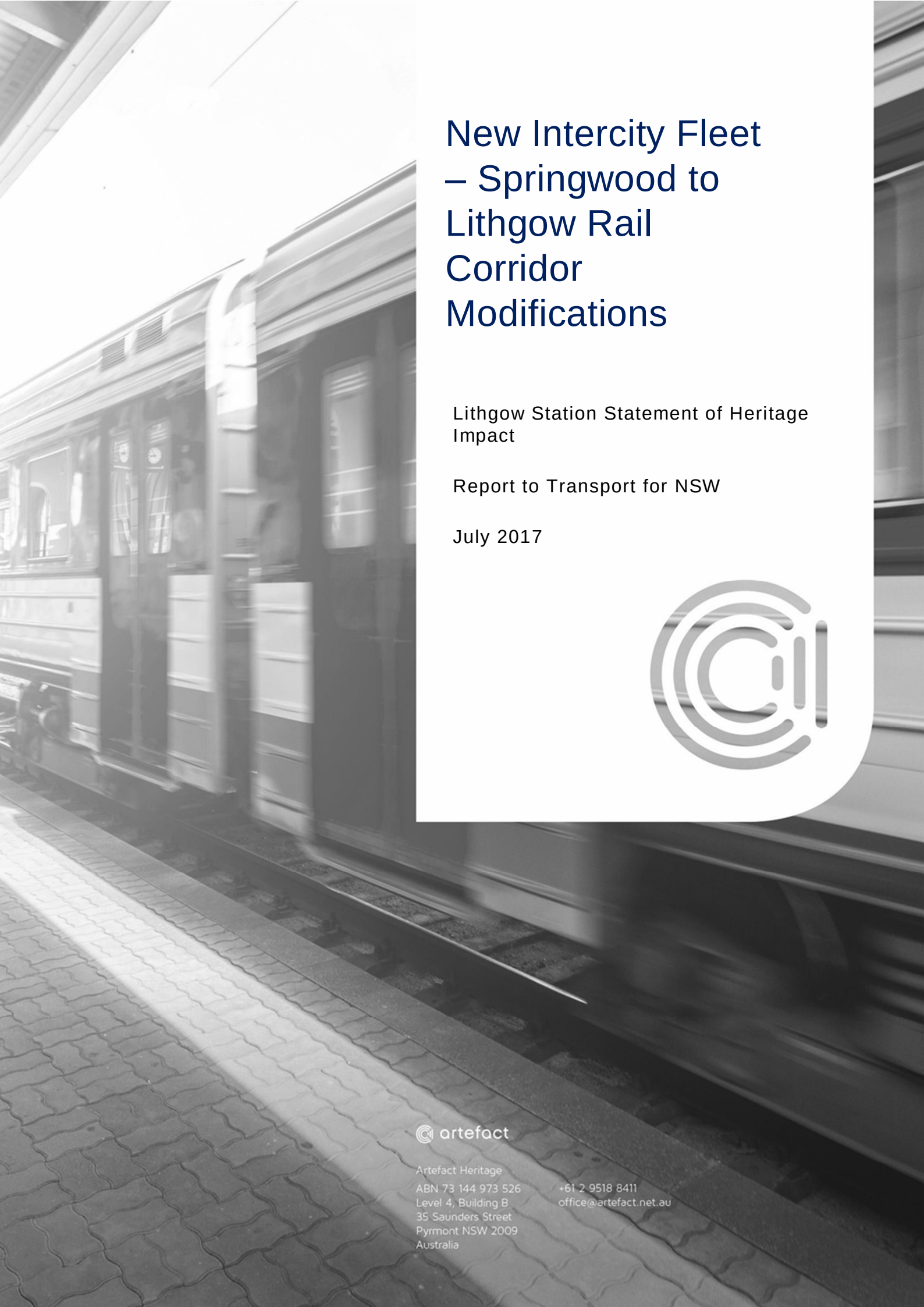

New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications

Lithgow Station Statement of Heritage Impact

Report to Transport for NSW

July 2017

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Acronyms

Acronym	Definition
EP&A Act	*Environmental Planning and Assessment Act 1979*
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
LEP	Local Environmental Plan
LGA	Local Government Area
OEH	Office of Environment and Heritage
REF	Review of Environmental Factors
SHR	State Heritage Register
SoHI	Statement of Heritage Impact

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EXECUTIVE SUMMARY

Transport for NSW (TfNSW) is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications Project (the Project).

In May 2014, the NSW Government announced it is delivering the New Intercity Fleet, to replace trains carrying customers from Sydney to the Central Coast, Newcastle, the Blue Mountains and the South Coast. The introduction of the New Intercity Fleet would allow for the replacement of older electric train fleets currently used to provide intercity services.

The New Intercity Fleet would:

- provide a more consistent and improved level of customer service for intercity passengers
- facilitate the retirement of the two oldest electric train sets currently in operation
- reduce the costs of intercity operations
- increase capacity for intercity passengers.

The Project would involve works within the curtilage of the Lithgow Railway Station Group and Residence (Lithgow Station). Lithgow Station is listed on the following registers as State Significant:

- State Heritage Register (SHR) as “Lithgow Railway Station Group and Residence”, SHR# 01833
- RailCorp Section 170 Heritage and Conservation Register as “Lithgow Railway Station Group and Residence”, SHI# 4801025
- Heritage schedule of the *Lithgow Local Environmental Plan 2014* (Lithgow LEP) as “Lithgow Railway Station Group and Residence”, I435.

Lithgow Station is located within a heritage conservation area of local significance:

- Lithgow Main Street Heritage Conservation Area, Lithgow LEP 2014 C7

The proposed works at Lithgow Station include the following:

- extending the western end of the platform by 12 metres
- modifications to station platform edges (also known as platform coping)
- re-positioning of rail tracks (track slewing) along the length of the corridor
- installation of new security, lighting and communications equipment at Lithgow Station
- the establishment of a temporary construction compound during works.

An assessment of the proposed works showed that the extension of the station island platform would involve the removal of a three metre section of the original brick platform retaining wall. This would result in a minor physical and a minor visual impact to the heritage significance of Lithgow Station.

The assessment also showed that works to reduce the platform coping edges would remove up to 90 millimetres of original brick fabric. These works would result in a minor physical and a minor visual impact to the Lithgow Railway Station Group and Residence.

Mitigation measures have been provided in this report in Section 9.0 to minimise impacts to the heritage listed Lithgow Railway Station Group and Residence.

1.0 INTRODUCTION

1.1 Background

Transport for NSW (TfNSW) is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications (the Project).

In May 2014, the NSW Government announced it is delivering the New Intercity Fleet, to replace trains carrying customers from Sydney to the Central Coast, Newcastle, the Blue Mountains and the South Coast. The introduction of the New Intercity Fleet would allow for the replacement of older electric train fleets currently used to provide intercity services.

The New Intercity Fleet would:

- provide a more consistent and improved level of customer service for intercity passengers
- facilitate the retirement of the two oldest electric train sets currently in operation
- reduce the costs of intercity operations
- increase capacity for intercity passengers.

To facilitate the deployment of the New Intercity Fleet, modifications at Lithgow Station involve the following works:

- extending the western end of the platform by 12 metres
- modifications to station platform edges (also known as platform coping)
- re-positioning of rail tracks (track slewing) along the length of the corridor
- installation of new security, lighting and communications equipment at Lithgow Station
- the establishment of a temporary construction compound during works.

An overview of the Project is provided in design document SK – H401.

1.2 Site location

Lithgow Station is located in the centre of the township of Lithgow, in the Lithgow local government area (LGA). The station is bounded by Railway Parade in the north, Eskbank Street in the east and Main Street in the south. The location of the station is illustrated in Figure 1.

Figure 1: Location of Lithgow Station

1.3 Report methodology

This SoHI has been prepared using the document *Statement of Heritage Impact* (2002), prepared by the NSW Heritage Office, contained within the *NSW Heritage Manual,* as a guideline and includes:

- desktop searches of relevant heritage registers
- review of Project drawings and concept design reports
- review of the following key documents:
  - heritage register listings for Lithgow Station
  - historic plans for Lithgow Station held by the Sydney Trains Plan Room
  - previous reports and other relevant documentation provided by Transport for NSW
- background research into the historical development of Lithgow Station using the historic plans, historical photographs, newspapers and other primary and secondary historical sources as relevant as referenced
- a site inspection conducted on 5 April 2017 by Duncan Jones (Heritage Consultant) and Josh Symons (Principal) from Artefact Heritage, and a second inspection conducted by Duncan Jones and Shona Lindsay (Heritage Consultant) on 20 April 2017 during a period of rail track possession. Note: all photographs within this report were taken by Artefact during these site inspections unless otherwise stated
- assessment of the Project against the heritage significance of Lithgow Station. The assessment has been undertaken in light of the conservation processes and principles found in *The Burra Charter: The Australian ICOMOS Charter for Places of Cultural Significance* (2013). *The Burra Charter* is considered to be the pre-eminent guidance document for the management of change for places of heritage significance within Australia.
- The Project has also been assessed against the Sydney Trains document *Heritage Platforms Conservation Management Strategy,* as the most relevant management document.

1.3.1 Impact assessment

In order to consistently identify the potential impact of the proposed works, the terminology contained in Table 1 has been referenced throughout this document.

Table 1: Terminology for assessing the magnitude of heritage impact

Grading	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.

Grading	Definition
Moderate	Actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items and no significant alteration of its heritage values.
Neutral	Actions that would have no heritage impact.

1.3.2 Sydney Trains Heritage Platforms Conservation Management Strategy

A conservation management strategy (CMS) for heritage platforms managed and maintained by Sydney Trains was prepared by Australian Museum Consulting on behalf of Sydney Trains in 2015[1]. This heritage strategy was produced in order to effectively and consistently manage modifications to heritage significant station platforms throughout NSW. The report provides an overview of historic station platforms, a comparative analysis of station platform materials, and produces strategic recommendations for future works at stations to provide consistent responses to heritage management of those stations.

Specific strategic recommendations pertinent to the proposed works are discussed in Section 9.0 of this report.

1.3.3 Report authorship and acknowledgements

This report has been prepared by Duncan Jones (Heritage Consultant). Background research and context has been prepared by Charlotte Simons (Heritage Consultant). Dr Sandra Wallace (Director) and Josh Symons (Principal) provided management input and review.

1.4 Report limitations

The purpose of this report is to identify and assess historic heritage and archaeological potential which might be impacted by the Project. Predictions have been made within this report about the probability of subsurface archaeological materials occurring within the site, based on surface indications and environmental contexts. However, it is possible that materials may occur in areas without surface indications and in any environmental context. These would be addressed in accordance with Transport for NSW's Unexpected Heritage Finds Guideline (Transport for NSW, 2015). This report is based on the reference design for the Project. It is noted that during detailed design, details of the Project may change or be refined.

This report only assesses impacts to non-Aboriginal heritage and archaeological resources.

[1] Australian Museum Consulting, 2015. *Heritage Platforms Conservation Management Strategy*. Prepared for Sydney Trains.

2.0 STATUTORY CONTEXT

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and international importance. Heritage items are protected through their inscription on the World Heritage List, National Heritage List or the Commonwealth Heritage List.

The EPBC Act stipulates that a person who has proposed an action that will, or is likely to have; a significant impact on a World, National or Commonwealth Heritage site must refer the action to the Minister for the Environment (hereafter the Minister). The Minister would then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

Lithgow Station is not registered on the World, National or Commonwealth Heritage Lists, the heritage provisions of this act do not apply and project works for the Proposal would not require referral to the Minister.

2.2 State legislation

2.2.1 Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) is the primary piece of State legislation affording protection to heritage items (natural and cultural) in NSW. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant. Significance is based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items can be listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Heritage Act against any activities that may damage an item or affect its heritage significance. The Heritage Act also protects 'relics', which can include archaeological material, features and deposits.

Under the Heritage Act, all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must also ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. Section 4 (1) of the Heritage Act (as amended in 2009) defines a relic as:

> *"...any deposit, artefact, object or material evidence that:*
>
> *(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
>
> *(b) is of State or local heritage significance"*

Sections 139 to 145 of the Heritage Act prevent the excavation or disturbance of land known or likely to contain relics, unless under an excavation permit. Section 139 (1) states:

> *A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance is carried out in accordance with an excavation permit.*

Excavation permits are issued by the Heritage Council of NSW, or its Delegate, under Section 140 of the Heritage Act for relics not within SHR curtilages, or under Section 60 for significant archaeological remains within SHR curtilages.

2.2.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits. The project is subject to assessment under Part 5 of the EP&A Act.

The EP&A Act also requires that local governments prepare planning instruments (such as LEPs and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The station falls within the boundaries of the City of Lithgow local government area. Schedule 5 of the Lithgow LEP includes a list of items/sites of heritage significance within this LGA.

2.2.3 State Environmental Planning Policy (Infrastructure) [ISEPP] 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the state. ISEPP clarifies the consent arrangements for certain infrastructure projects.

As the Project meets the definitions of 'rail infrastructure facilities' provided for by clause 78, and is being carried out by TfNSW, it is permissible without consent under ISEPP. As a result, it can be assessed under Part 5 of the EP&A Act. Development consent from Lithgow City Council is not required.

2.3 Local government

2.3.1 Lithgow Local Environmental Plan 2014

Part 5, Section 5.10 of the Lithgow LEP deals with heritage conservation within the area covered by this LEP. All heritage items listed on the LEP are included in Schedule 5. The Lithgow LEP states:

(1) The objectives of this clause are as follows:

a. to conserve the environmental heritage of Lithgow

b. to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

c. to conserve archaeological sites,

d. to conserve Aboriginal objects and Aboriginal places of heritage significance.

(2) Development consent is required for any of the following:

a. demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):

i. a heritage item,

ii. an Aboriginal object,

iii. a building, work, relic or tree within a heritage conservation area,

b. altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

c. disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation would or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

d. disturbing or excavating an Aboriginal place of heritage significance,

e. erecting a building on land:

i. on which a heritage item is located or that is within a heritage conservation area, or

ii. on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

f. subdividing land:

i. on which a heritage item is located or that is within a heritage conservation area, or

ii. on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

Lithgow Station is listed as an item of environmental heritage on Schedule 5 of the Lithgow LEP 2014.

2.4 Heritage registers

Lithgow Station is listed on several heritage registers, summarised in Table 2 below. The curtilages of these items are illustrated in Figure 2.

Table 2: Results of register search for Lithgow Station

Register	Listing
World Heritage List	Lithgow Station **is not registered** on the World Heritage List
National Heritage List	Lithgow Station **is not registered** on the National Heritage List
Commonwealth Heritage List	Lithgow Station **is not registered** on the Commonwealth Heritage List
State Heritage Register	Lithgow Station **is registered** on the State Heritage Register as "Lithgow Railway Station Group and Residence", SHR# 01833
Section 170 Registers	Lithgow Station **is registered** on the RailCorp s170 Register as "Lithgow Railway Station Group and Residence", SHI# 4801025.
Lithgow Local Environmental; Plan 2014	Lithgow Station **is registered** on the Lithgow LEP 2014 as Lithgow Railway Station Group and Residence, item I435 Lithgow Station is also located within the heritage curtilage of the Lithgow Main Street Conservation Area, item C7

Figure 2: Location of heritage listing curtilages for Lithgow Station

3.0 HISTORICAL CONTEXT

3.1 Lithgow Station

Following the opening of the Great Zig Zag (constructed between 1866 and 1869), the Main Western Railway Line was extended from the terminus at Mount Victoria to a new terminus at Bowenfels in 1869. Extension of the railway to Bowenfels through the site of the first and present Lithgow Station involved a sandstone cutting up to five metres in height.

In 1877, the first railway station for Lithgow was established. This station was located about 300 metres to the west of the present station at what is now the southern foundation of the Sandford Avenue overbridge. Constructed of stone and brick, and designed in the Victorian Italianate style, the railway station building was located on the southern side of the rail line. A historical photograph of the original railway station in 1890 is seen in Figure 3. The former 1877 platform is still extant. [2]

In 1880, a Station Master's residence was established to the east of Lithgow Station on the northern side of the railway line. The grand two-storey railway residence, designed in the Victorian style, was constructed of brick and stone with rusticated render to the main facades and a slate tiled roof.[3]

During the 1920s, pressure from the public and local shopkeepers was increasing to establish a passenger station closer to the centre of Lithgow. In the first half of the 1920s, it was decided to expand Lithgow as a regional headquarters for the NSW Railways.[4] In addition to the construction of a new large locomotive depot, the Railways selected a new site for the development of a new passenger station. This site was located about 450 metres west of Eskbank Station and about 300 metres to the east of the original Lithgow Station.

Figure 3: First Lithgow Station, 1890
(Source: NSW State Archives and Records. Digital ID: 17420_a014_a014000754)

[2] Office of Environment & Heritage. State Heritage Inventory database 'Lithgow Railway Station Group and Residence'. 2009. Retrieved from: http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801025
[3] OEH 'Lithgow Railway Station Group and Residence'
[4] OEH 'Lithgow Railway Station Group and Residence'

In 1924, the station buildings of the original Lithgow Station were removed and the station discontinued in use, and the new Lithgow Station was officially opened in March 1925 at its current location. The new station featured two buildings. These were the station building located in the island platform, which included a set of two platform structures comprising a main face brick building with a corrugated metal gabled roof extending as an awning to both platforms (Figure 4), with a semi-detached brick 'out-of' shed. In keeping with the style of most stations between Emu Plains and Lithgow, the platform structures were designed in a standard 'A10' Federation style. At the western end of the platform, a footwarmer heating and storage shed was constructed. [5]

The station also featured an overhead booking and parcels office located on the western side of the Eskbank Street overbridge. Elevated on a steel beam frame, and constructed with timber and weatherboard cladding, the building adjoined the arched road overbridge on the eastern side of the side of Lithgow Station. A ramp and stepway to the brick faced island platform provided access to the station from this entry point. The booking and parcels office also featured a lift operated by station staff to handle baggage and parcels. This building was extended in 1948. [6]

Figure 4: Lithgow Station, decorated for visit of Queen Elizabeth II, 1954 (Source: NSW State Archives and Records. Digital ID: 17420_a014_a014000189)

The new Lithgow Station featured an additional stabling siding, which was located to the west of the western end of the island platform. During the 1950s, Lithgow Station was consolidated with the construction of an office building for train controller and western communications between 1945 and 1956. Located at 12 Railway Parade at the corner of Railway Parade and Eskbank Street, the office was constructed as a two-storey face brick building designed in a style that is typical of the post-war period. In 1957, the Main Western Railway line was electrified. This involved installation of overhead

[5] OEH 'Lithgow Railway Station Group and Residence'
[6] OEH 'Lithgow Railway Station Group and Residence'

wiring structures throughout the rail corridor. In 1961, a traditional Refreshment Room, the last of its kind to be built, was opened at the eastern end of the station building.[7]

From the 1980s to present, a number of modifications and upgrades have been made to Lithgow Station. In 1983, the overhead booking office on Eskbank Street received renovations to modernise the building.

In 1993/1994, the station was modified to incorporate a bus and coach interchange on Railway Parade. At this time, the Hayley Street footbridge and overhead booking office were constructed. This development relocated access to the western end of the station, with access to the rail platform provided by an elevator, stairs and a lift from the Hayley Street pedestrian footbridge, which necessitated removal of the footwarmer's shed and stabling siding to the west of the island platform. Around this time, the former ramp and step-way from the Eskbank Street entry point were removed.

In 2011, the overhead booking office received further upgrades including new plasterboard sheeting internally, new corrugated roofing and reconstruction of matching bargeboards and timber finials. In 2015, the latest works were undertaken, which involved construction of a modern canopy extension at the western end of the station building. This new platform canopy extends from the footbridge stairs to the station.

[7] OEH 'Lithgow Railway Station Group and Residence'

4.0 PHYSICAL DESCRIPTION

4.1 Introduction

A site inspection was conducted on 5 April 2017 by Duncan Jones (Heritage Consultant) and Josh Symons (Principal) from Artefact Heritage. A second inspection was conducted by Duncan Jones and Shona Lindsay (Heritage Consultant) on 20 April 2017 during a period of rail track possession. The aim of the site inspection was to inspect the area of proposed impacts and to inform an assessment of archaeological potential. The inspection was undertaken on foot and a photographic record was made. Elements of the Lithgow Station Group and Residence that were designated for possible impacts have been inspected and assessed in this report.

Lithgow Station is located in a sandstone cutting below street level, bounded by the Eskbank Street overbridge in the east, Railway Parade in the north and Main Street, Lithgow, in the south. The first Lithgow Station was constructed in 1877 to the west of the present station, near the Sandford Avenue overbridge. The present Lithgow Station was constructed in 1925.

4.2 Station platform

The Lithgow Station platform is an island platform between 190 and 192 metres in length and extends from the Eskbank Street overbridge in the east to roughly in line with Hayley Street in the west. The island platform is straight along its southern edge, while is slightly curved on its northern end.

The platform pavement consists of concrete capping with portions of overlying asphalt paving throughout most of the station. Tactile points and safety markings are present along the edge of the platforms (Figure 5). Concrete service pits, platform lighting, garbage bins, platform searing and small landscaped shrubs are also located on the platform.

The island platform retaining wall, below a layer of concrete capping (180 mm thick), consists of grey-black machine pressed brick, laid in an English bond. The upper coping of the platform retaining wall consists of two courses of grey-black machine-pressed brick in an English bond, below the modern raised concrete capping. These courses are flush with the concrete platform edge.

Below these are two further brick courses of lighter brown-grey brick are laid in header orientation, each stepped back from its upper brick course by 55 mm. Below these two courses, nine courses of brown-grey brick are laid in an English bond to below rail level, with the lowest course obscured by rail ballast (Figure 6).

The eastern end of the platform terminates directly onto the central brick pillar of the Eskbank Street overbridge. A ramp from platform level to rail level has been constructed at the western end of the island platform. The outer edge of the ramp consists of two courses of grey-black brick coping. The ramp has a thick asphalt surface which directly overlies the brick coping without a concrete capping. Underlying these upper brick courses, the retaining wall follows the same brick bond layout as the remainder of the platform retaining wall (Figure 7). Water and sewerage access points are located at the western end of the ramp.

Figure 5: View of southern platform, east aspect

Figure 6: Detail of platform retaining wall, and brick and concrete coping, north-east aspect

Figure 7: Detail of asphalt covered ramp on southern side of the island platform, showing brick coping extending to rail level

4.3 Rail corridor

Both tracks within the rail corridor at Lithgow Station have been extensively refurbished over time, and have modern concrete sleepers throughout. Overhead wiring stanchions in the rail corridor are in variable condition, with several stanchions rusted. Signalling structures and points are of modern construction. Areas within the rail corridor adjacent to the rail line are partially grassed although rail ballast is evident throughout.

Services are located in the western portion of the rail corridor, with a service access point located to the west of the rail corridor ramp (Figure 8). Ground located below the footbridge-to-platform pedestrian ramp shows evidence of imported earth, through which footings for the ramp have been excavated.

Figure 8: View of western end of rail corridor showing concrete sleepers and service maintenance hatch, west aspect

5.0 SIGNIFICANCE ASSESSMENT

5.1 Assessment criteria

5.1.1 Significance assessment criteria

The significance of heritage items addressed in this report have been assessed in accordance with the criteria outlined in the significance assessment guidelines provided by the Heritage Division of the Office of Environment and Heritage[8]. The criteria specified by the Heritage Division encompass the values identified in the *Burra Charter*[9]. This heritage assessment guidelines also include two thresholds (state or local) for assessing the relative level of significance of heritage items.

A description of the significance assessment criteria used in this report is provided in Table 3.

Table 3: Significance assessment criteria

A – Historical significance	An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
B – Associative significance	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local to area
C – Aesthetic or technical significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
D – Social significance	An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
E – Research potential	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area). Significance under this criterion must have the potential to yield new or further substantial information.
F – Rarity	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area).
G – Representativeness	An item is important in demonstrating the principal characteristics of a class of NSW's (or local area's): cultural or natural places cultural; or natural environments.

5.1.2 Significance grading

This report includes an assessment of the relative contributions of individual components at Lithgow Station to its overall heritage value. Components are assessed according to the grading provided in Table 4.

[8] Heritage Division 2001. Assessing Heritage Significance
[9] Australia ICOMOS 2013 *The Burra Charter*

Table 4: Standard grades of significance

Grading	Justification	Status
Exceptional (E)	Rare or outstanding element directly contributing to an item's local and state significance.	Fulfils criteria for local or state listing
High (H)	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance.	Fulfils criteria for local or state listing
Moderate (M)	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or state listing
Low (L)	Alterations detract from significance. Difficult to interpret.	Does not fulfil criteria for local or state listing
Intrusive (I)	Damaging to the item's heritage significance.	Does not fulfil criteria for local or state listing

5.2 Assessment of significance for Lithgow Railway Station Group and Residence

The following assessment of significance has been adapted from the SHR[10] and RailCorp s170 heritage register[11] entries for the Lithgow Railway Station Group and Residence.

Table 5: Assessment of significance for the Lithgow Railway Station Group

Criterion	Explanation
A – Historical Significance	The Lithgow Railway Station Group is of historical significance for its role as an important regional headquarters for NSW Railways combining a range of buildings and structures dating from the 1880s to the mid-1920s and for its association with the rail history and the coal industry in the Lithgow and Eskbank area. The site provides physical evidence of the activities and development that occurred in Lithgow railway historic precinct and marks an important phase in the evolution of railway operations in the most western end of the upper Blue Mountains and the Metro West railway region. **The Lithgow Railway Station Group and Residence are considered State significant under this criterion.**
B – Associative Significance	The Lithgow Railway Station Group was originally constructed between 1877 and 1880, however the existing station buildings were constructed from the 1920s onwards. This Lithgow Station was developed as a passenger station compared to the colliery-associated rail lines and stations further to the east. As a passenger station as opposed to an industrial station, this station is associated with commuters in the Lithgow community from the 1920s to the present. **The Lithgow Railway Station Group and Residence are considered locally significant under this criterion.**

[10] SHI Entry for State Heritage Register item "Lithgow Railway Station Group and Residence" (SHR# 01833) accessed online 13 April 2017, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=5061201

[11] SHI Entry for RailCorp s170 item "Lithgow Railway Station Group and Residence" (SHI# 4801025), accessed online 13 April 2017, http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801025

Criterion	Explanation
C – Aesthetic or Technical Significance	The Lithgow Railway Station Group is of aesthetic significance as it comprises a number of buildings that are individually good examples of their type. The station building is a good example of the standard island building style with a sympathetic addition to one end and features typical characteristics elements of the Federation design railway building. The weatherboard overhead booking and parcels office building and the goods lift tower display both aesthetic and technical achievements in design and construction. Although not accessible during the site inspection, it appears that the original lift may still be in use. The Station Master's residence is a fine example of a grand two-storey railway residence with a prominent and landmark quality overlooking the rail corridor. Its distinctive architectural detailing and fenestration is evidence of prosperity in the railways and the importance given to the railway staff in the 1880s. **The Lithgow Railway Station Group and Residence are considered State significant under this criterion.**
D – Social Significance	The Lithgow Railway Station Group has the potential to contribute to the local community's sense of place and can provide a connection to the local community's history. **The Lithgow Railway Station Group and Residence are considered locally significant under this criterion.**
E – Research Potential	The Lithgow Railway Station Group has research potential at local level due to its relatively intact complex of buildings that generally maintain their original relationship and layout. The group also has the ability to provide valuable information on railway design for the local coal industry as part of the larger rail network. **The Lithgow Railway Station Group and Residence are considered locally significant under this criterion.**
F – Rarity	The Lithgow Railway Station Group comprises a rare goods lift tower from the street down to the platform. The 1925 goods lift tower is a unique arrangement and possibly the first example of providing this form of platform access in the railway network. **The Lithgow Railway Station Group and Residence are considered State significant under this criterion.**
G - Representativeness	The Lithgow Railway Station Group as a whole is a representative example of a larger station design incorporating standard design buildings and structures associated with the coal industry goods traffic that is still an important railway activity in the region. **The Lithgow Railway Station Group and Residence are considered locally significant under this criterion.**

5.2.1 Statement of significance

The Lithgow Railway Station Group and Residence is of State heritage significance.

The following statement of significance has been sourced from the SHR entry[12] for the Lithgow Railway Station Group and Residence:

> *Lithgow Railway Station is significant as an important regional headquarters for the NSW Railways since the 1920s combining a range of buildings and structures dating from the 1880s to the mid-1920s and is significant for its strong associations with the rail and coal industry in the wider Lithgow and Eskbank area. Along with nearby Eskbank Station, the site provides physical evidence of the activities and development that occurred in the historic Lithgow railway corridor marking several*

[12] *op. cit.*

important phases in the evolution of railway operations in the most western end of the upper Blue Mountains. The buildings reflect the development of the site, the shift of the station location and the development of the town as a major mining area in the early years of the century.

Lithgow Railway Station is of aesthetic significance as it comprises a number of buildings that are individually good examples of their type. The platform building is a good example of a standard island building demonstrating the typical characteristics of Federation railway architecture used throughout NSW. The weatherboard overhead booking and parcels office and the goods lift tower display both aesthetic and technical achievements in design and construction. The Station Master's residence is a fine example of a grand two-storey railway residence with a prominent and landmark quality overlooking the railway corridor. Its distinctive architectural detailing and fenestration is evidence of prosperity in the railways and the importance given to the railway staff in the 1880s.

5.2.2 Lithgow Station components

Table 6 summarises the heritage significance of the components of the station.

Table 6: Grades of significance for components of the Lithgow Station Group and Residence

Component	Description	Grading
Railway cutting (1869)	The railway cutting through the sandstone and coal measure geology of Lithgow pre-date much of the settlement within the township of Lithgow, and is concurrent with the development of the first rail line that descended the Blue Mountains at the Zig Zag and terminated at Bowenfels. The cutting within the curtilage of Lithgow Station shows several rock cutting techniques, including drill marks, hand tool excavation (mattock and chisel dressing marks), as well as machine damage from excavation. Retaining walls, stormwater drainage lines, the installation of GST and cutting stabilisation (shotcreting) have heavily impacted the original cutting over time. Despite the early date for the excavation of this rock cutting, only small portions of the cutting show original 19th century remnant portions of the stone face. Shotcreting has largely obscured the cutting in the eastern portion of the rail corridor.	**Moderate**
Rail corridor (1869 until present)	While the rail corridor and rail line was originally excavated and constructed in the 1860s, the line has undergone continual renovations since that time. The current rail line is constructed on modern concrete sleepers, with overhead wiring and stanchions dating to the post-electrification period of the railway (1950s onwards). The existing fabric of the rail line is demonstrative of the evolving historical use of the Main Western Line and its alignment adheres to the layout of the original line since the 1860s. The rail corridor is considered of moderate heritage significance.	**Moderate**
Station Master's Residence (1880)	The station master's residence is a two-storey Victorian house originally constructed in 1880 for the first Lithgow station. This building is in excellent condition, with much of its original fabric intact and sympathetically maintained.	**Exceptional**
Eskbank Street overbridge (1924)	The Eskbank Street overbridge was constructed in 1924 to provide access to either side of the railway cutting in the growing township of Lithgow. The construction of the overbridge involved pouring concrete into timber arched moulds that rested on abutments placed on open rock cuttings. The Eskbank Street overbridge is in a good state of intactness and has not been significantly modified since it was constructed, although the wearing surfaces have been updated and modified since construction.	**Moderate**

Component	Description	Grading
Island platform and platform coping (1925)	The original Lithgow Station island platform was constructed in 1925 with the construction of the present phase of the station. The original platform retaining wall consisted of brown-grey brick with two upper courses stepping out forming a corbelled brick coping. Over time, additional platform coping layers have been added to the platform edge, first with two corbelled courses of grey-black bricks, and later using concrete and asphalt surfaces. While original fabric of the outer edge of the platform retaining wall is still extant, the upper two corbelled brick courses and the overlying concrete are not original fabric and have been added at a later date. Throughout the station platform, service pits, and the present asphalt surface have all been added. As such, much of the island platform is not considered to be original fabric, and those elements which are original fabric are at a lower elevation (i.e. the original platform retaining wall, and earlier platform surfaces which are now concealed below modern concrete).	**Moderate**
Platform station building (1925)	The station building located on the island platform was constructed in a standard A10 Federation style in 1925. Extensions in 1961 were constructed with similar brick and in a sympathetic style to the original building elements. Despite the introduction of intrusive elements (CCTV cameras, signage, digital displays), painting and maintenance of the building have maintained much of the structure's original Federation decorative style.	**High**
Former booking office and goods lift tower (1925)	The former booking office and goods lift tower are timber weatherboard buildings with low-hipped red corrugated roofing. The street level façade of the building has been brick clad and new windows and doors installed while the internal fit outs of the building have been modified. Both buildings are no longer in active use. Despite these alterations at street level and internally, much of the original fabric of the structures, including the supporting steel and concrete framework for the building's projection over the rail corridor, is intact. Maintenance of the building has preserved much of the structures' original Federation architectural stylings.	**High**
Hayley Street footbridge, footbridge booking office, access ramp and stairs (1993)	Renovations in the 1990s to incorporate a new bus terminal on Railway Parade involved the removal of the original pedestrian ramp from Eskbank Street to replace it with a new concourse located adjacent to Hayley Street. This concourse has been built with sympathetic low-hipped red corrugated metal roofing, which is visually sympathetic with the earlier station structures (principally the platform building and the goods lift tower and former booking office). However, these items are not original fabric and are only demonstrative of the changing role of the station as the Lithgow area has adapted to new economic conditions over time.	**Low**
Platform landscaping and canopies (1990s & 2015)	Landscaping on the platform is minimal, with a single garden bed at the eastern end of the platform. Two canopies are present on the platform, with the eastern canopy built in 2015 in a white butterfly corrugated metal roof and the western canopy constructed in the early 1990s, in a red low-hipped corrugated metal roof. These structures are sympathetic and relatively unobtrusive to the architectural character of the platform station building but are not original station fabric.	**Low**

5.3 Overlapping heritage items

5.3.1 Statement of significance for Lithgow Main Street Heritage Conservation Area (Lithgow LEP 2014 item C7)

The Lithgow Main Street Heritage Conservation Area is of local heritage significance and is listed on the Lithgow LEP 2014 as conservation area C7. The item encompasses an area bounded by Railway Parade in the north, Hassans Walls Road in the west, Bridge Street in the east and Mort Street in the south.

The following statement of significance has been provided for the Lithgow Main Street Heritage Conservation Area:

> *The Lithgow Main Street Conservation Area is a retail strip of historic, social and aesthetic significance as it provides a physical record of the significant historical phases which shaped the development of Lithgow as an industrial and commercial city, from the late nineteenth century until the early twentieth century.*
>
> *The architecture of shopfronts and public buildings within this conservation area exhibit a range of styles from late Victorian to Federation and Inter-War styles, including impressive public structures such as the Lithgow Court House, Grand Central Hotel and the Victorian-era ANZ Bank. Retail and public buildings in the Main Street area show the evolving commercial character of the city of Lithgow.*

6.0 ARCHAEOLOGICAL ASSESSMENT

6.1.1 Land use summary

A summary of the historical land use of Lithgow Station is provided in Table 7.

Table 7: Historical land use at Lithgow Station

Phase	Discussion
Phase 1 – Main Western Railway Line (1869 – 1877)	With the completion of the Great Zig Zag in 1869, the Main Western Railway Line was extended from its then terminus to a new final station at Bowenfels, to the west of the present-day township of Lithgow. At that time, Bowenfels was the only railway station present in the Lithgow valley area. Prior to 1877, the area where the current Lithgow Station is located was a single-track rail line connected the Zig Zag with Bowenfels Station. It was during the 1870s that the township of Lithgow started developing in the surrounding area. In 1876, the single rail line was extended to Bathurst.
Phase 2: First Lithgow Station (1877 – 1925)	The first Lithgow Station was constructed in 1877 at the end of Station Street, underneath the Sandford Avenue overbridge. In 1880, the rail line was duplicated from the Zig Zag to Bowenfels a. Plans from 1892 and historical photographs show that this was a side platform station, with an office and amenities buildings located on the southern platform and a rail overbridge constructed at the western end of the station. The station buildings were removed and the station discontinued with the completion of the new Lithgow Station in 1924.
Phase 3: New Lithgow Station (1925 – 1983)	The current Lithgow Station was built in 1923 and 1924, including the construction of the Eskbank Street overbridge. The new station was officially opened on 9 March 1925. The station platform was accessed from the Eskbank Street overbridge via the original booking and parcels office, with a ramp and stairway that descended onto the platform from the western end of that building. Other station buildings at this time included the 1924 platform building and the footwarmer's shed at the country (western) end of the platform . An additional stabling siding was located to the west of the western end of the island platform. The rail line was electrified during the 1957, which saw the installation of overhead wiring structures throughout the rail corridor.
Phase 4: Modern Station Renovations (1983 – present)	The station was renovated during 1993/1994 to incorporate a bus and coach interchange on Railway Parade. During these renovations, the original booking and parcels office was closed and the Eskbank Street pedestrian access to the platform was removed. A new pedestrian footbridge was constructed across the rail corridor in line with Hayley Street, and a new booking and ticketing office was constructed attached to this footbridge. Access to the rail platform was provided by an elevator, stairs and a lift from the Hayley Street pedestrian footbridge. The construction of the footbridge-to-platform ramp involved the removal of the footwarmer's shed and the stabling siding to the west of the island platform. The lift shaft was constructed through the centre of the former footwarmer's shed building.

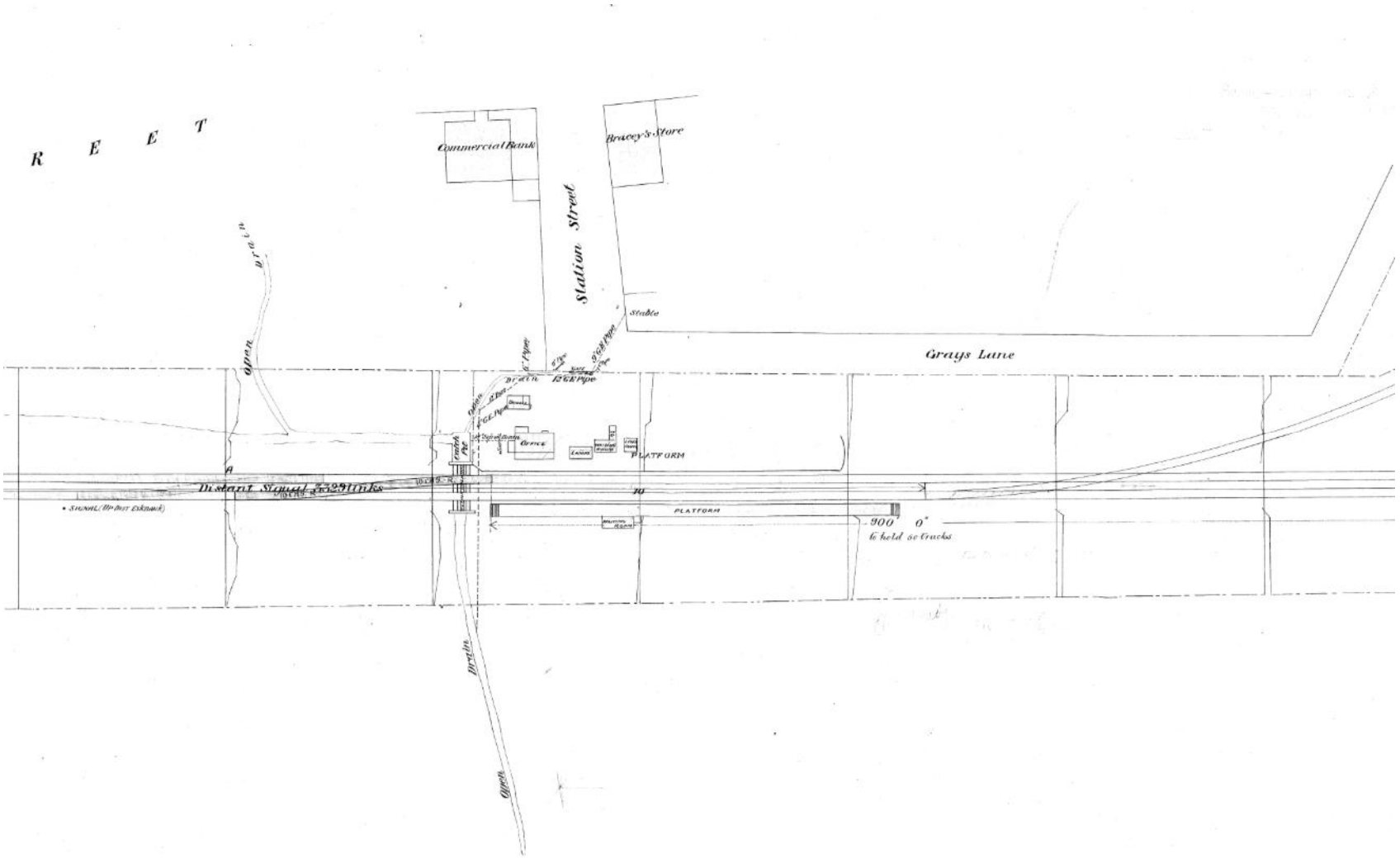

Figure 9: Detail of first Lithgow Station in 1892[13]. Plan orientated south.

[13] Source: State Rail Archives CV-055771

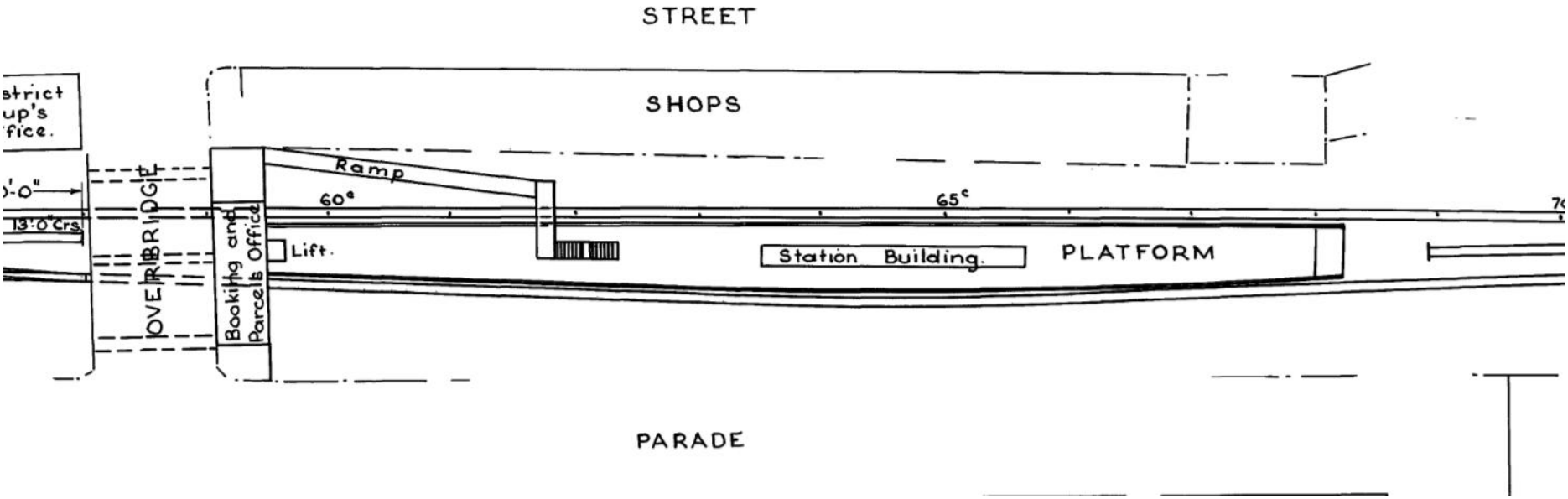

Figure 10: Lithgow Station in 1953 – footwarmer's shed not marked on this plan (see Figure 11 inset). Plan orientated south[14]

[14] Source: State Rail Archives CV-0071611

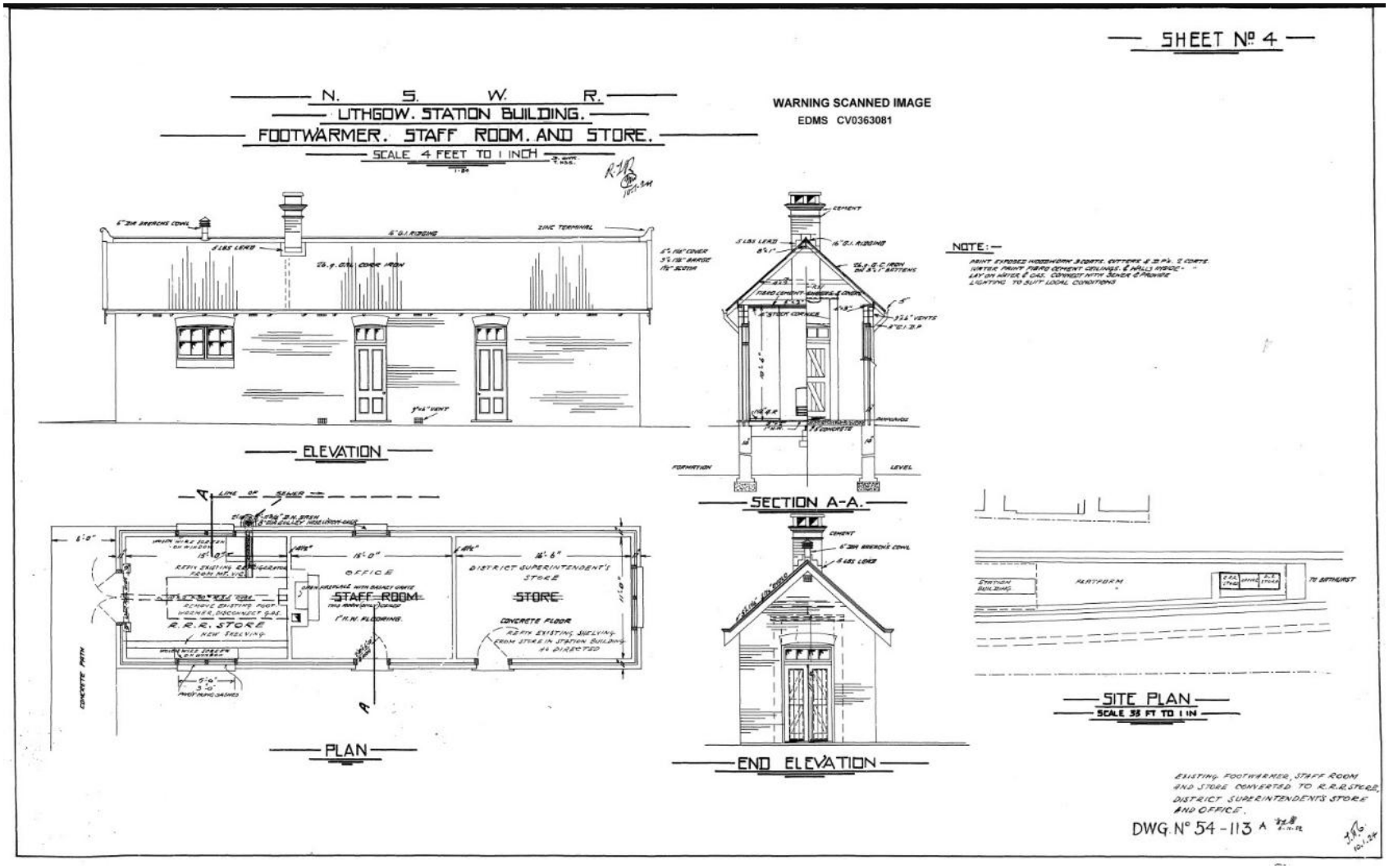

Figure 11: Plan of Lithgow Station footwarmer building in 1924, location of building on platform indicated in bottom-right corner of figure[15]

[15] Source: State Rail Archives CV-0363081

Figure 12: Aerial photograph of Lithgow Station in 1975[16]

[16] Source: LotSearch Pty Ltd

Figure 13: Aerial photograph of Lithgow Station in 1998, following bus and coach interchange redevelopment works[17]

[17] Source: LotSearch Pty Ltd

6.1.2 Previous impacts

The station platform and concourses have been remodelled several times throughout the lifespan of the station. Former structures which have been removed include the Eskbank Street to platform ramp and stairs, the footwarmer's shed on the western end of the platform, and the former stabling rail siding to the west of the station platform.

In addition to these known impacts, a number of services have been installed in the station, both within the rail corridor and within the platform. A diagram of known services at the western end of the platform is provided in (Figure 14). This mark-up shows that the western end of the platform and the rail corridor adjacent to the platform is heavily intercut with services, particularly stormwater services.

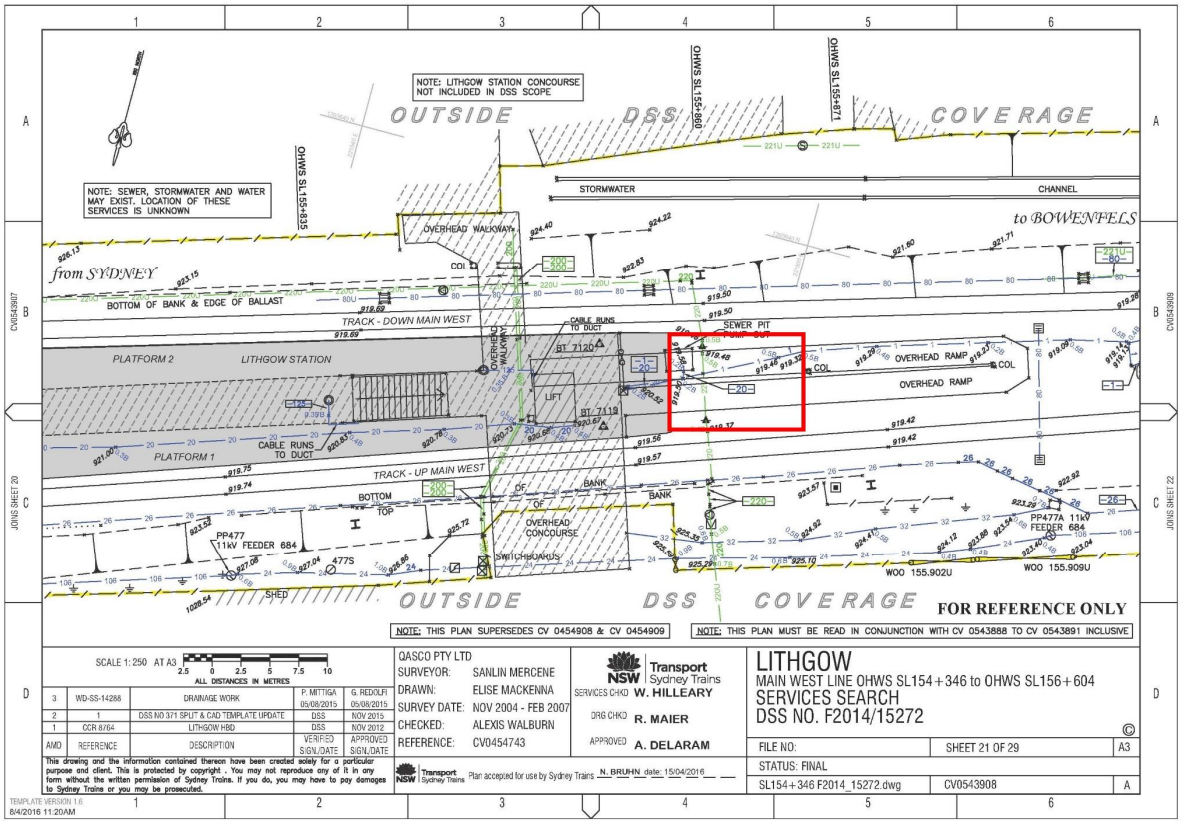

Figure 14: Utility services at country (western) end of Lithgow Station, area of platform extension outlined in red[18].

The site of the first Lithgow Station near Sandford Avenue is located below a car park. The former platform retaining wall is still visible in the rail corridor, which has been protected with stone infill and mesh fencing. The area of the former station has not been significantly redeveloped since the station was decommissioned in 1925 with the hard-stand car park built on the level of the former rail platform.

[18] Source: Transport for NSW CV-0543908

6.1.3 Potential remains

A summary of potential remains at Lithgow Station is provided in Table 8.

Table 8: Potential archaeological remains at Lithgow Station

Phase	Discussion
Phase 1 – Main Western Railway Line (1869 – 1877)	Archaeological remains relating to this first phase of the rail line consisted of a single line railway through the area of the existing rock cutting. Archaeological remains related to this phase would include early rail beams, timber sleepers and rail ballast. The rail line has been continuously developed and upgraded in this area since it was first constructed in 1869, particularly with the line duplication in 1880 and electrification in 1957. The potential for recovering recognisable and legible archaeological remains from this phase would be nil.
Phase 2: First Lithgow Station (1877 – 1925)	The first Lithgow Station is located 110 m to the west of the western end of the current Lithgow Station island platform. Archaeological remains relating to this early station would consist of former platform structures, building footings, underfloor deposits, drainage and lavatory services and isolated artefact deposits. Aerial photos from the 1950s onwards have shown that the area of the former station has not been significantly redeveloped since the site was decommissioned in 1925. The car park presently in place on both the northern and southern sides of the rail corridor is not likely to have heavily impacted former remains relating to the station. The potential for recovering intact and legible archaeological remains relating to the first Lithgow Station would be considered moderate.
Phase 3: New Lithgow Station (1925 – 1983)	Several platform-level structures from the first phase of the current Lithgow Station were removed in the 1990s. These structures include the former Eskbank Street to platform pedestrian access ramp, the former footwarmer's shed and the former stabling rail siding to the west of the island platform. Plans of the former footwarmer's shed show that the building floor was located at platform level, but that deep concrete footings were constructed for the building through the centre of the platform to the level of the surrounding rail corridor. While no plans of the former Eskbank Street to platform pedestrian access ramp have been located, it is likely that deep concrete footings for this structure were also constructed below the platform level. Archaeological remains relating to these structures would be limited to the concrete footings, and artefactual material would not be expected in association. Archaeological remains relating to the former stabling rail siding to the west of the island platform would consist of train buffer stop footings, rail beams and sleepers and rail ballast. The footings for the Hayley Street footbridge-to-platform pedestrian ramp would have impacted these remains, as well as known services within the rail corridor. The potential for recovering archaeological remains related to the Eskbank Street to platform former pedestrian access ramp and the former footwarmer's shed would be low to moderate. The potential for recovering intact and recognisable archaeological remains related to the former stabling rail siding would be nil to low.

6.1.4 Significance assessment of potential archaeological remains

An assessment of the significance of potential archaeological remains at Lithgow Station is provided in Table 9.

Table 9: Significance assessment of potential archaeological remains at Lithgow Station

Potential archaeological remains	Significance assessment	Significance
First Lithgow Station	The first Lithgow Station, constructed in 1877, was the first passenger station constructed in the growing township of Lithgow. Archaeological remains relating to the first Lithgow Station could provide information on the development and use of the first passenger station in the township of Lithgow. Archaeological remains could provide evidence of daily practices of the early Lithgow settlement which would not be available from other sources. There is a moderate potential that archaeological deposits relating to the station remain underneath the present Gray Street and Railway Parade car parks. This station was the primary passenger station for the early township of Lithgow during the first development at the township of Lithgow. As a passenger station rather than an industrial station, archaeological remains would provide evidence of past lifeways for rail workers and commuters in the Lithgow area, during time the township was expanding to become an important industrial centre in NSW. Intact and legible archaeological remains relating to the first Lithgow Station would be of State heritage significance.	State
Former Eskbank Street pedestrian access ramp	The former Eskbank Street pedestrian access ramp was removed in the 1990s when pedestrian access was provided from the Hayley Street footbridge. It is likely that remnants of the footings of the ramp would remain below the station platform. Archaeological remains relating to the former ramp would provide information on the architectural layout of the original station platform. However, archival resources have ample information on the design and location of the pedestrian access ramp, and former footings from only one end of the access route would not likely provide useful research information. Artefact deposits in association with these footings would also be unlikely to be recovered. Archaeological remains relating to the former Eskbank Street pedestrian access ramp would not meet the threshold for local significance.	Would not meet the threshold for local significance
Former footwarmer shed at western end of station platform	A footwarmer shed consists of boiler and storage device for the heating of specially constructed foot-warming canisters, which were deposited on trains to warm the carriages prior to the development of centralised carriage heating. The former footwarmer shed on the western end of the island platform is indicative of the larger service industry that catered to the large scale of rail commuters prior to the development of widespread motorised transport. The footwarmer shed had been repurposed over the 70 years of its use as a store-room for station supplies, and was entirely removed prior to the construction of the Hayley Street lift and footbridge-to-platform pedestrian ramp. Footings of this structure likely survive below platform level. Archaeological remains relating to the footwarmer shed would provide information on the internal layout of the service building on the platform. This building was used throughout the twentieth century as a store room and to cater to the needs of commuters. Archaeological evidence of footings would be demonstrative of the role of this building as well as its subsequent architectural alterations, despite the likely lack of artefactual material in association with these footings. Archaeological remains relating to the former footwarmer shed would be of local heritage significance.	Local

Potential archaeological remains	Significance assessment	Significance
Former stabling rail siding to the west of the island platform	Evidence of the former rail siding would not provide information that is not corroborated in other sources, and would represent twentieth century era rail infrastructure which is presently ubiquitous both at Lithgow Station and in the wider rail network. Archaeological remains related to this item would not meet the threshold for local significance.	Would not meet the threshold for local significance

6.1.5 Summary of archaeological significance and potential

A summary of the archaeological potential and significance of archaeological remains at Lithgow Station is provided in Table 10. These results are illustrated in Figure 15 on page 33.

Table 10: Summary of potential and discussion of significance of archaeological remains at Lithgow Station

Phase	Potential remains	Arch. potential	Significance
Phase 1: 1869 - 1877	Original 1869 single track rail line – rail beams, sleepers and ballast	**Nil**	**NA**
Phase 2: 1877 – 1925	First Lithgow Station – former platform structures, building footings, underfloor deposits, drainage and lavatory services and isolated artefact deposits	**Moderate**	**State**
Phase 3: 1925 - 1983	Former Eskbank Street to platform pedestrian access ramp – concrete footings	**Low to moderate**	**Would not reach the threshold for local significance**
	Former footwarmer shed at western end of the island platform – concrete footings	**Low to moderate**	**Local**
	Former stabling rail siding to the west of the island platform – rail buffer stop footings, rail beams and sleepers and rail ballast	**Nil to low**	**Would not reach the threshold for local significance**

6.1.6 Statement of archaeological significance

Archaeological remains relating to the first Lithgow Station would be of state significance due to its potential to demonstrate the former architectural configuration of the station. As a passenger station rather than an industrial station, archaeological remains would provide evidence of past lifeways for rail workers and commuters in the Lithgow area, during the time the township was expanding to become an important industrial centre in NSW.

Archaeological remains relating to the former footwarmer shed have the potential to demonstrate the changing architectural configuration of the service building as it was adapted over time to changing technologies and customer requirements. These remains may have archaeological significance at a local level.

An assessment of impacts to these significant archaeological resources has been provided in Section 7.4.3.

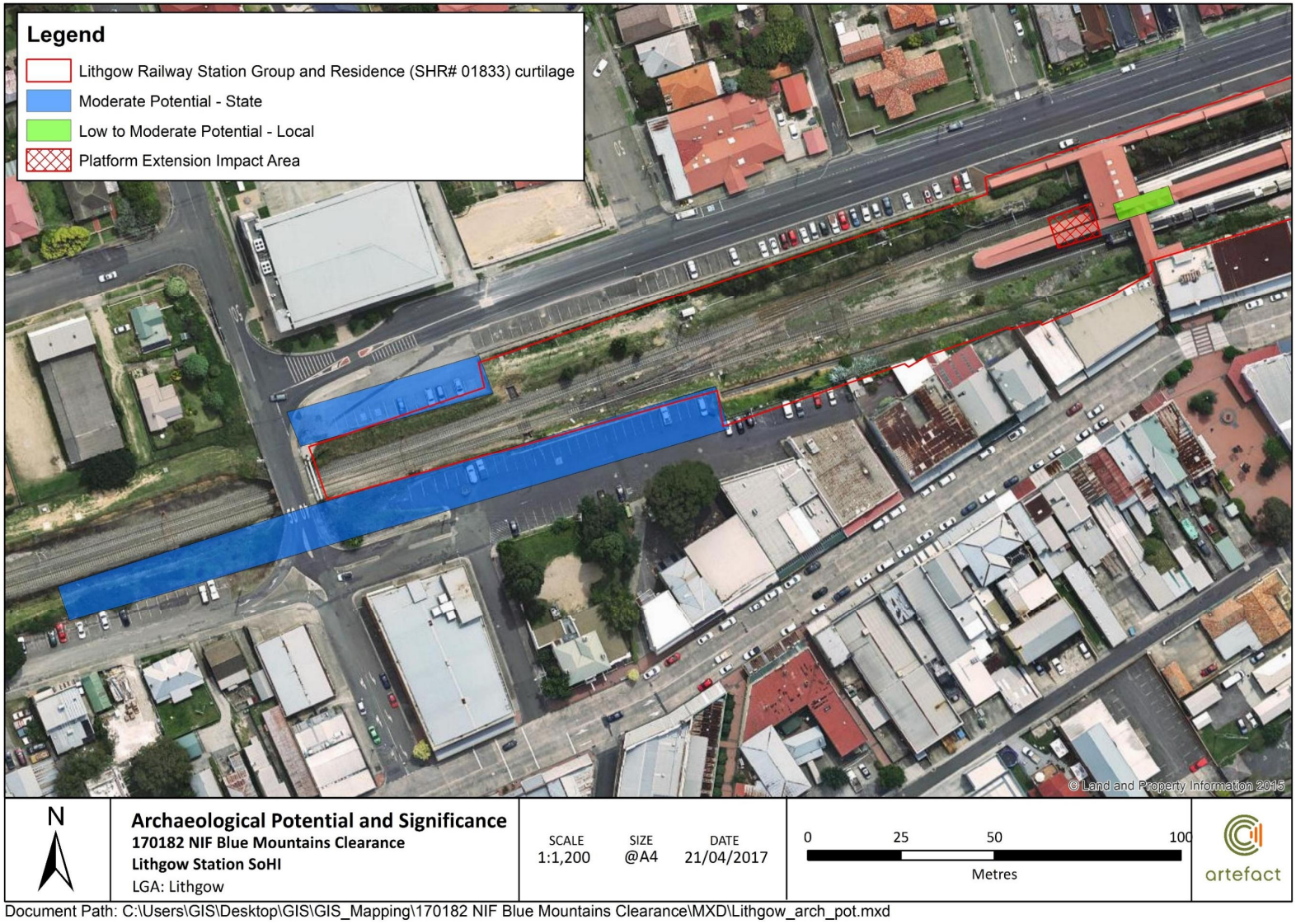

Figure 15: Potential and significance for archaeological remains at Lithgow Station

7.0 HERITAGE IMPACT ASSESSMENT

7.1 Proposed works

7.1.1 Overview

Project works at Lithgow Station involve the following activities:

- extending the western end of the platform by 12 metres
- modifications to station platform edges (also known as platform coping)
- re-positioning of rail tracks (track slewing) along the length of the corridor
- installation of new security, lighting and communications equipment at Lithgow Station
- the establishment of a temporary construction compound during works.

An overview of the Project is provided in design document SK – H401.

7.1.2 Platform extension

In order to ensure that the New Intercity Fleet trains are capable of terminating at Lithgow Station by allowing all carriages to disembark while stopped, the existing 191 metre-long platform is proposed to be extended by 12 metres in length at the country (western) end of the station.

Extension works would first involve the removal of the existing platform ramp and brick retaining wall, and ground excavation would be conducted to up to 530 millimetres below the existing rail corridor level. A concrete strip footing would then be installed along the outer edge of the platform extension. Over this strip footing, a brick retaining wall would be laid in a stretcher bond with corbelled upper brick courses along the length of the new platform. Five per cent cement-stabilised sand would then be infilled between the retaining walls, with a concrete capped platform surface constructed on top.

Steel stairs would then be constructed on the western end of the new platform to allow staff and contractors safe access to the rail corridor. Existing barrier fencing would be relocated, while existing services located to the west of the current end of the platform may require re-location. The existing Hayley Street footbridge-to-platform pedestrian ramp would not be impacted during the construction of the platform extension.

Design detail for the platform extension and new platform to ramp stairs are provided in design documents SK – H402, SK – H403 and SK – H404.

An options assessment has been provided by Urbis regarding the possibility of preserving elements of the original fabric of the existing platform-to-rail corridor ramp retaining wall. A discussion of this assessment is provided in Section 7.2.3 and would be considered during detailed design.

7.1.3 Platform coping modifications

Platform coping modifications are required to enable the safe passage of the New Intercity Fleet trains through Lithgow Station. The New Intercity Fleet trains are wider and longer than the current fleet. The Asset Standards Authority standard requires that there is a clearance of 200 millimetres around the kinematic envelope of a fleet. The kinematic envelope is the outline of the space occupied by a fleet vehicle when in motion, allowing for tilt, sway, the cant of the track and other relevant factors to ensure the required safety clearance margins between the train and platform, and passing trains.

The Reference Design Report recommended that TfNSW seeks a concession from the 200 millimetre standard and instead implement a 100 millimetre clearance. As a result, a concession request has been made to the Asset Standards Authority to reduce the safety clearance margin where a safe clearance is not achievable or would result in excessive impacts to heritage fabric. This involved an application to Asset Standards Authority to permit a reduction of the safety margin.

The coping modifications are therefore necessary to ensure 100 millimetre clearance between the kinematic envelope of the New Intercity Fleet and the platform. At Lithgow Station, in order to meet this 100 millimetre clearance, a maximum of 80 millimetres of coping would be removed from the edge of platform 1. A maximum of 90 millimetres of coping would be removed from the edge of platform 2.

Coping reduction to platforms would involve the use of a demolition saw or a road saw to cut back excess platform. The new platform alignment would be marked out on the platform prior to cutting, and any services which are located underneath the existing cantilevered coping of the platform removed. Any areas of the cut coping which showed imperfections or exposed joints would be treated with a thin grout or epoxy.

The extent of coping cutbacks on platform 1 are shown in Table 11 and the extent of coping cutbacks on platform 2 are shown in Table 12.

Table 11: Platform 1 coping reduction at Lithgow Station

Kilometrage	Horizontal difference. negative value coping cutback in mm	Kilometrage	Horizontal difference. negative value coping cutback in mm
155.688	-55	155.788	-67
155.693	-50	155.796	-64
155.700	-63	155.805	-67
155.710	-80	155.811	-61
155.718	-72	155.816	-69
155.724	-72	155.821	-62
155.733	-64	155.826	-73
155.741	-68	155.833	-55
155.749	-53	155.841	-34
155.759	-58	155.847	-35

Kilometrage	Horizontal difference. negative value coping cutback in mm	Kilometrage	Horizontal difference. negative value coping cutback in mm
155.765	-69	155.854	-35
155.772	-80	155.862	-50
155.777	-77	155.871	-49
155.781	-79	155.879	-47

Table 12: Platform 2 coping reduction at Lithgow Station

Kilometrage	Horizontal difference. negative value coping cutback in mm	Kilometrage	Horizontal difference. negative value coping cutback in mm
155.688	-75	155.792	-54
155.697	-67	155.800	-54
155.706	-57	155.807	-60
155.715	-61	155.813	-53
155.724	-58	155.820	-53
155.733	-51	155.826	-49
155.739	-49	155.836	-55
155.747	-55	155.845	-58
155.755	-47	155.854	-60
155.763	-50	155.864	-70
155.770	-41	155.873	-69
155.777	-46	155.878	-90
155.785	-45		

Details of the platform coping modifications are provided in design drawing SK – H405.

[*Note: the extents of the coping cut-backs would be confirmed in detailed design, and would include a construction tolerance of 20 millimetres*]

7.1.4 Track slewing

Existing track would be slewed to a new location to take into account the new centre line for New Intercity Fleet trains. This would involve the moving the existing centre line of track, involving shifting of rail beams and sleepers as necessary.

The extent of track slewing in the platform 1 rail corridor are shown in Table 13 and the extent of track slewing in the platform 2 are shown in Table 14.

Table 13: Track slewing in the platform 1 rail corridor at Lithgow Station

Kilometrage	Track slewing (positive = millimetres of the track centreline moved to the south)	Kilometrage	Track slewing (positive = millimetres of the track centreline moved to the south)
155.688	6	155.788	-17
155.693	6	155.796	-15
155.700	8	155.805	-22
155.710	8	155.811	-21
155.718	6	155.816	-18
155.724	4	155.821	-25
155.733	8	155.826	-10
155.741	13	155.833	-5
155.749	15	155.841	25
155.759	10	155.847	37
155.765	-1	155.854	37
155.772	-11	155.862	42
155.777	-14	155.871	43
155.781	-19	155.879	42

Table 14: Track slewing in the platform 2 rail corridor at Lithgow Station

Kilometrage	Track slewing (positive = millimetres of the track centreline moved to the south)	Kilometrage	Track slewing (positive = millimetres of the track centreline moved to the south)
155.688	-6	155.792	2
155.697	-6	155.800	3
155.706	-6	155.807	5
155.715	-5	155.813	6
155.724	-5	155.820	8
155.733	-4	155.826	9
155.739	-4	155.836	9
155.747	-4	155.845	7
155.755	-4	155.854	6
155.763	-2	155.864	6
155.770	3	155.873	16
155.777	5	155.878	19
155.785	5		

7.1.5 Installation of platform security, communications and lighting

Once the platform extension has been completed, additional security cameras, public address speakers and platform lighting would be installed in that area. These items would be installed on to the surface of the new platform extension.

Lighting and security structures would be installed below the footbridge-level buildings illustrated in the aerial photo.

Security cameras would be installed on the underside of the Hayley Street pedestrian footbridge and booking office to face west towards the new platform extension area. Cameras to be installed would be standard cameras in line with those already present at Lithgow Station.

Four luminaires would be installed on new lighting poles on the platform extension area. These luminaires and lighting poles would be constructed using the same model as those that are presently located in other areas of Lithgow Station – Lumaled Streetlux LED luminaires.

Electrical cabling routes to supply power to the new luminaires, cameras and speakers, and to control and receive data from cameras and speakers, would be provided through extending existing cable routes. These cable routes would be installed at the far western end of the platform, and through the centre of the to-be-installed platform extension.

Details for the installation of platform security, communications and lighting are provided in design documents SK – H406, SK – H407 and SK – H408.

7.1.6 Temporary construction compound

The location of a temporary site compound has been proposed in the Gray Street carpark, to the southwest of the Lithgow Station platforms and directly adjacent to the SHR curtilage for Lithgow Railway Station Group and Residence. The use of this area for a temporary compound would involve the stockpiling of construction equipment, materials and temporary office structures. The use of the hard stand car park for this temporary compound would be placed on the existing hard stand carpark surface. Temporary storage of materials and equipment would also be located on the Lithgow Station island platform.

7.2 Project justification and options

7.2.1 Justification

The NSW Government's decision to introduce the New Intercity Fleet would result in a number of changes from the existing fleet increasing the length of the trains up to 205 metres. Trains are an important component of the transport system and, as such, play a critical role in shaping the customer's experience and perception of public transport. The introduction of the New Intercity Fleet will allow for the replacement of the existing intercity trains that are approaching the end of their service life and are experiencing a number of adverse operational impacts including declining reliability, lower availability (due to maintenance and failures), higher maintenance costs and lower customer amenity. The New Intercity Fleet would provide a better experience for public transport customers by delivering an accessible, modern, safe and comfortable travel experience.

The NSW Government's decision to introduce the New Intercity Fleet would result in a number of changes from the existing fleet increasing the length of the trains up to 205 metres and an increased train width to cater for growing customer patronage and improved customer comfort. Modifications to existing rail infrastructure are essential to accommodate and operate the new trains while meeting appropriate safety and design standards. It should be noted that a number of existing trains cannot run on the Blue Mountains Line and work to standardise the line is needed, regardless of the New Intercity Fleet.

The Project includes essential enabling works that would facilitate the safe and reliable operation of New Intercity Fleet between Springwood and Lithgow on the Blue Mountains Line. The Project would also allow the Blue Mountains Line to be compatible with the existing electrified rail network.

7.2.2 Project options to achieve necessary width clearances

TfNSW commissioned the development of a series of design reports for the early development of the Project. The outcomes of these assessments then informed the scope of works needed to allow for the safe operation of the New Intercity Fleet along the Blue Mountains Line. Options for enabling the safe and efficient operation of the New Intercity Fleet on the Blue Mountains Line were developed following a succession of workshops with TfNSW, relevant stakeholders (including Sydney Trains and NSW TrainLink) and the project team.

TfNSW assessed four options to achieve necessary width clearances for the Proposal. These options are provided in Table 15.

Table 15: Summary of width clearance design options

Option	Design detail	Options discussion
1 – Track slewing only	Movement of rail laterally within the rail corridor to provide necessary clearances from nearby objects	The slewing of track would not impact heritage significant fabric or heritage significant views of Lithgow Station. This would result in neutral physical and visual impacts to the platform coping at Lithgow Station. This option was discounted because widespread track slewing would result in significant readjustments of existing overhead wiring structure configurations throughout the Blue Mountains Line.
2 –Coping modification only	Leaving existing track in its present configuration and ensuring necessary clearances by reducing platform width. Also involves the removal of intervening or overhanding objects (specifically, the canopies of platform buildings)	This option would involve a greater amount of removal of existing platforms and station buildings than the preferred option (Option 3). This option would result in the trimming of the canopies of the island platform station building at Lithgow Station, which would result in greater heritage impacts.
3 – Combination of track slewing and coping modification (the preferred option)	Design detail for this option has been provided in Section 7.1	This option presents a balanced approach between potentially deep platform and building excisions in Option 2, and the necessity to readjust overhead wiring structures implicit in Option 1. As described in Section 7.4, this option would result in a minor physical and minor visual impacts to the heritage significance of Lithgow Station.
4 – Do nothing option	No modifications to platform edges or existing track configuration	Due to the larger size of the New Intercity Fleet, the do nothing option would fail to meet safety and operational standards for the introduction of the new fleet. This option would fail to meet the objectives of the Proposal.

Further details regarding the need for the project, the design development and project options are provided in Section 2 of the *New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications Review of Environmental Factors* (AECOM 2017).

7.2.3 Lithgow Station platform extension options assessment

Urbis provided design advice in regard to the potential preservation of existing original fabric at the western end of the Lithgow Station during platform extension works. This design option advice has supplemented TfNSW's options assessment for the platform extension works. A summary of design options is provided in Table 16.

Table 16: Summary of platform extension design options

Option	Design detail	Options discussion
1 – Retention of ramp and construction of brick platform extension	This would involve the removal of the asphalt layer on the top of the ramp and piling through the ramp structure. The piles would be load bearing and the stretcher bond brick work would have to be angle cut to butt against the ramp.	Piling excavation for this option would proceed through in-fill material below the island platform ramp surface and preserve the outer facing of original brick fabric of the retaining wall. This option would result in a negligible physical impact to the heritage significance of Lithgow Station. This option would be less cost-effective and would have to be conducted predominately during rail possession periods as construction would largely proceed from track side.
2 – Retention of ramp and construction of steel platform extension	This would involve the removal of the asphalt layer on the top of the ramp and piling through the ramp structure. The piles would be load bearing. A steel platform would be constructed above and around the existing ramp brick retaining wall.	Piling excavation for this option would proceed through in-fill material below the island platform ramp surface and preserve the outer facing of original brick fabric of the retaining wall. This option would result in a negligible physical impact to the heritage significance of Lithgow Station. However, the steel structure would introduce a visually unsympathetic element to the wider platform structure. This would result in a minor visual impact to the heritage significance of Lithgow Station.
3 – Removal of ramp and provision of new platform (GHD existing design, the preferred option)	This would involve the complete removal of the existing ramp and installation of a standard brick platform extension using stretcher bond. The structure would be supported on strip footings. This work would require periods of railway possession to enact however it would require less time to construct.	As discussed in Section 7.4, this preferred option would result in a minor physical and minor visual impact to the heritage significance of Lithgow Station. This option would be the most cost-effective of the design options and has been determined by GHD as the preferred option.
4 – Do nothing option	The Lithgow Station island platform would not be extended, and the existing retaining wall would be left in place	Should the island platform not be modified, there would be neutral physical and visual impacts to the heritage significance of Lithgow Station. The longer trains of the New Intercity Fleet would not effectively fit along the existing length of the island platform at Lithgow Station. This would result in preventing all customers and staff on a New Intercity Fleet Train from safely alighting to the platform. Because of this, this option would fail to meet the project objectives for the Proposal.

7.3 Heritage Platforms Conservation Management Strategy

The Heritage Platform CMS identified nine relatively common platform design types and seven rare platform design types of stations in NSW. Lithgow Station, constructed in 1925, was built as an island platform with brick masonry platform retaining walls with a vertical profile. The brick retaining wall has corbelled brick coping which underlies modern concrete platform surface and coping. The CMS identifies this type of platform design as a "relatively common" heritage platform design[19].

This section addresses relevant strategies provided in the CMS in relation to New Intercity Fleet – Springwood Lithgow Rail Corridor Modifications at Lithgow Station.

7.3.1 Recognising and conserving heritage significance

> ***Strategy 1****: Manage and operate heritage platforms in a way that recognises the heritage values of each place. This includes the heritage value of each platform, its associated elements, and the overall heritage value of its station or place.*

The heritage value of the platform has been recognised through the design process and by limiting the impacts to Lithgow Station as a whole. Track slewing has been used to minimise the extent of the coping modifications. Reliance on coping modifications alone to achieve the required width clearance may have resulted to impacts to the heritage canopy associated with the platform building. Conversely, track slewing only may have resulted in impacts to overhead wiring structures throughout Lithgow Station. The implementation of both track slewing and coping modifications achieves the necessary width clearances, while reducing the level of impact to heritage fabric and the need to relocate other structures, principally overhead wiring stanchions, along the rail corridor.

> ***Strategy 2****: Conserve a representative sample of principal platform types, and other key aspects of heritage platform design and arrangement in use within the Sydney Trains managed railway network.*

Explanatory notes for this strategy include the following provision:

> *Careful consideration should also be given to identifying typical, well-preserved examples of the other, more common types, which retain all the characteristic features of their type*

The vertical brick platform retaining wall with corbelled brick courses is not considered a rare or unusual type of heritage platform design. There are 285 existing vertical profile brick platform edges of similar type in NSW, the largest of any type[20]. This design is typical of platform construction types during the expansion of the rail network in the 1920s and there a large number of other examples of this platform type still extant in NSW.

> ***Strategy 3****: Where there are numerous, good representative examples of a type, more significant heritage platforms with good integrity should be prioritised for proactive conservation*

[19] AMBS Consulting 2015, p. iv.
[20] *Ibid* p14

The upper two courses of corbelled brick coping have been added to the platform at a later date following the station's construction in 1925, with a modern concrete platform surface and coping on top. While the lower portions of original fabric of the platform are in a good state of intactness, the integrity of the overall platform has been reduced by these later changes to the platform height. The Lithgow Station platform is considered a common typology among platform types in NSW (where there are approximately 285 number of existing platforms of the same type). Due to the heritage platform's reduced degree of intactness, as well as the common typology of platform design, the platform at Lithgow Station is not considered one of the more significant or intact heritage platforms in NSW.

> ***Strategy 5**: Conserve and manage the fabric of heritage platforms in accordance with statutory requirements and heritage best practice*

The impacts have been minimised by limiting the works to the coping through the implementation of a combination of slewing the tracks and coping modifications. The proposed works would blend into the Lithgow Station environment due to the fabric and surface treatments.

7.3.2 Maintaining physical condition and fabric

> ***Strategy 7**: Retain and conserve original or other historic platform detailing and surface features where these contribute to the heritage significance of the platform and the station precinct*

Explanatory notes for this strategy include the following provision:

> *Ad hoc grinding or cutting back of heritage platform walls or coping fabric is not generally appropriate. In cases where it is necessary to alter a platform wall or coping to accommodate the structure gauge, careful consideration should be given to the method of works, including the use of appropriate tools and tradespeople for the specific fabric, and strategies to minimise or mitigate the physical and/or visual effects of the works. In rare cases, it may be more appropriate to replace the entire coping with a sympathetic fabric than to alter the existing fabric, particularly when the coping fabric is not itself significant.*

The platform coping at Lithgow Station would be saw cut to the new coping width, resulting in cutting through brick fabric as opposed to removing them (where removal would constitute a potential reversible impact). The proposed works at Lithgow Station would therefore be in contravention of this conservation strategy. However, the brick courses cannot be removed and preserved due to the non-uniform nature of coping reduction across the platforms.

Uneven cut brick surfaces should be treated to show the original arrangement of the platform brickwork and given a clean outer appearance. Sympathetic grouting materials to those already used within the existing platform brickwork should be used to support uneven surfaces.

7.3.3 Managing major change

> ***Strategy 8**: Major change should be managed through an integrated planning process, which considers measures to avoid, minimise, or mitigate adverse*

impacts on the heritage significance of the platform and the broader place at each stage of the process

Explanatory notes for this strategy includes a number of relevant provisions which are addressed individually:

Can the significant platform structural design, fabric, surface, or detailing be retained in tandem with the new structures, fabric or reinforcing elements?

Despite impacts caused by the cutting of coping across the existing platform edges, the platform extension would involve utilising similar materials and design (corbelled brick-work) to the existing platform.

Consideration should be given to the preservation of the brick-work on the existing ramp at the western end of the island platform, with the new platform structure potentially constructed over the top of the exposed brickwork.

Would the addition of new fabric affect the aesthetic significance of the existing platform, and how can this be managed?

The platform extension at the western end of the island platform is to be constructed with a brick facing in a stretcher bond with similar corbelling of upper brick courses to the existing platform retaining wall. The stretcher bond would contrast with the existing English bond of the retaining wall brick facing.

Overall the use of a different bond would be noticeable and would visually separate the new and old platform types while still retaining the brick faced aesthetic character of the station platform. This distinction between brick bonds would be suitable to ensure that new and old fabric can be visually distinguished.

***Strategy 9**: Where a new platform or platform addition is required, the new design, form, fabric and surface treatments should be compatible with the existing heritage character of the place, but still be readily identifiable as new work*

Explanatory notes for this strategy includes a number of relevant provisions which are addressed individually:

Proposals for new work should ensure that new fabric does not obscure or disrupt public views of extant heritage fabric at the station, or distort public understanding or appreciation of the heritage character of the place.

The brickwork for the platform extension is proposed to be stretcher bond corbelled brickwork. The new brick work would be contrasted with the English bond corbelled brickwork on the existing station platform retaining wall. The new brickwork would be contrastable with the earlier brickwork and would show the platform extension to be a modern addition to the station.

The removal of the lower brick courses of the platform ramp would be replaced by new brickwork, and would therefore “obscure or disrupt” views of this heritage fabric. Consideration should be given to

preserve the brick retaining wall structure of the platform-to-rail corridor ramp below the upper platform extension, providing clear evidence of the change in use of the station over time.

> *The colour and texture of new fabric should be visually recessive and complement or enhance the overall setting and traditional views of built heritage fabric at the station. It should also blend into the broader landscape.*

Brick material and finishes for the platform extension should be selected from sympathetic materials and colours during detailed design. However, the division between the existing English bond platform brickwork and the proposed stretcher bond platform extension brickwork should be clearly demarcated where they join, to ensure that original and new fabric can be individuated.

> ***Strategy 11**: Heritage opportunities and constraints should be carefully considered throughout the options analysis and design process*

Heritage constraints of Katoomba Station have been carefully considered, with the option selected that minimises impacts to fabric, setting and the layout of station arrangements. See Section 7,2 for more details.

> ***Strategy 12**: Make a record of existing structural designs, fabric, and uses before changes are made*

Archival recording of the existing platform prior to impacts is recommended, and all design information for the platform modifications should be preserved with Sydney Trains as part of their records.

7.4 Heritage impact assessment

7.4.1 Impacts to heritage significance fabric of Lithgow Railway Station Group and Residence

Platform extension works

The platform extension works at the western end of the station would involve ground excavation to install a suitable sub-grade for the new concrete platform. This would involve the removal of the existing platform-to-rail corridor pedestrian ramp. This pedestrian ramp consists of original 1920s brickwork as well as later brick courses and would be entirely removed during works.

While the removal of original brick platform retaining wall fabric is an irreversible action, the area of brick to be removed is small compared to the entirety of the brick fabric of the platform, four metres compared to the 191 metres of existing island platform. These works would result in a minor impact to heritage significance of Lithgow Station, as the majority of the brick retaining wall would be preserved.

Re-location of services would occur in areas to be excavated for the installation of the new platform extension, this would not impact fabric.

The removal of the existing barrier fencing at the western end of the island platform would involve removing metal fence posts from the asphalt surface of the platform-to-rail corridor pedestrian ramp. These works would not impact brick fabric in these locations. The re-installation of the fencing would

be affixed to the surface of the new concrete and asphalt platform extension area, and therefore would not impact significant fabric.

Modifications of platform coping

Coping modifications at Lithgow Station would involve the removal of up to 80 millimetres of coping horizontally across the length of both platforms. The horizontal removal of platform coping would impact between two and three courses of brick. The upper two courses of the corbelled platform brick are laid in rowlock and header orientations; the removal of up to 90 millimetres would result in cutting bricks through their centre masses. These bricks, while appearing of later addition than the original brick platform retaining wall, are considered significant fabric and would be impacted.

The third course of brick from platform level would also be impacted. This row of brick is laid in header orientation and is stepped back from the brick above it by a small margin (50 millimetres). However, in those portions of the platform that have been nominated to be cut back by greater than 50 millimetres, this row of brick would be cut into. These bricks were laid in the 1920s with the original construction of the station platform.

The horizontal cutting of the platform coping would therefore impact fabric of moderate value to the heritage significance of Lithgow Railway Station Group and Residence. The differing corbelled brick courses are indicative of the development of Lithgow Station over time, and these bricks would be cut in half, as opposed to having courses removed. The cutting of original fabric, which would be non-reversible, would be considered a minor impact to the heritage significance of Lithgow Railway Station Group and Residence.

Slewing of track within the rail corridor

The slewing of track within the rail corridor would involve moving existing rail and sleepers, with possible instatement of new material. The existing rail line is largely modern fabric, and would be replaced with similar material. Furthermore, track slewing would involve only small shifts to the rail corridor materials, of less than 50 millimetres. These works would result in a negligible impact to heritage significant fabric of Lithgow Station.

Installation of security, communications and lighting equipment

The installation of new security, communications and lighting equipment on the new platform extension would not involve the removal of heritage significant fabric. New cameras and PA system speakers would be installed on the underside of the existing Hayley Street footbridge and booking office, involving affixing structures and conduits to the steel frame of the structure. The method of connection to the steel structure has not been specified. The existing Hayley Street footbridge, constructed in 1993, is considered fabric of low value to the heritage significance of Lithgow Station. Minor physical impacts to install these cameras and PA system speakers would result in a negligible impact to the significant fabric of Lithgow Station.

Four lighting poles would be installed on the newly constructed concrete and asphalt platform extension surface with conduit routes passing through a small extent (2.5 metres) of the platform station surface, which only possesses modern concrete and asphalt paving surfaces. The installation of lighting on the new platform surface would result in a negligible impact to heritage significance fabric.

Temporary construction compound

The establishment of a temporary construction compound in the Gray Street carpark area would not involve any physical impacts to items of significant heritage fabric.

7.4.2 Impacts to the heritage views and setting of Lithgow Railway Station Group and Residence

Platform extension works

The extension of the western island platform would involve the addition of two 12 metre sections of stretcher-bond brick retaining walls. This platform extension would be located in an area which is at present poorly visible from the platform building, the Hayley Street pedestrian footbridge and from the Eskbank Street overbridge. The extended platform would be largely blocked by the existing footbridge-to-platform pedestrian ramp at the western end of the station. Furthermore, the existing platform edges are made of English bond brick retaining walls.

The platform extension would however result in a section of different brick bond, and likely different brick materials and finishes, being identifiable in views of the platform retaining wall. These new brick surfaces would only be partially visible for viewers on the Hayley Street pedestrian overbridge. The transition between the existing English bond and the new stretcher bond retaining walls would result in a minor visual impact to Lithgow Station.

Modifications of platform coping

Horizontal coping reduction would result in cutting existing brick fabric. Bricks would be cut and not removed, forming an outer profile of sheared brick edges. Exposed coping imperfections would be sealed with grout or epoxy finishes.

The coping cutting would significantly alter the corbelled profile of the brick platform retaining wall. In addition, the excision of platform coping is not uniform along each platform, resulting in a new platform edge which is not aligned with the alignment of brick courses.

These coping modifications to the brick retaining wall would not be substantially visible from the platform surface, due to the overlying concrete platform surface and the re-location of safety lines and tactile indicators to the same relative positions away from the platform edge. The brick retaining wall is only visible from rail track level (not accessible to patrons) or from the existing overbridges, footbridges or the rear of the Railway Parade and Cook Street concourses. From these higher angles and longer distances, the alteration in brick patterning is not likely to be discernible. Therefore, the platform coping modifications would result in a minor visual impact to Lithgow Railway Station Group and Residence.

Slewing of track within the rail corridor

Track slewing would involve the rearrangement of modern concrete ballast and active rail within the rail corridor to a very small degree (less than 50 millimetres). These works would result in a negligible visual impact to Lithgow Station.

Installation of security, communications and lighting equipment

New security, communications and lighting equipment would be installed on the country (western) platform extension once the extension was completed. This area is largely shielded from significant viewpoints at the station due to the intervening mass of the footbridge-to-platform pedestrian access ramp.

Furthermore, material choices for lighting poles, PA speakers and security cameras would replicate those already present on the station platform. Security cameras and PA speakers would be installed on the western underside of the Hayley Street footbridge, which would be largely concealed from the majority of views on the platform. Luminaires would be installed of the same type in four locations on

the new platform extension, largely shielded from view from the majority of the platform, and would extend the existing lighting aesthetic on the new platform.

Due to the use of similar materials and the partially obscured location of the new structures, these works would result in a negligible visual impact to Lithgow Station.

Temporary construction compound

The establishment of a temporary construction compound in the Gray Street carpark area would involve the setting up of demountable buildings and the stockpiling of machine plant and material. These facilities would be removed following the completion of the construction phase of the proposed works.

The establishment of the temporary construction compound would partially impinge on sight lines to Lithgow Station from the west, however the medium density commercial character to the precinct to the south of Lithgow Station already provides significant visual clutter from this location. As such, the temporary construction compound would result in a temporary negligible impact to the heritage significance of Lithgow Station.

7.4.3 Impacts to archaeological resources

Ground disturbing works for the excavation of footings for the platform extension would involve excavating below the existing footbridge-to-platform pedestrian ramp. A former stabling siding was located in this area, however utility services and footings for the footbridge-to-platform ramp have likely heavily impacted any archaeological remains. Furthermore, former rail track located within the rail corridor would not reach the threshold for local heritage significance. As such, no impacts to significant archaeological resources are likely to occur as a result of platform extension ground disturbing works.

Potential ground disturbance created during track slewing works would impact ground within the rail corridor that consists largely of rail ballast overlying natural bedrock. No impacts to archaeological remains would be expected during these works.

Cabling routes for platform extension lighting is located three metres to the west of the footprint for the former footwarmer shed and would not impact on archaeological resources associated with that former structure. No ground disturbing works have been proposed within the footprint of the first Lithgow Station near the Sandford Avenue overbridge.

The establishment of the temporary construction compound would be potentially located over the footprint of the former First Lithgow Station archaeological site. However, this compound would be set up on existing carpark hardstand, and would not cut below or through this hardstand. Due to the lack of ground disturbing impacts in this area, archaeological remains in this area would not be impacted.

No significant archaeological remains would be impacted by the proposed works.

7.5 Overlapping heritage items

7.5.1 Impacts to Lithgow Main Street Heritage Conservation Area

The proposed works are located at platform and rail track level within Lithgow Station, which is between three and five metres below the street level of Railway Parade and Main Street. The concrete western extension of the platform would be partially visible from the Hayley Street pedestrian footbridge, with existing intervening structures (overhead booking office, footbridge-to-platform pedestrian ramp) partially obscuring sight lines. Sightlines would be blocked from Main

Street due to the intervening buildings, and would platform modifications would only be visible from the southern side of the rail corridor from rear windows and yards of businesses and residences there. Sightlines of the proposed works would be partially blocked by the existing mesh screening of the coach waiting bays and rail corridor fence. The footbridge-to-platform pedestrian ramp also obscures many sightlines to the new platform extension and lighting from the point of view of the footpath on Railway Parade.

The new platform extension would involve extending the existing platform with similar designs and materials (similar lighting and security structures, similar platform pavement). The main new visual element would be the transition from English bond brick to stretcher bond brick retaining wall at the western end of the island platform. Due to these visual discrepancies being relatively physically small, only visible from a small number of partially obscured sightlines and distracted by visual clutter within the area of the rail corridor, the proposed works would result in a negligible visual impact to the heritage significance of the Lithgow Main Street Heritage Conservation Area.

The establishment of the construction compound in the Gray Street carpark would provide a visual barrier on the northern edge of the conservation area, and restrict sightlines across the rail corridor to the housing beyond. The construction compound would not notable disrupt views along Main Street, as it is located in the rear of heritage-fronted properties. The site compound would be removed following completion of the proposed works. The establishment of this compound would result in temporary negligible impacts to the Lithgow Main Street Heritage Conservation Area.

7.6 Cumulative impact assessment

While this document assesses the impacts of the New Intercity Fleet works on Lithgow Station in isolation, it is recognised that works will be necessary at other stations along the Blue Mountains Line, which are listed in Table 17. All of these stations are listed on the RailCorp Section 170 Heritage and Conservation Register, with six stations also listed on the State Heritage Register.

Table 17: Stations included in the New Intercity Fleet project

Station	SHR?	Station	SHR?
Faulconbridge	No	Katoomba	Yes
Linden	No	Medlow Bath	Yes
Woodford	No	Blackheath	Yes
Hazelbrook	No	Bell	No
Lawson	Yes	Newnes Junction (not in use)	No
Bullaburra	No	Eskbank (not in use)	Yes
Wentworth Falls	No	Lithgow – the subject of this assessment	Yes
Leura	No		

The original development of the Blue Mountains Line out to Lithgow was largely undertaken in the 1860s. Stations were developed and added at later dates in response to ongoing residential development and the expansion of businesses. Many of the original timber items have since been replaced with brick and concrete structures, however there are a number of elements within each curtilage that retain their original heritage value and any works along the length of the line has the potential for cumulative impacts.

Since the original construction there have been a number of alterations and modifications to each station within the Project site. The Project would result in coping impacts (both cutbacks and addition) to every station along lengths of both the original fabric as well as fabric that has been previously modified. Where works are required, it has been recommended that the bricks show the original arrangement and give a clean outer appearance. As a result, the overall visual appearance and fabric arrangement would largely be retained, minimising any cumulative impacts. Through an assessment of the works, impacts to the heritage settings have been determined to be negligible to minor.

In the case of platform extensions at Katoomba Station and Lithgow Station, the works are unlikely to have a substantial cumulative impact as the design has located the extensions along sections of the platform that have been previously modified and are relatively minor in length when compared to the platform as a whole. As a result, the cumulative impacts from the platform extensions are anticipated to be negligible to minor.

Track slewing, overhead wiring system modification, signalling works and earthworks have been assessed as not contributing to the heritage of each of the station areas and as a result, no cumulative impacts would result from these works.

The additional elements that largely characterise the Blue Mountains Line (station buildings, signalling boxes, stabling yards and other structures that form part of the listing) would not be impacted as a result of the Project. The nature and visual character of the stations within the context of the greater Blue Mountains would be retained and any impacts would be largely temporary. As a result, given the nature of the works, the extent of physical impacts and mitigation measures proposed, cumulative impacts as a result of the Project are not anticipated.

Stations are active heritage sites that need to be adapted and modified to meet modern customer expectations. It is a balancing act to meet these expectations while preserving the fabric that contributes to the heritage significance of the stations.

7.7 Summary of heritage impacts

A summary of the heritage impacts to the Lithgow Railway Station Group and Residence is provided in Table 18 and a summary of the heritage impacts to the Lithgow Main Street Heritage Conservation Area is provided in Table 19.

Table 18: Summary of impacts to Lithgow Railway Station Group and Residence

Proposed work	Impact to fabric	Visual impact	Impact to archaeological remains
Extension of western end of island platform	Minor	Minor	Neutral
Modification of platform coping	Minor	Minor	Neutral
Track slewing	Negligible	Negligible	Neutral
Installation of security, communications and lighting equipment	Negligible	Negligible	Neutral
Temporary construction compound	Neutral	Negligible (temporary)	Neutral

Table 19: Summary of impacts to Lithgow Main Street Heritage Conservation Area

Proposed work	Impact to fabric	Visual impact	Impact to archaeological remains
Extension of western end of island platform	Neutral	Negligible	Neutral
Modification of platform coping	Neutral	Negligible	Neutral
Track slewing	Negligible	Negligible	Neutral
Installation of security, communications and lighting equipment	Neutral	Negligible	Neutral
Temporary construction compound	Neutral	Negligible (temporary)	Neutral

8.0 STATEMENT OF HERITAGE IMPACT

A statement of heritage impact for the Lithgow Railway Station Group and Residence is provided in Table 20.

Table 20: Statement of heritage impact for the Lithgow Railway Station Group and Residence (SHR# 01833).

Development	Discussion
What aspects of the Proposal respect or enhance the heritage significance of the study area?	The proposed works would result in improving and modernising the rail infrastructure of the wider NSW rail network. The ongoing use of Lithgow Station with the development of the rail network over time is consistent with the station's history as a major passenger rail hub. The improvement of the rail service to Lithgow Station is consistent with its heritage values. The proposed works would not result in impacts to elements of exceptional or high significance of the Lithgow Railway Station Group and Residence
What aspects of the Proposal could have a detrimental impact on the heritage significance of the study area?	The construction of the platform extension at the western end of the island platform would remove the existing platform-to-rail corridor pedestrian ramp, which includes exposed courses of original platform brick fabric. Once removed, the new platform would be reinstated with a stretcher bond corbelled brick retaining wall, which would be a visible addition of new fabric to the station. These works would result in a minor physical and a minor visual impact to the heritage significance of Lithgow Station. Coping modifications would result in the irreversible cutting of existing brick fabric across both platforms, which would result in a minor impact to heritage significant fabric. While this cutting would alter the existing corbelled arrangement of the upper platform coping, these cuts would be poorly visible from the common vantage points (not noticeable from platform level and at a relatively long distance to notice detail in the brickwork from concourse and footbridge viewing areas) and would result in a minor visual impact to Lithgow Station.
Have more sympathetic options been considered and discounted?	Design options were considered by TfNSW that would result in reduced heritage impacts to Lithgow Station. These design options included: • Track slewing only to provide necessary clearance for the New Intercity Fleet at Lithgow Station. This option was discounted as it would result in widespread readjustment of overhead wiring structures throughout the station precinct. • The preservation of the original brick fabric of the platform-to-rail corridor ramp retaining wall, with the platform extension constructed over the top of the existing ramp. This option is being considered during detailed design. • Do nothing option. This would result in preserving the existing platform coping in its present configuration and would not involve the extension of the island platform. This option was discounted as it would not meet safety and operational requirements of the Proposal, and would fail to meet the Proposal's strategic objectives.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications project would result in a minor physical and minor visual impact to the State Heritage Listed Lithgow Railway Station Group and Residence (SHR# 01833).

9.1.1 Modifications during detailed design

This report assesses heritage impacts based upon Concept and Reference Design information for the New Intercity Fleet – Springwood to Lithgow Rail Corridor Modifications project. Detailed designs and constructability assessments are still required to complete the planning for the project. Opportunities to minimise or mitigate potential impacts to heritage values may be possible during later design phases.

Platform extension works

Designs indicate that the platform extension would involve the excavation of the area to up to 0.6 metres below rail corridor level in order to install a suitable subgrade for the new platform retaining wall structure. This excavation work would remove brick courses of original fabric that are located on the retaining wall edges of the ramp.

During detailed design, opportunities to preserve the original brick courses on the outer edge of the current ramp should be considered including Option 1 which would not result in the removal of additional original brick courses and would result in a negligible impact to heritage significant fabric from the platform extension works.

Selection of material finishes

The brick platform extension works involve the construction of a stretcher bonded corbelled brick retaining wall. The difference in brick patterns would be suitable to distinguish between modern and original fabric; however final brick material choices would be selected which are similar and sympathetic to both original brown-grey brick in the lower courses and grey-black brick in the upper two courses.

New grouting and pointing would use sympathetic materials, without using modern materials like epoxy, to those present in the existing platform retaining wall. A clear demarcation should be made between the original fabric English bond brickwork and the extension Stretcher bond for the platform extension.

Areas of archaeological potential

Two areas of significant archaeological potential have been identified at Lithgow Station (see Section 6.1.5). During detailed design, ground disturbing works should not be conducted in these areas of archaeological potential. Should ground disturbing work be required in these areas, an archaeological research design, approvals from Heritage Division and potential archaeological excavation may be required.

During the construction phase of the proposed works, contractor crews should be provided with a heritage induction, which provides information on the location of these archaeological resources.

9.1.2 Recommendations

- A Section 60 permit under the NSW Heritage Act 1977 would be required prior to impacts occurring within the Lithgow Railway Station Group and Residence curtilage.
- A heritage should provide ongoing heritage and conservation advice throughout detailed design and any subsequent relevant design modifications. The nominated heritage architect should provide advice regarding the scope of works and ensure that the final design adheres to the *Sydney Trains Heritage Platforms Conservation Management Strategy* (Australian Museum Business Services, 2015).
- The nominated heritage architect would be responsible for ensuring that material finishes and heritage recommendations provided in this Statement of Heritage Impact are enacted during detailed design and construction works.
- Option 3 for the platform extension has been developed as the preferred option for the proposed works. Further consideration of the platform extension options, including Option 1, would be undertaken during detailed design.
- Cutting of brick courses on the outer platform coping would be conducted by suitably qualified tradespeople. Exposed cut brick courses would be given a clean appearance so that the original pattern of brickwork is clearly visible and intact. Materials used to support, grout or repoint cut brick would be sympathetic to existing grouting and pointing on the platform retaining wall.
- The existing corbelled brick platform retaining wall and platform-to-rail corridor ramp would be archivally recorded prior to works. Archival recording of elements of Lithgow Station that would be impacted would be undertaken in accordance with the relevant NSW Heritage Council guidelines. These archival records and design plans for the proposed works would be lodged with Sydney Trains and Heritage Division for their records.
- Material finishes for the new platform extension brickwork, particularly brick colour and texture, would be selected to be sympathetic to the existing platform retaining wall brickwork. New brickwork constructed adjacent to original brickwork should be visually separated at the join in order to delineate old and new fabric.
- A physical membrane should be installed between the heritage platform and the proposed extension to ensure the protection of the heritage brickwork.
- The concrete coping of the proposed platform extension, and the mortar associated with the brick façade used in the works, should adhere to Strategy 7 of the *Heritage Platforms Conservation Management Strategy.*
- The Construction Environmental Management Plan (CEMP) should include stop work procedures in accordance with Transport for NSW's *Unexpected Finds Guideline* (Transport for NSW, 2015) to manage activities in the unlikely event that intact archaeological relics or deposits are encountered
- A heritage induction should be provided to all on-site staff and contractors involved in the Project. The induction should clearly describe the heritage constraints of the site.

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