense tree canopy and low screen planting	An 18 m wide vegetative screen buffer has been provided. This uses a number of large trees and low shrub planting.	The landscape master plan indicates a selection of mature canopy trees and smaller shrubs to provide a visual buffer along Moorebank Avenue. However, this visual buffer may take 20-30 years to be effective due to the necessary replanting. Further information provided at **Section 0**.
Landscape punctuation of nodal points along Moorebank Avenue	The landscape plan for the development incorporates specific landscape planting and signage at major nodal points to punctuate the entrances to the site.	Proposal is in accordance with the Statement of Commitments.
A 'boundary treatment' or 'buffer zone' along the other site boundaries, consisting of existing local species in the area and providing an essential scale of planting to complement the built form, including: • Southern boundary: combination of 10 m and 20 m wide landscape corridors and a bio-retention swale adjacent to the warehouse and distribution facilities and Intermodal Terminal • Eastern boundary: total buffer zone of 13.5 m consisting of 2.5 m landscape corridor, a 6 m internal light vehicle access road and a five m wide bio-retention swale. • Land cleared for the railway alignment will include planting consisting of tall trees with a height of 20 m at maturity, interspersed with medium height trees	Boundary treatments are provided around the perimeter of the Stage 1 site, with an 18 m wide vegetated buffer along the Moorebank Avenue frontage. The required width for the southern and eastern buffer zones is not specific to the Stage 1 Proposal. Applicant has stated that a vegetated buffer will be retained alongside the rail corridor, however, no information has been provided in the landscape plans.	Provision of buffer zones on the Stage 1 site is in accordance with the Statement of Commitments. Further detail regarding the provision of planting to better identify the visual impact of the rail corridor is needed.
The proponent will use lighting which in accordance with Australian Standard AS4282-1997 "Control of Obtrusive Effect of Outdoor Lighting". The height of the permanent light poles will be a maximum of 40 m and reduced in height, where possible, to minimize potential light spill while maintaining appropriate safety standards.	The lighting scheme for the proposal ensures that all light spill meets the Australian Standards, with the maximum height of light poles being 21 m in height.	The proposed lighting scheme is suitable for the usage of the site. However, a procurement strategy to ensure the provision of this high energy efficiency lighting should be committed to by the proponent. Refer to **Section 4.18** for further discussion regarding a procurement strategy.

4.14.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-32 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
a) Include a description of the visual significance of the affected landscape including an analysis of views from key vantage points	The Visual Impact Assessment provides a description of the visual character, the sensitivity and adaptation of the landscape surrounding the site. The study includes assessments from key viewpoints surrounding the site.	The assessment is in accordance with best practice and the SEAR.
b) Include artist's impressions of the development from key vantage points	Photomontages are provided from all key viewpoints surrounding the site. View 19 provides a photomontage of a fully mature landscape buffer and does not show how the landscaping will look immediately after planting occurs.	A revised photomontage showing the landscape buffer following planting should be provided to better determine the visual impact to Moorebank Avenue in the short term.
c) Assess the visual impact of the project on the landscape character of the area, including built form (materials and finishes) and the urban design (height, bulk and scale) of key components including container stacking heights, lighting bridge crossings, and views to and from the project	The visual impact assessment has identified and described the impact of the development on the landscape character of the area. This has included the detailing of the proposed finishes and materials of each structure on site, along the key built form (height and setbacks) of buildings/structures on site, lighting height, bridge crossing and views. Further information regarding containers stacking height and the impact of the colour/finish of containers is required to fully address this SEAR.	Further information and/or commitments associated with the stacking of containers should be provided to ascertain their impact. Due to the variable colour of the containers, they should be stacked no higher than the dense screen planting along Moorebank Avenue.
d) Consider lighting impacts in the local area, analyses and describe the contribution and impacts of the proposed facility on light spill at the local scale and to sensitive receivers	The Light Spill Assessment has demonstrated that the light spill from the project will be well within the limits of light spill to sensitive receivers, as stated within *AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting*.	The light assessment has been performed in accordance with the SEAR.
e) Include details of hard and soft landscaping treatments and design (including proposed road upgrades relevant to that stage and reinstatement of riparian vegetation)	The landscape master plan has identified soft and hard landscaping treatments. These include noting the main road and access upgrades associated with the site, associated feature/gateway entrance features, hardstand areas across the site and landscape planting along the boundaries of the site.	The applicant has provided details in accordance with the SEAR.
f) Proposed management/mitigation measures to address the visual impact of the proposal	Mitigation measures have been provided by the applicant that have addressed visual impacts during the construction and operation of the facility.	A number of additional mitigation measures are required to be identified prior to any determination. These are listed at **Section 0**.

4.14.5 Recommendations

The recommendations below are provided to address identified impacts and allow a comprehensive assessment of the proposal prior to any determination:

> Further information regarding container stacking heights and the impact their colour will have on the visual character of Moorebank Avenue should be provided. If the impacts of containers being stacked up to 5 in height is too high, a reduced height may been needed along the Moorebank Avenue frontage with appropriate screening achieved via a landscape buffer.

- Container stacking along the Moorebank Avenue frontage should be limited to the height of associated screen planting. This should consider short term buffer planting heights, rather than the 20-30 year mature tree growth scenario.
- Additional photomontages are required to show the colour impacts of containers along with the illustration of View 19 with vegetation not at full maturity.
- Additional assessment is required to ascertain the visual impact the rail link will have on the State heritage listed Glenfield Farm homestead
- Additional assessment is required to determine the impact of the rail corridor impacts along the western bank of the Georges River to recreational users of the river. This assessment should not conclude that the character of this section of Georges River will change due to the MIC development as this would prejudice any future approval.
- Additional information is required regarding the planting and/or tree retention along the rail corridor alignment.
- Additional cumulative impact assessment should be performed based on the building location and height envelopes on the MIC site. Publically available information reveals that the MIC proposal would incorporate structures up to 21 m in height and result in the clearing of trees. Photomontages should illustrate any impact to key viewpoints in Casula to the west of the site.
- Additional assessment should be carried out to consider the visual impacts of the development from potential residential / mixed use development sites within the visual catchment of the site.
- Additional assessment should be carried out to consider the visual impacts of the development from any potential residential uses on the MIC site, due to the possibility that the MIC site will not be developed for the purposes of an intermodal
- A commitment to the procurement of high energy efficiency, directional lighting materials should be provided by the applicant via a sustainable procurement strategy.

4.15 Property and Infrastructure

The proposed SIMTA EIS provides analysis of the proposal's impacts on Property and Infrastructure. This review considers the information in the EIS in Chapter 4 Proposal Description and Chapter 20.4 Property and Infrastructure and the following detailed assessments, included as appendices:

- Rail Access Report and Rail Engineering Drawings prepared by AECOM (2015) at Appendix F
- Utilities Strategy Report prepared by AECOM (2015) at Appendix H.

4.15.1 Overview of the SIMTA Assessment

Chapter 20.4 of the EIS is an overview chapter that combines the specialist rail design and engineering report and utilities strategy, along with identifying the range of properties and land uses surrounding the site that will be affected by the development during construction and operation. The following sections detail the key findings from each of these assessments and their associated mitigation measures.

4.15.1.1 Rail Infrastructure

The Rail Access Report and Rail Engineering Drawings prepared by AECOM provides an overview of the proposed rail link, including its geometry, alignment and operation. The Report also tabulated the consultation conducted as part of the rail link design, and identified a number of potential impacts due to the alignment.

The key characteristics of the Rail Link include:

- The rail line has been designed to accommodate the 650 m long port shuttle trains from Port Botany.
- The rail line will not preclude its use by trains of up to 1800 m long
- The rail line has a design speed of 60km/h
- The design speed of 60km/h will permit an 1800m long train to enter the rail link at line speed from the SSFL, allowing the train to be clear of the SSFL prior to slowing
- While interstate trains are not proposed to be used by the Stage 1 Facility, the rail link has been designed to accommodate interstate trains in future
- Two connections are proposed to the SSFL – one facing south and one facing north. The southern connection will connect near the north end of the existing passing loop on the SSFL and the northern connection will connect to the main line south of Casula Station
- The two connections will occur as a dual line through the Glenbrook Waste Facility and across the Georges River.
- The rail link becomes a single track within the MIC site and continues as a single line under the Moorebank Avenue Bridge and into the SIMTA site.
- Crossovers are provided within the dual rail sections (just to the east of the Georges River) to facilitate access to both SSFL connections and to enable a train to wait for clearance to enter the SSFL, while allowing a clear path for trains exiting the SSFL.
- Four rail sidings will be provided within the SIMTA site which are no less than 650 m long. The proposal noted that up to three sidings will be used at one time, with the remaining spur used as a dedicated escape path

The report noted that the alignment and geometry of the rail link occurred in consultation with ARTC, ensuring that ARTC's requirements have been met. This consultation resulted in a number of refinements to the design approved under the Concept Plan.

The report used assumptions from the Concept Plan approval regarding Annual Train Movements, noting that 250,000 TEUs per year would result in five train paths per direction per day. Preliminary empirical analysis determined that there is likely to be up to 10 train paths available each way on the freight network between Port Botany and Moorebank. Agreements with ARTC would be required to ensure the SIMTA facility is able to utilise these paths.

The location of the rail link will require a number of upgrades and utility relocation to occur in the RailCorp corridor and the provision of additional maintenance paths to the SSFL. Additionally, potential impacts to the future provision of the Moorebank Train Station have been addressed, with the report identifying how the Moorebank Station could be developed with the proposed rail link.

The impacts of the rail link to the Glenfield Waste Facility were also identified, with the report noting that the rail link will cross existing monitoring wells, stormwater and leachate basins and proposed landfill cells. Contamination and geotechnical assessments of these areas have been performed to ensure appropriate mitigation measures have been identified.

It was concluded that the various environmental impacts associated with the rail link can be successfully mitigated against subject to the measures identified in other specialist disciplines within the EIS.

4.15.1.2 Road and Intersection Upgrades

The SIMTA proposal is located along Moorebank Avenue, which will provide the main vehicular access to the site. Due to the increased traffic capacity and traffic generation the facility will require a number of road and infrastructure upgrades.

The Concept Approval noted the range of road and intersection upgrades to occur as part of the entire SIMTA development. The major upgrades included the widening of Moorebank Avenue and upgrades to the following intersections:

- Moorebank Avenue / Newbridge Road
- Moorebank Avenue / Heathcote Road
- M5 Motorway / Moorebank Avenue
- M5 Motorway / Heathcote Road
- M5 Motorway / Hume Highway

These upgrades were triggered by the capacity of the SIMTA operation, based on the annual TEU throughput of the facility. Due to the scale of the Stage 1 SIMTA project not exceeding more than 250,000 TEUs per annum, there is no requirement for upgrades to the above intersections to occur as part of this application.

Consequently, a number of minor road and intersection upgrades will occur to Moorebank Avenue. These include:

- Decommissioning of the existing Moorebank Avenue traffic signals at the northern access to the SIMTA site.
- Decommissioning of the existing Moorebank Avenue traffic signals at the Chapman Avenue intersection
- Alteration of the existing traffic signal to the SIMTA site to allow light vehicles to access the administration area and associated entrance/exit.
- Installation of new traffic signals at the main access to the Stage 1 Project Site. This would be the main truck entrance and exit to the site and would only allow vehicles to turn left into the site and turn right out of the site. I.e. trucks can only access the site from the north and can only exit the site to the north.

A number of other civil works will occur at the entrances to the site, along with drainage works along the Moorebank Avenue frontage.

4.15.1.3 Utilities

AECOM prepared a Utility Services Report for the Stage 1 SIMTA proposal. The report determined that all necessary utilities are located within the vicinity of the site, and can be made available to service the Stage 1 proposal. A number of utility works were identified to connect the Stage 1 site, the Rail Link and the connection to the SSFL works. These include the following:

- Stage 1 site:
  - On-site connections to water, sewer, electricity and communications infrastructure
  - The construction of a sewer rising main along Moorebank Avenue to connect to Sydney Water's existing infrastructure
  - Traffic signal installation and road works required along Moorebank Avenue.
- Rail link:
  - Protection of existing utilities including an existing high pressure ethane gas pipeline and an existing 750 mm sewer pipeline
  - Protection or diversion of an existing 375 mm diameter main and 250 mm diameter main (believed to currently service the Holsworthy Military Area)
  - Relocation of a Sydney Trains 33kV high voltage aerial feeder
  - Protection or relation of numerous Telstra, Powertel and Sydney Trains communications conduits
- Connection to the SSFL:
  - Relocation or protection of necessary Sydney Trains and ARTC signals, copper communications and optic fibre
  - Relocation of stormwater drainage

4.15.1.4 Property and Land Use Impacts

Chapter 20.4 of the EIS tabulated each affected allotment (i.e. Lot/DP) that would be impacted during the construction and operation of the Stage 1 project and rail link. Each allotment had its existing land use described and how the proposal would impact upon it.

The assessment identified the current owner of each parcel, described what works would occur on each landholding and who the current owner is. It was noted that the construction of the rail link would require SIMTA to establish the relevant property rights over the parts of the land for the rail link. In summary the following properties would be affected by the proposal:

> The SIMTA Site

> Moorebank Avenue

> Former DNSDC South and the Southern Boot Land

> RailCorp Land

> East Hills Rail Corridor

> MIC Site

> Georges River

> Glenfield Waste Facility

> Commonwealth Hourglass Land

> Main Southern Rail Line and the SSFL

In addition to the above properties that will directly impacted, the following land uses/areas will also be impacted by the proposal:

> Residential suburbs of Wattle Grove, Moorebank, Casula and Glenfield

> Sensitive properties/land uses including All Saints Senior College, Casula Powerhouse, Glenfield Farm and the Holsworthy Military Area

> Commercial and Industrial sites including DNSDC, the ABB site and the Moorebank Business Park

The assessment concluded that the development will have no major impact upon these allotments and surrounding sensitive receivers subject to the implementation of various mitigation measures contained within the specialist disciplines of traffic, air quality, noise and vibration, human health, visual, socio-economic and hydrology.

4.15.1.5 Infrastructure Upgrades – Voluntary Planning Agreement

A requirement in accordance with the Statement of Commitments was the preparation of a voluntary planning agreement (VPA) with the relevant agency for a number of infrastructure upgrades. The Applicant has identified that a Section 75W Modification was lodged with the P&E in June 2015 to remove the requirement to prepare a VPA for any possible changes to the 901 bus route.

The required infrastructure upgrades associated with the proposal are triggered by the level of TEU usage at the facility. This application would result in a maximum of 250,000 TEU throughput at the IMT. Consequently, the Statement of Commitments require information to be provided with the application regarding the provision of new traffic signals at SIMTA's northern access and 750m to the south of SIMTA's central access.

4.15.2 Cardno Assessment

Cardno has identified a number of shortcomings with the property and infrastructure assessments that will require additional investigations and/or design changes to ensure the facility appropriately mitigates impacts and uses best practice design. This additional work should be performed prior to any determination of the Stage 1 application. Further, there is a lack of detail regarding the commitment to local infrastructure contributions by way of monetary payment and/or provision of works-in-kind for community infrastructure. These shortcomings are discussed in the following sections.

4.15.2.1 Road and Intersection Upgrades

As previously identified in the Traffic and Transport review at **Section 4.2**, the Traffic Impact Assessment included as part of the EIS has failed to consider a number of critical issues regarding the assessment of the capacity of the surrounding road networks. Specifically:

> The weaving issues on the M5 Motorway between Moorebank Avenue and the Hume Highway have not been addressed. This needs to be considered as it has the potential to require upgrades to the M5 to ensure the capacity of the M5 Motorway is satisfactory.

> RMS Strategic Level Network Modelling for the Moorebank Precinct is needed to be able to fully quantify the impact of the proposal. This data may require the upgrading of intersections and/or portions of the M5 Motorway to mitigate the impact from the proposal.

> Further assessment within the Traffic Impact Assessment should occur for the M5 Motorway and Moorebank Avenue intersection. This would allow a number of upgrade scenarios to be tested

These issues need to be resolved prior to the determination of the application to fully consider the implications of property acquisition and infrastructure upgrades.

4.15.2.2 Rail Geometry

The proposed track layout has a number of basic geometrical shortcomings identified below:

> At the northern connection to the SSFL it introduces a special turnout into a 1263 m radius curve. The practice of placing turnouts in curves is problematic, building in an ongoing need for maintenance.

> The 165 m radius curve and 1 in 7 turnout on the southern connection to the SSFL loop appears to be less than the ARTC normal minimum for yards/sidings connected to interstate lines. The design is aiming for an operational speed of 35 kph on this connection but appears to be insufficient to achieve this when compared with ARTC standards. The ARTC standards, in this instance, should take precedence for this section of the rail link as it will be their infrastructure that connects to SIMTA rail yard. It is noted in the EIS that consultation with ARTC has occurred throughout the design of the rail link, however this is not clear in the provided documentation.

> While it has not been the basis of the design, ARTC have stated that the flexibility to bring in up to 1800 m interstate trains in the future to some parts of the precinct should be allowed for. It is not clear from the design whether interstate container trains will be terminating at this terminal from the south. If they are, this southern entry to the yard provides a low speed constraint and will become a maintenance issue. Wheel squeal may also become a noise issue on such a tight curve.

> It is noted that lubrication on the tracks has been identified as a mitigation measure for wheel squeal. Similar applications of this has been used by Sydney Trains, but it is unclear whether this has been effectively introduced. Further, the impact of wheel squeal may be further reduced by profile grinding of the rails to help keep the flange away from the rail to minimise stick slip effects. Further information is therefore required to determine the effectiveness of the proposed mitigation measures.

> The clear distance from SSFL loop (southern entry) to first crossover is approximately 400 m, which is insufficient to hold either a 650 m or 1800 m train clear of the SSFL loop. Similarly the distance to the

second crossover from the SSFL loop is approximately 1095 m which is insufficient to hold an 1800 m train clear of the SSFL loop.

> The design of the SSFL loop seems to mainly be focused on the northern entry and for 650 m trains. This is in contrast to the ARTC comment that they desire future flexibility for 1800 m trains to access the site, particularly if interstate trains will access the site from the southern entry. Currently, any interstate train would extend partially onto the loop. Consequently, the crossovers would need to be further into the yard or alternatively a parallel track to the loop to ensure standings trains would not remain on the loop.

> The construction of the entry tracks to the IMT that cross the leachate basis area and other areas of the Glenfield Waste Facility will require adequate geotechnical/stability consideration as parts of this area have anecdotally been causing settlement issues in the vicinity of the junction of the East Hills and Main South lines.

> Crossing beneath Moorebank Avenue south of the northern abutment on the Up Side of the East Hills corridor provides an unnecessary constraint to both the IMT and the East Hills corridors. The rail line access is being limited to a single line and does not easily accommodate an additional track for increased through put to the terminal. In addition, should container trains approaching from the south of Sydney become double stacked in the future, this alignment with limited vertical clearance will add another unnecessary constraint that would need to be removed. The future quadruplication options for the East Hills line may be limited by this alignment, to the down side of the corridor. This may cause complications for track alignment, cross overs and a future Moorebank station location when the quad is developed.

>

4.15.2.3 Rail Yard, Train Operation and Maintenance

A number of Yard, Train Operations & Maintenance issues are associated with the proposal as identified below:

> There may be a need to limit noise associated with train horns. A similar issue at the Leppington Stabling Yard has resulted in a ground based warning system to be commissioned to negate the need for use of horns when drivers are starting the trains moving and brake tests. A similar system may be required at this facility when trains are ready to leave the site or when locomotives are being repositioned from one end of the train to the other.

> The assumption that train paths will be evenly distributed across the day may not be valid. Particularly for interstate trains that are time dependent on reaching their destination ahead of the next business day or just in time for the business day. This could lead to a bunching of train paths, for example trains arriving from Melbourne overnight to Sydney in order to be unloaded for same day distribution of containers.

> Infrastructure maintenance activity would need to be done between trains paths, some of this may be weekend and evenings/nights, after trains leave the terminal and before trains arrive at the terminal.

> It is not known whether running maintenance and refuelling of trains/locomotives will be done at the terminal.

4.15.2.4 Cumulative Impacts on Utilities

The Utilities Strategy prepared by AECOM was detailed and thorough and adequately identified the required works to connect the development and associated rail infrastructure into the existing utilities network. However, a shortcoming of the assessment was the failure to appropriately identify if the capacity of surrounding utility infrastructure will be sufficient for future stages of the SIMTA development in conjunction with the MIC proposal.

The applicant has provided estimates of the capacity needed for all three stages of the SIMTA development, however they have not considered any of the cumulative impacts on services if early stages of the MIC proposal are developed.

While not specifically related to this application, Cardno considers it to be a key assessment consideration. For instance, if utility infrastructure upgrades are required in the future the approval of the Stage 1 SIMTA application may impact on the alignment and location of this future utility infrastructure if it is not known and addressed in this application. Consequently, additional investigations regarding the future capacity needs of the SIMTA development and MIC development needs to be considered by the applicant, with appropriate mitigation measures identified.

4.15.2.5 Impacts to Public Space and Buildings

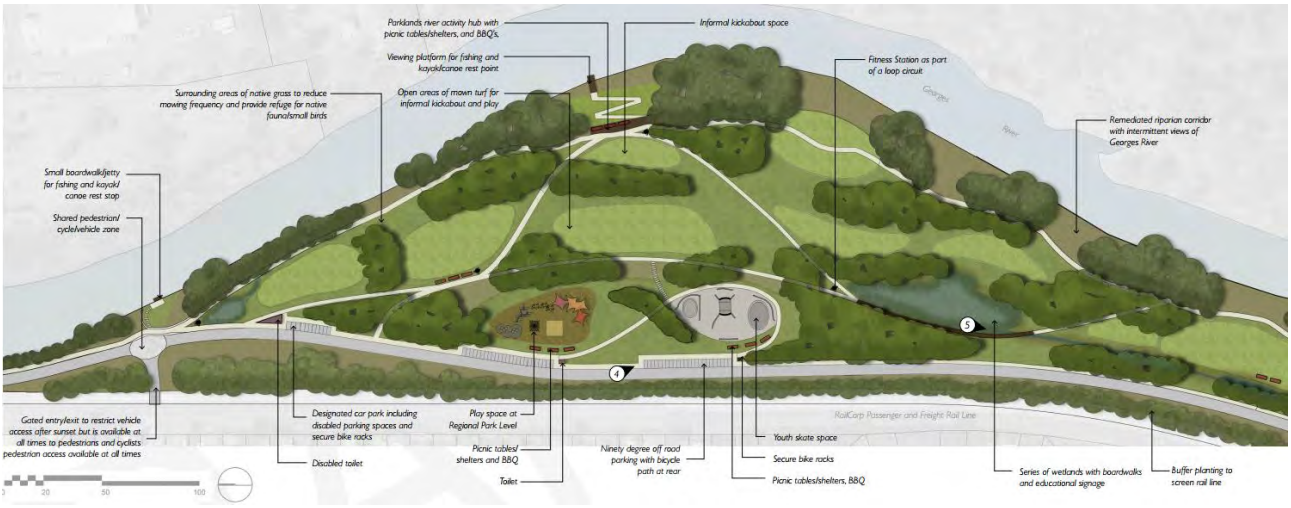
A number of impacts on public spaces and public buildings have been identified. These are discussed below:

Impact to the Use of Georges River

The Georges River is used by a number of recreational users throughout the year. This includes informal kayaking, canoeing and boating, along with a registered barefoot water-skiing club. The water-skiing club is located to the north of the M5 motorway, with its licence not extending to the section of the river located where the Rail Link occurs.

Despite this, the informal use of this area of the river is expected to increase into the future years. This is particularly likely due to the planned upgrade of the Georges River Casula Parklands surrounding the Casula Powerhouse Arts Centre. The Draft Master Plan for this area, particularly near the Powerhouse Arts Centre (refer to **Figure 4-6**), illustrates that a number of piers will be included to encourage recreational use of the river.

Figure 4-6 Excerpt from the Georges River Casula Parklands Draft Master Plan



Source: Liverpool City Council, 2014

The construction of the rail bridge, along with the alignment and location of bridge piers has not been adequately designed with reference to the recreational use of the river. Further, the impact of construction and operation of the rail link has not been considered in terms of access to these areas. The assessment performed has only looked at potential impacts to water quality, biodiversity and bank stability.

Therefore, the property and infrastructure assessment has failed to assess how the development of the rail corridor will impact upon the usage of the river. Mitigation measures need to be addressed during construction of the bridge and also during the operation of the facility for these users, prior to any determination of the application.

Impact to the Use of the Historical Glenfield Farm

The State Heritage listed Glenfield Farm is located immediately to the west of the proposed location where the rail link will connects into the SSFL. Due to curvature of the rail link, presence of trains and clearing of vegetation in this area, the usage of the Glenfield Farm site will be impacted by the proposal due to increased noise and visual impacts, potentially impacting on the heritage significance of this site.

As identified in the heritage review the impact to this state heritage site and open space has not been appropriately addressed from a noise, heritage or visual impact perspective. The impact on the utilisation of this area will need to be addressed through additional investigations prior to any determination.

4.15.2.6 Surrounding Businesses

The proposal has stated that the development of the SIMTA facility will have positive implications on the operation of surrounding businesses through increased employment and a reduction in the volumes of truck movements along the M5 Motorway. It is unclear how this will impact upon the functioning and viability of existing businesses, particularly by way of traffic impacts.

The Traffic Assessment undertaken by Cardno (refer to **Section 4.2**) has identified numerous issues regarding the traffic and transport studies performed as part of the EIS. One of the major issues are potential impacts to the functioning and operation of the Moorebank Avenue and M5 Motorway intersection.

Impact on the Moorebank Business Park

The Moorebank Business Park is located to the north of the SIMTA site and contains a number of manufacturing, warehousing and distribution businesses. The businesses utilise Moorebank Avenue as their major connection to the regional road network via the Moorebank Avenue and M5 Motorway intersection. A number of these vehicle movements also utilise Moorebank Avenue to the south to Cambridge Avenue. Any impacts to the traffic flows and road surfaces will impact on the operation of businesses within the Moorebank Business Park.

The applicant has noted that Moorebank Avenue will be closed during construction, with a number of additional heavy vehicles using Moorebank Avenue during this period. A number of mitigation measures have been identified to address this within the traffic impact, but the applicant has failed to identify how increased truck movements may impact upon the operation of these businesses.

A particular concern is the potential damage to Moorebank Avenue as a result of the increased heavy usage during construction. The applicant has not identified any appropriate mitigation measures to prevent or rectify damage to Moorebank Avenue. This damage will affect the functioning and use of businesses within the Moorebank Business Park who utilise Moorebank Avenue. Further information and commitments are needed by the applicant to appropriately address this issue.

Impact on the Moorebank Industrial Precinct

The Moorebank Industrial Precinct is located to the north of the Moorebank Avenue and M5 Motorway Interchange, with this intersection representing the major access point to this industrial precinct. Poor performance and level of service of the M5 Motorway and Moorebank Avenue Interchange, along with damage to Moorebank Avenue as a result of increased truck movements as a result of the SIMTA proposal may result in delays, congestion and damage to the road. These impacts will all have implications for the functioning of these businesses.

The applicant has not provided an appropriate assessment of the potential for the road surfaces to become degraded as a result of increased truck movements along Moorebank Avenue. This should be identified and appropriate mitigation measures proposed prior to any determination.

4.15.2.7 Land Acquisition

The EIS has stated that any property that will be required to be acquired to facilitate the development of the rail link will need the establishment of necessary property rights for it to occur. While this has been identified, the applicant has failed to provide evidence that these negotiations are underway or have been agreed to in principle. Similarly, the manner in which this acquisition is to occur is yet to be provided. For instance, the following questions have resulted from this review:

> Will SIMTA apply for a right of carriageway over the affected property, or will they formally acquire the rail corridor?

> If SIMTA is to acquire the land, how will this be facilitated?

> Is there any evidence of in-principle agreements with the landowners?

Further information regarding the proposed land acquisition method is to be provided prior to the determination of the application to provide appropriate certainty around the means and willingness of the landholder to allow SIMTA to construct and operate the rail link.

4.15.2.8 Consideration of the future use of the Glenfield Waste Facility

The Glenfield Waste Facility is currently zoned RE1 – Public Recreation, suggesting that the long term vision for the facility may be to create a public open space area with access to the Georges River once the capacity of the facility is known.

Similarly, the Land Reservation Acquisition Map within the LEP 2008 identifies the site as being “Regional Open Space”, with the RMS identified as being the authority that will acquire this land for public purposes.

Due to the sites location alongside the Georges River, any use of this land for public open space would utilise its access to the waterfront. However, the rail link alignment along the Georges River bank will create a permanent physical and visual barrier to the waterfront.

There has been no consideration to the long term use of this site and how the provision of the rail link along the Georges River bank will impact upon any potential long term use. Demonstrated discussion with the RMS and the operators of the Glenfield Waste Facility should be provided to ensure the rail link alignment will not impact upon the future use of this site.

4.15.2.9 No evidence of consultation with the EPA

The proposed rail link crossing the Glenfield Waste Facility has the potential for a number of contamination issues to occur without appropriate mitigation. The Rail Access Report has noted that throughout the detailed design of the rail link, consultation with the EPA will occur. However, due to t rail link impacting upon existing monitoring wells, stormwater and leachate basins, along with existing landfill cells, consultation with the EPA is considered vital as part of the Project Application process.

The applicant has provided no evidence of consultation with the EPA. This should be provided prior to any determination to establish the suitability of the rail alignment and associated mitigation measures.

4.15.2.10 Impacts of the rail link to the Glenfield Waste Facility

The rail alignment throughout the Glenfield Waste Facility has been assessed by AECOM as part of the Rail Access Report. The report noted the work within the facility would include the treatment of monitoring wells, reconstruction of the existing stormwater and leachate basins and the construction of a landfill barrier system.

There has been anecdotal evidence that the existing rail infrastructure in this vicinity has caused settlement issues. The geotechnical review (refer to **Section 4.7**) has identified a number of engineering issues resulting from the alignment of the rail corridor. Further investigations and additional information will therefore be required prior to the determination of the application.

4.15.2.11 Identification of Local Infrastructure Impacts

Chapter 20.4 of the EIS identified a number of allotments that will be directly impacted by the proposal. The EIS also noted a range of surrounding receivers that could be impacted by the proposal, including residential areas and recreational areas.

However, the application does not provide an appropriate assessment of infrastructure impacts with respect to planned upgrades to transport, drainage, community and recreational facilities within the locality. For instance, the assessment has identified how the development would impact upon Moorebank Avenue through the provision of signalised intersections. However, it has not considered how the development will impact upon the pavement quality of Moorebank Avenue following the increased truck movements during construction.

Similarly, the development will provide for increased employment generation within the Liverpool locality which will lead to an increased demand for community and recreational facilities. There has been no consideration of how the proposal will impact upon these facilities or the identification of any payment towards an upgrade of any of these facilities in the application.

One of the primary SEARs requests was to consider infrastructure impacts with respect to the local Council's Contributions Plan. This has not occurred and requires immediate attention prior to the determination of this application.

4.15.2.12 Lack of Detail Regarding Infrastructure Contributions

The development of the Stage 1 SIMTA development will require a number of infrastructure upgrades to occur, with a number of additional impacts expected to local infrastructure. Infrastructure upgrades have previously been identified as occurring through a VPA, as per the Concept Plan approval.

The applicant has lodged a Section 75W modification to the Concept Plan Approval to modify the requirement to provide a VPA for the investigation of possible changes to the 901 bus route, along with removing the commitment to provide a number of key infrastructure upgrades. The applicant has not provided any information regarding the payment of development contributions or commitments to undertake works-in-kind associated with the provision or improvement of public amenities or services in-lieu of the VPA requirement being modified.

With the Capital Investment Value (CIV) of the Stage 1 Application totalling $156,750,000, the provision of infrastructure upgrades and ongoing maintenance is considered a vital component of this application. The identification of monetary compensation or a Works in Kind arrangement between Liverpool Council has not been identified as part of this application, and is therefore a major shortcoming.

The modification to remove the VPA requirement from the Statement of Commitments does not remove the requirement for the applicant to address local infrastructure contributions. In addition to the upgrades to Moorebank Avenue proposed as part of the development, there is a requirement to consider additional works-in-kind and/or monetary contributions due to the scale of the development.

The appropriate mechanisms for levying contributions for local infrastructure upgrades are discussed below.

Liverpool Contributions Plan

Local Infrastructure Contributions in Liverpool are detailed within the Liverpool Contributions Plan 2009. The Contributions Plan has been prepared under Section 94 of the EP&A Act and details the required amount of new public services and amenities needed to support the future growth of Liverpool.

The Contributions Plan is primarily targeted at new release areas, providing the monetary rates to be paid for each development type by location. There is no specific reference or requirement under the Contributions Plan for development on the subject site or within the wider Moorebank Defence Lands Area.

The subject site would fall under 'Established Areas' in Liverpool and would be subject to a Section 94 levy of $4,678 (March 2015 rate) due to it being on a lot greater than 450m^2 in size. This fee is for upgrades to community facilities, public recreation areas and administration costs. However, these rates are geared towards urban infill development and not major industrial developments such as the proposal.

A comparable rate for industrial development is provided for the Preston's Industrial Area. Buildings within this area are required to pay a per sqm rate that provides contributions for transport, drainage and other works (refer to **Figure 4-7**). This equates to a $/m^2 rate of $16.05. The SIMTA Project Site has an approximate site area of 220,000m^2, which would equate to a fee of $3,531,000.

Figure 4-7 Local Infrastructure Contribution Rates, Prestons Industrial Area

Prestons Industrial – Buildings

Purpose	Per Sqm
Transport	
District - Land	$1.38
District - Works	$3.59
Drainage	
District - Land	$7.19
District - Works	$1.97
Other	
Landscape - Buffer Land	$0.91
Landscape - Buffer Works	$0.09
Administration	$0.30
Professional and Legal Fees	$0.62

Contributions payable per sqm are based on site area.

Source: Liverpool City Council, 2015

The above rates have been developed specifically for the Prestons Industrial Release Area based on a number of required transport and drainage infrastructure upgrades, including its provision and ongoing maintenance.

While the above example is specific to the Prestons Industrial Area, Liverpool Council has not developed any similar Section 94 Plan for the Moorebank Defence Lands Area. The Prestons example shows how Council has identified the required infrastructure upgrades necessary to support the development of the Prestons Industrial Area. The scale and type of these upgrades are not directly attributable to the SIMTA site.

Consequently, without a clear contribution rate for Council to levy under Section 94, it is recommended that a Letter of Intent regarding the payment of a contribution towards local infrastructure, including its ongoing maintenance and future upgrades.

This is considered to be an integral part of the application as the cumulative impacts of this development on traffic patterns in the surrounding areas having the potential to require road upgrades and maintenance.

Liverpool Works in Kind Policy

Council operates a Works in Kind Policy regarding the provision of infrastructure in accordance with its Contributions Plan. The Contributions Plan notes a number of Community and Recreation Facilities within the 'Established Areas' catchment that require developer contributions to facilitate their development and/or recoup costs. These include the Casula Powerhouse, libraries, public parks and the extension of the Whitlam Centre.

The applicant has not provided any specific commitment regarding local infrastructure contributions. There is potential for any payment of developer contributions to be provided and/or undertaken by SIMTA as part of the Stage 1 Application.

Voluntary Planning Agreement

As identified previously, the applicant has not provided any documents or terms relating to a VPA as part of the application. As there is not a meat fit for the proposed development under the Liverpool Contributions Plan, a VPA is considered to be the most appropriate method to facilitate the payment and/or provision of infrastructure upgrades.

The property and infrastructure assessment has identified the potential impacts to surrounding properties and utilities infrastructure, however it has not provided adequate information regarding how the construction and operation of the facility will impact on the life cycle of the local transport and drainage infrastructure compared to a scenario where the SIMTA development would not occur.

The increased truck movements along Moorebank Avenue (refer to **Section 4.2**) would result in the degradation of the Moorebank Avenue pavement. The EIS has not identified a strategy to addressing these impacts, as they will have implications not only for the SIMTA development, but other industrial developments in the vicinity.

Similarly, both the Concept Plan approval and the Stage 1 SEARs required the proponent to consider the impact of increased traffic flow on Cambridge Avenue to the south of the site, identifying any potential impacts and subsequent payment to Campbelltown LGA for the maintenance of this road.

It is recommended that prior to any determination of this application, the applicant should provide a letter of intent regarding the preparation of a VPA to facilitate a payment towards the funding of local infrastructure upgrades and maintenance. This letter of intent should stipulate the public benefit offering the development would provide off site. This could include a commitment to local road maintenance, upgrades to local facilities, or the payment of a lump sum monetary contribution.

4.15.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-33 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Concept Plan Approval		
Rail Any future Development Application shall address the requirements of TfNSW and include detailed design and engineering drawings for the rail link and include evidence of consultation with: a) TfNSW, particularly in relation to the future Moorebank Station site, use of the existing EHPL corridor and connections to the SSFL b) The EPA where the rail line traverses the Glenfield Waste Facility.	The EIS does not provided details of the consultation with TfNSW and ARTC regarding the proposed rail link. The EIS only provides reference to comments resulting from this discussion. This consultation resulted in a number of refinements to the rail link alignment/geometry compared to the Concept Plan Approval. The Rail Engineering Drawings noted how the proposed rail link will still facilitate the development of the Moorebank Station. There was no evidence of consultation with the EPA.	No documentation of TfNSW and ARTC consultation. No evidence of consultation with the EPA regarding the alignment and mitigation measures of the potential contamination issues has been provided. This is required prior to any determination.
Section 94 Contributions Any future Development Application shall include: a) an assessment of the impacts of the project on local infrastructure, having regard to any relevant Council's Developer Contributions Plan (or equivalent document requiring developer contributions)	1. The application has provided an overview of the property and infrastructure affected by the proposal, but has failed to provide any assessment of the impact of the project as local infrastructure listed within Council's Contribution Plan. 2. A Draft VPA and/or letter of intent regarding infrastructure contributions has been provided.	Prior to the determination of the application, the proposed strategy towards local infrastructure contributions needs to be clear. It is suggested that the preparation of a draft VPA or a letter of intent be provided. This would formalize the costs of the proposed upgrades to Moorebank Avenue and stipule the public benefits the proposal would provide, which

Concept Approval Requirements	EIS Response	Comments
b) Subject to the terms of any applicable Voluntary Planning Agreement, a commitment to pay developer contributions to the relevant consent authority or undertake works-in-kind towards the provision or improvement of public amenities and services. Note: This requirement may be satisfied subject to the terms of any applicable Voluntary Planning Agreement c) a commitment to undertake vehicle monitoring on Cambridge Avenue in accordance with Traffic and Transport requirement d) iii. Should any monitoring reveal the need for improvement works within the Campbelltown LGA as a result of the proposal, the Proponent may be required to contribute towards local road maintenance or upgrades.	3. Vehicle traffic counts have been performed for Cambridge Avenue, however it is not clear whether any improvement works are required.	could include works-in-kind arrangements and/or monetary contributions.
Statement of Commitments		
Utilities The Proponent will undertake further investigations, as required, and provided details that adequate services are available to the site and/or provide detailed regarding the proposed servicing upgrades. Details are to be provided with the applications for each of the future stages of the development.	Detailed assessment of the demand generated by the SIMTA development, along with the existing capacity of the surrounding utility networks has been provided. This has allowed a number of utility works to be identified to service the site. However, there has been insufficient consideration of the cumulative capacity requirements of the future development of the SIMTA and MIC proposals.	Further assessment of the cumulative utility demand of the SIMTA and MIC proposals is needed. This will determine if the proposed utility upgrades/connections are sufficient for long term use by either operation or whether consideration of greater utility connections are required.
Infrastructure Delivery The proponents commits to entering into a Voluntary Planning Agreement with the relevant authority to facilitate the delivery of the following works: > Upgrade of the Moorebank Avenue / M5 Motorway interchange > Upgrade of Moorebank Avenue between Anzac Road and the southern entrance to the site to four lanes > Provision of a new traffic signal at SIMTA's northern access with Moorebank Avenue > Provision of a new traffic signal 750 metres to the south of the central access to the site > Other parts of the site that will be upgraded, embellishes, constructed or dedicated to the Commonwealth, Transport for NSW or the revelent Council that is directly attributable to the carrying out of the proposal	The EIS identified that the following infrastructure upgrades will occur as part of the Stage 1 Application: > Installation of traffic signals at the northern entrance to the site on Moorebank Avenue No other infrastructure upgrades have been proposed. The applicant has noted that a Section 75W Modification has been lodged to the DPE to remove the requirement to provide a VPA in conjunction with this application. Consequently, the applicant has not provided a copy of a draft VPA and/or a letter of intent regarding infrastructure upgrades.	The transport and access Statement of Commitments notes that prior to exceeding 250,000 TEUs the provision of a new traffic signal at the northern entrance to the site along with the provision of a new traffic signal 750 metres to the south of the central access to the site. The other upgrades listed by the Concept Approval would be dealt with under TEU scenarios that will occur as a result of later stages of the SIMTA development. The proposal only involves the provision of new traffic signals at the northern access to the site and does not proposed to provide traffic signals 750m to the south of the central access of the site. It is also noted that SIMTA has lodged a modification to the Concept Plan Approval which removes this section from the Statement of Commitments. Notwithstanding this, the provision of a letter of intent or agreement regarding payments towards infrastructure upgrades should be

Concept Approval Requirements	EIS Response	Comments
> Investigating possible changes to the 901 bus route including frequency, stop locations and route		provided prior to the determination. As it stands, this is a major hole in the application that cannot remain unresolved. Additionally, despite this commitment being removed as per the modification, it does not remove the requirement to provide evidence of discussions regarding the new traffic signal 750m to the south of the central access, in accordance with the Transport and Access commitments. Further evidence regarding the need to not provide the traffic signal 750m to the south of the central access to SIMTA is required.

4.15.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-34 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Property and Infrastructure		
a) Assessing the impacts on affected properties and land uses, including impacts relating to access, land use, business activities, future development potential, and property acquisition.	The EIS provided an assessment of the properties that will be directly impacted by infrastructure associated with the SIMTA facility and the rail link. This included identifying ownership information and any potential impacts. Surrounding businesses, residential areas and sensitive receivers were also identified. The EIS concluded that subject to the mitigation measures proposed by a number of other specialist disciplines, there would no adverse impacts.	The EIS has failed to provide adequate detail regarding property acquisition, stating that the proponent will need to establish necessary property rights for each affected parcel for the rail link. There is no evidence of the willingness, consultation or agreement with any of the landowners regarding the acquisition of the necessary lands. There is also no assessment of the potential impacts the development will have on the operation of surrounding businesses at the Moorebank Business Park or the Moorebank Industrial Precinct. Damage to Moorebank Avenue as a result of construction will have unreasonable impacts on the functioning of these businesses and needs to be addressed by the applicant prior to any determination. The future land use of the Glenbrook Waste Facility as a public open space facility has also not been addressed. The site is zoned RE1 – Public Recreation and is identified on the Land Reservation Acquisition Map within the LEP as being regional open space to be acquired by the RMS. The future use of this area needs to be considered, with demonstrated consultation with the operators of the facility and the RMS.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
b) Assessing the service demand, capacity and augmentation of existing and proposed utilities and infrastructure, including any relocation as a result of the development.	The EIS has identified the existing utilities within proximity of the Project site and the proposed rail corridor. Liaison with each relevant service provider determined that there is existing capacity to service the development. As a result of the above investigations, a number of works have been identified to connect the development into the surrounding utility networks.	The applicant has provided appropriate detail regarding the existing capacity of utilities infrastructure and whether any upgrades are required. This in accordance with SEAR requirements.
Rail		
Addressing the requirements of Transport for NSW including: > Detailed design and engineering drawings for the rail link, including the freight line track, supporting infrastructure and clearances with the East Hills Passenger Line and the relocation of any Sydney Trains services and infrastructure, prepared by an Asset Standards Authority Engineering Organisation	AECOM prepared the engineering drawings who are an Asset Standards Authority Engineering Organisation. Engineering drawings have been provided for the entire length of the rail link, clearances, any obtrusions into the EHPL and connections into the SSFL. A number of asset relocations will need to occur as part of the rail link, which has been identified.	A number of issues have been identified with the rail link: > The alignment of the rail link underneath the Moorebank Avenue Bridge will have future limitations as any double stacked freight trains will not be able to access the site. > The rail link alignment underneath Moorebank Avenue also restricts the link to only a single line, which further restricts future expansion opportunities for the development. > The proximity of the rail alignment to the EHPL will result in the future quadruplication of the EHPL to occur to the south. This will result in a number of additional impacts that have not been considered. Appropriate justifications regarding the above issues should be provided prior to any determination.
> Identifying the forecast annual train movements including an estimated range of daily train movements, and the capacity of existing and proposed rail network to handle predicted increased in traffic, based on appropriate empirical evidence and modelling	The assessment has relied on the assumptions regarding train movements from the Concept Plan approval noting that 10 trips will occur per day (i.e. five to the port, five from the port). "Preliminary" empirical assessments have occurred regarding capacity on the SSFL, along with the identification of	Additional information and confirmation from ARTC that the proposed five trips to Port Botany and five trips from Port Botany is achievable will be required prior to any determination. Detailed evidence of this empirical assessments should also be provided.
> Demonstrate how the use of the proposed Moorebank Station site would ensure priority access by Sydney Trains at all times.	Engineering drawings and a concept layout showing how the proposed Moorebank Station could be accommodated with the rail link running through the site. A pedestrian walkway would provide access to the station over the rail link, with train movements separated from the Sydney Trains Line.	Proposed layout shows how Station and Rail Link can both operate without conflict.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Infrastructure Upgrades/Contributions		
> An assessment of the impacts of the project on local infrastructure, demonstrating that satisfactory arrangements are in place to support and mitigate any impacts of Stage 1 of the Concept Plan, including applicable costs, timing, TEU thresholds and approval pathways for such measures	The EIS has provided an assessment of the development on surrounding infrastructure, noting a number of mitigation measures developed by other disciplines as a way to offset any negative impacts. A QS Report has also been providing to detail the cost of each component of the development.	The EIS has failed to identify the projects impact on local infrastructure, focusing solely on Moorebank Avenue immediately adjacent the site. The assessment should be refined to determine if any additional upgrades are needed in addition to the works proposed along Moorebank Avenue.
> Draft Voluntary Planning Agreement (VPA) addressing the following matters: – Consultation with relevant bus provider(s) regarding the potential to extent the 901 bus service – Consultation with the relevant authority to facilitate the delivery of any part of the site or surrounds that will be upgraded, embellished, constructed or dedicated to the Commonwealth, Transport for NSW or the relevant Council that is directly attributable to the carrying out of the proposal The draft VPA may also include a commitment to pay developer contributions to the relevant consent authority to undertake works-in-kind towards the provision or improvement of public amenities and services. **Note:** the VPA must be executed prior to the determination of the Stage 1 SSD pursuant to condition 1.9 of the Concept Plan approval.	The applicant has not provided a draft VPA with the application. The proposed modification to the Concept Plan approval removing the requirement to provide a VPA is the justification for not providing this.	Despite the proposed modification removing the requirement to provide a draft VPA with this application, it has been demonstrated that the preparation and execution of a VPA is the best way to facilitate appropriate local infrastructure upgrades. It is suggested that prior to any determination of the application, consultation with Liverpool Council occur to address local infrastructure impacts and the potential for upgrades to occur. This should result in the preparation of a letter of intent/draft VPA stipulating public benefit offering the development would provide off site. i.e. works-in-kind or monetary contribution.
> Consideration of any relevant Council's Developer Contributions Plan (or equivalent document requiring developer contributions).	The EIS does not include a reference to, or consideration of, the Liverpool Contributions Plan.	The infrastructure assessment should be refined to provide a more thorough assessment of the development's impact with regard to local infrastructure requiring upgrades within the As identified above, a letter of intent should be provided stipulating the public benefit offering the development would provide off site. This could include local road maintenance, upgrades to local facilities or the payment of a monetary contribution.

Secretary's Environmental Assessment Requirements	EIS Response	Comments
> Consideration of vehicle monitoring on Cambridge Avenue during operation of the project, to ensure any impacts are captured and adequately mitigated as a result of the project.	Traffic counts along Cambridge Avenue occurred during the Traffic Impact Assessment. However, EIS has not provided an assessment of how this increased traffic will impact upon the quality of the road and whether any upgrades/maintenance will need to occur.	The assessment should be updated to include an assessment of any impacts to Cambridge Avenue. This could include a commitment to the repair of any damaged road due to the increased traffic associated with the construction of the rail link.

4.15.5 Recommendations

The recommendations below are provided to address identified impacts and allow a comprehensive assessment of the proposal prior to any determination:

> **Infrastructure Upgrades and Contributions**

- There has been no consideration of local infrastructure impacts, with reference to Council's Contribution Plan, as part of this application. As demonstrated, the Liverpool Contributions Plan 2009 does not provide a monetary levy for the proposed development. Consequently, it is recommended that prior to any determination, the applicant enter into relevant discussions with Liverpool Council regarding a works-in-kind or monetary contribution towards local infrastructure works. This should include one or a combination of any of the following:
  - > Provision of a letter of intent that stipulates the public benefit offering the development would provide off site. This could include a commitment to local road maintenance, upgrades to local community and recreation facilities, or the payment of a lump sum monetary contribution.
  - > Preparation of a draft VPA that outlines the works-in-kind and/or payment that SIMTA will complete prior to the operation of the facility.
- Additional traffic and transport assessments need to occur to fully quantify the impact of the development. This additional work will allow the consent authority to fully consider the implications of property acquisition and infrastructure upgrades.
- Increased traffic movements and associated wear and tear/damage to Moorebank Avenue will impact upon the existing industrial businesses at the Moorebank Business Park, the DNSDC and the Moorebank Industrial Precinct. It is unclear how the SIMTA proposal will manage these impacts, whether through a pavement upgrade following construction or through the payment of contributions to Council.

> **Rail Link**

- The northern connection of the rail line to the SSFL includes a special turnout into a radius curve. This practice is problematic as it causes ongoing maintenance issues. Appropriate justification and mitigation measures need to be identified.
- It is requested that all consultation with the ARTC in the design of the rail link be provided to allow a more thorough assessment, as a number non-compliances with ARTC standards have been identified.
- The design of the loop appears to be mainly focused on the northern entry and 650m long trains. This is contrast to the ARTC request that the rail link be able to accommodate trains up to 1800m in length. A number of issues have been identified that will need additional justification and/or re-design, including:
  - > The clear distance from the southern SSFL loop to the first cross over is insufficient to hold a 650m long train.
  - > The clear distance from the northern SSFL loop to the second cross over is insufficient to hold a 1800m train
  - > The crossovers will need to be further into the yard or the introduction of a parallel line will be needed to address this existing shortcoming

- Lubrication of the rail line has been identified as a way to minimise wheel squeal on curves. Evidence of its effectiveness should be provided to allow a more thorough assessment.
- The rail alignment is not considered to be future proof, with appropriate justifications regarding the following issues to be identified:
  - > The alignment of the rail link underneath the Moorebank Avenue Bridge will have future limitations as any double stacked freight trains will not be able to access the site.
  - > The rail link alignment underneath Moorebank Avenue also restricts the link to only a single line, which further restricts future expansion opportunities for the development.
  - > The proximity of the rail alignment to the EHPL will result in the future quadruplication of the EHPL to occur to the south. This may cause complications for track alignment and a future Moorebank Station.
- Inadequate empirical evidence has been provided regarding the capacity of the SSFL for the proposed 10 trips per day. The assumption that these trips will be evenly spread across the day is unreasonable. Further demonstrated consultation with ARTC regarding capacity and timetabling will be needed to allow a more thorough assessment.
- Demonstrated consultation with the EPA regarding contamination and geotechnical concerns of the rail link within the Glenfield Waste Facility needs to be provided.

> **Land Acquisition**

- Further information and demonstrated consultation with landowners of the property that needs to be acquired need to be provided. Currently, it is unclear whether any negotiations have been held with these landowners regarding the purchase and/or ongoing lease of these lands.
- The Quantity Surveyors Report has not identified any costs regarding land acquisition and will need to be updated.

> **Additional Recommendations**

- The assessment has not considered the future land use of the Glenfield Waste Facility. The facility is identified as being acquired as regional open space by the RMS under the LEP. Demonstrated discussion with the RMS and the operators of the Glenfield Waste Facility should be provided to ensure the rail link alignment will not impact upon the future use of this site for public purposes.
- Additional cumulative impact assessment is needed to determine whether any major utility service upgrades will need to occur in the fully developed MIC and SIMTA scenarios.
- The impact of the construction of the rail bridge over the Georges River has not considered the recreational use of the river. Mitigation measures during the construction of the rail link need to be identified.
- Additional investigations of the impact on the state heritage listed Glenfield Farm should be provided.

4.16 Bushfire

The proposed SIMTA EIS provides analysis of the impact of bushfire on the proposal site. This review considers information in the EIS at Section 20.3 and Appendix W, which contains the *Bushfire Protection Assessment*prepared by *Australian Bushfire Protection Planners Pty Ltd.*

4.16.1 Overview of the SIMTA Assessment

The *Bushfire Protection Assessment* prepared for the proposal provides advice on the bushfire protection measures that may be required for the construction of stage 1 of the SIMTA site. The Stage 1 site is impacted by the Liverpool Bushfire Prone Land Map which shows that the buffer zone to Category 1 Bushfire Prone Vegetation located on the land to the east and south of the site, as well as to the west of Moorebank Avenue extends into the site.

The rail link is partially located within Category 1 Bushfire Prone Vegetation and the vegetative buffer zone. The *Bushfire Protection Assessment* considers the risks posed by the operation of the proposed rail link.

Stage 1 of the SIMTA site has been assessed against the compliance requirements of *Planning for Bushfire Protection 2006* (PBP, 2006) in respect to the protection of persons, property and the environment from the danger that may arise from a bushfire. The proposal does not need to meet any of the specific bushfire performance requirements of the Australian Standard *AS 3959-1999: Construction of buildings in bushfire-prone areas*, as there are no Class 1, 2 or 3 buildings proposed for construction. The proposal has, however, been assessed for compliance against the objectives of PBP, 2006 for access, water and services, emergency planning and landscaping/vegetation management.

The objectives of PBP, 2006, and the conclusions of the *Bushfire Protection Assessment* are listed below:

i. *Afford occupants of any building adequate protection from exposure to a bushfire*;

   The proposed SIMTA Stage 1 development consists of a Container Storage and Handling facility which has fixed assets (Office & Administration Area) located more than 700 m from the bushfire hazard on the land to the south.

   This separation is provided by the management of the land adjacent to the southern boundary plus the Container Storage/Handling Area. The Containers are loaded and unloaded on/off trains and trucks and therefore are not fixed assets.

   The Office and Administration Area is located more than 35 m from the pockets of unmanaged vegetation on the land to the west of Moorebank Avenue.

   These setbacks afford the occupants of the facility adequate protection from a bushfire event which may occur in the vegetation to the south and in the event of a fire in the vegetation on the land to the west of Moorebank Avenue.

ii. Provide for a defendable space to be located around buildings:

   The defendable space to the south of the Office and Administration Area is more than 700 m in size and more than 35 m in size to the west.

   The management of the adjoining land to the south of the Container Storage area provides a defendable space for this part of the SIMTA Stage 1 Site of more than 100 m.

iii. Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

   The setbacks to the fixed assets (Office and Administration Area) remove the chance of direct flame contact to the building/s.

   The management of the land to the south provides a separation of more than 100 m between the southern boundary of the SIMTA Stage 1 Site and the unmanaged vegetation on the Commonwealth land. This separation removes the chance of direct flame contact on the Container Storage area within the SIMTA Stage 1 Site.

iv. Ensure that safe operational access and egress for emergency service personnel and residents is available:

   <u>Public Roads</u>

   The development site is accessed from Moorebank Avenue. This is a Local Road where it meets the site and a State Road above the M5 Motorway and provides safe operational access/egress for emergency service personnel and occupants of the facility.

   <u>Fire Trail Access</u>

   No fire trail access provided or required – refer to Emergency Response Access/Egress below. The design layout for the SIMTA Stage 1 Site provides a fire service access to the eastern aspect of the complex.

Emergency Response Access / Egress

The design layout for the SIMTA Stage 1 Site provides for a fire service access to the eastern perimeter of the complex. Internal fire service access is provided utilising the truck loading access roads.

An Emergency exit is provided from the south-western corner of the complex onto Moorebank Avenue.

The emergency access/egress within the development site provides safe operational access and egress for emergency service personnel, as well as safe egress for staff, satisfying item (iv) of the Objectives of PBP, 2006.

v. *Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zones:*

The landscaping within the SIMTA Stage 1 Site consists of an 18 m wide Landscape zone along the Moorebank Avenue frontage and a 6 m wide landscaped batter along the eastern aspect of the precinct.

This vegetation shall be maintained to reduce the combustible ground fuels ('leaf litter, bark and twigs).

vi. *Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting operations):*

An existing reticulated water supply, with hydrants, is located within Moorebank Avenue. An onsite fire-fighting water supply is to be installed to comply with A.S. 2419.1 - 2005, providing a satisfactory fire-fighting water supply to the complex.

vii. *Emergency Management for Fire Protection / Evacuation:*

Evacuation of the SIMTA Stage 1 site due to the threat of a bushfire occurrence in the unmanaged vegetation to the south and west is required as the width of the defendable spaces removes the likelihood of flame contact and high levels of radiant heat impact on the fixed assets, stored containers and handling equipment.

The *Bushfire Protection Assessment* also concluded that the Rail Link corridor has a potential bushfire risk from sparks given off by rail cars igniting adjoining bushland. To ameliorate this risk the following is recommended:

- Maintain the full width of the rail corridor in a low fuel state;
- Develop protocols for the monitoring of train access/egress during high – catastrophic fire weather days; and
- Prepare a risk assessment that includes the use of fire-fighting resources provided where/when there is a high risk of ignition of adjoining bushland during high – catastrophic fire weather days.

No further detail on any of the above recommendations was provided in the *Bushfire Protection Assessment.*

4.16.2 Cardno Assessment

Cardno has reviewed the project in regards to Bushfire. The *Bushfire Protection Assessment* adequately addresses the requirements of PBP, 2006 for Stage 1 of the SIMTA proposal. The setbacks from any potential bushfire prone vegetation are large with no requirements for additional vegetation management, there is adequate space for safe operational access and egress from the site in an emergency event and the utility services are in place that will meet the needs of fire fighters.

The bushfire risks associated with the rail corridor have been briefly addressed. The mitigation of these risks needs to be comprehensively covered prior to determination via construction and operational management plans.

Vegetation Management Plans and Landscaping Plans will also need to take bushfire risk into consideration. At present these risks are not adequately addressed and require further detail.

4.16.2.1 Best Practice Review

The *Bushfire Protection Assessment* does not consider any of the future stages of the SIMTA proposal or the neighboring MIC development lands. The provision for a defendable space, possibly in the form of a perimeter road, around the entire proposal site should be considered. The position of the rail corridor and rail sidings prevents the use of a road going around the entire site, with the volume of movements and stacking of containers within the site complicating routes for emergency services. The management of emergency personnel around the site in an emergency needs to be considered, evaluated and communicated effectively to construction and operational employees and visitors.

The future needs of dedicated fire-fighting water mains around the perimeter of the site should also be considered at this stage of the project to ensure land is dedicated for this purpose.

4.16.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-35 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
The Proponent commits to incorporating the key objectives identified by the Rural Fire Service (RFS) into relevant future design stages, in accordance with the following principles: > Afford occupants of any building adequate protection from exposure to a bushfire > Ensure safe operational access and egress for emergency service personnel and residents > Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in asset protection zones (APZs) > Ensure that utility services are adequate to meet the needs of fire fighters	The *Bushfire Protection Assessment* adequately addresses the RFS requirements of Stage 1 of the SIMTA proposal. See **Section 4.17.1** for details.	The bushfire risks associated with the rail corridor have only been briefly addressed, with detailed mitigation and management not provided.
The Proponent commits to the development of a Bushfire Management Plan for both the construction and operational phases of the SIMTA proposal that aligns with the requirements of the local RFS Bushfire Management Committee operational plans of management	No comment	The *Bushfire Protection Assessment* should define a key set of criteria for the proposed Bushfire Management Plan for both the construction and operational phases of the proposal

4.16.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-36 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
An assessment against *Planning for Bushfire Protection 2006*	The *Bushfire Protection Assessment* adequately addresses the requirements of PBP, 2006 for stage 1 of the SIMTA proposal. See **Section 4.17.1** for details.	The bushfire risks associated with the rail corridor have only been briefly addressed with detailed mitigation and management not provided.

4.16.5 Recommendations

The *Bushfire Protection Assessment* should include the following recommendations:

> Discuss the requirements of bushfire management across the entire SIMTA site to ensure access and utility services are not compromised in future stages of the proposal.

> Define a key set of criteria for the proposed *Bushfire Management Plan* for both the construction and operational phases of the proposal.

4.17 Ecologically Sustainable Development

The proposed SIMTA EIS provides analysis of the proposal's impacts on Ecologically Sustainable Development (ESD). This review considers information in the EIS Chapter 20.7 prepared by Hyder.

4.17.1 Overview of the SIMTA Assessment

The ESD Assessment considers the proposal's consistency with the principles of ESD and how these have been incorporated into the design, construction and operation. The Assessment considers three groups of ESD initiatives being:

> Site management policies and strategies

> Materials selection and energy and water demand management

> On-site renewable energy generation.

Based on the implementation of these initiatives the Assessment considers that the following principles as identified in the Concept Approval Requirements would be satisfied:

> The Precautionary principle

> Inter-generational equality

> Conservation of biological and ecological integrity

> Improved valuation, pricing and incentive mechanisms.

The Assessment then assessed the proposal in the context of these four principles, with the Precautionary Principle addressed through the use of a conservative worst case scenario where there is uncertainty.

Inter-generational equity is considered to be addressed through the provision of a high standard freight management IMT and the removal of freight vehicles from main roads between Port Botany and Moorebank. It is noted that some adverse impacts will remain as a result of the proposal.

Conservation of biological and ecological integrity is considered with clearing of land in the rail corridor impacting on Threatened fauna and flora species as well as TECs listed under the TSC Act and the EPBC Act, along with impacts on a marine species listed under the FM Act and EPBC Act. Clearing is proposed to be addressed primarily through compensatory landscaping. Improved valuation, pricing and incentive mechanisms is considered by incorporating the cost of environmental mitigation and management measures into the overall project costs.

4.17.2 Cardno Assessment

Cardno has reviewed the project in regards to ESD. The ESD Assessment states that three groups of ESD initiatives are identified, however, no further reference to these initiatives is made. Consequently, it is not clear how these initiatives are proposed to be implemented to address ESD. Objective, quantifiable initiatives must be committed to with resources allocated to ensure that they can be implemented, with appropriate monitoring and reporting mechanisms identified to allow the performance of initiatives to be reviewed and refined where necessary.

The ESD Assessment lacks specific initiatives, relying on mitigation and management measures identified within the other assessments to inform the ESD contributions of the project. Therefore, ESD in itself is not addressed, with only incidental measures incorporated based on bodies of work associated with specific environmental aspects. While this approach is acceptable to a point, in that there are synergies between say conservative traffic emissions limits that reduce air quality impacts to a precautionary level. This approach is highly likely to neglect ESD from an intergenerational equity perspective in that fossil fuel use or opportunities for alternative uses of the site and surrounds are not considered.

The Precautionary Principle is identified as being addressed through the use of conservative worst case assessment scenarios where there is uncertainty. Use of a worst case assessment scenario is recognised as standard practice to counter uncertainty. However, the establishment of the worst case baseline requires review for each assessment. It is noted that the worst case assumptions in the Traffic Assessment at Section 7 fall short of identifying a rigorous worst case scenario. The SIMTA Assessment considers maximum truck movements into and out of the site, noting that freight would not be broken up on site. However, many of the containers delivered are unlikely to contain single destination freight. Consequently, containers will need to be transferred from the site to warehousing off site to be broken up and then transferred, to its end destination. Alternatively, containers would need to be moved from one site to the next to allow staged unloading of freight. Furthermore, a similar number of movements would be required when delivering containers back to the SIMTA site for transfer to Port. The assumptions contained within the Traffic Assessment in terms of total vehicle movements, along with associated flow on effects on congestion, noise, air quality, human health and visual amenity are inaccurate and fall well short of providing a worst case scenario to address the uncertainty.

The traffic example illustrates that the method of addressing the Precautionary Principle is not rigorous. It is recommended that to fully address this requirements an overarching project risk matrix is developed identifying and ranking risks and the interactions between these risks across the project. The mid to high level risks would then be addressed more thoroughly with a specific risk management strategy to identify the uncertainty and the proposed approach. The matrix would provide more confidence to the determining authority that a precautionary approach has been adopted.

Inter-generational equity is addressed "*through the provision of a high standard freight management IMT which will remove significant numbers of freight vehicles from main roads between Port Botany and Moorebank*". The development of quality infrastructure is of benefit to future generations in that less maintenance and opportunities for future use exist. However, it does not respond to the opportunity cost of the project on future generations, which should be addressed to truly consider inter-generational equity.

The ESD Section should consider opportunity costs associated with the extensive resources that will be embedded in the site, as well as alternative uses for the site and the surrounding infrastructure, residential, commercial and open areas that will be impacted by the proposal. The EIS provides a brief examination of a do nothing option, as well as alternative sites for the IMT. However, it does not consider alternatives for the site, noting only that the land is appropriately zoned for the proposed use (note this statement is also incorrect as discussed at **Section 3**). Alternative uses for the site could deliver higher order development resulting in greater employment and economic activity on site, while retaining heritage character. Uses could include a mix of commercial and light industrial uses, with the rail corridor retained as is due to the associated ecological values (refer to **Section 4.11**).

Conservation of biological and ecological integrity is addressed primarily through compensatory landscaping. A review of the biodiversity and associated VMP reveals that a sufficient level of detail is not provided to give confidence that biological and ecological integrity will be retained (refer to **Section 4.11**). The proposal would result in the clearing of threatened fauna, flora and marine species as well as TECs. Therefore, a rigorous offsetting strategy is required. Alternatively, as these impacts are primarily associated with the rail corridor, which is proposed to be replicated at the MIC site, it is recommended that rail access is removed from the SIMTA proposal pending the potential integration of the development scheme for the two IMT's.

The allocation of a value and price to the environment, along with associated ESD incentives is addressed by incorporating the cost of mitigation measures into the overall project costs. The proposal would result in off-site impacts as partially identified in the EIS and in this Review. These off-site impacts and the true cost of resolving these impacts has not been addressed and it is considered cannot be fully addressed at this location due to the proximity of the site to existing urban areas. Furthermore, the duplication of infrastructure and uncoordinated development between the two IMT proposals demonstrates a lack of respect for

environmental values. It is recommended that the proposed scheme be reviewed and a streamlined, integrated project be identified.

The EIS identifies that SIMTA and MIC are currently in negotiation regards a joint, integrated operation. MIC as a Federal Government entity is required to address Commonwealth guidance documents including *The National Strategy for Ecological Sustainable Development* (ESDSC, 1992) (National Strategy). This document defines the strategic and policy framework which should be followed by government entities to ensure ESD is a key consideration in developing and determining projects which have the potential to impact on the utilisation of natural resources; and as such should be a key consideration for this project. No assessment is provided against the policies within the National Strategy including undertaking tracking, reporting and auditing programs despite these requirements.

Furthermore, the *Sustainable Procurement Guide* (SEWPaC, 2013) defines Government responsibilities to ensure sustainable procurement across the various government functions. As the SIMTA and MIC sites will potentially be integrated these responsibilities should be addressed, with clear commitments should provided in the EIS, rather than the general principles currently included, which are simply a reflection of the wording in the Statement of Commitments. These principles are broad and unquantifiable, rendering them ineffective to guide the project, as they cannot be measured, monitored and reviewed.

4.17.2.1 Best Practice Review

Best practice would require initiatives that are direct with clear actions and quantifiable goals identified, which can be monitored during construction and operation of the project. For example "*a materials recycling area will be established on site during each phase of the project and volumes of materials received, reused and recycled will be tracked and included within the relevant sustainability auditing system*". These clear initiatives should be developed into an approved sustainability strategy to be used as a guiding document for construction and operation.

There is a general lack of detail provided in the ESD Section. Specific initiatives should be identified including:

> Assessment against the IS rating scheme for infrastructure ISCA

> Opportunities to reuse and/or recycle material on site, as well as purchasing of recycled building materials

> Materials should be sourced where manufactured in accordance with sustainable criteria designated by recognised industry bodies (Environmental Sustainability charter of the Australian Steel Institute).

> Targets for the future recovery of waste should be identified, including provision for storage areas and appropriate paths for waste containers.

> Fuel reduction and emissions reduction initiatives for road vehicles, support for alternative fuelled vehicles (natural gas, LPG) and infrastructure to support future zero emissions road vehicles.

> Materials procurement processes for building materials, plant and equipment should consider the lifecycle energy use, including embodied energy.

> In-terminal vehicles (ITVs) should be powered by zero emission technologies.

> Partnerships with freight and transport operators to encourage sustainable operation of the facility.

> Evaluation of building materials based on their future recyclability and attractiveness to recyclers.

> Evaluation of railway operations and infrastructure options to reduce fuel consumption, noise and emissions.

> Water sensitive urban design should be considered and incorporated into the design, with rainwater harvesting and surface water reused for watering of landscaping.

> Grey water recycling and use on site for landscape maintenance and other purposes.

> Ongoing protection of heritage of Aboriginal and European heritage items with provision for access to these items under the supervision of MIC and relevant authorities.

> Promotion of use of public transport for employees and improved services to make public transport more attractive.

> Reduction of light pollution through lighting design, lamp and lumiere choice and sensor activated lighting.

> Generation of renewable energy on site, with specific targets identified, with options including photovoltaic (PV) panels and wind turbines.

> Tracking, auditing, reporting and reviewing to ensure project is continually trying to improve sustainability initiatives.

> Ongoing community consultation to track and identify community environmental sensitivities and develop new mitigation strategies.

4.17.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-37 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Where applicable the Proponent will implement the Ecological Sustainable Development initiatives across the construction, operation and decommissioning stages of the SIMTA proposal including: > Site management policies and strategies;	Three initiatives are identified: > Site management policies and strategies > Materials selection and energy and water demand management > On-site renewable energy generation.	No detail is provided as to how these initiatives will be implemented.
> Materials selection and energy and water demand management; and	No comment	Specific details are required as identified in the **Section 4.18.2**.
> On-site renewable energy generation.	No comment	Specific details are required as identified in the **Section 4.18.2**.
The following principles will be achieved during the design development and construction phase of the proposal: > Precautionary principles; > Inter-generational equality; > Conservation of biological and ecological integrity; and > Improved valuation, pricing and incentive mechanisms.	A high level review is provided, with reference to the specific environmental assessments associated with each environmental aspect.	Lack of detail, with no firm commitments. Specific details are required as identified in the **Section 4.18.2**.

4.17.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-38 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
Detail how ESD principles (as defined in clause 7(4) of the Regulation) will be incorporated in each stage of the development.	A limited high level review is provided, with reference to the specific environmental assessments associated with each environmental aspect.	Lack of detail, with no firm commitments. Specific details are required as identified in the **Section 4.18.2**.
The EIS shall detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.	A limited high level review is provided, with reference to the specific environmental assessments associated with each environmental aspect.	Lack of detail, with no firm commitments. Specific details are required as identified in the **Section 4.18.2**.

4.17.5 Recommendations

The ESD commitments are extremely limited with only a cursory review provided. The scale oand intensity of the use as proposed would not be able to be offset through management and mitigation measures. Consequently, a substantial review of the proposed scheme is required. Furthermore, should P&E elect to proceed with the proposal conditions of determination should be based around:

> Defining a key set of sustainability criteria with the commitment of ensuring that these criteria are utilised through the project life cycle

> Undertake an ISCA Assessment and commit to obtaining ISCA 'Leading' rating for design, construction and operation

> Adopting an attitude towards sustainability that is maintained throughout the project by defining key management objectives in line with *The National Strategy for Ecological Sustainable Development*

> Identify a tracking, auditing, assessment and project review process that is continually undertaken through the project lifecycle

> Adoption of the initiatives identified in the best practice review at **Section 4.18.2**.

4.18 Waste

The proposed SIMTA EIS provides analysis of the proposal's impacts on Waste. This review primarily considers information in the EIS at Section 20.2, along with the interrelationships with Sections 13 and 18, all prepared by Hyder.

4.18.1 Overview of the SIMTA Assessment

A Waste Management Strategy (WMS) was identified in the Concept EIS identifying reuse opportunities for waste generated by the Proposal during demolition, construction and operation, with the intent of maximising reuse and minimising waste to landfill. The Revised Statement of Commitments, committed to a number of strategies that have been incorporated into the WMS.

Demolition and construction waste is proposed to be classified and recorded in accordance with *NSW Waste Classification Guidelines* (EPA, 2014c) throughout the construction process so that the overall waste diversion performance achieved can be quantified. Operational waste is anticipated to be generated through office administration facilities and amenities, with segregated containers for waste collection proposed.

Waste management principles for demolition, construction and operation reflect the Statement of Commitments strategies identified in **Table 4.19.3** below.

4.18.2 Cardno Assessment

The Waste Assessment does not address the project waste life cycle and does not comprehensively address disposal of potentially contaminated and hazardous materials. The subsections below provide further details.

Life Cycle Analysis

The EIS does not assess the impacts of the proposal over the project's operational life, nor is there an end of life strategy in place to encourage development and the use of materials that can be reused or recycled once the current proposed use comes to an end. While a number of commendable strategies for waste reduction during the construction and operational phases of the project are identified the extent of waste generation is not quantified. The limited information provided does not allow assessment of the quantitative net impact of the generation of waste from the proposed works or the estimated demand on resources. Whilst generic sources of waste have been identified, additional details are required to assess the impact of these waste streams on the neighboring environment and on the limited capacity of the receiving disposal facilities.

The specific characteristics of the materials to be disposed, estimated volumes of the material, proposed methods of disposal and the proposed transportation methodology to remove the material from the site to the receiving site should be identified. Preliminary investigations suggest the presence of a number potential contaminants on site as discussed in **Section 4.8**. Consequently, waste management practices need to contain appropriate methodologies and practices to ensure the protection of the environment in the handling and disposal of these materials.

The WMS should consider and commit to the use of an integrated waste management system including a defined strategy to ensure actions such as avoidance, collection, recovery, reuse, treatment and disposal are undertaking during both construction and operations, rather than the generic WMS currently proposed. As such a comprehensive, waste stream specific WMS should be developed for the site including identifying, reviewing, assessing and managing predicted waste flows from this site.

Mitigation measures developed within the EIS provide generic non-committal statements in regards to steps which will be considered during the various stages of the proposed works. There is no mention of relevant standards or guidelines to be adhered to in regards to waste and resource management with the exception of the *NSW Waste Classification Guidelines*.

Effluent and Grey Water

The assessment does not consider effluent and grey water. Grey water reuse should be incorporated for non-potable uses and landscaping to reduce site water use, with additional information required in regards to onsite treatment facilities such as general waste recycling, effluent and grey water treatment. This information is absent from the EIS and is required to assess if the proposed methodologies are adequate to manage waste flows. A direct commitment to the implementation of these systems is also required to ensure these facilities are installed and fully utilized during the project development.

Asbestos Containing Materials

The Hazard and Risk and Contamination Chapters of the EIS identify asbestos containing material (ACM) on the primary site associated with previous buildings and activities. ACM is identified as being present in both friable and non-friable forms. The removal of asbestos is required, with the EIS identifying that an asbestos removal control plan will be prepared, with the works undertaken in accordance with the C*ode of Practice for the Safe Removal of Asbestos* (NOHSC, 2005). Details of the removal and subsequent disposal of waste ACM is not identified. An asbestos removal control plan inclusive of quantities, with a clear final destination should be prepared to support the project approval, providing certainty that this waste stream will be appropriately managed.

Unexploded Ordinance

The Phase 2 ESA for the MIC site (Parsons Brinckerhoff, 2014a) identified the potential for UXO within the Golf Course land, which forms part of the rail corridor. The Phase 2 ESA noted that artefact finds within the

Golf Course land comprised inert EOW. However, there is "*a very low potential that the site contains remnant UXO or EOW containing high explosive or other energetic material*" (Parsons Brinckerhoff, 2014a).

An unexpected finds protocol should be put in place to address works encountering UXO or EOW, with appropriate management strategies and waste removal protocol's put in place.

4.18.2.1 Best Practice Review

Best practice waste management during construction and operation requires consideration of the full project lifecycle, with the end use of the site and associated opportunities for reuse and recycling considered. The Waste Assessment should identify the embodied energy associated with the development materials and identify opportunities to reduce the embodied energy footprint of the proposal. By considering future uses for the material either on or off site the amount of embodied energy is diluted between both the currently proposed and future uses, reducing the impact solely attributed to this IMT. Strategies to achieve this reduction should include:

- Identify potential future site uses and uses for site components off site in a deconstruction plan. The design should allow these future uses to be accommodated. An example is the use of modular concrete slabs to allow replacement on site and/or reuse off site.
- Identity and use materials with lower embodied energy across the life cycle. Examples include the substitution of cement for compacted industrial waste product, or oversized aggregate, with a capping layer of cement provided in lower intensity use areas. Ideally recycled aggregate should be used either from the site or a location in close proximity.

It is proposed to classify and record waste to allow the diversion performance to be measured. This strategy simply records events rather than shaping the development to achieve significant waste reduction and associated environmental benefit. Predictions for waste quantities and types should be developed for demolition, construction and operation, with measures to minimise waste during construction and operation identified for implementation in accordance with the waste hierarchy - avoidance, reduction, reuse and recycling.

Once the true extent and associated cost of project waste is known the financial value of an efficient life cycle based waste management process would become evident, providing an incentive for a comprehensive waste management approach.

Tracking of all wastes should be undertaken during construction and operation, with external audit to ensure waste streams are effectively managed.

4.18.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-39 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Any future Development Application shall ensure that liquid and/or non-liquid waste generated on the site is assessed and classified and where removed from the site, is directed to a waste management facility lawfully permitted to accept the materials.	Waste will be classified with detailed contained in the WMS (Hyder 2013).	The WMS prepared for the Concept Approval has not been updated. This document provided high level strategies without providing quantifiable waste stream volumes, management measures or targets. This document lacks the necessary detail to support a project approval.
The Proponent commits to undertaking waste management in the demolition, construction and operational phases of the development as listed below:	The commitments identified in the Statement of Commitments are replicated in Table 20-23 of the EIS.	The Waste Assessment simply replicates the commitments made in the Revised Statement of Commitments that informed the Concept Approval. No further details

Concept Approval Requirements	EIS Response	Comments
> Re-use of material will have priority over recycling; > Recycling will have priority over disposal; > Selection of reputable waste removal contractors who will guarantee that recyclable material will be recycled and will provide any relevant certificates; > Vegetation removed shall be either preserved for use in the new development, or mulched for inclusion in landscaping activities. The remainder will be sent to a composting facility; > Excavated earth will be used for infill and landscaping where feasible, the remainder will be sent to a recycling facility; > Asphalt will be re-used by transferring it to a batching plant or using it as a base layer for access roads; > Concrete components will where possible be crushed and reused on site, the remainder will be sent to a recycling facility; > Fuel and oil storage from demolition machinery will be secured and managed responsibly within compound sites during works, and removed upon completion of works; > Sewage waste shall be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements;		are added that commit SIMTA to specific waste flow volumes, management strategies or targets. A comprehensive integrated waste management system that includes a defined strategy guided by the waste hierarchy should be implemented that predicts, tracks, audits, assesses and reviews waste streams, rather than the generic WMS currently proposed.
Waste management during construction: > Reduce potential waste by ordering the correct quantities of materials; > Coordinate and sequence trades people to minimise waste; > Prefabricate materials where possible; > Use modular construction and basic designs to reduce the need for off-cuts; > Reuse formwork; > Reuse or recycle materials from the demolition phase; > Separate off-cuts to facilitate reuse, resale or efficient recycling; > Minimise site disturbance and limit unnecessary excavation; > Select landscaping which reduces green waste; > Select waste removal contractors to guarantee that recyclable waste are recycled;	The commitments identified in the Statement of Commitments are replicated in Table 20-23 of the EIS.	As above

Concept Approval Requirements	EIS Response	Comments
> Engage with the supply chain to supply products and materials that use minimal packaging; > Set up schemes with suppliers to take back packaging materials; > Sewage waste shall be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements;		
Waste management during operation: > Appropriate areas shall be provided for the storage of waste and recyclable material; > Standard signage on how to use the waste management system and what materials are acceptable in the recycling will be posted in all waste collection and storage areas; > All domestic waste shall be collected regularly and disposed of at licensed facilities; > Waste collection vehicles will be able to service the development efficiently and effectively; > An education program and on-going monitoring will to be implemented for training personnel to properly sort and transport waste into the right components and destinations; > Sewage waste will be disposed of by a licensed waste contractor in accordance with Sydney Water and OEH requirements; and > Trade waste will be discharged to the sewer through a trade waste agreement with Sydney Water.	The commitments identified in the Statement of Commitments are replicated in Table 20-23 of the EIS.	As above

4.18.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-40 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
An assessment of liquid and/or non-liquid waste generated on the site, how it will be identified, quantified, classified, documented and disposed of. The assessment shall also include a description of measures to be implemented to manage waste in accordance with the waste hierarchy.	Waste will be classified and disposed of as per the details contained in the WMS (Hyder 2013).	The WMS provides high level strategies without providing quantifiable waste stream volumes, management measures, targets, disposal mechanisms or compliance with the waste hierarchy. This document lacks the necessary detail to support a project approval.

4.18.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> Assess the project's operational life including consideration of embodied energy and an end of life strategy in the form of a deconstruction plan that identifies potential future site uses and uses for components on and off site.

> Develop a WMS incorporating an integrated waste management system to ensure the project complies with the waste hierarchy of avoidance, recovery, reuse and recycle prior to disposal.

> Undertake an ISCA Assessment and commit to obtaining ISCA 'Leading' rating for design, construction and operation.

> Identify a waste tracking, auditing, assessment and project review process that is continually undertaken through the project lifecycle.

> Relevant guidelines and standards are absent from the EIS and should be reviewed with the relevant actions and mitigation measures incorporated within the document before project determination.

> Commitments should be made to develop on site treatment facilities for sewage treatment and grey water recycling.

> Prepare an asbestos removal control plan inclusive of quantities, with a clear final waste destination.

> Prepare an unexpected finds protocol to address works encountering UXO or EOW.

4.19 Cumulative Impact

The proposed SIMTA EIS provides analysis of the proposal's cumulative impacts. This review considers information in the EIS at Section 19.

4.19.1 Overview of the SIMTA Assessment

The Cumulative Assessment provided a summary of the cumulative assessment undertaken for the Concept Approval, which was based on an ultimate catchment demand of 1 million TEU throughput per annum being distributed between the SIMTA Project and the MIC Proposal. The Assessment concluded that, with mitigation measures applied, the cumulative impacts of the two projects is likely to meet all statutory guidelines.

The Assessment subsequently identified the MIC and Glenfield Recycling Facility as being associated with cumulative impacts and considered them in the context of the following environmental aspects:

> Traffic and Transport

> Noise and vibration

> Human health

> Biodiversity

> Visual amenity, urban design and landscape

> Hazard and risk

> Greenhouse gas and climate change.

The Traffic Assessment modelled the cumulative impacts of the Stage 1 Proposal and MIC Proposal Early Works on the intersections of Moorebank Avenue / Anzac Road and the M5 Motorway / Moorebank Avenue finding that a LoS of C would result, with sufficient capacity to manage the cumulative throughput.

Cumulative air quality modelling considered the first construction phase of the MIC Proposal only and did not include the Glenfield Recycling Facility. The modelling indicated that cumulative concentrations of the impact assessment criteria were below the required level, with impacts on air quality not predicted.

Cumulative noise modelling comprises day time noise modeling, which is based on the understanding that the majority of Early Works construction activities for the MIC Proposal are to be conducted within standard construction hours. No impact was identified.

The cumulative biodiversity assessment identified that the MIC early works would result in the removal of scattered native vegetation, with the Glenfield Recycling Facility clearing a large area of Cumberland Plain Woodland. The assessment identifies a cumulative loss of fauna habitat and states that the extent of impacts cannot be quantified at this stage.

The visual assessment identifies that the MIC proposal would help to shield the SIMTA site from western views, however, there would be some reduced screen as a result of vegetation removal on the Glenfield Recycling Facility site. However, through the retention of a landscaped buffer these impacts were not considered unreasonable.

Cumulative hazard and risk impacts are not identified. Impact assessment associated with human health is confined to those associated with air quality and noise. The addition of air quality emissions from the early works phase of the MIC Proposal to those associated with SIMTA approximately doubles the number of health outcomes attributable to exposure to these pollutants. However, the level of risk is still identified as within the acceptable risk levels established by national and international agencies. Noise impact are not considered to impact on human health.

4.19.2 Cardno Assessment

4.19.2.1 Traffic

The Traffic Assessment was limited to a 250,000 TEU throughput for SIMTA and construction traffic for MIC, with only the Moorebank Avenue/Anzac Road and the M5 Motorway / Moorebank Avenue considered. The limited scope of the assessment provides an unrealistically constrained scenario for future traffic impacts in the area both due to the limited number of trucks considered in the assessment and the limited extent of the assessment. Higher levels of truck movements are anticipated throughout the area, with associated higher levels of impact as discussed in **Section 4.2**. The knock on effects of increased truck movements will impact noise, air quality, visual and human health, as discussed in **Section 4**, with these affects multiplied by an order of up to eight (from 250,000 to 2.05 million TEUs) once the throughput is increased to consider the cumulative throughput of SIMTA at full capacity and MIC.

4.19.2.2 Air Quality

The Air Quality Assessment would be impacted by the higher level of truck movements as identified above and in **Section 4.3**, as well as the operation of the Glenfield Recycling Facility, which was not considered in the assessment. The facility both in its current and proposed form features extensive areas of exposed soil, with the potential for high levels of dust emissions, which have not been considered fully in the Assessment, with the assumption of no impact based on appropriate mitigation at the Recycling Facility. This is a very broad assumption that should be quantified.

4.19.2.3 Noise

The Noise Assessment would be impacted by the higher level of truck movements as identified above and in **Section 4.4**, as well as the operation of the Glenfield Recycling Facility, which was not fully considered in the assessment, with only limited comment that the noise bund and fencing proposed by the Recycling Facility would prevent cumulative impacts. No modelling or detailed comment is provided to quantify this statement.

Cumulative noise modelling associated with the MIC/SIMTA interactions is limited to day time noise only. This is based on the following statement:

> *"It is understood that the majority of Early Works construction activities for the MIC Proposal are to be conducted within standard construction hours".*

There are no details of where this understanding has come from, nor is the statement specific, as it is only the 'majority' of works that will take place during standard construction hours. Given the MIC proposal has not been determined and the construction program is not defined modelling should be undertaken across the 24 hour spectrum to ensure that noise impacts are not felt by sensitive receivers during the evening and night time periods.

4.19.2.4 Biodiversity

The Biodiversity Assessment identified an overall loss of vegetation and fauna habitat as a result of cumulative impacts, however, it deems these to be acceptable due to the offsetting proposed. The vegetation removal within the rail corridor would be greater than anticipated due to the extent of rail construction works by SIMTA, therefore these impacts would be correspondingly larger as discussed at Section 4.11. Furthermore, assessment of cumulative impacts on biodiversity should be undertaken based on the revised clearing proposed in the SIMTA rail corridor.

4.19.2.5 Visual, Urban Design and Landscape

The cumulative Visual, Urban Design and Landscape Assessment does not consider the MIC site in its current form along with the associated on site heritage. The assessment should be revised to consider visual impacts based on both the current and proposed future development scenario for the land to the west of Moorebank Avenue.

The cumulative visual assessment does not consider the impacts of rail freight along the rail alignment. Dependent upon whether agreement to integrate the MIC and SIMTA sites is reached and how this integrated layout may operate there is a strong likelihood that far higher rail movements may occur along the rail alignment, with associated visual impacts on the Georges River foreshore and the heritage homestead. These impacts would magnify the impacts identified in the review at **Section 4.14**.

4.19.2.6 Hazard and Risk, Human Health

The cumulative hazard and risk assessment did not identify any cumulative risks. However, the subsequent human health assessment contradicts this statement, noting that there is an increased risk, with the combined SIMTA and MIC early works proposal approximately doubling the number of health outcomes attributable to exposure to these pollutants. The human health assessment does not provide a rigorous assessment of potential impacts on health associated with air quality, noise and hazard, with the deficiencies in each of these individual and cumulative assessments creating follow on deficiencies with the health assessment.

Furthermore, the health assessment does not consider mental health impacts associated with increased congestion and visual impacts. These impacts are likely to be significant as a result of the MIC and SIMTA proposals operating simultaneously.

4.19.2.7 Additional Impacts

The Assessment only considers the MIC IMT early works package, which is limited to the following construction activities:

> Establishment of construction facilities

> Demolition and relocation works

> Contaminated land remediation

> Utility works

> Establishment of the conservation area

> Heritage impact mitigation works.

Consequently, the proposal does not consider the MIC site's operational impacts in conjunction with SIMTA operations, which have the potential to result in a combined throughput of up to 2.05 million TEUs based on a total staged SIMTA throughput of up to 500,000 TEU, with MIC proposing a throughput of 1.55 million TEUs per annum. While the EIS notes that the Concept Approval addressed the cumulative throughput and associated impacts this was considered deficient both by the previous Council submission (November 2013) and by a number of assessing bodies including:

P&E – An initial throughput cap of 250,000 TEUs was identified by the Concept Approval (MP10_0193) Schedule 2, Condition 1.6, with Condition 1.7 requiring traffic monitoring and modelling to identify that the capacity of the road network would not be exceeded, should a further 250,000 TEU throughput be proposed.

The PAC in assessing the Concept Approval stated:

> *"The Commission is disappointed that the recommended master plan [F*reight Infrastructure Advisory Board Report of 2005] *for the site was never undertaken, particularly as there are now two competing proposals causing both uncertainty and alarm in the community about the cumulative impacts should both proceed."* Planning Assessment Commission Final SIMTA Determination Report, 29 September 2014, Page 2.

The PAC also noted that significant environmental problems would result if the two projects operated simultaneously.

> *"Cumulative impacts of the two proposals are a major and relevant concern for the Commission and it has considered these in its determination noting that SIMTA's EA assumes a TEU limit of 1 million for the whole precinct."* Planning Assessment Commission Final SIMTA Determination Report, 29 September 2014, Page 7.

The limited cumulative assessment in the EIS comprising a 250,000 TEU throughput by SIMTA and only the early works construction on the MIC site is not considered robust, due to the potential for higher throughputs and associated impacts as a result.

- *SIMTA has approval for an initial 250,000 TEU throughput, with the potential to increase to 500,000 TEUs per annum, with MIT proposing a throughput of 1.55 million TEUs per annum resulting in a total TEU throughput per annum of 2.05 million. Commercial reality would demand that the IMTs maximise throughput to reach design capacity, rather than stand idle once the ultimate catchment demand identified by the EIS of 1 million TEUs is reached. There is an anticipated to be a doubling of growth in container freight between 2030 and 2040 as identified by the NSW Freight and Ports Strategy, (NSW Government 2013). Given the constraints on Port Botany, this increase can only be met by the opening of new container port capacity at other locations, with Port Kembla being a likely outlet given constraints at the Port of Newcastle. Container freight through Port Kembla is likely to require more IMT capacity in or just outside South West Sydney to transfer cargo from rail to road, with a potential location for this additional capacity being Moorebank. Consequently, the assertion that only a limited throughput of up to 1 million TEUs is anticipated to meet the demand across the two IMT's at Moorebank is not considered sound. Therefore, it is essential that assessments consider the impacts of both IMTs operating simultaneously, rather than the limited 250,000 TEUs at SIMTA and early works package at MIT. The simultaneous operation at full capacity is likely to have far wider reaching environmental and social impacts than the worst case throughput identified in the EIS.*
- *Further consideration should be given to the assessment of cumulative noise, visual, traffic, air quality, GHG, socio economic and health impacts with the two IMTs operating simultaneously, based on the proposed MIC operation and the approved SIMTA operation. Should this assessment not be undertaken then any potential approval should limit the combined capacity of the IMTs to a throughput of 1 million TEUs, as per the identified cumulative demand in the EIS inclusive of both import/export and interstate freight.*

The lack of coordination to date between the SIMTA and MIC proposals at Moorebank is a major flaw in the assessment of their cumulative impacts. The MIC Response to Submissions Report (Parsons Brinkerhoff, 2015) identifies that agreement has been reached between MIC and SIMTA for an integrated precinct wide IMT. However, the SIMTA EIS identifies the projects operating as two separate entities. The inconsistencies between the assessment documents informing the projects and lack of certainty does not

provide confidence in the level of assessment both internal to the site and cumulatively. Prior to the determination of either the SIMTA or MIC applications a consistent master planned scheme should be provided and assessed to establish whether an IMT of this scale at Moorebank is reasonable and the significant environmental impacts can be mitigated. Based on the information contained within the EIS it does not appear that this is currently the case.

A master planned development is required as identified by the PAC and the *F*reight Infrastructure Advisory Board Report of 2005. This approach would help to provide certainty to the community and Council regarding the type and location of likely environmental impacts.

IMTs are not identified within Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act). Consequently, an Environmental Protection Licence (EPL) is not required under Sections 47, 48 or 49 or the POEO Act. However, the scale of both of the IMTs creates a high potential for environmental impact resulting from emissions to air and water. Subject to Section 43(d) of the POEO Act an EPL can be required "*to control the carrying out of non-scheduled activities for the purpose of regulating water pollution resulting from any such activity, as referred to in section 122*". The SIMTA proposal has the potential to pollute the waters of the Georges River and Anzac Creek. The potential to pollute is derived from the proximity of the site to these water bodies and the large extent of the site, industrial nature of the use and difficulty controlling runoff both from within the site, the supporting rail corridor and trucks servicing the site.

An EPL would require the EPA to act as the appropriate regulatory authority. Management of the site under an EPL by the EPA is considered more appropriate than management by Council, as the EPA rather than Council has the specific resources and expertise to undertake this function. Consequently, a more rigorous management regime would be established to ensure that environmental impacts are appropriately managed.

4.19.2.8 Best Practice Review

Best practice cumulative assessment requires best practice in the individual assessment of environmental aspects, (refer to comments within each sub-section of **Section 4**), as well as a risk analysis considering potential impacts associated with surrounding existing and proposed uses. The risk assessment would identify those items with low, medium and high risks. Items of medium and high risk would require further assessment and subject to the findings, mitigation to address potential impacts. The cumulative assessment contained within the EIS falls well short of this standard, with only limited, generally unquantifiable assessment based primarily on secondary information. Consequently, a comprehensive cumulative assessment is required that addresses the realistic operating scenario for the site and surrounds in the future and considers the associated environmental impacts.

4.19.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-41 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
Assessing cumulative air impacts at a local and regional level (including but not limited to contemporaneous operations such as those of the proposed Commonwealth Government MIT;	A limited air quality assessment has been undertaken for cumulative impacts that considers the MIC early works package.	The assessment considers one local impact being MIC, the Glenfield Recycling Facility is not considered, nor are any other uses in the local or regional context. It is not considered that this item has been addressed.

4.19.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-42 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000 including but not limited to:		
the development's relationship to and interaction with adjoining development, including the proposed intermodal on the School of Military Engineering site and consideration of cumulative impacts of the two intermodals	MIC early works package and SIMTA Stage 1 capacity up to 250,000 considered	Assessment is very limited in terms of the scale of development considered and the depth of assessment. Refer to comments in **Section 4.19.2**. It is not considered that this item has been addressed.
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include:		
consideration of potential cumulative impacts due to other development in the vicinity	Impacts associated with MIC and the Glenfield Recycling Facility have been considered.	Assessment is very limited in terms of the scale of development considered and the depth of assessment. Refer to comments in **Section 4.19.2**. It is not considered that this item has been addressed.
consideration of the cumulative impacts of this proposal with the adjacent Moorebank Intermodal Terminal proposal.	MIC early works package and SIMTA Stage 1 capacity up to 250,000 considered	The full MIC capacity along with the SIMTA capacity of 500,000 should be assessed, rather than simply the early works package. Refer to comments in **Section 4.19.2**. It is not considered that this item has been addressed.
A comprehensive air quality impact assessment including:		
Assessing cumulative air impacts at a local and regional level (including but not limited to contemporaneous operations such as those of the proposed Commonwealth Government MIT)	A limited air quality assessment has been undertaken for cumulative impacts that considers the MIC early works package.	The assessment considers one local impact being MIC, the Glenfield Recycling Facility is not considered, nor are any other uses in the local or regional context. It is not considered that this item has been addressed.

4.19.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> It is unclear whether the SIMTA and MIC IMTs will be integrated or standalone projects. Should one integrated project be proposed, a master planned development is required to provide certainty to the community and Council regarding the type and location of likely environmental impacts. A comprehensive cumulative assessment is then required that considers impacts attributable to the site and those associated with the interactions between site and surrounding land uses both locally and regionally.

> An assessment is required to identify those sites and associated uses with the potential to contribute to cumulative impacts. A risk assessment should then identify items of low, medium and high risk of cumulative impact in the both the local and regional context. Items of medium and high risk would require further assessment and subject to the findings, mitigation to address potential impacts should be identified and committed to.

4.20 Consultation

The proposed SIMTA EIS provides details of the consultation associated with the proposal. This review considers information in the EIS and Appendix K prepared by Elton Consulting (2015).

4.20.1 Overview of the SIMTA Assessment

Assessment of the SIMTA consultation process is contained in Section 6 of the EIS document and in an Appendix K, the Community and Stakeholder Consultation Outcomes Report. The SIMTA assessment provides details on contacts within specific government authorities, companies and strategies used for community engagement. The methods of contact and resulting discussion topics are identified to varying levels of detail.

Statutory Consultation

SIMTA was required to exhibit the Preliminary Environmental Assessment (PEA), Environmental Assessment (EA), and Environmental Impact Statement (EIS) at various stages of the concept approval process. This consultation is mandatory under the applicable state and commonwealth assessment processes.

SIMTA also notes that the Planning Assessment Commission (PAC) held a hearing at the Wattle Grove Community Centre on the 31 of July 2014 and identified that this also constituted community consultation.

Agency, Utility, Corporate and Authority Consultation

Consultation was varied from a single email or letter from SIMTA seeking comment to multiple meetings held with issues discussed in detail.

The following authorities were contacted in a limited way via a small number of letters, emails and/or phone calls:

- Commonwealth Department of Environment
- NSW EPA.
- NSW DPI – Department of Fisheries
- NSW RFS
- NSW Ports
- Jemena
- Telstra
- NBN Co.
- NSW T&I – Crown Lands

The following authorities were contacted and consulted through meetings, multiple contacts by phone calls, letters and formal procedures such as connection applications:

- NSW DPE
- NSW OEH
- TfNSW
- NSW DPI – Office of Water
- NSW Health
- Liverpool City Council
- Campbelltown City Council
- RMS (via TfNSW)
- ARTC
- Endeavour Energy
- AGL Upstream Investments Pty Ltd.
- NBN Co.
- Moorebank Intermodal Company
- Glenfield Waste Facility
- APA Group

Some authorities raised a wide range of issues and concerns about the proposal. In some cases these have been detailed in the EIS with SIMTA's response also provided. In other cases the content of discussions is not provided.

Community Consultation

SIMTA has developed a consultation strategy using multiple tools to interact with the community. These tools include:

> SIMTA website www.simta.com.au

> Email Feedback System consulting@elton.com.au

> Information Line 1800 986 465

> Letters to Residents

> Community Information Centre

> One-on-one meetings with members of the community.

> Items in the local news media.

Significant elements of community consultation identified in Appendix K and EIS Section 6 represent work undertaken as part of the Concept Approval stage between 2010 and 2014. The successful response rate of some elements of the strategy is not provided, meaning that the effectiveness of the strategy cannot be fully evaluated.

Indigenous Community Groups

SIMTA engaged AHMS to conduct this part of its consultation strategy. Advertisements were placed in a local newspaper in late November 2014 seeking additional aboriginal stakeholders who had not previously registered an interest in the SIMTA concept plan. Notification of the Stage 1 proposal was then sent in early December 2014 to relevant parties, inviting them to register and providing information on proposed archaeology works within the Stage 1 area. The following groups were consulted:

> Tharawal Local Aboriginal Land Council (LALC)

> Cubbitch Barta Native Title Claimants Aboriginal Corporation (CBNTCAC)

> Darug Tribal Aboriginal Corporation (DTAC)

> Darug Aboriginal Cultural Heritage Assessments (DACHA)

> Tocomwall

> Darug Land Observations (DLO)

> Darug Custodian Aboriginal Corporation (DCAC)

> Darug Aboriginal Landcare Inc (DALI).

4.20.2 Cardno Assessment

Authorities, Agencies and Businesses

The level of consultation undertaken with some stakeholders is limited. The following entities were identified by the SEARs as requiring notification, however, direct feedback has not been provided according to the project EIS from the following:

> Commonwealth Department of the Environment – Letter sent in April 2015.

> NSW Rural Fire Service – Letter sent in April 2015.

> NSW Ports – Email sent on the 11th of February 2015.

> AGL Upstream Investments Pty Ltd. – Email sent on the 16th of February 2015.

> Crown Lands – Email sent 23rd of March 2015.

The EIS specifically lists these stakeholders as not having responded to the proposal. It maybe that the stakeholders do not have concerns with the proposal, alternatively, stakeholders may not have been given sufficient notice. This appears likely in the case of the Commonwealth DPE and NSW RFS. There does not appear to have been a consistent approach or timing for contact with stakeholders and consequently their responses have not been included in this proposal despite them being specifically named in the SEARs and Concept approval conditions.

EIS Description of Consultation

"The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided." – Project SEARs.

This has not been completed in a consistent manner. The concerns of some stakeholders such as OEH have been presented in detail with SIMTA responses. In other cases the concerns and SIMTA's response is limited with only general comments suggesting further consultation. Specific examples of this include:

> TfNSW – *"The potential VPA19 to modify the 901 bus route was mentioned in an email by TfNSW sent on the 4 February 2015. A number of additional conversations and written correspondence were had with TfNSW to discuss the content of the EIS."*

> ARTC – *"12/12/2014 Comment: General comments regarding rail operations point of control between ARTC and SIMTA, the proposed rail alignment design and the SSFL/MFN capacity…"*

> Moorebank Intermodal Company (MIC) – *"Meetings are undertaken on a regular basis with Moorebank Intermodal Company (MIC) to co-ordinate planning objectives. This communication is expected to be on-going throughout the various stages of the SIMTA Project, i.e. construction, operation and further stages of approval."*

The consultation process between SIMTA and these key stakeholders is not well described by the EIS. Consequently there is still significant uncertainty regarding details of the rail link and plans for integration and cooperation with the MIC. If these negotiations or other consultation cannot be made public because they contain commercially sensitive information then this should be clearly identified.

Community Consultation

There is concerned that SIMTA is representing consultation undertaken for earlier phases of the Concept Approval as part of the consultation for Stage 1. SIMTA's consultation activities appear to have become less effective over time as the number of responses appears to have decreased. A detailed breakdown of the timing and response to consultation activities is included in Appendix K of the EIS.

Email

The email feedback system has been operating since July 2010. 80 responses were received between July 2010 and November 2012, 28 responses were received in September 2013 and only 9 responses were received between December 2014 and April 2015. This is problematic because only the last 9 responses would have been able to consider the final SIMTA concept as approved by the PAC in 2014. The other 108 responses cannot be reasonably attributed to the project for which approval is being sought.

Information Line

The information line is listed as having received 40 enquiries between July 2010 and November 2012. This predates the PAC determination of the SIMTA concept application by almost 2 years and cannot be reasonably attributed to the current project application. No figures are provided for enquiries since this time so it is not clear if any have been received.

Letters & Newsletters to Residents

Letters and newsletters were sent to residents of around the Moorebank area at the following list of dates.

14/07/2010 – 11,000 letters

10/2010 – 8,600 Newsletters

04/02/2011 – Letters sent to Wattle grove and Casula residents

03/2012 – 10,000 Newsletters regarding the concept plan exhibition

09/2013 – 10,000 Newsletters

The appendix does not list any written communications sent since September 2013. It is not clear if further written communications have been issued to residents since then. None of these letters post-date the PAC determination of the Concept approval and consequently none of this can be attributed to the project for which approval is being sought.

The Community Information Centre

The Community Information Centre has been open for a number of periods to discuss the proposal.

> 11/02/2011 – 19/03/2011 open Thursdays 15:00-18:00, Fridays 12:00-15:00 and Saturdays 11:00-14:00. 70 visitors were received in this time.

> 29/03/2012 for 30 days. Open Thursdays 16:00-19:00 and Saturdays 11:00-14:00.

Scheduled community sessions were held at the CIC on:

> Wednesday 11/9/2013 (14:00 to 16:00)

> Saturday 14/9/2013 (10:00 to 12:00)

> Wednesday 18/9/2013 (14:00 to 16:00)

> Saturday 21/9/2013 (10:00 to 12:00)

Over this period the CIC received 14 visitors an average rate of 3-4 people per session.

The CIC was open by appointment until November 2014. Attendance figures for the period between September 2013 and November 2014 are not provided.

Almost all of the CIC activities and responses occurred prior to the PAC determination of the concept plan and cannot be attributed to the current project.

One on One Meetings

10 meetings were held with residents in early 2011. None are listed as occurring since this time.

SIMTA Website

The SIMTA website has been operating throughout the concept approval stage and has been updated 4 times between December 2014 and April 2015. Appendix K presents information on the response the website has received since December 2014.

> 11 subscribers

> 1200 unique visits

These visits and subscriptions have occurred since the PAC's determination of the SIMTA Concept pPlan and are reasonably attributable to the project application.

Community Consultation Summary

Only a very limited amount of community consultation has actually been conducted in relation to the Stage 1 application. This amounts to:

> 9 emails received

> 11 website subscribers

> 1200 website visits

> The Community Information Centre (by appointment only, closed in November 2014)

The prior consultation should not be considered appropriate as the project has evolved over time. Key elements such as the location of the rail link have changed. Even the final capacity of the SIMTA project has changed from 1 million TEU facility to a cap of 500,000 TEU, with 250,000 TEU initially.

This is a very limited consultation process for a major project stage. Consequently the proponent cannot claim to have consulted with the public as required by the project application SEARs, the Concept Approval conditions of approval and Statement of Commitments.

It must also be noted that the processes and tools used in this consultation process appear to have focussed on informing and educating the public. A best practice consultation process would include elements of citizen empowerment including evidence that the community is contributing to decision making. Further community consultation must be conducted for this project application before a determination is made.

4.20.2.1 Best Practice Review

The NSW Department of Planning developed guidelines for major project community consultation which should guide the process used for the SIMTA Stage 1 project.

"The Consultation Process

The account of the consultation process included in the environmental assessment may be considered adequate if it demonstrates that:

- *Those individuals and organisations likely to have an interest in the proposal had enough opportunity to express their views. The community of interest can be broadly categorised into three groups:*
  - *those directly impacted by the project (eg. neighbouring residents or those located on transport corridors affected by road or rail transport associated with the project)*
  - *individuals and groups likely to have an interest in the local or regional implications of the project (eg. local councils, local members of Parliament and P&Cs, environmental, indigenous, heritage, business and other community organisations in the area)*
  - *organisations with a State and national interest (eg. State and Commonwealth government departments, peak bodies, infrastructure service providers).*
- *Information regarding the nature of the proposal had been accurately and widely distributed. Methods of distribution of information may include, but not necessarily be limited to letters to key stakeholders, newsletters, a website, advertisement of consultation events and public displays on the proposal.*
- *Community and stakeholder feedback was encouraged and recorded. Methods of capturing feedback may include, but not necessarily be limited to:*
  - *surveys and feedback forms*
  - *submissions*
  - *a database that records issues and comments via 1800 number or similar arrangement*
  - *meeting minutes.*

Methods of discussing issues with stakeholders may include, but not necessarily be limited to:

- *drop-in community information centres, displays or open days with project team members available to discuss issues*
- *focus groups, community group meetings, feedback sessions, individual and group briefings with key stakeholders and presentations/discussions at organisation meetings.*

> *Consultation with community and stakeholders was inclusive and the proponent has:*

- *Got to know and understand the communities it needs to engage*
- *Acknowledged and respected their diversity*
- *Accepted different views, but ensured that dominant special interest groups are not the only voices heard*
- *Ensured that participants are aware of what they can and cannot influence*
- *Aimed for accessibility:*
  i. *Chose engagement techniques that offer opportunities to participate across all relevant groups*
  ii. *Considered the timing, location and style of engagement events and strategies*
  iii. *Avoided notifying and holding events during holiday periods*
  iv. *Avoided jargon and technical language*
- *Paid particular attention to the needs of groups that tend to be under represented (including indigenous groups and people from linguistically and culturally diverse backgrounds).”*

Guidelines for Major Project Community Consultation, Department of Planning 2007

The limited consultation undertaken for the SIMTA Stage 1 project would not meet these guidelines. The only aspect of the consultation process that would meet these requirements is the Indigenous Community consultation.

4.20.3 Compliance with Concept Plan Approval and Commitments

A review of the Concept Plan Approval conditions and Statement of Commitments, along with the associated EIS response is provided in the Table below.

Table 4-43 Concept Plan Approval and Commitments

Concept Approval Requirements	EIS Response	Comments
General Requirements Any future Development Application shall: … d) include details of the consultation process and outcomes with relevant stakeholders, including (but not limited to): • relevant government authorities, such as OEH, EPA, DPI, TfNSW and DoE, Liverpool Council, Campbelltown Council, Bankstown Council; • service and infrastructure providers; and • special interest groups and the public, including adjoining and affected landowners.	SIMTA has consulted all groups listed and more.	Consultation with authorities has been broadly successful with some exceptions including the Commonwealth DoE, NSW RFS and Crown Lands which appear to have received insufficient notice from the applicant. Community consultation associated with the project, rather than the Concept Approval has been very limited.

Concept Approval Requirements	EIS Response	Comments
Rail Any future Development Application shall address the requirements of TfNSW and include detailed design and engineering drawings for the rail link and include evidence of consultation with: > TfNSW, particularly in relation to the future Moorebank Station site, use of the existing EHPL corridor and connections to the SSFL; and > The EPA where the rail line traverses the Glenfield Waste Facility.	TfNSW and the EPA have been extensively consulted in the preparation of the EIS and design of the proposal.	Details have not been provided to confirm this.
Soil and Water Any future Development Application for stage 1 shall include an assessment of soil and water impacts for the entire site including rail link. The assessment shall: … d) include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include: i. the potential environmental and human health risks of site contamination on the project site; ii. a Remediation Action Plan; iii. consideration of implications of proposed remediation actions on the project design and timing; and iv. a Phase 2 environmental site assessment of the project site including rail corridor.	The EPA has been extensively consulted in the preparation of the contamination assessment.	No comment.
Heritage Any future Development Application shall assess heritage impacts of the proposal. The assessment shall: a) consider impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project should be assessed. Where impacts are identified, the assessment shall demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures); and …	Indigenous groups have been extensively consulted and included in investigations of the site.	No comment.
Biodiversity Any future Development Application shall include a Flora and Fauna assessment. The assessment shall: … b) include a Vegetation Management Plan that has been prepared in consultation with the NSW Office of Water;	NOW has been consulted extensively in the development of the proposal.	No comment.
Statement of Commitments		
Consultation		
The Proponent will continue to consult with relevant government authorities and bodies during the design development process for the detailed applications for the three major stages of the development. Depending on the development proposed, these may include: a) Liverpool City Council b) Transport for NSW c) Railcorp d) Australian Rail Track Corporation Ltd (ARTC)	Relevant authorities and departments have been consulted as detailed in the EIS and relevant appendix.	No comment.

Concept Approval Requirements	EIS Response	Comments
e) NSW Department of Primary Industries (including NSW Office of Water, NSW Fisheries and Crown Lands) f) NSW Office of Environment and Heritage g) Heritage Council of NSW h) NSW Environment Protection Authority i) Department of Defence j) Department of Finance and Deregulation		
The Proponent will continue to engage and consult with the community during the future detailed planning applications. Depending on the scale of the proposed, development, SIMTA may undertake the following activities either prior to lodgement or during the public exhibition of the application: a) Open a Community Information Centre (as appropriate) to provide stakeholders with information and to receive feedback on the proposal b) Update the existing project website and maintain access c) Continued operation of the email feedback system and free-call information line.	An extensive community consultation strategy was implemented.	The proponent engaged in very limited community consultation for Stage 1. Most of the consultation effort listed in the EIS and appendix was conducted between 2010 and 2013 as part of the Concept Approval. The CIC closed in November 2014. It is not clear if it received any enquiries after the PAC determination of the Concept plan. The SIMTA website was updated 4 times and did receive 1200 unique visits. The email feedback system received only 9 enquiries since December 2014. By any standard, this is a very limited community consultation strategy.

4.20.4 Agency Environmental Assessment Requirements Review

A review of the SEARs and the associated EIS response is provided in the Table below.

Table 4-44 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	EIS Response	Comments
5. Traffic and Transport A Traffic Impact Assessment that assesses intersection and road network impacts, including impacts on Cambridge Avenue. The traffic assessment shall: … b) undertake a realistic and justified range of peak hour generation scenarios (to be determined in consultation with TfNSW);	RMS was consulted via TfNSW.	Details of the TfNSW and on this matter in particular are not provided.
6. Rail An assessment of the impacts of the rail link on the Glenfield Waste Facility in consultation with the EPA, including:	TfNSW and the EPA have been extensively consulted in the preparation of the EIS and design of the proposal.	
9. Soil and Water l) include a contamination assessment in accordance with the guidelines made under the Contaminated Land Management Act 1997 and in consultation with the EPA for the subject site including the Glenfield Waste Facility. The assessment shall include:	The EPA has been extensively consulted in the preparation of the EIS and design of the proposal.	

Secretary's Environmental Assessment Requirements	EIS Response	Comments
i. the potential environmental and human health risks of site contamination on the project site; ii. a Remediation Action Plan; iii. consideration of implications of proposed remediation actions on the project design and timing; and iv. a Phase 2 environmental site assessment of the project site including rail corridor.		
12. Biodiversity … c) include a Vegetation Management Plan that has been prepared in consultation with the NSW Office of Water;	NOW has been consulted extensively in the development of the proposal.	
Consultation During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: local, State or Commonwealth government authorities, including the: - Commonwealth Department of the Environment; - Environment Protection Authority; - Office of Environment and Heritage; - Transport for NSW; - Department of Primary Industries (Fisheries & Office of Water); - NSW Rural Fire Service; - NSW Health; - Sydney Ports Corporation; - Liverpool City Council; and - Campbelltown City Council. service and infrastructure providers: - Roads and Maritime Services; - Australian Rail Track Corporation; - Sydney Trains; - Sydney Water Corporation; - Endeavour Energy; - Jemena; - Telstra; and - AGL Upstream Investments Pty Ltd. specialist interest groups, including Local Aboriginal Land Councils; and the public, including community groups and adjoining and affected landowners. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided	An extensive community consultation strategy was implemented.	The proponent engaged in very limited community consultation for Stage 1. Most of the consultation effort listed in the EIS and appendix was conducted between 2010 and 2013 as part of the Concept Approval. The CIC closed in November 2014. It is not clear if it received any enquiries after the PAC determination of the Concept plan. The SIMTA website was updated 4 times and did receive 1200 unique visits. The email feedback system received only 9 enquiries since December 2014. By any standard, this is a very limited community consultation strategy.
Further Consultation after 2 years If you do not lodge a development application and EIS for the development within 2 years of the issue date of these SEARs, you must consult further with the Secretary in relation to the preparation of the EIS.	This period has not expired.	No comment.

4.20.5 Recommendations

The recommendations below are identified to address identified impacts and allow a comprehensive assessment of the proposal:

> Additional community consultation should be conducted regarding the SIMTA Stage 1 project this should include:

- Newsletters sent to residents and businesses in the local area with advice regarding the specifics of the proposal and options for them to attend further consultation activities.
- Advertisements in local media such as newspapers, radio and television.
- Re-opening and advertising of the Community Information Centre in Liverpool.
- More interactive methods of consultation such as focus groups, community meetings and online forums.

> Corporate and Public Authority Consultation should be conducted consistently and comprehensively with all relevant stakeholders given sufficient time to respond to notices regarding the project.

> Consultation should be conducted again if the project is significantly amended during the approvals process.

5 Best Practice Review

This section summarises the proposal in the context of world's best practice.

5.1 Objectives

As a major project of national significance, the proposal should aim to provide a development that strives for international best practice from a triple bottom line perspective, rather than a standard IMT operation. Furthermore, there is the potential that SIMTA and the MIC projects will be integrated, with the project receiving government funding. Consequently, there is a responsibility for both SIMTA and MIC to set a benchmark for IMT operations, as an example for others to follow.

SIMTA Stage 1 has not adequately considered international best practice. Internationally IMT facilities have developed innovative solutions to problems that could be adopted by SIMTA to increase its efficiency and to reduce its impact on the environment and society. Best practice discussion is provided below.

5.2 International Examples

This section reviews the world's best ports and IMT facilities to identify world's best technology, practices and ideas that should be implemented by SIMTA to minimise the impact of the facility on the community and environment.

5.2.1 Port of Rotterdam

Automation

The Port of Rotterdam uses automated vehicles and equipment to improve the efficiency and safety of port operations. Containers are moved and stacked using automated vehicles which are guides by magnetic markers embedded in the ground.

Noise and Visual Impact

A detailed visual quality plan has been implemented to improve the appearance of port infrastructure and provide better integration with surrounding development. Where the port's noise emissions could impact sensitive receivers, they are mitigated through construction of sound barriers and earthworks.

Sustainable Transport

Public transport and cycling infrastructure is provided within the city and port to allow employees to reach their jobs without using private vehicles. Trucks seeking to use the facility must meet emissions and fuel efficiency standards. These measures reduce air pollution at the local and regional scales.

Relocation and Preservation of Ecology

Rather than simply clear ecologically significant ecosystems for new infrastructure, the port engages in an extensive program of relocation. This minimises impacts and preserves ecological diversity. An annual survey of ecology in and around the port is conducted to ensure decisions are made with the best information.

5.2.2 Port of Hamburg

Automation

The Port of Hamburg uses automated vehicles and cranes to move freight. Automation improves safety by removing people from heavy machinery operations areas. Containers are moved by automated vehicles which track their location using embedded transponders. The port is testing electric versions of these vehicles to further reduce emissions, noise and fuel consumption. Vehicle charging is timed to match periods of increased renewable energy generation.

Locomotives

Railway operations are enhanced through incentives that encourage operators to meet emissions and noise standards. Electric locomotives are used where possible to reduce emissions and noise impacts.

Education and Community Engagement

The port partners with local educational institutions to support students studying port related disciplines like logistics and engineering. This builds links with local communities and assists in the development of port staff.

5.2.3 Port Authority of New York and New Jersey

Locomotives

A genset switching locomotive is being used within the Port for shunting operations. Anti-idling devices have been installed on locomotives to ensure that their engines do not generate unnecessary pollution and noise.

Trucks and Port Vehicles

Alternative fuels and energy sources are under evaluation for trucks, port vehicles and equipment including CNG, hybrid electric and fully electric engines. A Smartway partnership program has been implemented to encourage operators to improve vehicle efficiency and performance. A phase out program is reducing and removing port access for older vehicles which do not meet recent emissions standards. Plug-in electrification for refrigerated containers and truck stops is being used to discourage truck engine idling. More efficient vehicles have priority lane access. There are freight lanes connecting the port to the nearest highway.

5.2.4 Port of Vancouver

Vehicle Management

Trucks approaching the port are monitored in real time through GPS tracking. This allows arrival times and queueing to be predicted and managed in advance.

Noise and Environmental Monitoring

Monitoring occurs in real time so that problems can be identified precisely and quickly. This provision of information also contributes to ongoing community consultation.

Community Consultation

The PortTalk website provides information to the public and facilitates ongoing community consultation. Twitter, Facebook and other social media platforms are used to extend community consultation and engagement. A 24 hour feedback line provides a continuous access to information and feedback services.

5.2.5 Port of Felixstowe, UK

Water Efficiency

Advanced water management systems are used to minimise any waste of water. Sensors can detect the small flows and pressure drops which occur when pipes are leaking. Water appliances are selected for their efficiency.

Electrified Plant

Major in port appliances such as rubber-tired gantry cranes have been electrified to reduce emissions on site.

Recycling

High targets have been set for waste produced on site. At present, 65% of all waste produced on site is recycled.

Renewable Energy and Efficiency

Solar electricity generation systems have been installed on site. Other energy saving measures include LED flood lights, which are both more efficient and less attractive to insects than the globes they replaced.

Active Transport

An employee travel plan helps reduce private motor vehicle use and is combined with programs that educate and inform employees of the benefits of alternative travel modes. Almost 20% of staff cycle or walk to work which creates benefits for the Port in terms of reduced parking and traffic as well as improved employee health.

5.3 Assessment of SIMTA Best Practice Review

The SIMTA EIS provides an assessment of the project against a review of Australian and International best practice standards. The review is generally deficient in that it commits to investigate rather than commits to implementing these best practice approaches. Consequently, certainty is not provided.

5.3.1 Air Quality

The air quality best practice review considers:

> Locomotive Fuel and Emissions Standards

Due to a lack of relevant Australian standards the review examines the European and US standards to understand what a future Australian Standard might look like. The review does not commit SIMTA to complying with these standards and elsewhere notes that the project will use the existing locomotive fleet, which will not meet these standards. Given the long working life of railway locomotives, it is highly likely that the existing locomotive fleet will not meet these minimum standards.

> Existing Locomotive Upgrades

A brief review of the options for powering the locomotives is conducted including hybrid locomotives, alternative fuels, battery storage and electrification. None of these options are identified as suitable. Again, the EIS notes that the existing locomotive fleet will be used.

Minor upgrades such as driver assistance systems, anti-idling systems and electrification hook-ups for containers are to be considered for implementation subject to future maintenance programs. There are no commitments, key dates or timelines attached. This approach waives any commitment to implement best practice technology and management approaches. Confusingly the table at 10-7 identifies that locomotive electrification will occur, but this is limited to the locomotive shifter rather than the actual vehicles.

> Queue Management

The EIS reviews the possible use of Queue Management technology and advises that it cannot control trucks which are under independent control and cannot be directly managed. This technology is in widespread use internationally and simply requires policy development and liaison with fleet operators.

It is neither expensive nor experimental and should be implemented given the expected future traffic constraints on the Moorebank area.

> Idling

The EIS reviews the applicability of anti-idling technology in locomotives and trucks. It argues that the technology is not necessary on site because it has already performed an air quality risk assessment based on the assumption that locomotives will idle for 2 hours and trucks will idle for 30 minutes each. This is despite the EIS noting that these technologies could reduce idling and emissions to 30 minutes and 15 minutes for locomotives and trucks respectively. There are significant environmental savings for relatively small investment that should be committed to.

5.3.2 Noise

The noise best practice review considers:

> Real time Noise Monitoring

The EIS rejects the idea of noise monitoring as inappropriate for a project of this scale. This is problematic as without real time monitoring from day one, there is no mechanism for demonstrating that the facility is continuously compliant with its noise limits and conditions of consent, nor will it allow continuous improvement, which should be committed to and strived for. Real time monitoring is also designed to provide the public with information so that they can be assured that the facility is compliant with emission levels.

> Locomotive and Truck Noise

The EIS states that it is not feasible for SIMTA to influence the environmental compliance of the trucks that use the facility. This is a flawed assumption, with numerous local and international industrial operations requiring a set level of environmental compliance from service vehicles with spot checks and non-complying vehicles excluded. There is also the possibility of partnership programs between SIMTA, Port Botany and major freight operators to establish industry noise standards.

5.4 Summary & Recommendations

The SIMTA Stage 1 proposal does review international best practice and standards, with little commitments made and only limited justification provided as to why best practice cannot be achieved. A number of the justifications for inaction are counter to operations across a range of international IMTs which operate in far more constrained conditions and at higher container throughput. It is clear that this assessment does not meet the terms of the relevant SEARs which require "…a *detailed evaluation of feasible and reasonable mitigation and management measures...*". The proposal should not proceed without a full and reasonable assessment of best practice measures and their potential for implementation. A rigorous, transparent approach would be for an independent body to evaluate the costs and benefits of these measures to provide more objective analysis.

6 Conclusions & Recommendations

This section provides a summary of findings and overall conclusion to the study, along with associated recommendations.

6.1 Conclusion

The environmental impacts of the proposal are extensive and have yet to be adequately assessed by the proponent. It is questionable whether these impacts can be mitigated without the identification and preparation of supporting infrastructure, management plans, operating procedures and compensation schemes, which the current scheme and associated assessment fails to do. However, prior to this additional assessment being undertaken it is essential that a precinct-wide master planning process be undertaken. The master planning would be informed by the latest agreement between SIMTA and MIC as to the extent of cooperation and integration of the two proposed IMT's, while also considering Liverpool City Council's strategic intent for the site and surrounds. Inputs would also be required from other stakeholders including the Department of Planning and Environment, Transport for NSW and Roads and Maritime Services.

The master planning and subsequent assessment would help to identify whether IMT facilities at Moorebank are really a viable option and achieve the highest and best use of both the land and Federal Government funds. It is recommended that the master planning is informed by a comprehensive review of alternatives as required by both the SEARs and EP&A Regulation.

Master planning and subsequent environmental assessment would help to resolve a number of the gaps in the EIS, to provide additional certainty for the community, while helping to address the currently unmitigated residual impacts. Dependent upon the findings of the master planning process it is recommended that a precinct wide planning proposal be prepared to clearly define the future land uses and resolve the current permissibility issues presented by the current SIMTA scheme.

The following subsections summarise the environmental impacts and key issues associated with the project that should be considered in any future master planning and assessment.

6.1.1 Environmental Review

A summary of the key items raised by the environmental review in **Section 4** is provided below.

6.1.1.1 Traffic and Transport

The TIA models traffic growth out to 2016, at which point the SIMTA modelling indicates that background traffic would already cause poor intersection performance on Moorebank Avenue at Heathcote Road and Newbridge Road. As the poor intersection performance cannot be attributed to this proposal, the TIA suggests that the upgrade should be funded by RMS. No indication is provided that the works will be carried out in time to facilitate the operation the SIMTA project. Furthermore, the TIA does not acknowledge that the SIMTA traffic will provide a significant contribution to heavy vehicle movements thus expediting the timeframe to reach reduced LOS.

The strategic value of the Moorebank precinct for a road-rail IMT may be short lived due to the associated congestion and comprehensive, potentially unfeasible infrastructure upgrades associated. Traffic modelling conducted by Parsons Brinckerhoff for the updated MIC concept plan EIS (Parsons Brinckerhoff, 2015) states that background traffic growth to 2030 will result in almost all modelled intersections performing at LOS F with regards to queueing, requiring numerous intersection and road capacity upgrades. Conversely, the SIMTA TIA at Section 2.3 identifies an annual negative growth of 0.9% (2010-2014) on Moorebank Avenue south of Anzac Road, whereas the traffic results shown in Section 3.2, (Tables 3-2 and 3-3) indicate that based on commissioned traffic surveys between November and December 2014 the traffic volumes increase at the same location. The TIA does not clarify if the local negative growth or the precinct average positive growth rate was applied to the background traffic at the intersections assessed.

The EIS notes that a modification has been sought for the approved concept plan that would remove the requirement for an agreement to modify the 901 bus route to better serve the proposal. The modification is

proposed as developer levies cannot be used to support bus services. Removing the public transport commitments from SIMTA Stage 1 could compromise public transport provision for the final IMT at the Moorebank Site. Furthermore, the proposed modifications to the statement of commitments extend far beyond the removal of a bus route VPA and include the removal of all commitments to road infrastructure provision under a VPA. This is an extraordinary modification which would effectively remove responsibility for infrastructure provision from the proponent.

No warehousing is proposed as part of the Stage 1 SIMTA proposal. Therefore, containers would be destuffed elsewhere, resulting in double handling and increased local congestion, noise, air quality and visual impact. The secondary traffic movements from the SIMTA site should be incorporated into the TIA modelling and assessed to establish the level of impact associated with the proposal not providing warehousing on site.

The intersections of the M5 Motorway with Moorebank Avenue and the Hume Highway at Liverpool are in close proximity, resulting in conflicts between vehicles merging onto the M5 from Moorebank Avenue and vehicles exiting the M5 at the Hume Highway. This conflict becomes particularly pronounced for longer heavy vehicles. SIMTA's modelling identified that 83% of all container trucks will travel via the M5, heading to the Hume Highway or further west. This suggests that SIMTA traffic will be a significant contributor to the weave issue, which has implications for the traffic congestion and accident risk.

In summary there is significant potential for broader sub-regional cumulative traffic impacts associated with the proposal. SIMTA Stage 1 should not be determined until the results of independent RMS traffic modelling are released and considered in the overall assessment to ensure that potential risks are understood and managed appropriately.

6.1.1.2 Air Quality

The worst case assumptions in the Traffic Assessment fall short of identifying a rigorous worst case scenario. Therefore the assumptions for traffic volumes and movements which feed into the modelling undertaken as part of the AQIA will need further review and updating to ensure that significant impacts are not created.

6.1.1.3 Noise

Existing noise environment data and noise monitoring data are not included, therefore it is not possible to verify if previous comments regarding the removal of weather affected data have been addressed. Furthermore, it appears that no further noise monitoring was carried out at the SME site as recommended in Cardno's previous review.

It is understood that the current Commonwealth land proposed for the MIC site is used as an educational facility with residential accommodation by the SME. The Stage 1 assessment has not identified or assessed impacts on these receivers. The SME site is in use and may still be in use when the SIMTA site is being constructed or is operational. The site is required to be assessed for construction and operational noise and vibration impacts to noise sensitive receivers. This was previously identified in the 2013 review but has not been subsequently addressed.

6.1.1.4 Hazard and Risk

Risks associated with the transit and handling of dangerous goods and/or potentially hazardous materials are not included in the risk assessment matrix. It is recommended that the transit and handling of dangerous goods and/or potentially hazardous materials be considered and assessed to ensure that the appropriate level of risk is assigned and appropriate mitigation measures are outlined, with these contributing to the procedures for freight acceptance to minimise risks along transit corridors. These procedures require development in consultation with third party authorities involved in the goods supply chain (i.e. customs and road/rail transport companies) to ensure that risks and hazards associated with unknown or uncontrolled dangerous or hazardous materials are managed appropriately.

A detailed project wide risk register is not provided that addresses cumulative risks associated with the adjoining MIC operations and subsequent stages of SIMTA. A register should be developed, regularly reviewed and maintained throughout the detailed planning, design, construction and operational phases

A PHA is not required based on the preliminary risk screening. However, given the potential for receival of hazardous goods it is highly recommended that the following risk management measures are in place prior to construction and/or operations commencing:

> Fire safety study

> Emergency plan (including all construction areas, site operations including rail and road transport corridors)

> Hazard and operability study (HAZOP)

> Updated hazard analysis should be undertaken throughout the design phases of the project

> Construction safety study

> Safety management plan.

6.1.1.5 Human Health

The health assessment considers noise and air quality impacts primarily, with no consideration given to mental health impacts associated with increased stress resulting from higher levels of congestion or decreased visual amenity. A broader assessment is required that considers the full range of potential health impacts.

Sleep disturbance hazard quotients from rail noise were also calculated and the results show that some hazard quotients greater than 1.0 for sleep disturbance, especially with L_{Aeqmax}, and cognitive function were identified. It is noted that these values only marginally exceed 1.0 which indicates that rail noise from the Stage 1 Proposal may result in an increase in the risk of the health outcomes in the local community with cumulative impacts associated with future stages and the MIC proposal. Furthermore, an assessment of noise emissions from movements on the SSFL generated by the Proposal has not been undertaken, which may add to noise impacts.

Construction noise risk was not assessed against the WHO guideline to the same level of quantitative rigor as the operational noise risk. There was also no assessment of the impact of the noise from the Stage 1 proposal on regional noise impacts. A quantitative assessment of the associated health risk could not be undertaken.

6.1.1.6 Geotechnical

The bulk earth works strategy requires more in depth consideration. It appears that the bulk earthworks strategy considers that all material won on site is suitable for re-use. Significant budget under-estimates will likely result should material not be suitable for reuse either due to contamination or geotechnical properties.

Prior to the progression of the bulk earthworks strategy, it may be prudent to produce an earthworks management plan or earthworks guidelines that considers both geotechnical and contamination aspects of site won material with respect to the suitability for specific applications.

The construction of the entry tracks to the IMT cross the Glenfield Waste Facility and associated leachate basins. These areas will require geotechnical/stability assessment as parts of this area have anecdotally been causing settlement issues in the vicinity of the junction of the East Hills and Main South lines.

6.1.1.7 Contamination

The RailCorp land has not been subject to detailed investigation due to accessibility issues. There is strong potential for unidentified contamination based on anecdotal evidence of illegal waste dumping and burning of railway sleepers in this area. The assumption of any contamination present within this area being readily manageable is insufficient without intrusive investigation works being undertaken.

Heavy metal and LNAPL contamination have been identified in groundwater across the site. While (Multi-Phase Extraction) MPE has been outlined as a remediation method for the LNAPL contamination, no indication as to the expected effectiveness of MPE have been provided or the required remediation level for the measures to be considered effective. More information regarding the anticipated effectiveness of the actions which will be taken if remediation of LNAPL contaminated groundwater is found to be ineffective should also be provided.

A number of soil materials have been identified for potential re-use on site following remediation through landfarming or sampling to ascertain their suitability, consideration is required should soils not meet the adopted on site re-use criteria. If this were to occur significant financial costs associated with disposing of materials off site and importing clean fill, as well as time burdens associated with changes to design may occur. This worst case scenario costing should be considered as part of the project to determine if this site is feasible for the proposed use of the site and its associated project budget.

The Phase 2 ESA for the MIC site (Parsons Brinckerhoff, 2014a) identified the potential for unexploded ordinance (UXO) within the Golf Course land, which forms part of the rail corridor. The Phase 2 ESA noted that artefact finds within the Golf Course land comprised inert explosive ordnance waste (EOW). However, the Assessment noted that there remains a limited potential for remnant UXO or EOW containing high explosive or other energetic material (Parsons Brinckerhoff, 2014a). An unexpected finds protocol should be put in place to address works encountering UXO or EOW, with appropriate management strategies and waste removal protocol's put in place.

6.1.1.8 Hydrology

The post construction PMF modelling demonstrates increased flood affectation of Moorebank Avenue and the SME site. Increases of up to 150mm on Moorebank Avenue are identified. This is considered a significant increase on a public road, and is inconsistent with the reported conclusion that the proposal results in "*negligible flood impacts within the Anzac Creek catchment area*". It is also not clear how far south the PMF impacts extend. It should be confirmed whether impacts extend to affect the existing rail line to the south.

A number of concerns are associated with the Georges River including:

> The proposed rail link bridge piers do not align with the existing bridge piers on the East Hills Line railway bridge, impeding navigation of the river, which is used for recreational purposes. Further, results for the Georges River bridge options indicate identical results for options 2 and 3 (6 spans and 5 spans, respectively). Clarity is required as to how these options produce identical results, and why 6 spans was chosen given 5 spans produced the same result.

> Modelling results and maps for the 100 year ARI and PMF events within the Georges River have not been provided in a form consistent with those provided for Anzac Creek. At a minimum, maps should be generated to present flood extents and elevations for the 100 year ARI and PMF events.

> Bridge / culvert structures required along the Georges River floodplain (for events >100 year ARI) have not been modelled. The proposed railway embankment will be an obstruction to flow for such events, and result in impacts to flooding. These impacts need to be quantified and presented for transparency. Flood mitigation required (in the form of bridges / culverts) needs to be designed and modelled at this stage to ensure that impacts can be feasibly managed. It is unclear why this assessment has been overlooked, while other bridge structures have been modelled, optimised, and flood impacts quantified and presented.

> An assessment of the impacts to flood velocities and durations as a result of the proposal is not provided. This information is vital in understanding downstream impacts and is a requirements of the SEARs.

6.1.1.9 Greenhouse Gas and Climate Change

The GHG assessment identifies a range of measures for reducing emissions during design, construction and operation, with a commitment made to prepare a GHG Management Plan as required by the Concept Plan Conditions of Approval. However, the assessment contains the caveats that the commitments are only '*potential mitigation measures'*, '*that could be considered'*, absolving SIMTA of the need to adopt any of the measures identified. It is essential that these measures are adopted if the GHG and CC impacts are to be managed to at least meet the levels identified within the EIS. Furthermore, the measures themselves contain further caveats and are generic, which even if they were committed to does not allow the benefit to be quantified.

As a minimum clearly defined strategies should be committed to with the project be assessed against the Infrastructure Sustainability rating scheme for infrastructure (Infrastructure Sustainability Council of Australia), with the intent of achieving a 'Leading' rating.

6.1.1.10 Biodiversity

The Biodiversity Assessment report lacks recognition does not recognize the need for connectivity between the Boot Land and the neighboring habitat corridors. The project does not consider the ecological environment through which the rail link passes and the need for retaining these habitats within the Sydney Basin

The Biodiversity Offset Strategy does not detail how the credits generated have been calculated or the assumptions on which the quantities are based. Due to this lack of information the number of credits generated cannot be assessed. To allow adequate assessment of the offsetting proposal presented, a detailed BOS should be provided including details on the assumptions and methods used to derive the resulting credits.

The Offset Strategy proposes to use Commonwealth Land to offset the proposed development. There is no discussion provided indicating that agreement has been reached with the Commonwealth. Furthermore, the Offset Strategy does not discuss whether the use of the Commonwealth Land will result in discounting of the credits associated with the land as no detail on how the credit are calculated is provided.

The VMP lacks specific detail of the recommendations proposed. In addition to not being written in accordance with the Guidelines for Vegetation Management Plans on Waterfront Land (OEH, 2010). A contractor could not prepare a cost estimate for the proposed works unless there are works details and quantities provided in the Plan.

The VMP has no detailed plans or diagrams, with figures showing the VMP site boundaries only, which do not include details, such as existing riparian vegetation types, condition, proposed areas of disturbance and proposed rehabilitation measures.

6.1.1.11 Heritage

The level of impact as a result of the removal of the five WWII buildings has been described by the Impact Assessment as a major impact to heritage significance of the SIMTA site as a whole, as well as the associated direct impacts to the structures for removal. Despite this high level of significance being recognized in the Artefact Impact Assessment, no attempts have been made to adaptively reuse these structures based on structural and compliance issues. No consideration has been given to integrating these buildings into the proposed works with removal proposed. Consideration should be given to the integration of these buildings into the proposal to allow the heritage significance to remain to a limited degree.

The proposed rail link is proposed to passes immediately to the west of the Glenfield Farm State Heritage Register listed item. The Impact Assessment identifies visual and noise impacts, however these are then discounted based on existing impacts occurring in the corridor. This approach does not consider the cumulative impact of these works and should be revised. Furthermore, movements on the spur line are likely to be slower than on the SSFL or East Hills Lines with locomotives potentially stopped on the spur line while other locomotives are moving into and out of the site, creating a far greater visual impact than the current fleeting views offered by freight carriages on the SSFL.

The proposed rail alignment runs along the edge of the Glenfield Waste Facility, parallel to the remnant riparian vegetation zone of the Georges River. The project does not discuss the level of impact associated with this neighbouring riparian zone, which has not been assessed for archaeological significance in either the Concept EA or the Stage 1 EIS. The Concept EA does note that the area, referred to as Area 1, was identified by Aboriginal participants as an area of cultural interest and as such is listed as an Area of Cultural Value. The SEARs specifically require that impacts to Aboriginal heritage sites identified within or near the project should be assessed. This has not occurred and the SEARs have not been met.

6.1.1.12 Visual and Urban Design

The visual impact of stacked containers of varying colours is not assessed. Assessment from the Moorebank Avenue frontage is required. It is recommended that container stacking along the Moorebank Avenue frontage should be limited to the height of associated screen planting. This should consider short term buffer planting heights, rather than the 20-30 year mature tree growth scenario, which the EIS assessment montages show.

It is anticipated that freight trains will stand on the spur line waiting to enter the site creating significant visual impact. Assessment of the impact of rail freight traversing the spur line is not provided. Additional assessment is required to establish the impact on the residents of Casula, the Glenfield Homestead and users of the Georges River, associated public parkland and the Powerhouse. Justification that the character of this section of Georges River will change due to the MIC development is not considered appropriate as this would prejudice any future approval.

Additional assessment should be carried out to consider the visual impacts of the development from existing residential uses associated with the SME and alternate future uses on the lands to the west, due to the possibility that the MIC proposal will not proceed.

Visual impacts associated with light spill are likely to occur. A commitment to the procurement of high energy efficiency, directional lighting materials should be provided by the applicant via a sustainable procurement strategy.

6.1.1.13 Property and Infrastructure

There are a number of concerns with the property and infrastructure assessment that requires additional investigation to ensure the IMT appropriately mitigates impacts and uses best practice design. These concerns are summarised below:

As previously identified the TIA does not consider a number of critical issues regarding the assessment of the capacity of the surrounding road networks. Specifically:

> The weaving issues on the M5 Motorway between Moorebank Avenue and the Hume Highway have not been addressed. This needs to be considered as it has the potential to require upgrades to the M5 to ensure the capacity of the M5 Motorway is satisfactory as well as the intersection with Moorebank Avenue.

> RMS Strategic Level Network Modelling for the Moorebank Precinct is required to be able to fully quantify the impact of the proposal. This data may necessitate the upgrading of intersections and/or portions of the M5 Motorway to mitigate the impact from the proposal.

The proposed track layout has a number of basic geometrical shortcomings:

> The northern connection to the SSFL introduces a special turnout into a 1263 m radius curve. The practice of placing turnouts in curves is problematic, building in an ongoing need for requiring ongoing maintenance.

> The 165 m radius curve and 1 in 7 turnout on the southern connection to the SSFL loop appears to be less than the ARTC normal minimum for yards/sidings connected to interstate lines. The design is aiming for an operational speed of 35 kph on this connection but appears to be insufficient to achieve this when compared with ARTC standards. The ARTC standards, in this instance, should take precedence for this section of the rail link as it will be their infrastructure that connects to SIMTA rail yard. It is noted in the EIS that consultation with ARTC has occurred throughout the design of the rail link, however this is not clear in the provided documentation.

> The design of the SSFL loop seems to be primarily focused on the northern entry and for 650 m trains. This is in contrast to the ARTC comment that they desire future flexibility for 1800 m trains to access the site. Currently, an interstate train would extend partially onto the loop, with the crossovers needing to be further into the yard. Alternatively a parallel track to the loop could be provided to ensure standing trains would not remain on the loop. If interstate trains are to terminate at the site when coming from the south the southern entry to the yard provides a low speed constraint and will become a maintenance issue. Wheel squeal may also become a noise issue on such a tight curve.

> It is noted that lubrication on the tracks has been identified as a mitigation measure for wheel squeal. Similar applications of this has been used by Sydney Trains, but it is unclear whether this has been effectively introduced. Further, the impact of wheel squeal may be further reduced by profile grinding of the rails to help keep the flange away from the rail to minimise stick slip effects. Real world examples should be cited with monitoring data provided to determine the effectiveness of the proposed mitigation measures.

> The clear distance from SSFL loop (southern entry) to first crossover is approximately 400 m, which is insufficient to hold either a 650 m or 1800 m train clear of the SSFL loop. Similarly the distance to the second crossover from the SSFL loop is approximately 1095 m which is insufficient to hold an 1800 m train clear of the SSFL loop.

> Crossing beneath Moorebank Avenue south of the northern abutment on the Up Side of the East Hills corridor provides an unnecessary constraint to both the IMT and the East Hills corridors. The rail line access is being limited to a single line and does not easily accommodate an additional track for increased through put to the terminal. In addition, should container trains approaching from the south of Sydney become double stacked in the future, this alignment with limited vertical clearance will add another unnecessary constraint that would need to be removed. The future quadruplication options for the East Hills line may be limited by this alignment, to the down side of the corridor. This may cause complications for track alignment, cross overs and a future Moorebank station location when the quad is developed.

The Georges River is used for recreational activities including kayaking, canoeing and boating, along with recreational activity on the foreshore. The informal use of this area of the river is expected to increase into the future years. This is particularly likely due to the planned upgrade of the Georges River Casula Parklands surrounding the Casula Powerhouse Arts Centre. The Draft Master Plan for this area, particularly near the Powerhouse Arts Centre illustrates that a number of piers will be included to encourage recreational use of the river.

The construction of the rail bridge, along with the alignment and location of bridge piers has not been adequately designed with reference to the recreational use of the river. Further, the impact of construction and operation of the rail link has not been considered in terms of access to these areas. The assessment performed has only looked at potential impacts to water quality, biodiversity and bank stability.

The State Heritage listed Glenfield Farm is located immediately to the west of the proposed location where the rail link will connects into the SSFL. Due to curvature of the rail link, presence of trains and clearing of vegetation in this area, the usage of the Glenfield Farm site will be impacted by the proposal due to increased noise and visual impacts, potentially impacting on the heritage significance of this site.

The proposal has stated that the development of the SIMTA facility will have positive implications on the operation of surrounding businesses through increased employment and a reduction in the volumes of truck movements along the M5 Motorway. It is unclear how this will impact upon the function and viability of existing businesses, particularly by way of traffic impacts.

The traffic review undertaken by Cardno has identified numerous issues associated with the traffic and transport studies performed as part of the EIS. One of the major issues are potential impacts to the functioning and operation of the Moorebank Avenue and M5 Motorway intersection.

6.1.2 Reoccurring Themes

The sub-sections below summarise the reoccurring themes resulting from the environmental review:

6.1.2.1 Cumulative Effects

The EIS considers a limited cumulative scenario with SIMTA operating at 250,000 TEU's per annum and MIC operating as per the early works package, which comprises a zero TEU throughput. A true cumulative assessment would consider the MIC site's operational impacts in conjunction with SIMTA operations, alongside development in the local and regional area, with a combined throughput of up to 2.05 million TEUs.

It is essential that assessments including noise, visual, traffic, air quality, GHG, socio economic and health consider the impacts of both IMTs operating simultaneously, rather than the limited 250,000 TEUs at SIMTA and early works package at MIC. The simultaneous operation at full capacity is likely to have far wider reaching environmental and social impacts than the worst case throughput identified in the EIS.

The lack of coordination to date between the SIMTA and MIC proposals provides a further deficiency in the cumulative assessment. The MIC Response to Submissions Report (Parsons Brinkerhoff, 2015) identifies that agreement has been reached between MIC and SIMTA for an integrated precinct wide IMT. Whereas the SIMTA EIS identifies the projects operating as two separate entities. The inconsistencies and lack of certainty does not provide confidence in the level of assessment both for the SIMTA site as a single entity, as well as cumulatively. Consequently, a consistent master planned scheme should be developed and assessed to establish whether an IMT of this scale at Moorebank is reasonable and if the significant environmental impacts can be mitigated. Based on the information contained within the EIS it does not appear that this is currently the case.

IMTs are not identified as Schedule activities by the POEO Act, with an EPL not required. However, due to the scale of both of the IMTs and associated high potential for environmental impact resulting from emissions to air and water it is recommended that an EPL be required subject to Section 43(d) of the POEO Act. An EPL would require the EPA to act as the appropriate regulatory authority, which is considered more appropriate than Council, as EPA have the necessary resources and expertise to undertake this function. Consequently, a more rigorous management regime would be established to ensure that environmental impacts are appropriately managed.

6.1.2.2 Consistency and Continuity

A common theme throughout the EIS and supporting appendices was the lack of consistency and continuity between each specialist discipline. This lack of cohesiveness throughout the EIS raises questions regarding the level of consideration that has informed the design and whether the SIMTA facility is likely to be constructed.

6.1.2.3 Assumptions

In order to perform a best practice assessment incorporating the precautionary principle within Ecologically Sustainable Development, the worst case impacts must be considered. Throughout the EIS the extent of information provided to support assumptions made is limited, which means that the assumptions and associated assessment cannot be verified.

Potential gaps include the lack of detailed inputs and results for traffic and flood modelling, with consequences for the rest of the EIS as these aspects affect subsequent assessments. Additionally, the assumptions associated with contamination, heritage, biodiversity and cumulative impact resulted in very limited assessment with the potential for significant consequences for the local environment and the viability of the project itself.

6.1.2.4 Rail Corridor

The proposed rail alignment has limitations and is not anticipated to meet the objectives of other stakeholders such as the ARTC and MIC. The geometry of the line will not provide sufficient space for a 650m train between the southern SSFL loop and the first cross over. Further, 1800m trains would not fit between the Northern SSFL loop and the second cross over. This configuration will result in trains standing within the loop and potentially causing operational problems for other traffic on the SSFL. Other significant issues include: encroachment on the East Hills Line corridor and future Moorebank Station site, unresolved land acquisition, control of contamination within the Glenfield Waste Facility, PMF flood impacts of the rail link and bridge on the Georges River and surrounding lands, visual impacts on the Georges River parklands, and significant limitations in the proposed Vegetation Management Plan. With this many unresolved issues, the proposed rail link is not fit for purpose.

6.1.2.5 Economic Viability

The EIS does not demonstrate conclusively that an IMT facility is the highest and best use of the site, despite a Stage 1 capital investment value of $156,750,000. This level of investment could enable a significant volume of commercial, industrial and mixed use development on the site, which would generate more than the 300 construction jobs and 40 full time equivalent operational jobs this proposal has estimated.

An alternative use of the site could result in lower environmental impacts and be better integrated with the surrounding area. There are also significant costs related to the provision of traffic signals, importation of fill for the rail embankments, as well as contingency costs associated with contamination and land acquisition which have not been adequately assessed. The proposal should not proceed without a full review of all relevant costs and benefits.

6.1.2.6 Local Infrastructure Contributions

A major shortcoming of the Stage 1 SIMTA Project Application is the lack of information regarding local infrastructure contributions. The lack of contributions and commitment to infrastructure upgrades is further exacerbated by the proposed Section 75W modification to the Concept Approval to remove transport related VPA requirements.

The *Liverpool Contributions Plan 2009* does not provide an appropriate monetary levy for the proposed development. Consequently, it is recommended that prior to any determination, SIMTA should enter into relevant discussions with Liverpool City Council regarding a works-in-kind or monetary contribution towards local infrastructure works or upgrades. This should be provided within a draft VPA or letter of intent that stipulates the public benefit offering the development would provide off site. Currently, SIMTA is not committing to any additional works or payments towards local infrastructure.

6.1.2.7 Alternatives

There are several alternatives to the project which are not adequately considered by the EIS. Most significantly, the commencement of work on Badgerys Creek Airport has redrawn the strategic and economic map of western Sydney. An IMT at that site, supported by purpose built infrastructure could achieve the objectives of this project more effectively and avoid imposing unnecessary environmental and social impacts on established communities.

The Enfield Intermodal Terminal was originally proposed for a higher capacity which could be realised subject to appropriate planning approval and investment. This site is located in an existing industrial area and has access to major arterial roads running through the heart of Greater Sydney and does not depend on a single motorway and intersection for road access.

The Chullora Intermodal Terminal has already announced works to double its capacity from 300,000 TEUs per annum to 600,000 TEUs with potential for further expansion to 800,000 TEUs. This facility operates within an existing industrial area and has access to Sydney's arterial road network.

The existing network of smaller intermodal facilities around Sydney is not used to its full potential. Upgrades and improvements to these facilities could potentially provide new capacity of 500,000 TEUs per annum.

Cardno has identified significant alternatives to the project which should be considered within the project determination.

6.1.2.8 Summary

A number of key questions are raised by this review associated with the extent of environmental assessment contained within the EIS and the potential for unmitigated significant environmental impacts, particularly within the local area. The extent of these impacts, along with the uncertainty about the future relationship of MIC and SIMTA renders a determination of the SIMTA Stage 1 proposal at this point unviable. It is recommended that a determination should be delayed until both SIMTA and MIC have developed a single consistent proposal, or confirmed that this is no longer an option. A master planned development, followed by a planning proposal to support a rezoning application and subsequent development application supported by a comprehensive environmental assessment should be undertaken. This approach would provide stakeholders with more certainty and a clearer understanding of the associated environmental impacts, which would be addressed through a comprehensive suite of management and mitigation measures.