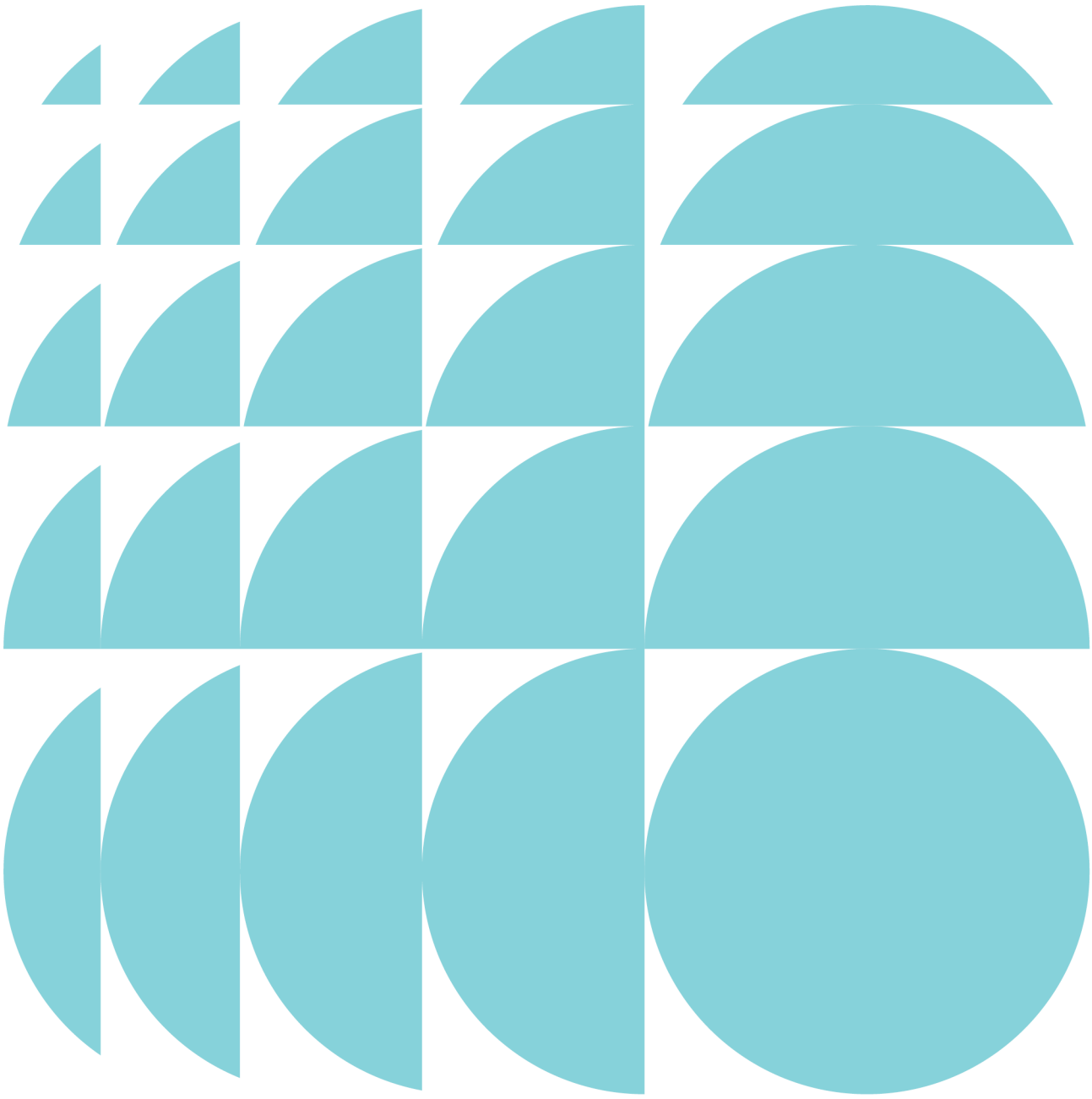
ETHOS URBAN

Section 5.25 Modification to SSI-6090 (formerly MP07_171)
Hexham Long Term Train Support Facility- Ancillary Depot and Wagon Storage

Submitted to Department of Planning and Environment
On behalf of Aurizon

8 April 2022 | 2210316



Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.

We acknowledge the Gadigal people, of the Eora Nation, the Traditional Custodians of the land where this document was prepared, and all peoples and nations from lands affected.

We pay our respects to their Elders past, present and emerging.

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Glossary of Key Terms

Term	Definition
ACM	Asbestos Containing Materials
AEP	Annual Exceedance Probability
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ARTC	Australian Rail Track Corporation
ASS	Acid Sulfate Soils
ASSMP	Acid Sulfate Soils Management Plan
BC Act	Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
CBD	Central Business District
DCP	Development Control Plan
DPE	Department of Planning and Environment
DSEWPaC	Department of Sustainability, Environment, Water, Populations and Communities
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999
ESD	Ecological Sustainable Development
EV	Electrical Vehicle
FSR	Floor Space Ratio
GFA	Gross Floor Area
GNR	Great Northern Railway
HCCDC	Hunter & Central Coast Development Corporation
HOB	Height of Building
HWC	Hunter Water Corporation
ICNG	Interim Construction Noise Guideline
LSPS	Local Strategic Planning Statement
LTTSF	Long Term Train Support Facility
NMLs	Noise Management Levels
NPfI	Noise Policy for Industry
OSGMP	Operational Surface and Groundwater Management Plan
PA	Project Approval
PASS	Potential Acid Sulfate Soils
POEO Act	*Protection of the Environment Operations Act 1997*
PTNLs	Project Trigger Noise Levels

Term	Definition
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSI	State Significant Infrastructure
TIA	Traffic Impact Assessment

Executive Summary

Purpose of this report

This submission to the Department of Planning and Environment (DPE) comprises a Modification Assessment Report to support a Modification Application made under Section 5.25 of the *Environmental Planning and Assessment Act 1979*. It relates to the approved State Significant Infrastructure Project for the Hexham Long Term Train Support Facility (LTTSF Project) (SSI-6090, formerly MP07_0171), approved by the Minister for Planning & Infrastructure on 10 October 2013. The LTTSF Project has since been modified once (MOD 1) to accommodate the construction and operation of a turning angle, including additional rail tracks and a vehicle access road.

This Modification Assessment Report has been prepared in accordance with the following, identified within the DPE letter (dated 17/09/2021):

- The Secretary's Environmental Assessment Requirements (SEARs) issued for SSI-6090 Mod 1 (previously MP 07_0171 MOD 1); and
- The relevant industry specific SEARs applicable to warehouse development.

This Modification Assessment Report has been prepared having regarding to the '*State significant infrastructure guidelines – preparing a modification report*'.

Consent proposed to be modified

SSI-0690 (formerly MP07_0171) (the Hexham LTTSF Project) granted consent for the construction and operation of a facility for the maintenance and provisioning of trains at Hexham, NSW.

The consent included:

- Connection to the Great Northern Railway.
- Seven additional rail tracks parallel to the existing mainline and a shunt track at the northern part of the facility comprising 10.5 kilometres of proposed railway track.
- A provisioning building, a combined maintenance and administrative centre and service vehicle garage.
- A bulk fuel storage area.
- Vehicular intersection and new road from the Tarro Interchange and construction of sealed internal access roads.
- Civil earthworks and importation of fill material.
- Utility connections and the protection or diversion of existing utilities.
- A wastewater treatment plant with on-site effluent irrigation.

Site location

The Hexham LTTSF Project Site is located at Maitland Road, Hexham within the Newcastle Local Government Area approximately 16km north-west of Newcastle Central Business District (CBD). It is bounded by the Great Northern Railway and the Pacific Highway to the east and the New England Highway to the north. To the south and west are rural properties and the Hexham Swamp Nature Reserve. The site is located within an industrial setting with only a small number of dwellings within the local vicinity of the site. The Hexham LTTSF Project Site has a total area of 255ha.

The proposed works subject to this Modification Proposal are fully contained within Lot 104 DP1189565 which is owned by Aurizon and relates to an area of approximately 34,000m^2 herein referred to as 'the Site'.

Summary of the Modification Proposal

The Modification Proposal includes the development of a depot, warehouse and wagon storage to support the ongoing operations of the Hexham LTTSF Project.

The works proposed are as follows:

- Site preparation and earthworks
- Construction of the following elements:
  - A warehouse for the storage of rail maintenance equipment.
  - A depot for office staff and train crew.
  - Ancillary staff and visitor car park connected to the private roadway (existing main access road).
- Rail wagon storage area located on the western portion of the western portion
- Ancillary infrastructure (hardstand, vehicle wash bay, water management, landscaping, lighting etc)
- Utilities connection.

Planning context

Section 4.0 of this report considers the applicable legislation and environmental planning instruments.

The Modification Proposal continues to and does not alter the Hexham LTTSF Project's consistency (as approved) with the legislation and environmental planning instruments applicable to the Site and Approved Project.

Environmental impacts and mitigation measures

This Modification Assessment Report provides an assessment of the environmental impacts of the Modification Proposal, based on environmental assessment requirements within the SEARs. The Hexham LTTSF Project mitigation measures have been reviewed and updated (with additional mitigation measures) as necessary to reduce the environmental impact of the Modification Proposal.

Justification and conclusion

The Hunter Valley Coal business is experiencing a sustained reduction in coal haulage volumes. The key regional priority is to consolidate and simplify the footprint and operating complexity of the Aurizon business while continuing to support the transportation of coal throughout the Hunter region.

The Modification Proposal supports Aurizon's ongoing operations throughout the Hunter Valley by:

- Reducing car travel by employees.
- Increasing front line in-field leadership presence to reduce unsupervised risk exposure through an uplift in engagement and supervision in a yard environment.
- Reduce the Hunter Valley site footprint by increasing the utilisation of the Hexham LTTSF.
- Provide opportunities for synergy and collaboration between Operations and Maintenance activities.

The Modification Proposal includes an expansion to the existing approved operations at the Hexham LTTSF within areas of the site which have previously been disturbed. As a result, the Modification Proposal is anticipated to have generally minor impacts, which would be managed through the implementation of mitigation measures (both existing and proposed). Further, the Modification Proposal will have an improved social outcome reducing travel time and associated risks for employees. On this basis we support this Modification Proposal.

1.0 Introduction and Background

This Modification Assessment Report has been prepared for the development of a depot, warehouse and wagon storage (the Modification Proposal) to support the ongoing operations of the Hexham Long Term Train Support Facility (Hexham LTTSF Project), Hexham (the Hexham LTTSF Site). The Modification Proposal is to be undertaken as a modification (under Part 5, Section 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act)) to the Hexham LTTSF Approval (MP07_0171).

This report has been prepared in accordance with the following, identified within the DPIE letter (dated 17/09/2021):

- The Secretary's Environmental Assessment Requirements (SEARs) issued for SSI-6090 Mod 1 (previously MP 07_0117 MOD 1)
- The relevant industry specific SEARs applicable to warehouse development.

This report has been prepared by Ethos Urban on behalf of Aurizon.

Key terms

Table 1 identifies the key terms which are relevant to this report. Refer to Section 1.4 of this report for site locaitons.

Table 1 Key terms

Term	Description
The Modification Proposal	The depot, warehouse, wagon storage and associated development for which apppoval is sought, as SSI-6090 – Mod 2.
Hexham LTTSF Project	The Hexham Long Term Train Stabling Facility (and associated development) approved under MP 07_0117, now SSI 6090 (inc. Mod 1).
The Hexham LTTSF Project Site	Area on which the Hexham LTTSF is located and the surrounds assessed under the MP 07_0117, now SSI 6090 (inc. Mod 1).
The Site	The area where the Modification Proposal works are to be undertaken. This area signifies the area to be directly impacted/disturbed by the Modification Proposal.

1.1 The Approved Project

On 10 October 2013, approval was granted by the then Minister for Planning & Infrastructure for the Hexham Long Term Train Stabling Facility (SSI-6090, formerly MP07_0171 – State Significant Infrastructure (SSI)) (the Hexham LTTSF Project), which included the construction and operation of a facility for the maintenance and provisioning of trains at Hexham, NSW. The key components of the Hexham LTTSF Project (as approved) include:

- Connection to the Great Northern Railway.
- Seven additional rail tracks parallel to the existing mainline and a shunt track at the northern part of the facility comprising 10.5 kilometres of proposed railway track.
- A provisioning building, a combined maintenance and administrative centre and service vehicle garage.
- A bulk fuel storage area.
- Vehicular intersection and new road from the Tarro Interchange and construction of sealed internal access roads.
- Civil earthworks and importation of fill material.
- Utility connections and the protection or diversion of existing utilities.
- A wastewater treatment plant with on-site effluent irrigation.

The Hexham LTTSF Project has been constructed and is currently operational.

1.1.1 Previous Modifications to the Approved Project

The Approved Project has been the subject of one modification (SSI-6090, formerly MP07_0171 (MOD1)) made pursuant to Section 5.25 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) which was approved on 8 October 2019. The modification was to facilitate the construction and operation of a turning angle, including additional rail tracks and a vehicle access road (Hexham Turning Angle Modification). Specifically, the application sought for:

- Installation and operation of a new turning angle, including new rail tracks and level crossings comprising:
  - Excavation works for railway track foundation and ballast;
  - Approximately 1.5km of rail track and associated signal and turnout infrastructure comprising a single track straight of approximately 400m in length extending from the existing rail yard to the proposed turning angle;
  - A turning angle with two arcs approximately 250m in length and a straight of approximately 275m;
  - Two 85m straight single tracks at either end of the turning angle;
  - Four tangential turnouts; and
- Construction of vehicular access tracks and associated lighting;
- Installation of culverts within existing drainage channels, under the rail track and access tracks;
- Associated civil and stormwater works; and
- Changes to the wording of Condition E33.

This infrastructure has been constructed and is operational.

1.2 Overview of Modification Proposal

It is proposed to alter the built form and operation of the Hexham LTTSF Project by undertaking of the following works:

- Site preparation and earthworks
- Construction of the following elements:
  - A warehouse for the storage of rail maintenance equipment.
  - A depot for office staff and train crew.
  - Ancillary staff and visitor car park connected to the private roadway (existing main access road).
- Rail wagon storage area located on the western portion of the western portion
- Ancillary infrastructure (hardstand, water management, landscaping, lighting etc)
- Utilities connection.

This SSI modification is submitted to the Department of Planning and Environment (DPE) pursuant to Part 5.1 of the EP&A Act.

The report has been prepared by Ethos Urban on behalf of Aurizon Operations Limited, and is supported by technical inputs appended to the report (see Table of Contents).

1.3 Secretary's Environmental Assessment Requirements

In accordance with Section 5.16 of the EP&A Act, the Secretary of the DPE issued the requirements for the preparation of the modification application Environmental Impact Statement (EIS) on 17 September 2021. The SEARs are a combination of the same SEARs issued for the first modification as well as relevant industry-specific SEARS.

A summary of the matters listed in the SEARs and a reference location where each requirement has been addressed in this report and the accompanying technical studies is provided in **Table 2**. A comprehensive list of each requirement is provided in **Appendix A**.

Table 2 Secretary's Environmental Assessment Requirements

Requirement	Location in Environmental Assessment
SSI-6090 MOD 1 SEARs (formerly MP 07_0117 MOD 1)	
Environmental Impact Assessment Process	This report
Environmental Impact Statement	Executive summary/**Section 2.0**/**Section 4.0**/**Section 6.0**
Assessment of Key Issues	**Section 6.0**
Consultation	**Section 5.0**
Water - Hydrology	**Section 6.6/Appendix J**
Water – Quality	**Section 6.6/Appendix J**
Flooding	**Section 6.2/Appendix F**
Soils	**Section 6.5/Appendix J**
Transport and Traffic	**Section 6.3/Appendix K**
Noise and Vibration - Amenity	**Section 6.4/Appendix I**
Heritage	**Sections 6.7 & 6.8/Appendices G** & **H**
Climate Change Risk	**Section 6.10**
Protected and Sensitive Lands	**Section 6.10**
Waste	**Section 6.10**
Industry Specific Sears	
Design Quality	**Section 6.1/Appendix E**
Built Form	**Section 6.1/Appendix E**
Visual Impact	**Section 6.9**/**Appendix L**
Traffic, Transport and Accessibility	**Section 6.3**/**Appendix K**
Biodiversity	**Section 6.10/Appendix M**

1.4 Site Location and Context

The Hexham LTTSF Project Site is located at Maitland Road, Hexham within the Newcastle Local Government Area approximately 16km north-west of Newcastle CBD. The site is bounded by the Great Northern Railway (GNR) and the Pacific Highway to the east and the New England Highway to the north. To the south and west are rural properties and the Hexham Swamp Nature Reserve. The site is located within an industrial setting with only a small number of dwellings within the local vicinity of the site.

The Hexham LTTSF Project Site has a total area of 255ha with the LTTSF developed on a 38ha portion of the site parallel to (and to the west of) the GNR. An aerial photo of the site is shown at **Figure 1**.

The proposed works are fully contained within Lot 104 DP1189565 which is owned by Aurizon. The broader Hexham LTTSF Project Site covers multiple lots which are not affected by the Modification Proposal. A closer aerial of the Site applicable to this Modification Proposal is provided at **Figure 2**.

Figure 1 Site context (consideration of previous approvals)

Source: Nearmap/Ethos Urban

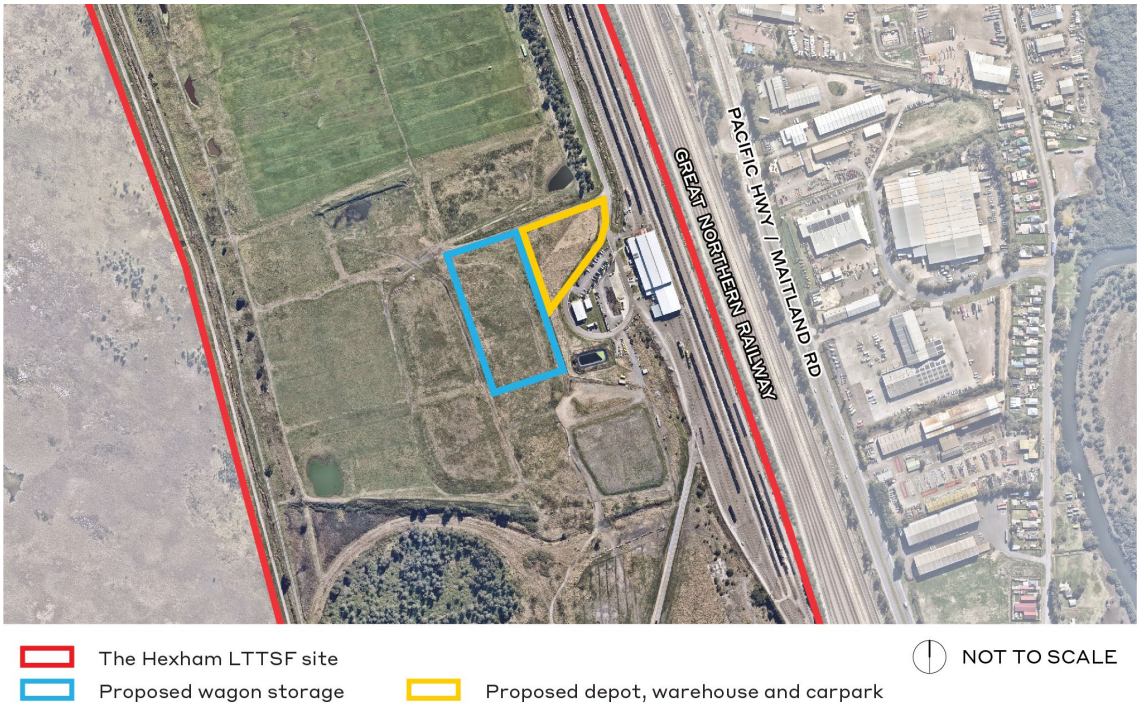

Figure 2 Site location

Source: Nearmap/Ethos Urban

Figure 3 Zoomed in site aerial

Source: Ethos Urban

2.0 Strategic Context

2.1 Need and Objectives

Aurizon currently operates three train crew depots in the Hunter Valley namely, Newcastle/Mayfield (with attached maintenance warehouse) (Newcastle Train Crew Depot and Maintenance Warehouse), Antiene and Quirindi. In addition, the Hexham LTTSF Project Site provides a combined administrative and maintenance centre (amongst other functions).

The functions of the Newcastle Train Crew Depot and Maintenance Warehouse and the Hexham LTTSF Site are intrinsically related in that the Newcastle Train Crew Depot and Maintenance Warehouse primarily provides rail, safety and maintenance staff and supplies which are utilised and mobilised by the Hexham LTTSF Project Site. As a result, there is a considerable amount of transportation of personnel and goods between these operational facilities.

The relocation (and co-locating) of the Newcastle Train Crew Depot and Maintenance Warehouse to the site would increase synergies between train operations and maintenance activities resulting in following benefits:

- Safety and wellbeing –
  - Reducing amount of car driving by train crew (over 173,000 kms and 17,000 hrs per annum) and other staff, which is considered one of Aurizon's key operational safety risks.
  - Save 60 mins (per day) of car driving for every Newcastle train crew change, improving workers social wellbeing
  - Improve on-site engagement and supervision of the train crew in safety critical shunting and provisioning (i.e. with safety staff available on-site during operations).
- Environmental
  - Reduce light and heavy vehicle movements (transportation of staff and goods) and associated emissions between the Newcastle Train Crew Depot and Maintenance Warehouse to the Hexham LTTSF Site (transferred to reduced trips from point of residence or supplier to the Hexham LTTSF Site).
  - Utilise previously predominately disturbed site area to accommodate the works.
  - Including additional on-site storage and connecting to existing surface water quality infrastructure.
- Economic
  - Reduce operating costs for Aurizon, thereby optimising and securing the ongoing transportation of coal and bulk commodities within the Hunter Region.

In addition to the depot and warehouse relocation, Aurizon proposes to seek approval for a wagon storage area at the Hexham LTTSF Site. A dedicated storage area would increase efficiency of operations, with wagons being more seamlessly moved on and off the operational rail lines (via mobile cranes). This would have resulting improvements to safety and efficiency of Aurizon's Hunter Valley operations.

2.2 Strategic Context

There is strong strategic case to justify the Modification Proposal, as there was when the Approved Project was granted consent by the (then) Minister for Planning and Infrastructure in 2013. The *Newcastle Local Strategic Planning Statement* (LSPS) identifies the transportation of freight on the dedicated freight rail line between Fassifern and Hexham. It also notes that the movement of freight is an important element for the economic prosperity and employment opportunities of NSW and that freight corridors are protected by designating appropriate adjoining land uses and ensuring sensitive land uses are adequately buffered from likely impacts. In addition, the *Hunter Regional Plan 2036* includes a direction for the protection of economic functions of employment land and identifies opportunities to grow the "significant employment precincts at the Port of Newcastle, Newcastle Airport, Tomago, Hexham, Rutherford, Singleton, Morisset and Taree".

The Modification Proposal supports the direction of the relevant strategic documentation applicable to Hexham and the importance of the freight line by providing for appropriate uses which benefit the overall operations of the

Hexham LTTSF Project and result in a number of positive safety and wellbeing, environmental and economic benefits as outlined in **Section 2.1**.

It is understood Transport for NSW is consulting on a recommended corridor option for the Lower Hunter Freight Corridor which will provide for a future dedicated freight rail line between Fassifern and Hexham, bypassing the Newcastle urban area. The recommended corridor which has been exhibited but is yet to be finalised, does pass through the Hexham LTTSF Project Site (see **Figure 4**). The corridor is not considered to be an issue for the Modification Proposal as no permanent structures are proposed within the indicative location. There is potential the corridor may potentially interfere with the wagon storage area however since no physical structures (with the exception of fencing) are associated with the wagon storage area, this will be able to be easily addressed (i.e. wagons moved) should this corridor proceed. As a result the Modification Proposal would not preclude the development of the Lower Hunter Freight Corridor should it be developed in the future.

Figure 4 Lower Hunter Freight Corridor (potential corridor outlined in pink)

Source: Transport for NSW

2.3 Options Analysis

A number of design options were considered in the development of the Modification Proposal. During the investigations and pre-feasibility stage of this project, three (3) options were considered:

- Option 1: Do nothing – Stay at existing location.
- Option 2: Stay in Newcastle or surrounds – build on another site.
- Option 3: Move Mayfield depot to Hexham LTTSF – preferred.

The key considerations from the options analysis were that doing nothing (Option 1) will result in a divided workforce (at two locations) whom will need to constantly travel to and from Hexham LTTSF for their day to day activities. In addition, this will result in unnecessary transport of equipment from Newcastle to Hexham, where it could otherwise be transported straight to the Hexham LTTSF (rather than an intermediate storage area) where it will ultimately be utilised for maintenance of the Aurizon train fleet.

Remaining at Newcastle or surrounds (Option 2) does not allow for safety improvements through a reduction in car driving or an increase of in-field engagement when conducting high risk yard activities, nor does it result in the consolidation of the depot footprint or for the realisation of removal of lease costs and productivity uplift from reduced car driving. The opportunities for synergies and increased collaboration between operations and maintenance areas would remain not be harnessed.

Moving the Newcastle Train Crew depot/Maintenance Warehouse to Hexham LTTSF (Option 3) provides significant value in terms of safety improvements to transportation (both personnel and equipment), and increased collaboration benefits between operations and maintenance. This option, as a result of the benefits further improves Aurizon's operations in the ongoing transportation of coal and bulk freight, which is an important industry to the Hunter Valley and broader Australia. As a result, this option is considered the preferred option and is the subject of the Modification Proposal.

2.4 Alternatives

Aurizon has considered several options for the design of the depot, warehouse and associated infrastructure. Ultimately the objectives were to provide a functional and aesthetically pleasing built-form in close proximity to existing development and on areas which have previously been subject to site disturbance.

The initial concept design is shown in **Figure 5**. The Modification Proposal design has been refined from this preliminary concept with changes to the configuration of the depot, a reduction in the size and change to location of the warehouse and a more suitable linear arrangement for car parking (breaking up the extent of hardstand).

The Modification Proposal design is considered to be superior from this previous design in that:

- Achieved the desired operational objectives with a rationalised footprint
- Reduces construction and operational disturbance associated with the rationalised footprint
- Provides car parking in closer proximity to the depot, improving access.

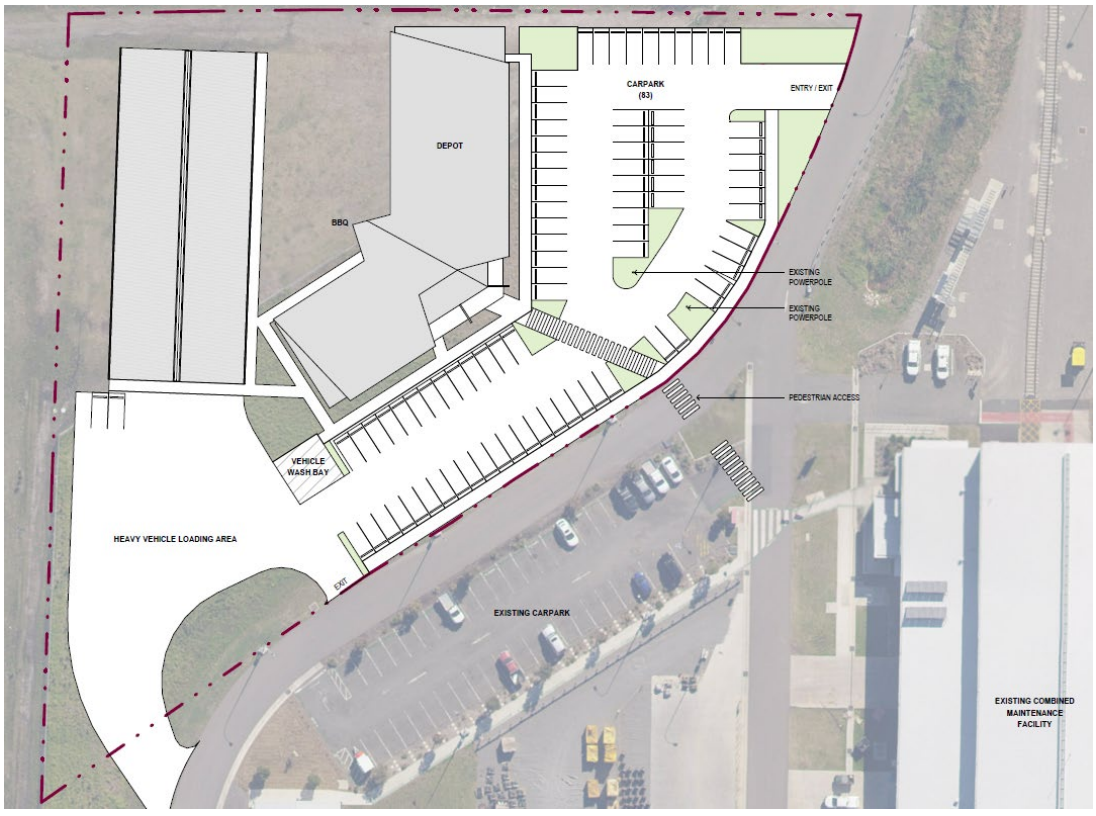

Figure 5 Previous design option

Source: GHD Woodhead

3.0 Description of the Modifications

This section of the Report provides an overview of the Modification Proposal. It also includes a comparison of the Modification Proposal against the Hexham LTTSF Project.

3.1 Proposal Overview

The Modification Proposal includes the development of a depot, warehouse and wagon storage to support the ongoing operations of the Hexham LTTSF Project.

The works proposed are as follows:

- Site preparation and earthworks
- Construction of the following elements:
  - A warehouse for the storage of rail maintenance equipment.
  - A depot for office staff and train crew.
  - Ancillary staff and visitor car park connected to the private roadway (existing main access road).
- Rail wagon storage area located on the western portion of the western portion.
- Ancillary infrastructure (hardstand, vehicle wash bay, water management, landscaping, lighting etc).
- Utilities connection.

The Modification Proposal is to be undertaken on vacant land with only minor alterations to existing operational areas, for utilities connections and access. No rail related works (the stabling facility or operational rail line) are included within the Modification Proposal.

The general location of the proposed works and the electrical, communications, fire, potable water, sewer and stormwater connections is shown in **Figure 6**. Further detail is provided within the Architectural Drawings at **Appendix B** and the following sections of this Report.

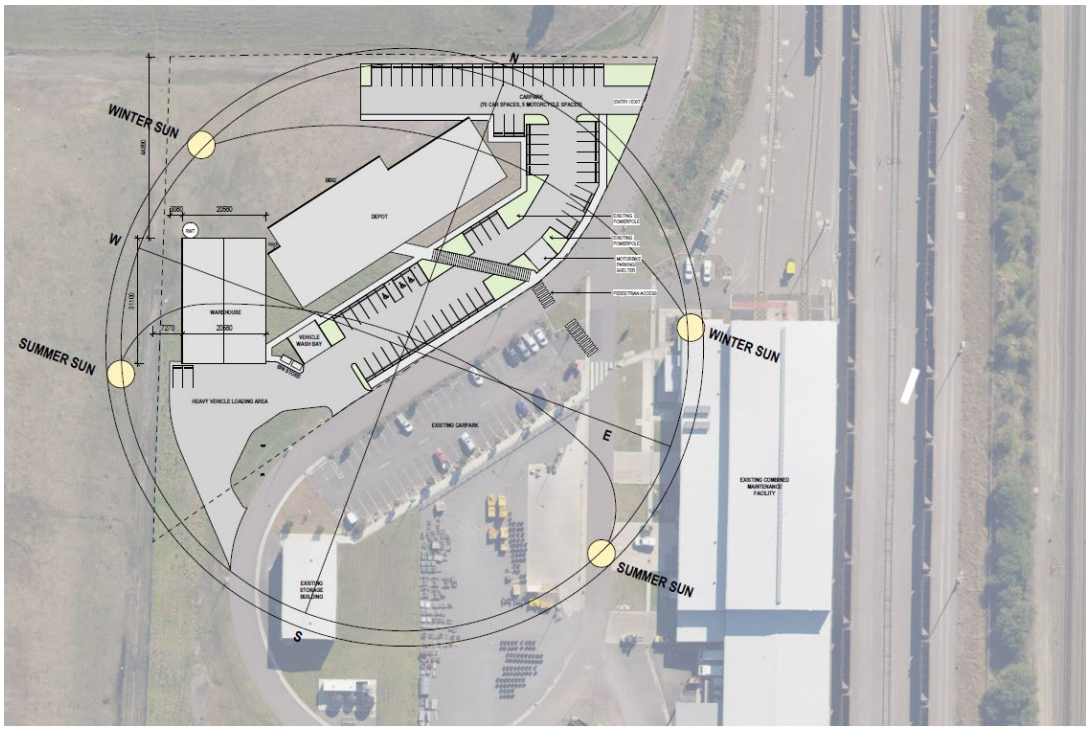

Figure 6 General arrangement plan

Source: GHD Woodhead

3.1.1 Built Form

Buildings (Warehouse and Depot)

The Modification Proposal includes two separate single storey buildings for a warehouse and depot.

The warehouse building is orientated to the south and located northwest of the existing maintenance facility. It is to be used for storage of rail maintenance equipment for works to Aurizon's operational rail fleet. The warehouse has an approximate maximum height of 11.5m.

The depot is orientated to the east and located to the west of the existing maintenance facility. It is to be used for administration functions predominately associated with managing the site and Aurizon's operational fleet and functions. The depot includes open plan office space, meeting rooms, breakout spaces, amenities, light vehicle washdown and barbecue area. The depot has an approximate maximum height of 5m.

Structures (Wagon storage area)

The Modification Proposal includes a wagon storage area with which is rectangular in shape and has an area of approximately 21,000m^2. The area is located on the existing tailings reject stockpiles that were neutralised, stored and stabilised as part of the original LTTSF.

As the stockpile area has minor variability in final relative level associated with settling, construction of the wagon storage area may require clearing and grubbing and importation of virgin excavated natural material to create a level laydown area. As the remainder of the stockpile area would be retained for cattle grazing activities the wagon storage area would be secured by three strand and wooden post farm fencing as required.

Wagons would be mobilised to site via rail and be held on the Hexham LTTSF Road 1 (western most rail line) prior to being lifted via mobile crane for placement on flatbed truck located on the existing vehicle access track adjacent to Road 1. Loaded trucks will travel directly to the wagon storage area via the access road (running parallel with the existing stabling facility and then the east west perimeter road) prior to being unloaded by mobile crane. The mobile crane would deposit these wagons to an area within the wagon storage area. **Figure 7** shows the movement of wagons from the rail line to the wagon storage area.

Figure 7 Movement diagram for wagon storage area

Source: Nearmap/Ethos Urban

External materials and finishes
The external materials and finishes are shown in the Architectural Drawings at **Appendix B**.

Access

Access from the broader road network is provided to the site via the Tarro Interchange and a dedicated access road. The two highways are two lanes each way, generally divided, with speed limits of 80km/hr near to the site. The Tarro Interchange has a speed limit of 60km/hr.

Access to the warehouse for heavy vehicles is provided off the existing internal road network of the Hexham LTTSF Project Site south of the site. A heavy vehicle loading area and 2 heavy vehicle parking spaces are provided adjacent to the warehouse building. Light vehicle access is provided from the northern end of the existing road network which leads to an at-grade car park accommodating 68 car spaces and five (5) motorcycle spaces.

A pedestrian pathway is provided from the eastern boundary of the proposed at-grade car park to the depot. Additional pedestrian access is proposed across the existing internal road and adjacent existing car park to provide pedestrians a direct line of travel from the existing combined maintenance facility to the depot.

Ancillary infrastructure

Vegetation removal and landscaping
The Modification Proposal seeks to remove all existing vegetation from the site. Landscaping in the form of trees, shrubs, ground cover and grasses will be provided throughout the site, particularly focused within the at-grade car park and around the perimeter of the depot building. A detailed Landscape Drawing is provided at **Appendix C**.

Water management
Surface water runoff from the hardstand area (depot and warehouse, carpark and surrounds) will be directed to Basin 2, which is consistent with the current conditions. Surface water runoff from the wagon storage area will be directed west off site via the surface water drains, which is consistent with the current conditions.

Lighting
Minimal exterior lighting for the car park and depot building will be installed to facilitate safe access/egress and deliveries. The lighting design will be further refined at detail design and will comply with relevant Australian Standards.

No lighting is proposed for the wagon storage area.

Signage
No advertising signage is proposed. Directional signage associated with the car park will be implemented at the later design stage to direct traffic flow.

Sustainability
GHD have sought to adopt best practice sustainability principles into the design where feasible. The project has also adopted net zero ready design principles to respond to Aurizon's broader business objective to be Carbon Neutral by 2050. The Ecologically Sustainable Development (ESD) initiatives for the Modification Proposal have been summarised below:

- Passive design – The Modification Proposal has adopted a number of passive design principles to manage heat gains and losses.
- Active system efficiency - The depot and warehouse are to use low power LED troffers. In addition, a Domestic Electrified Hot Water Plant will be included to provide hot water.
- On site energy generation – PV system and battery storage feasibility are to be further explored which will assist in reducing the buildings operational carbon emissions.
- Carpark EV charging points – The design incorporates up to six (6) electric vehicle recharge points.
- Water conservation – The design will include rainwater harvesting for the recycling of water and efficient fixtures and fittings.

- Indoor quality – The design will provide thermal comfort through combination of passive and active conditioning, amongst other internal features to be considered to improve occupant comfort.
- Material selection – A series of recommendations have been provided to inform the selection of materiality in the design.

Further detail on the sustainability initiatives adopted for the Modification Proposal are included in the Concept Design Report prepared by GHD and provided at **Appendix E**.

Utilities

The Hexham LTTSF Project Site is currently serviced by a number of utilities. Utilities would be extended and connected to the site as shown in **Figure 8**.

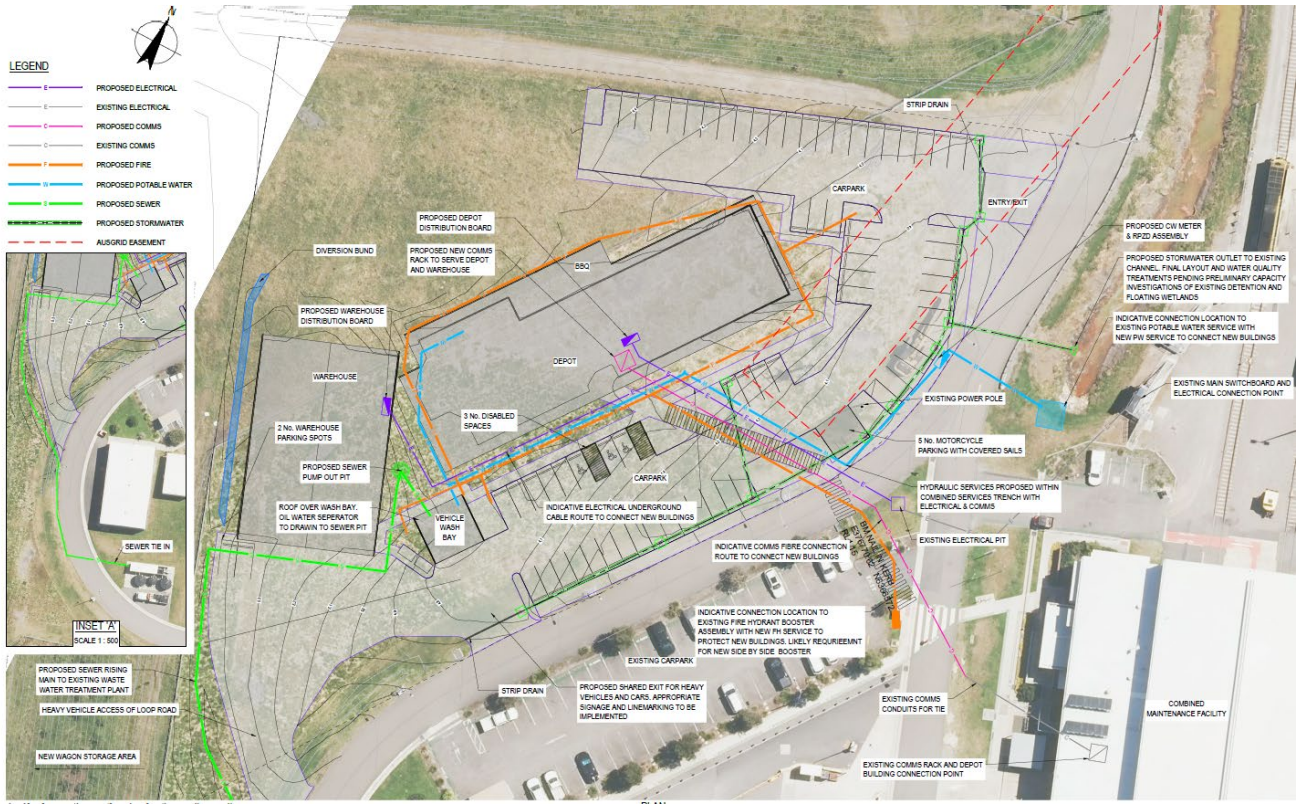

Figure 8 Utilities location and connection

Source: GHD Woodhead

The Modification Proposal includes connection to, and supply of, the following utilities:

- Telecommunications
- Water (for fire-fighting purposes)
- Potable water
- Sewer
- Stormwater.

Utilities would be established within corridors within the site (boundary) as shown in **Figure 8**.

3.1.2 Construction

Employees

The construction of the Modification Proposal is anticipated to result in approximately 50 temporary construction jobs being generated.

Bulk earthworks

Cut and fill works will be undertaken across the site. The maximum excavation volume is expected to be 1,174m^3. A plan detailing the cut and fill works proposed across the site is provided in the Civil Drawings at **Appendix D**. An overview of the indicative earthworks quantities is included within **Table 3**.

Table 3 Indicative earthworks quantities

Item	Volume (m3) (indicative)
Cut	1173.31
Cut to fill	955.49
Spoil (excess cut)	217.81
Imported materials	
Asphalt	85.21
Base	404.74
Subbase	213.02
PCP	328.90
Cement Stabilised Subbase	101.20

Construction traffic movements

The maximum light and heavy vehicle movement per day is included in **Table 4**.

Table 4 Construction traffic movements

Category	Vehicles
Light vehicles	• 27 inbound trips in the AM peak hour; and • 27 outbound trips in the PM peak hour
Heavy vehicles	• 6 inbound trips in the AM peak hour; and • 6 outbound trips in the PM peak hour

Construction ancillary facilities (construction compound)

A temporary construction compound and communal parking area would be required to support the works associated with the Modification Proposal. It is likely that the construction compound would be located within the proposed wagon storage area, as shown in **Figure 9** and identified as the 'Earthworks Compound'. The location of this compound is indicative and subject to confirmation by the construction contractor.

The compound would generally provide the following facilities:

- Offices;
- Staff amenities;
- Parking area; and
- Plant and equipment storage area.

It is expected the materials handling and storage area as well as truck marshalling area are undertaken in the existing laydown and truck marshalling area that is in the interior of the balloon loop immediately adjacent to the depot, as shown in **Figure 9**.

Figure 9 Construction compound location

Source: Nearmap/Ethos Urban

Plant and equipment

A range of plant and equipment would be required for the works associated with the Modification Proposal. A summary of the indicative plant and equipment likely to be utilised includes:

- Trucks
- Excavator
- Dozer
- Compactor
- Backhoe
- Frontend loader
- Excavator with hammer
- Concrete pump truck
- Concrete agitator truck
- Concrete pencil vibrator
- Generator
- Powered hand tools
- Crane/mobile crane
- Hoist
- Road truck and dog
- Powered hand tools
- Welder equipment
- Rattle gun

- Hot asphalt pavers
- Vibratory roller
- Hot bitumen equipment

Hours of construction/Duration

Construction works would generally be undertaken during the standard daytime construction working hours, being:

- 7 am to 6 pm Monday to Friday.
- 8 am to 1 pm Saturday.
- No works on Sunday or Public Holidays.

Works may also be undertaken outside of standard daytime construction working hours. Any works undertaken outside of these hours would be undertaken in consultation with relevant authorities. Works outside these hours that may be permitted would include:

- Any works which do not cause noise emissions to be audible at any nearby sensitive receptors or comply with an established 'Outside Standard Construction Hours' protocol
- The delivery of materials which is required outside of these hours as requested by Police or other authorities for safety reasons.
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm.
- Any other work as approved through a Construction Noise and Vibration Management Plan (or equivalent).

3.1.3 Operation

Operating hours and activities

The depot, warehouse and wagon storage area would operate 24 hours per day, 7 days a week.

The majority of movements from the stabling facility to the wagon storage area would be undertaken during the day. All wagons will be decommissioned, inclusive of bleeding of all liquids, prior to placement within the storge are. Depending on market and client demands wagons would be either disposed of or recommissioned and returned to service.

No maintenance works will be undertaken in the rail storage area with all recommissioning works undertaken within the existing Combined Maintenance Facility.

Employees

The Modification Proposal will accommodate approximately 180 employees. Of those 180 employees, approximately 120 jobs would be rostered train crew with the remaining 60 employees operational support staff (including safety, administration, training, environmental, maintenance, and other roles, which would service the Hexham LTTSF Project Site and provide support services to the train crew staff, along with other Aurizon operations). All personnel would not be on-site at any one time (on-site personnel numbers on a day-to-day basis would be considerably below this and would be subject to shift changes and requirements for train staffing and servicing).

Vehicle access and car parking

Vehicular access for the Proposed Modification is provided via three access driveway crossovers as described below (also shown in **Figure 10**).

- Entry/Exit for light vehicles (up to 5.2m long B99 design vehicle) to the north of the car park;
- Entry only for all heavy vehicles (up to 20m long articulated vehicles / AVs) to the southern end of the proposed facility; and

- Exit only for light and heavy vehicles between the northern and southern access driveway crossovers (middle access).

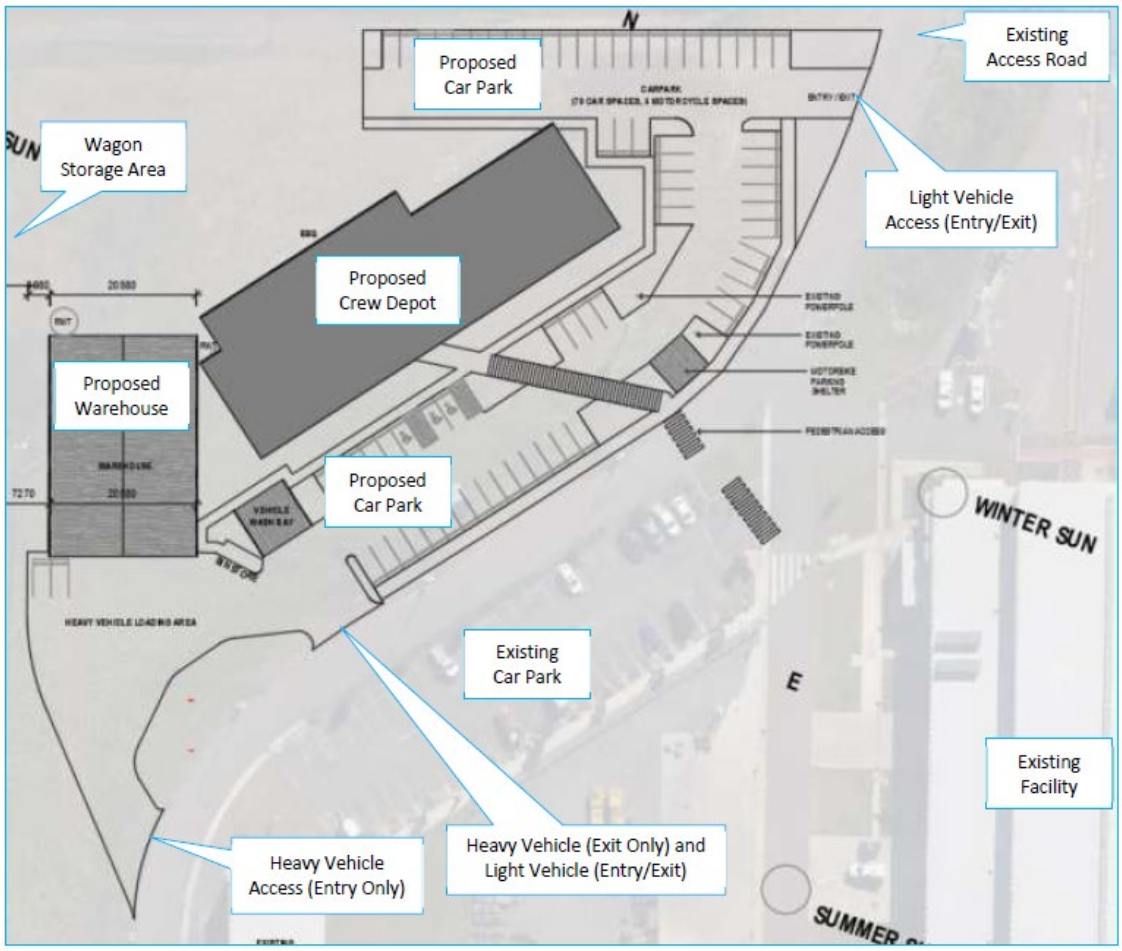

Figure 10 Proposed development and site access arrangements

Source: SLR

A total of 68 parking spaces are proposed for light vehicles within the site, inclusive of three (3) accessible spaces. In addition to these parking spaces, there is a proposed heavy vehicle loading/unloading area that will cater for AVs.

The Modification Proposal does not include any changes to the vehicular site access at the Tarro interchange. Also, there would be no change to the existing car parking available for the stabling facility.

3.2 Comparison of Modification Proposal and Approved Project

A comparison of the Modification Proposal with the Approved Project is summarised in **Table 5** below.

Table 5 Comparison of modification proposal and Approved Project

Approved Project (Hexham LTTSF Project)	Modification proposal
Location and land tenure	
• Approximately 255 ha site, located on the western side of the New England Highway and the Great Northern Railway, on the following land parcels in the City of Newcastle local government area: Lot 101 DP1084709, Lot 102 DP1084709, Lot 2 DP 735456, Lot '10 DP 735235, Lot 104 DP 1084709, Lot 1 13 DP 755232, Lot 1 DP 155530, Lot 12 DP 1075150, Lot 1 DP 1062240, Lot 311 DP 583724 and Lot 1 DP 128309.	• Modification Proposal located within the Hexham LTTSF Project Site (approved land).
Key development components	
Rail connection	
• Construction of new connections to the Great Northern Railway.	• No change proposed.
Alignment	
• Construction of seven new train lines (tracks) parallel to the existing Mainline, providing a total of 10.5km of railway track.	• No change proposed.
Provisioning building	
• Provisioning Building, approximately 1,310m^2 , to provide provisioning, inspections and unscheduled rolling stock maintenance on a 24 hour, 7 days per week basis. Operations to include replenishing locomotives with fuel, sand, water, oil and other consumables, general cleaning and cab preparation;	• No change proposed.
Maintenance building	
• Combined Maintenance Building, approximately 2,750m^2 , would include the TSF's main administration centre, and would have a metal roof, precast walls and translucent wall sheeting.	• No change proposed.
Service vehicle garage, carpark, truck unloading and wheel set storage area	
• Service Vehicle Garage, car park, truck unloading and wheel set storage area to be located adjacent to the Combined Maintenance Building and Administration Centre. Car parking to be provided for up to 50 cars and light vehicles in the main car park.	• Additional rail wagon storage is proposed (21,000m^2) • Additional 68 light vehicle carparking spaces for visitors and staff located adjacent to new built forms proposed (including 3 accessible spaces). • Loading area proposed adjacent to the proposed warehouse.
Warehouse	
• Not included in project approval.	• Double height storey warehouse (approximately 11.5m in height) for the storage of rail maintenance equipment.
Depot	
• Not included in project approval.	• Single storey depot (approximately 5m in height) for office staff and train personnel.
Roads and connections	
• Construction of an intersection and a new access road from the Tarro Interchange, including a new road bridge over Middle Creek; • Internal access roads comprising of sealed single carriageway road; and	• No change proposed.

Approved Project (Hexham LTTSF Project)	Modification proposal
• A new third party access road would be constructed to the west of the site and would connect to an existing third party access road off Woodlands Close. The new road would allow existing road access to adjoining landholders to be maintained.	
Utilities	
• The protection or diversion of existing utilities, and connection of the site to utilities for construction and operation.	• The Modification Proposal includes connection to, and supply of, utilities.
Water management	
• The primary drainage system in the southern part of the site is a network of subsoil drain and surface collection pits routed to a drainage channel to the west of the tracks; and • In the northern part of the site the water is proposed to infiltrate the permeable capping and flow above the low permeability clay subgrade to the adjacent open channel.	• The Modification Proposal includes ancillary water management infrastructure to connect to the existing drainage system.
Wastewater Treatment Plant	
• Installation of a package Waste Water Treatment Plant with on-site effluent irrigation to be located within the internal road turning loop, adjacent to the Combined Maintenance Building.	• No change proposed. It is understood the existing waste treatment plant can accommodate the additional amenities to be located on site.
Storage area	
• A bulk fuel storage area with capacity for up to 630,000 litres of diesel fuel in seven 90,000 litre above ground, self-bunded fuel storage tanks; and • Bulk storage of sand would be located adjacent to fuel storage area.	• No change proposed.
Stockpiling	
• Permanent stockpiling of up to approximately 150,000m^3 of potential Acid Sulfate Soils or acid generating materials.	• No change proposed. If acid sulphate soil is encountered all soil will be managed in accordance with the approved Site Management Plan.
Construction, operation and maintenance	
Construction hours and access	
• Approved construction hours, including: – 7:00 am to 6:00 pm Mondays to Fridays, inclusive; and – 8:00 am to 1:00 pm Saturdays; and – at no time on Sundays or public holidays.	• No change proposed.
Construction staging and timing	
• Two stages (Stage 1: 19 months, Stage 2: 9 months)	• The Modification Proposal construction is not anticipated to be staged. All other aspects of the LTTSF Project are operational.
Site clearing	
• Preparatory activities, including fencing and vegetation clearing, to delineate the site and identify and establish work areas, as well as remediation as required.	• Similar preparatory activities proposed, in a separate area, for the Modification Proposal.
Operational hours	
• Maintenance building to generally operate between 06:00 hours and 22:00 hours weekdays, and possible 7 days per week.	• No changes to maintenance building operational hours. • Operational hours of new depot, warehouse and wagon storage: 24 hours, 7 days per week.

Approved Project (Hexham LTTSF Project)	Modification proposal
• Provisioning building to operate 24 hours, 7 days per week.	

3.3 Modifications to the Conditions

Schedule A

Application No:	*MP07_0171*
Proponent:	*Aurizon Operations Ltd*
Approval Authority:	*Minister for Planning & Infrastructure*
Land:	*Approximately 255 ha site, located on the western side of the New England Highway and the Great Northern Railway, on the following land parcels in the City of Newcastle local government area: Lot 101 DP1084709, Lot 102 DP1084709, Lot 2 DP 735456, Lot '10 DP 735235, Lot 104 DP 1084709, Lot 1 13 DP 755232, Lot 1 DP 155530, LoI12 DP 1075150, Lot 1 DP 1062240, Lot 311 DP 583724 and Lot 1 DP 128309.*
State Significant Infrastructure:	*The construction and operation of a train support facility at Hexham, including:* • *new connections to the Great Northern Railway;* • *seven new train tracks parallel to the existing mainline and a shunt track at the northern part of the facility comprising 10.5 kilometres of new railway track;* • *a provisional building, a combined maintenance and administrative centre and service vehicle garage;* • *a bulk fuel storage area;* • *vehicular intersection and new road from the Tarro Interchange and construction of sealed internal access roads;* • *civil earthworks and importation of fill material;* • *utility connections and the protection or diversion of existing utilities; and* • *a wastewater treatment plant with on-site effluent irrigation.* • ***site preparation and earthworks*** • ***a warehouse for rail maintenance equipment storage*** • ***a depot for office staff and train crew*** • ***staff and visitor car park*** • ***a rail wagon storage area*** • ***ancillary infrastructure to accommodate warehouse and depot.***

Reason:
To reflect the Modification Proposal.

Schedule B

Administrative Conditions
Terms of Approval

B1. The Proponent shall carry out the SSI generally in accordance with the:

a) Application MP07_0171;
b) Environmental Assessment, NSW Train Support Facility, Maitland Road, Hexham (ADW Johnson Pty Limited, November 2012);
c) Preferred Project Report and Response to Submissions, NSW Train Support Facility, Maitland Road, Hexham (JBA, June 2013); ~~and~~
d) Depot Relocation Modification Assessment Report (Ethos Urban, April 2022); and

~~***d)***~~ *e) conditions of this approval.*

B2. In the event of an inconsistency between:

*a) the conditions of this approval and any document listed from condition B1(a) to B1~~(c)~~ **(d)** inclusive, the conditions of this approval shall prevail to the extent of the inconsistency; and*
*b) any document listed from condition B1(a) to B1~~(c)~~ **(d)** inclusive, the most recent document shall prevail to the extent of the inconsistency.*

4.0 Statutory Context

4.1 Compliance with Statutory Plans

The Modification Proposal's continued level of consistency with the relevant legislation and environmental planning instruments is provided in **Table 6**.

Table 6 Compliance with statutory plans

Legislation/Instrument	Comment
State Legislation	
Environment Protection and Biodiversity Conservation Act 1999	Approval is required under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act), where a proposal is deemed likely to have a significant impact on Matters of National Significance and is deemed a controlled action under that Act. A referral of the original application was submitted to the Department of Sustainability, Environment, Water, Populations and Communities (DSEWPaC) and the proposal was deemed not to be a controlled action on 20 March 2012 by DSEWPaC (EPBC referral 2012/6285). The Modification Proposal will not result in any additional impacts, or likely impacts to Matters of National Environmental Significance compared to what was assessed in the original referral and, as such, will not trigger a controlled action. Therefore, no referral is required for the Modification Proposal.
Environmental Planning and Assessment Act 1979	The Hexham LTTSF Project (original application) for consent was submitted under the now repealed Part 3A of the EP&A Act. Pursuant to the transitional provisions the assessment of the proposal was progressed under Part 3A, including acceptance and exhibition of the environmental assessment. On 16 August 2013 the Minister declared the application to be SSI pursuant to (then) Clause 5(2) of Schedule 6A of the EP&A Act. Accordingly, the project was assessed and approved as SSI under Part 5.1 of the EP&A Act. Section 5.25 of the EP&A Act regulates the modification of a SSI approval. Section 5.25(2) states that "the proponent may request the Minister to modify the Minister's approval for state significant infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval under this Part". Aurizon has determined that the proposed modification to the infrastructure is not consistent with the existing approval, and therefore a modification of the SSI approval is required per Section 5.25 of the EP&A Act. Further, there is no specific test for modifications under Section 5.2 of the EP&A Act, however legal precedents have previously guided the Minister's discretion in this regard. The Modification Proposal would improve the functionality of the approved facility, without resulting in an overall increase to the operational intensity associated with the main function of the Hexham LTTSF as a train maintenance and support facility. The key aspects of this are as follows: • The majority of Newcastle Train Crew Depot and Maintenance Warehouse operational staff would mobilise, including transfer of goods, to the Hexham LTTSF Project on an existing day to day basis and therefore the change only includes accommodating and housing this workforce, and support additional staff and maintenance equipment. • A key component of the previous approval was for both a maintenance and administrative centre and therefore the depot and warehouse maintain and supports this function. • The wagon storage is also considered consistent with the underlying and essential functions of the Hexham LTTSF Approval in that it provides storage for surplus wagons that are otherwise serviced and maintained at the facility. Ultimately, the Modification Proposal does not change the objectives and functions of the Hexham LTTSF Project as a whole, and there is no overall transformation of the approved project. As a result, a modification under Section 5.2 of the EP&A Act is considered a suitable and appropriate planning approval pathway for the Modification Proposal.
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) replaced the previous *Native Vegetation Act 2003* and provides measures for offsetting and land conservation. The BC Act looks to conserve biodiversity at a bioregional and state-wide scale, maintain the diversity and quality of ecosystems and to supporting biodiversity conservation.

Legislation/Instrument	Comment
	Section 7.17 of the BC Act identifies that the biodiversity assessment requirements under the BC Act only apply if the SSI approval was granted after the commencement of the Act. However, this is inconsistent with clause 30 of the Biodiversity Conservation (Savings and Transitional) Regulation 2017, which specifically states: "The new Act applies to the modification of a planning approval even if the planning approval was granted before the commencement of the new Act (unless the application for the modification of the planning approval is a pending or interim planning application)." No significant biodiversity has been identified for the Site on the Biodiversity Values Map or the Native Vegetation Regulatory. A Biodiversity Development Assessment Report (BDAR) Waiver Request Assessment Report has been prepared in accordance with section 7.9(2) of the BC Act (provided at **Appendix M**).
Protection of the Environment Operations Act 1997	The *Protection of the Environment Operations Act 1997* (POEO Act) outlines the environmental regulatory framework and includes a licensing requirement for certain activities (Schedule 1), with environment protection licences granted as a means to control the localised, cumulative and acute impacts of pollution in NSW. Clause 33 of Schedule 1 relates to railway systems activities. The proposed works do not trigger any of the activities within Clase 33 and therefore the works including construction activities are not anticipated to trigger the need for an environment protection licence with no scheduled activities proposed.
Coastal Management Act 2016	The *Coastal Management Act 2016* replaces the *Coastal Protection Act 1979* which applied to the original SSI application. The Act defines four (4) coastal management areas forming the coastal zone: • Coastal Wetlands and Littoral Rainforests Area; areas which display the characteristics of coastal wetlands or littoral rainforests that were previously protected by SEPP 14 and SEPP 26; • Coastal Vulnerability Area; areas subject to coastal hazards such as coastal erosion and tidal inundation; • Coastal Environment Area; areas that are characterised by natural coastal features such as beaches, rock platforms, coastal lakes and lagoons and undeveloped headlands. Marine and estuarine waters are also included; and • Coastal Use Area; land adjacent to coastal waters, estuaries and coastal lakes and lagoons. The *Coastal Management Act 2016* is supported by the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). The Site is not located within any coastal environment or coastal use areas. A coastal wetland is located to the west of the Site. The Modification Proposal would not adversely impact on this coastal wetland, from either a water management or ecological perspective (refer to **Sections 6.6** and **6.10**).
Environmental planning instruments	
State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP)	The Transport and Infrastructure SEPP provides several additional planning process for the development of infrastructure. The Modification Proposal is not exempt from the requirement for consent by way of this SEPP as Aurizon is not a public authority. Notwithstanding this, as the Hexham LTTSF Project was previously determined as State Significant Infrastructure (SSI) Aurizon has the opportunity to modify this development consent. Refer to the Newcastle Local Environmental Plan 2012 discussion in relation to permissibility and the suitability of this planning approval pathway.
State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP)	The Planning Systems SEPP identifies the triggers for development to be SSI. While the Modification Proposal does not specifically trigger this requirement, the Minister has the ability to call in development as SSI, which occurred to the original Part 3A application for the Hexham LTTSF Project.
State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)	The Resilience and Hazards SEPP provides a decision-making framework and heads of consideration to be taken into account when assessing proposals for development or subdivision of land that may be contaminated. Remediation has been undertaken for the Site under previous approvals. Further investigations into the potential for the Modification Proposal to be potentially impacted by contamination has also been undertaken (refer to **Appendix J**). Overall, the risk

<table>
<tr><th>Legislation/Instrument</th><th>Comment</th></tr>
<tr><td></td><td>of contamination being encountered that would require remediation as a result of the construction works associated with the Modification Proposal is considered to be low. Mitigation measures have been provided within Section 6.11.

It should be noted the site is not identified as being within any coastal zones.</td></tr>
<tr><td>Newcastle Local Environmental Plan 2012</td><td>The Site is located on land zoned IN3 Heavy Industry, SP2 Infrastructure, and E2 Environmental Conservation under the Newcastle Local Environmental Plan 2012 (Newcastle LEP 2012), noting that the area affected by the proposed modification is located on land zoned only as IN3 Heavy Industry. The Modification Proposal is permissible in land zoned IN3 as it meets the definition of a depot and freight transport facility, which are both permissible with consent.

Notwithstanding, clause 5(3) of Schedule 2 of the EP&A (Savings, Transitional and Other Provisions) Regulation 2017, states that “despite anything to the contrary in any environmental planning instrument, any such development that is declared to be State significant infrastructure is taken to be development that may be carried out without development consent under Part 4”.

As the Hexham LTTSF Project has been declared to be SSI, pursuant to the provisions of clause 5(3) of Schedule 2 of the EP&A (Savings, Transitional and Other Provisions) Regulation 2017, the Modification Proposal can be undertaken on any land without development consent.

The Site is situated to the west of an existing local heritage item, described as the Minmi to Hexham Railway (I332), which is the historical alignment of the now-defunct railway line.

The Modification Proposal achieves the IN3 Heavy Industrial land use objectives as outlined below.

It should be noted no Floor Space Ratio (FSR) or maximum Height of Buildings (HOB) are assigned to the Site.

<table>
<tr><th>Objective</th><th>Assessment</th></tr>
<tr><td>To provide suitable areas for those industries that need to be separated from other land uses.</td><td>The Hexham LTTSF Project Site is located to the south of the existing Tarro township, and west of Hexham, in an area identified as appropriate for industrial uses. The proposed warehouse and depot will help provide sufficient storage space and facilities to accommodate the operations of the Hexham LTTSF Project Site.</td></tr>
<tr><td>To encourage employment opportunities.</td><td>The proposed office space will provide for additional employment on the LTTSF site (relocated from Newcastle Train Crew Depot) which already provides employment for the area.</td></tr>
<tr><td>To minimise any adverse effect of heavy industry on other land uses.</td><td>The Modification Proposal is not considered to cause any adverse effects on the surrounding land uses.</td></tr>
<tr><td>To support and protect industrial land for industrial uses.</td><td>The Site will strengthen the existing industrial operations of the Hexham LTTSF Project Site. The Modification Proposal also demonstrates Aurizon’s commitment to the Site and it’s role in servicing the existing rail freight industry in the Newcastle and Hunter regions.</td></tr>
</table>
</td></tr>
</table>

4.1.1 Legislation Which is Not Applicable

Under Section 5.23 of the EP&A Act, the approvals generally obtained through the following legislation do not apply to SSI:

- Controlled Activity Approvals under the *Water Management Act 2000*;
- *Fisheries Management Act 1994*;
- *Heritage Act 1977*;
- *National Parks and Wildlife Act 1974*; and
- *Rural Fires Act 1997*.

Regardless, based upon the nature of the Modification Proposal, approvals under this legislation would not have been required.

Aquifer Interference Approvals under the *Water Management Act 2000* still apply to SSI where relevant. However, the excavations required for the Modification Proposal are not anticipated to intersect groundwater and so an Aquifer Interference Approval is not expected to be required (refer to **Section 6.5**).

5.0 Engagement

5.1 Initial SSI Consultation

The original SSI application involved a detailed consultation process with key stakeholders, both public agencies and private landowners including adjacent neighbours.

Key public agencies involved in the consultation process include:

- Department of Planning and Environment;
- Office of Environment and Heritage;
- Department of Primary Industries: Water;
- Department of Primary Industries: Fisheries;
- RailCorp;
- Catchment Management Authority – Hunter Central Rivers
- Hunter Development Corporation;
- Roads and Maritime Services;
- Australian Rail and Track Corporation (ARTC); and
- Newcastle City Council.

Previous consultation efforts include briefings to key stakeholders, newsletters, a telephone information line and email contact address, media advertising and one-on-one meetings.

Throughout the original SSI application, a range of key issues were raised by stakeholders and addressed as part of the Preferred Project Report and Response to Submissions of June 2013. The key issues included:

- Flood management;
- Stormwater discharge;
- Ecology;
- Traffic management;
- Noise and air;
- Visual impact; and
- Contamination.

These matters were addressed as part of the original SSI approval process. In particular Condition C16 of the SSI Approval identified flood management measures to be undertaken which have been implemented.

Since this time, ongoing engagement with key neighbouring landowners has been a priority of Aurizon to ensure concerns are addressed promptly. Key landowner concerns since the project has been constructed include flooding, landscaping, security and the consultation and issues resolution process.

5.2 SSI Modification Consultation

5.2.1 Adjacent Landowners

Aurizon regularly consults with key neighbours directly adjacent to the LTTSF and provide frequent updates on locomotive movements and general maintenance activities. Key items of concern for adjacent landowners generally relates to flooding and access impacts all which are managed through Aurizon's regular consultation program. All adjacent neighbours were approached for this modification to discuss the proposal. No significant issues were raised during this process.

Consultation was undertaken with key adjacent private landholders on the 01 November 2021.

The purpose of the consultation was to notify the landholders of the proposed project and to gauge potential concerns to allow these to be addressed in the Environmental Assessment Report.

Landholders will be notified, by DPE, once the Modification Application has been placed on public exhibition.

5.2.2 Public Agencies

As part of this consultation process a number of agencies have been approached for commentary as per **Table 7**.

Table 7 Detailed environmental assessment report consultation

Agency	Nature of Engagement	Response	Engagement Date	Response Date
Department of Planning and Environment (DPE)	Letter issued to DPE.	SEARs issued.	27 August 2021	17 September 2021
Department of Planning and Environment – Energy, Environment and Science Team.	Letter issued to DPE – Energy, Environment and Science Team describing the Modification Proposal and requesting preliminary comment.	No comment received.	22 October 2021	N/A
Environmental Protection Authority (EPA)	Letter issued to EPA describing the Modification Proposal and requesting preliminary comment.	EPA confirmed upon first review the Modification Proposal did not appear to require an environment protection licence under the Protection of the Environment Operations Act 1997 (POEO Act).	20 October 2021	23 December 2021
Australian Rail Track Corporation (ARTC)	N/A	N/A	N/A	N/A
Hunter & Central Coast Development Corporation (HCCDC)	Letter issued to HCCDC describing the Modification Proposal and requesting preliminary comment.	HCCDC reviewed information provided and had no formal comment.	20 October 2021	21 October 2021
Local Land Services	Letter issued to Local Land Services describing the Modification Proposal and requesting preliminary comment.	Local Land Services noted the Modification Proposal does not impact any of the Travelling Stock Reserves under their management and therefore no feedback was provided.	20 October 2021	21 October 2021
City of Newcastle	Letter issued to City of Newcastle describing the Modification Proposal and requesting preliminary comment.	No comment received.	20 October 2021	N/A
Heritage NSW	N/A	N/A	N/A	N/A
Transport for NSW	Letter issued to Transport for NSW describing the Modification Proposal and requesting preliminary comment.	No comment received.	22 October 2021	N/A

6.0 Assessment of Environmental Impacts

6.1 Design Quality, Built Form and Urban Design

An assessment of the Modification Proposal against the seven (7) design objectives identified by Better Placed is provided in the Concept Design Report prepared by GHD (**Appendix E**) and replicated below.

Table 8 Achievement of Better Placed design objectives

Better Placed Design Objective	Design Response	Consistency
Better fit – contextual, local and of its place	The Site is located within the broader LTTSF Hexham Project Site which is located adjacent to the Newcastle to Maitland rail corridor and industrial precinct to the east. It is located north west of the existing combined maintenance facility which includes an existing storage building with an existing ring road and carpark. The Site is currently vacant previously disturbed land in a predominately industrial setting.	✓
Better for community – inclusive, connected and diverse	The design is adaptable through its large, open plan spaces which enables flexibility for future uses. The building layout also allows for the possibility of expansion if required in the future. Appropriate materials have been selected in order to ensure low maintenance. Life cycles of selected products have been considered in order to ensure the durability of the design.	✓
Better for people – safe, comfortable and liveable	Not applicable, as the design is located within a secure compound and not accessible by the general public.	✓
Better for people – safe, comfortable and liveable	Clear vehicular circulation has been integrated into the existing site complex. Pedestrian access between the rail corridor, the existing combined maintenance facility and the proposed depot/warehouse has been provided to ensure safe access for pedestrians. Whilst the buildings are separated (driven by functional requirements) there is a degree of safety provided through visual connection of each building. Orientation and distance from external windows has been a major consideration through the design process in order to provide all users equal access to natural daylight.	✓
Better working – functional, efficient and fit for purpose	The design of the building is functional, efficient and fit for purpose as it directly responds to and satisfies the requirements of the client's needs. Further detail on the Modification Proposal is provided in Section 4.2 of the Concept Design Report.	✓
Better value – creating and adding value	The Modification Proposal includes communal space in the form of a BBQ space and outdoor area which joins together the two main user groups of the building. Construction methodology and material selection have been carefully considered through the design process in order to provide a "value for money" outcome.	✓
Better look and feel – engaging, inviting and attractive	The overall form of the building has been designed to emphasize the main pedestrian entry. The aesthetics of the building seek to respond to and reflect the surrounding industrial context, whilst referencing more traditionally residential materials and construction systems to create a more aesthetically pleasing development. Materials, finishes, proportions and details have been carefully considered within the design process in order to achieve an attractive outcome, as elaborated upon in Section 4.3 of the Concept Design Report.	✓

Source: Content from GHD Concept Design Report modified by Ethos Urban

Built form

The site is not subject to maximum FSR or HOB controls. The depot built form which best addresses the operational requirements of Aurizon and which fits appropriately on the Site is proposed and illustrated within the Architectural Drawings prepared by GHD and provided at **Appendix B** (refer also to alternatives within **Section 2.4**). The warehouse and depot structures are both low rise and generally correspond with the existing combined maintenance facility on the Site.

The Modification Proposal's façade design draws on the surrounding industrial nature of the Site's context. Consistent materiality and form of the existing combined maintenance facility and the proposed warehouse has been provided. The depot adopts a similar rectilinear form and has been articulated by the use of different materiality.

Urban design

The layout of the Modification Proposal provides direct pedestrian paths of travel through the carpark and around the Site. Significant landscaping is also proposed to soften the depot interface with the carpark and create a more overall green area, complementing the site's rural surroundings to the north, south and west (refer to **Appendix C**).

Accessibility

The Modification Proposal accommodates relevant accessibility requirements as per Australian Standard 1428.1. The Proposal's compliance relating to the current design is referenced in the Concept Design Report (refer **Appendix E**).

6.2 Flooding

A Flood Assessment has been prepared by BMT and is provided at **Appendix F**. The purpose of the Assessment is to determine whether the Modification Proposal has acceptable flood impacts and satisfies the SEARs for flooding and flood risk.

6.2.1 Existing Environment

The Flood Assessment shows the existing flood conditions for the 5%, 2%, 1% AEP, 1% AEP with climate change and PMF events. The Hexham LTTSF Project Site is minorly impacted by flooding at the 1% AEP and moderately impacted by flooding at the PMF flood depth (shown in **Figure 11**).

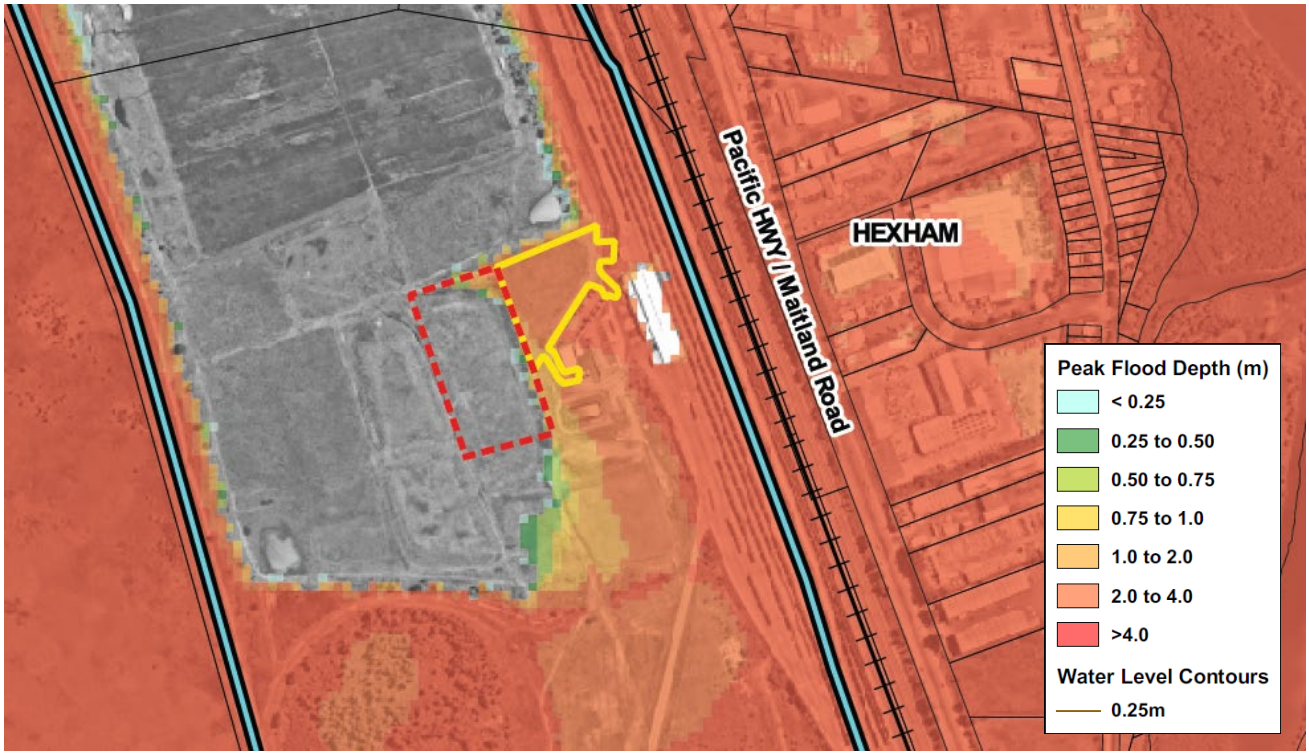

Figure 11 PMF flood depth – existing

Source: BMT

6.2.2 Impact Assessment

The Assessment found the proposed works would generate similar outcomes to the flooding assessment undertaken for the Turning Angle modification (Modification 1) and would not result in any off-site flood impacts. It also found there were no changes in flood levels at the 1% AEP or lower at the depot and warehouse, and the wagon stowage area remains generally flood free across all events.

As the assessment has determined a negligible impact on flooding, the Modification Proposal does not affect the original SSI approval's consistency with applicable Council's floodplain risk management plans. Also, the Modification Proposal is consistent with the broader flood hazard compatibility of the original approval and does not impact the existing emergency management arrangements.

6.2.3 Mitigation Measures

Based upon the potential impacts of the Modification Proposal and the previously established mitigation measures (most recent within MOD 1), no additional mitigation measures are considered necessary. The relevant mitigation measures established as part of the Hexham LTTSF Project (MP 07_0117 – now SSI 6090 MOD 1) would be implemented as relevant for the Modification Proposal.

6.3 Traffic and Transport

A Traffic Impact Assessment (TIA) has been prepared by SLR Consulting Australia Pty Ltd and is provided at **Appendix K**.

6.3.1 Existing environment

The Site includes 68 light vehicle car parking spaces located adjacent to the existing balloon loop access road to the west of the existing stabling facility (and rail lines).

The Site is currently accessed from a private road off the Tarro Interchange, from Maitland Road (New England Highway). An upgrade to the New England Highway (bridge over the Hunter River and roadway) is to be undertaken as part of the "M1 Pacific Highway Extension to Raymond Terrace"[1] which is to be operational by mid 2028. These works will improve access in the area, result in some changes to the broader road access however staff will still utilise the Tarro Interchange and private access road for access to the Site. Further clarification of access will be available as the design progresses.

6.3.2 Impact Assessment

Access

The Modification Proposal provides vehicle access for the intended vehicle types which comprise light vehicles (up to 5.2m long B99 design vehicle) and heavy vehicles (up to 20m long articulated vehicles).

Parking

Construction
A total of approximately 50 construction vehicles are anticipated for the development of the Modification Proposal (i.e. maximum of 50 construction vehicle movements per day through the construction phase). Based upon the availability of undeveloped land there is anticipated to be suitable area of car parking during construction (in and around the construction compound) within the Site.

Operation
The car and motorbike spaces provided exceed the minimum Newcastle Development Control Plan 2012 (Newcastle DCP 2012) provisions as noted in **Table 9** and below. The additional car parking is consistent with the existing operational requirements of the existing depot currently in Newcastle.

[1] Source: https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=101250-19NSW-NP

Table 9 Car parking provision

Land Use	Yield	Car Parking Rate	Requirement	Provided
Warehouse	640.03m^2 GFA	Newcastle DCP 2012: 1 space per 200m^2 GFA or 1 space per 2 staff (whichever is greater) RTA Guide: 1 space per 300m^2 GFA	4	
Crew Depot	857.39m^2 GFA	Maximum number of staff (train crew and office staff) onsite at any one time will be 51 staff. Therefore, assuming that each member of staff will travel by car, it is predicted that the minimum number of parking spaces that will be occupied is 51 spaces.	51	
Total			**55**	**68**

Source: SLR

The Newcastle DCP also requires one motorbike parking space per 20 car parking spaces in developments undertaking industrial activities. A total of 68 parking spaces are proposed and therefore four (4) motorbike spaces must be provided. The Modification Proposal includes five (5) motorbike parking spaces which exceeds the requirements of the Newcastle DCP 2012.

Servicing

The Newcastle DCP 2012 outlines the general requirement for delivery and service vehicles for industrial uses, provided in **Table 10**.

Table 10 Newcastle DCP 2012 delivery and service vehicle requirements for industrial use

Land Use	Requirements for Delivery and Service Vehicles
Wholesale, industrial (all spaces adequate for trucks)	<8,000m^2 GFA 1 space per 800m^2
	>8,000m^2 10+1 space per 1,000m^2 over 8,000m^2

Source: SLR

The Modification Proposal total GFA is less than 1,500m^2 and is considered to provide sufficient space to accommodate at least two (2) service vehicles within the hardstand area located south of the proposed carpark.

Traffic generation

Construction
It was also concluded that the construction traffic demand will be less than the operational traffic demand. Refer to the impact assessment provided below.

Operation
The Modification Proposal is anticipated to generate the following additional operational trips:

- Approximately 51 inbound and 8 outbound trips from/to the wider network in the AM peak hour; and
- Approximately 51 outbound and 8 inbound trips to/from the winder network in the PM peak hour.

The operational assessment undertaken demonstrated the intersections on Anderson Drive at the New England Highway (Maitland Road) at the Tarro interchange operates well and would impact on the existing Level of Service (LOS) achieved at this location.

6.3.3 Mitigation Measures

Based upon the potential impacts of the Modification Proposal and the previously established mitigation measures (most recent within MOD 1), no additional mitigation measures are considered necessary. The relevant mitigation

measures established as part of the Hexham LTTSF Project (MP 07_0117 – now SSI 6090 MOD 1) would be implemented as relevant for the Modification Proposal.

6.4 Noise and Vibration

A Noise Impact Assessment has been prepared by SLR and is provided at **Appendix I** which responds to the SEARs provided in **Appendix A**. The Project Trigger Noise Levels (PTNLs) for the Modification Proposal have been set in accordance with the EPA's NSW Noise Policy for Industry (NPfI). The Assessment also includes the Project Approval (PA), as modified, (application number MP07_0171) operational noise limits.

6.4.1 Existing Environment

Seven (7) receivers have been identified within proximity to the Site, namely:

- R1: Hain Property – to the north west
- R2: Lynch Property – to the north fronting the New England Highway
- R3: New England Highway - to the north east across the existing rail line
- R4: Old Maitland Road (north) – to the east within the Hexham industrial area
- R5: Old Maitland Road – to the south east within the Hexham industrial area
- R6: Old Maitland Road (south) – to the south east within the Hexham industrial area
- R7: Maitland Road – to the south east
- R8: Church Old Maitland Road – to the south east
- R9: Tarro Primary School – to the north across the New England Highway.

6.4.2 Impact Assessment

Construction

Construction is likely to involve conventional construction equipment such as earth moving equipment, piling plant, demolition equipment and cranes. All works will occur during the Standard Construction Hours of the Interim Construction Noise Guideline (ICNG). The predicted noise levels are within Noise Management Levels (NMLs) at all noise sensitive receiver locations.

Operation

With the exception of two locations, noise levels from the Hexham LTTSF Project including the Modification Proposal are predicted to achieve compliance with the Project Approval noise limits at all receivers. Minor exceedances to the Project Trigger Noise Levels were r identified at the following receivers:

- R3 at New England Highway (night time) (2dB exceedance); and
- R4 at Old Maitland Road (North) (night time) (1dB exceedance).

An exceedance of 2dB is considered to be discernible and is not considered to trigger the consideration of mitigation.

Sleep Disturbance

Results of maximum noise predictions indicate that the sleep disturbance screening criteria will be achieved at all receiver locations during night-time operations of the Modification Proposal.

Road Traffic Noise

Road traffic noise impact associated with the Hexham LTTSF Project including the Modification Proposal is expected to be minimal given the relatively small increase in proposed traffic volumes compared to existing volumes on the New England Highway.

6.4.3 Mitigation Measures

Based upon the potential impacts of the Modification Proposal and the previously established mitigation measures (most recent within MOD 1), no additional mitigation measures are considered necessary. The relevant mitigation measures established as part of the Hexham LTTSF Project (MP 07_0117 – now SSI 6090 MOD 1) would be implemented as relevant for the Modification Proposal.

6.5 Soils and Contamination

A Soil and Water Assessment Report has been prepared by GHD and is provided at **Appendix J** in response to the SEARs identified in **Appendix A** to assess the potential impacts to soil as a result of the Modification Proposal.

The following reports were reviewed as part of the desktop study and assessment of soil impacts at the site:

- GHD 2021a – Geotechnical Investigation Plan - Operational Depot and Long-Term wagon Storage, Hexham Train Support Facility, July 2021.
- GHD 2021b - Geotechnical Investigation – Operational Depot and Long-Term wagon Storage, Hexham Train Support Facility, October 2021.

6.5.1 Existing environment

Geology and Soils

The site is located within the Disturbed Terrain Soil Landscape as identified by the Newcastle 1:100,000 Soil Landscape Map and Report (Matthei). The disturbance within Area 1 (location of depot, warehouse and carpark) is the result of the previous use as a site office and carpark. It is also likely fill placed within this area is likely to still remain on-site. The disturbance within Area 2 (location of wagon storage area) is from the area's previous use for fill stockpiles, drying and lime mixing of excavated material for reuse.

Acid Sulfate Soils

The Newcastle LEP 2012 identifies the site as containing Class 2 ASS, indicating the likelihood of acid sulfate soils (ASS) at any depth and triggering development consent for works below the natural ground surface or by which the water table is likely to be lowered.

ASS and potential acid sulfate soils (PASS) have been previously identified within the Hexham LTTSF Project Site and have been managed under an ASS Management Plan (ASSMP) prepared by Douglas Partners (2013) and the approved Site Management Plan. Although PASS/ASS were previously remediated, there is potential for pockets of PASS/ASS to remain within the neutralisation/treatment pad.

Contamination

The Hexham LTTSF Project Site has a long history of industrial development according to previous desktop studies (GHD 2021a). South of the site was the Minmi-Hexham Railway and a Coal Preparation Plant. The majority of this development has been removed. More specifically, Areas 1 and 2 were previously used for the storage of coal and coal reject with no major infrastructure still currently present.

Construction of the Hexham LTTSF Project has impacted the soil profile resulting in settlement, changes to the surface water drainage system, excavation and filling.

Soil salinity

Based on review of the available information, it is considered that soil salinity within the site is likely to be variable. Localised areas of saline soils may occur within the site.

6.5.2 Impact Assessment

Acid sulfate soils

Construction
Site works in Area 1 will include excavation of the existing site materials for site levelling, footings and services. Due to fluctuation of groundwater levels, there is potential for an interception of groundwater to occur during construction. As a result, there is a potential for PASS/ASS to be exposed to oxygen. Given this potential, the existing ASSMP will be utilised during construction to ensure that the surrounding environment is not impacted by acid generation.

Operation
The main operation requirements of the depot and wagon stowage area are not expected to involve disturbance of PASS.

Contamination

Construction
The overall risk of contamination being encountered that would require remediation as a result of the construction works associated with the Modification Proposal is considered to be low. Further, there is a low potential for asbestos containing materials (ACM) to be present in Area 1 given it has been generally void of former site infrastructure. Further assessment and remediation would only be required if significant contamination (from unexpected finds) is identified during construction.

Operation
Future use of Area 1 and Area 2 is not anticipated to involve activities that disturb the ground surface by site workers or visitors during the operation phase.

Soil salinity

No significant impacts to soil salinity throughout the construction or operation phases are anticipated.

Soil and land resources

Construction
During construction, disturbance to the existing surface, particularly associated with earthworks has the potential to result in soil loss due to erosion (refer to **Table 11**).

Table 11 Potential for erosion hazard

Area	Slope	Potential for erosion hazard
Area 1	12.3%	High
Area 2 – Fill mound surface	1%	Low

Source: GHD

Based on the information summarised above, Area 1 would present a high erosion hazard as the slope is greater than approximately 10%.

Operation
No potential impacts to soil and land resources are expected during operation. Stormwater within Area 1 would be fed into existing stormwater systems through a new system established during construction. No changes to the topography of Area 2 are proposed. Water would flow along the existing pathways.

6.5.3 Mitigation Measures

A number of mitigation measures have been identified to minimise potential adverse environmental impacts relating to soil which could arise as a result of the Modification Proposal. They are summarised below and included in **Section 6.1**.

- Acid Sulfate Soils
  - The existing ASSMP relevant to the SSI is to be adopted for the construction of the Modification Proposal.
- Contamination
  - Relevant mitigation measures established as part of MOD 1 are to be implemented.
  - It is recommended soils are managed in accordance with the Site Management Plan (SMP) (Aurizon 2021)
- Soil Salinity
  - Relevant mitigation measures established as part of MOD 1 are to be implemented.
  - Site drainage is to be designed to maintain existing levels of runoff and infiltration where possible.
- Soil and land resources
  - Relevant mitigation measures established as part of MOD 1 are to be implemented.
  - Lengths of slopes should be minimised by limiting the extent of excavations and/or using diversion drains to reduce water velocity over disturbed areas.
  - Progressive rehabilitation or sealing of works areas.

6.6 Water

The Soil and Water Assessment Report prepared by GHD (**Appendix J**) also assess the potential impacts to water as a result of the Modification Proposal.

6.6.1 Existing Environment

Drainage

Over the past 150 years, manmade alterations have been significantly altered by coal stockpiling, infilling of wetlands, construction of tailings ponds and drainage swales and irrigation of wastewater effluent. As a result, the landform is considered highly disturbed.

Surface water runoff from the Hexham LTTSF Project Site drains to the onsite water quality controls basins; Basin 01, Basin 02 and Basin 03, via the constructed drainage line on the western boundary of the Hexham LTTSF Project Site.

Water quality

An operational surface and groundwater quality monitoring program has been undertaken at the Hexham LTTSF Project Site since 2015. The Program includes water quality monitoring locations – Basin 2, SW1, SW2 and SW3. A recent review of surface monitoring results included in the GHD Hexham Train Support Facility Annual Water Monitoring Report 2020 (GHD 2021c) identified elevated metal concentrations which are likely attributable to the historical land use of the site.

Groundwater

Previous investigations undertaken by GHD (2021b) encountered groundwater in all test pits in Area 1 at depths between 1.2 m and 3.3 m below ground level. Groundwater in Area 2 was also encountered in test pits in the southern extent around 2.5 m below ground level and is assumed to be a perched water table within the fill mound.

Water use

Existing water usage for the Hexham LTTSF Project Site is via Hunter Water Corporation (HWC) potable mains supply. Any additional water supply for required for construction and operation of the depot facilities will be met by HWC potable mains.

6.6.2 Impact Assessment

Construction

Earthworks and other construction activities have the potential to disrupt flow paths and increase the concentration of suspended sediments in stormwater due to erosion. Given the small disturbance area and expected short duration of the construction phase, the potential impacts to stormwater are considered minor and will be managed.

Operation

Water quantity
The area of the proposed hardstand pavement and access road will drain towards Basin 02. It is expected the Modification Proposal will result in slightly higher peak flows from the outlet of Basin 02 into Hexham Swamp compared to the baseline conditions, due to the increase impervious catchment proposed to report to Basin 02.

Modelling results indicate that the peak flow for the 1% AEP design flood remains within the hydraulic capacity of the existing Basin 02, and therefore the existing stormwater management system is expected to provide a similar level of treatment under proposed and existing conditions for the 1% AEP stormwater event.

Overall, the impacts of the Modification Proposal on stormwater quantity are comparable to the impacts of the baseline condition and are considered minor.

Water quality
Modelling results indicate that the Modification Proposal is expected to result in a negligible change in concentrations of nutrients at the outlet of Basin 02 and remain well below the discharge criteria.

Overall, the impacts to stormwater quality as a result of the Modification Proposal are expected to be minor.

Groundwater
The extent of excavations associated with the Modification Proposal are not anticipated to impact groundwater on the site.

6.6.3 Mitigation Measures

Mitigation measures have been identified to minimise potential adverse environmental impacts relating to water which could arise as a result of the Modification Proposal. They are summarised below and included in **Section 6.1**.

- Construct stormwater drainage of the Modification Proposal as per the design;
- Continue groundwater and surface water monitoring and reporting as per the Operational Surface and Groundwater Management Plan (OSGMP);
- Maintain the existing stormwater management system as per the existing Operational Stormwater Management Sub-Plan; and
- Update the Operational Stormwater Management Sub-Plan for consistency once construction of the Modification Proposal is complete.

6.7 Indigenous Heritage

An Aboriginal Due Diligence Report has been completed by Jacobs and is provided at **Appendix H**. This report has been prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal objects in New South Wales, to identify if further archaeological assessment is required. The Due Diligence Code assists individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP).

6.7.1 Existing Environment

No Aboriginal sites, objects or places were registered on the Aboriginal Heritage Information Management System (AHIMS) within the site. However, five sites were registered in the northern and southern portions of Hexham swamp, depicting that the ridges of the swamp were more favourable for Aboriginal occupation. The Hexham Swamp is location 0.5km southwest of the site. It is a well-documented area of high cultural and archaeological significance.

The site's use as a coal production facility and a washery for over 30 years has led to the original landscape to be significantly modified. It was previously assessed to have a low potential for the presence of Aboriginal archaeological material, which was confirmed by the site visit most recently undertaken for the Modification Proposal. The report confirms there is a low to negligible chance of any Aboriginal objects or sites being located within the site.

6.7.2 Impact Assessment

The report concluded that as the site had been assessed as not having a likelihood of containing any Aboriginal objects, the ground disturbance that would occur as a result of the Modification Proposal would not harm Aboriginal objects. The proposed works were therefore assessed as having negligible potential to impact Aboriginal heritage.

6.7.3 Mitigation Measures

Based upon the potential impacts of the Modification Proposal and the previously established mitigation measures (most recent within MOD 1), no additional mitigation measures are considered necessary. The relevant mitigation measures established as part of the Hexham LTTSF Project (MP 07_0171 – now SSI 6090 MOD 1) would be implemented as relevant for the Modification Proposal.

6.8 Non-Indigenous Heritage

A Statement of Heritage Impact has been prepared by Jacobs Group Pty Ltd and is provided at **Appendix G** which assesses the non-Aboriginal heritage values of the Modification Proposal. The report has been prepared to ensure the Modification Proposal avoids any potential impacts on non-Aboriginal heritage items. It also aims to determine if further heritage or archaeological assessment would be required.

6.8.1 Existing context

A desktop review indicates the site does not contain any local or state heritage items. The site was also previously assessed to have a no potential for the presence of historical archaeological material. This was confirmed by the site visit recently undertaken.

6.8.2 Potential impact

Given the absence of any historical heritage items, including potential archaeological relics, within the site, the impact of the proposed works on non-Aboriginal heritage is considered to be nil. The Modification Proposal is considered to present no potential harm to historical heritage.

6.8.3 Mitigation Measures

Based upon the potential impacts of the Modification Proposal and the previously established mitigation measures (most recent within MOD 1), no additional mitigation measures are considered necessary. The relevant mitigation measures established as part of the Hexham LTTSF Project (MP 07_0171 – now SSI 6090 MOD 1) would be implemented as relevant for the Modification Proposal.

6.9 Visual Impact

A Landscape and Visual Assessment Report has been prepared by SLR and is provided at **Appendix L** in response to the SEARs relevant to visual impact as listed in **Appendix A**.

6.9.1 Existing Environment

Landscape character

The character of the site typically has an open, semi-rural appearance where no infrastructure exists, whilst it takes on a more industrial character around the existing structure and adjacent to the rail line. The broader landscape character, in which the site is located, can be described as a combination of open pastures that is interspersed with low-lying wetland areas. To the east of the site, where the rail corridors and Maitland Road is located, has limited visual access. This is due to the vegetation buffer that lines the edge of Maitland Road.

Existing structures located adjacent to The Hexham LTTSF Project Site are limited to the Newcastle Train Crew Depot and Maintenance Warehouse. This includes ancillary facilities, such as existing carpark, maintenance rails and offices.

Visual context

The assessment has identified four (4) key public receptors (VP1 to VP4 in **Figure 12**), being views representing the highest number of visitations or views to the nominated site. It has also identified three (3) private receptors from private residences (R01 to R03). The view shed map in **Figure 12** shows the visible extent of the Modification Proposal in relation to the receptor points. Any visibility beyond the 3km buffer would be considered low.

Figure 12 Baseline visibility from the Modification Proposal

Source: SLR

6.9.2 Impact Assessment

Construction

Construction activities will be temporary in nature and will not result in any long term visual impacts.

Operation

For the purpose of the assessment, four (4) key viewpoints were identified that represent where the site could be seen from public locations. The assessment describes and rate the sensitivity of each view point, the nature and magnitude of impacts likely to occur and the resultant significance of impacts for each receptor. The views are shown in **Figures 13** to **16**.

Figure 13 Key receptor VP01

Source: SLR

Figure 14 Key receptor VP02

Source: SLR

Figure 15 Key receptor VP03

Source: SLR

Figure 16 Key receptor VP04

Source: SLR

Overall views of the site are typically not visible from major roads and the majority of surrounding urban and rural areas. This is due to vegetation and the GNR Corridor that screens the site form major viewpoints.

The Modification Proposal is considered to have an overall minor Effect of Significance and therefore overall impact. A summary of the visual impact ratings for each Receptor is included in **Table 12** below.

Table 12 Summary of visual impact ratings for each receptor

Receptor	Receptor Sensitivity	Magnitude of Change	Effect Significance
VP1	Low	Low	Minor
VP2	Low	Negligible	Minor-Negligible
VP3	Negligible	Negligible	Negligible
VP4	Low	Low	Minor

Source: SLR

Private residences

Two (2) private residents are located within a 3km radius of the site. While residences do have views of the Modification Proposal, overall the magnitude of change is negligible considering the existing extent of similar structures that are already located in the vicinity. The assessment noted if it was deemed necessary to retain the existing tree and tall shrub planting along the Hexham LTTSF Site property boundary. It concluded the level of visual change is negligible.

6.9.3 Mitigation Measures

As noted previously, in the event it is deemed necessary to reduce the visibility of the Modification Proposal from private residences, the following mitigation measure is recommended:

- Retain all existing vegetation along the Hexham LTTSF Site property boundary.

6.10 Other Matters for Consideration

Table 13 Other matters for consideration

Matter	Summary
Biodiversity	A Biodiversity Development Assessment Report Waiver Request has been prepared by Jacobs and is provided at **Appendix M**. The Report notes the site has been completely altered from its original state and is now considered to be highly disturbed area with negligible biodiversity value. Some native vegetation has been naturally established on the site, comprising Cynodon dactylon (Common Couch), Juncus usitatus (Common Rush) and Eleocharis acutus, all of which cannot be assigned to a PCT as identified in the DPIE BioNet Vegetation Classification. The Modification Proposal is not considered to have any significant impact on the biodiversity values on the site and therefore a waiver for the BDAR requirement is sought under Section 7.9(2) of the Biodiversity Conservation Act 2016.
Protected and sensitive lands	The site is not located within any environmentally sensitive areas as listed within the Protected and Sensitive Lands SEARs at **Appendix A** and therefore further mitigation is not required.
Waste management	The existing Waste Management Plan will be updated for construction and operations. All waste will be removed from site by Remondis or a subcontractor as part of the Aurizon National Waste Management Contract.
Climate change	As per the Concept Design Report at **Appendix E**, Aurizon intent to deliver development which practices ESD standards, where feasible. The following matters have been considered in the design of the Modification Proposal: • Orientation; • Ventilation; • Material choices; • Solar photovoltaics; and • Rainwater harvesting. More information is also provided in **Section 3.1.1**.
Social and economic impacts	The Modification Proposal will significantly improve Aurizon's existing operation. A list of social and economic benefits is provided below: • The consolidation will significantly reduce amount of car driving by train crew which is considered one of Aurizon's key operation safety risks; • The reduction of commute times will improve workers social wellbeing; • The Proposal will improve on-site engagement and supervision of the train crew; • The consolidation will reduce operating costs for Aurizon and therefore will optimise and secure the ongoing transportation of coal and bulk commodities within the Hunter Region.

6.11 Summary of Mitigation Measures

A summary of mitigation measures which have been recommended throughout specialist reports, in addition to those already established as part of MOD 1 is provided in **Table 14**.

Table 14 Summary of mitigation measures

Mitigation Measure	Timing	Responsibility
Acid Sulfate Soils		
• The ASSMP relevant to the SSI is to be adopted for the construction of the Modification Proposal.	Construction	Contractor
Contamination		
• Relevant mitigation measures established as part of MOD 1 are to be implemented. • It is recommended soils are managed in accordance with the Site Management Plan (SMP) (Aurizon 2021)	Construction	Contractor
Soil Salinity		
• Site drainage is to be designed to maintain existing levels of runoff and infiltration where possible.	Design	Contractor
• Relevant mitigation measures established as part of MOD 1 are to be implemented.	Design	Aurizon
Soil and Land		
• Relevant mitigation measures established as part of MOD 1 are to be implemented. • Lengths of slopes should be minimised by limiting the extent of excavations and/or using diversion drains to reduce water velocity over disturbed areas. • Progressive rehabilitation or sealing of works areas.	Construction and Operation	Aurizon
Water		
Construct stormwater drainage of the proposal as per the design.	Construction	Aurizon
Continue groundwater and surface water monitoring and reporting as per the OSGMP.	Construction and Operation	
Maintain the existing stormwater management system as per the existing Operational Stormwater Management Sub-Plan.	Operation	
Update the Operational Stormwater Management Sub-Plan for consistency once construction of the Modification Proposal is complete.	Operation	
Visual Impact		
Retain all existing vegetation along the Hexham LTTSF Site property boundary	Design	Aurizon
Waste		
Existing Waste Management Plan to be updated for construction and operations.	Construction and Operation	Contractor

7.0 Justification

The justification and rationale for the Modification Proposal has been provided in **Section 2.0**.

7.1 Suitability of the Proposal Site for the Modification Proposal

The Modification Proposal allows for the consolidation of the Newcastle Train Crew Depot and Maintenance Warehouse and Hexham LTTSF which are intrinsically related in that they provide rail, safety and maintenance staff and supplies which are utilised and mobilised by the Hexham LTTSF Project. In addition, a dedicated storage area on the LTTSF Project Site would increase efficiency of operations, with wagons being move seamlessly moved on and off the operation rail lines.

These reasons combined with the minimal environmental impact generated by the Modification Proposal, makes it a suitable location for the Modification Proposal.

7.2 Public Interest

The Modification Proposal remains in the public interest because:

- It will support the operations of the LTTSF Project which services QR National's Hunter Valley coal freight business and train servicing facilities.
- It will continue to provide local benefits, including employment opportunities in both the construction and operation phase of the project; and
- It does not generate any significant additional environmental impacts compared to the Approved Project.

8.0 Conclusion

This Environmental Assessment Report has been prepared to consider the environmental, social and economic impacts of the proposed modification to the SSI approval for the Hexham LTTSF project.

In light of the environmental assessment provided within the report, it is considered that the environmental impacts of the depot, warehouse and wagon storage area can be appropriately managed with the implementation of the existing mitigation and management measures established under the existing SSI Approval and MOD 1. Additional mitigation measures have been included where appropriate.