



## Intermodal Logistics Centre Enfield Heritage Interpretation Plan and Strategy

Prepared for  
Sydney Ports Corporation

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## CONTENTS

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
1.1	Sydney Ports Corporation Brief	1
1.2	Scope of Work for Heritage Interpretation Plan and Strategy	3
1.3	Project Approval Requirements	6
1.4	Author and Consultant Identification	6
1.5	Conservation Terminology and Guidelines	7
1.6	Objectives of the HIPS Report	7
1.7	Recommendations from the Options and Recommendations Report	7
<b>2.0</b>	<b>History and Significance of the Site and its Structures</b>	<b>11</b>
2.1	Yard Master's Office	12
2.2	Pillar Water Tank	12
2.3	Wagon Repair Shed	13
2.4	Tarpaulin Factory	13
2.5	Pedestrian Footbridge	14
2.6	Administration Building	15
2.7	DELEC Service Centre	15
<b>3.0</b>	<b>Interpretation Constraints, Opportunities and Approach</b>	<b>17</b>
3.1	Introduction	17
3.2	Objectives	17
3.3	Identifying the Audience	17
3.4	Constraints of the Site	17
3.5	Opportunities and Approach to Site Interpretation	18
3.6	Interpretative Devices	19
3.7	Development and Management of the Interpretation	21
<b>4.0</b>	<b>Heritage Interpretation Plan and Strategy</b>	<b>25</b>
4.1	Interpretation Strategy	25
4.2	Interpretation Plan	28
<b>5.0</b>	<b>Implementation</b>	<b>51</b>
5.1	Implementation of the HIPS	51
5.2	Ongoing Management of the Interpretation Site	52
5.3	Minimum Standards of Maintenance and Repair	52
<b>6.0</b>	<b>Conclusion</b>	<b>54</b>
<b>7.0</b>	<b>References</b>	<b>57</b>
<b>Appendices i</b>		
Appendix A: Shreeji Consultant Structural Condition Reports		
Appendix B: CM+ Tarpaulin Factory Condition Report		
Appendix C: Heritage Protection Plan		
Appendix D: Maintenance Requirements		
Appendix E: Relocated Items from the ILC site		



## List of Figures

Figure 1.1	Location Plan.	2
Figure 1.2	Aerial image of the south section of the ILC site showing the existing location of heritage items and other structures of interest.	4
Figure 1.3	Aerial image of North section of the SPC site with the DELEC Service Centre, showing the location of the main DELEC structures.	5
Figure 1.4	Landscape Masterplan. (Concept design presented in the EA: SKM 2005).	9
Figure 3.1	Pillar Water Tank.	20
Figure 3.2	Pedestrian Bridge	20
Figure 3.3	Wagon Repair Shed from the north.	20
Figure 3.4	DELEC turntable.	20
Figure 3.5	Tarpaulin Factory with western through railway track and overhead stanchions.	20
Figure 3.6	Sand Wagons.	20
Figure 3.7	Image of Pedestrian Bridge with items that are to be salvaged, treated and then reinstated when the bridge is in its final location.	24
Figure 4.1	Interpretation Opportunities. Possible position of relocated items subject to detail design, including proposed Interpretative panels.	26
Figure 4.2	Interpretation Signage Sections.	27
Figure 4.3	Site Panel 1 - Refer to Figures 4.3-4.6 for details.	30
Figure 4.4	Site Panel 1 - Detail 1.	31
Figure 4.5	Site Panel 1 - Detail 2.	33
Figure 4.6	Site Panel 1 - Detail 3.	35
Figure 4.7	Indicative Panel with steel plate backing.	37
Figure 4.8	Panel 2 for Pillar Water Tank and Bridge.	39
Figure 4.9	Panel 3 for Tarpaulin Factory.	41
Figure 4.10	Panel 4 for Wagon Repair/Gantry Crane and Roundhouses.	43
Figure 4.11	Panel 5 for Yard Master's Office.	45
Figure 4.12	Panel 6 for Administration Building.	47
Figure 4.13	Panel 7 for DELEC.	

## List of Tables

Table 1.1:	Heritage Items to be included in HIPS	3
Table 2.1	Surviving Items and Current Status	11
Table 4.1:	Interpretation Plan - Interpretation Panels	28



# INTERMODAL LOGISTICS CENTRE ENFIELD HERITAGE INTERPRETATION PLAN & STRATEGY

## 1.0 Introduction

Conybeare Morrison (CM<sup>+</sup>) have been engaged by Sydney Ports Corporation to provide heritage services for the management of heritage items and other structures of interest on the former Marshalling Yards at Enfield. The preparation of this Heritage Interpretation Plan and Strategy (HIPS) forms part of these heritage services.

The Sydney Ports Corporation (SPC) owns and manages the commercial port facilities in Sydney Harbour and Botany Bay. The development of the Enfield site by SPC is intended to increase the proportion of container freight moved by rail to and from Port Botany. The proposed Intermodal Logistics Centre (ILC) at Enfield will be used for the transfer and storage of container freight, packing and unpacking of containers within the proposed warehouses, and the storage of empty containers for later reuse or return to Port Botany.

The ILC site at Enfield is part of the former Enfield Marshalling Yards, located at Strathfield South, an inner western suburb of Sydney, approximately 15 km by road from the Sydney Central Business District and 18 km by rail from Port Botany. It is approximately 0.5 km in width and over 2 km in length, extending from the intersection of the Hume Highway and Roberts Road in the north, through to the intersection of Punchbowl Road and Cosgrove Road in the south (Figure 1.1).

The former Marshalling Yards date from 1916 as a part of the freight railway system of NSW and included a steam locomotive depot. The site retains a number of railway structures which reflect the history of the site and therefore require consideration and interpretation for their heritage significance (Figures 1.2 & 1.3). This document provides a Heritage Interpretation Plan and Strategy for the former Enfield Marshalling Yard, incorporating items to be retained and relocated on the site, to ensure its significance is conveyed to an audience.

### 1.1 Sydney Ports Corporation Brief

The SPC brief for the provision of heritage services is guided by the Conditions of Approval issued by the Minister for Planning for the proposed ILC, as well as the *Environmental Assessment* (by SKM 2005) and the *Preferred Project Report* (by SKM 2006). To meet the objectives under the brief and ensure that all requirements of the Conditions of Approval are complied with, as well as the obligations and commitments of the Environmental Assessment and the Preferred Projects Report, CM<sup>+</sup> has prepared the following documents:

- An Options and Recommendations Report (OR) (provided separately);
- Archival Recordings (provided separately);
- A Heritage Interpretation Plan and Strategy (this document).

The Options and Recommendations Report was presented to the NSW Heritage Office in October, 2008, as part of the consultation required under the Project Approval. The Archival Recordings were prepared to the satisfaction of the NSW Heritage Office and were lodged with Strathfield Council Library in November 2008. SPC's required outcomes for the heritage items and other structures of interest on the ILC site, are summarised in Table 1.1.

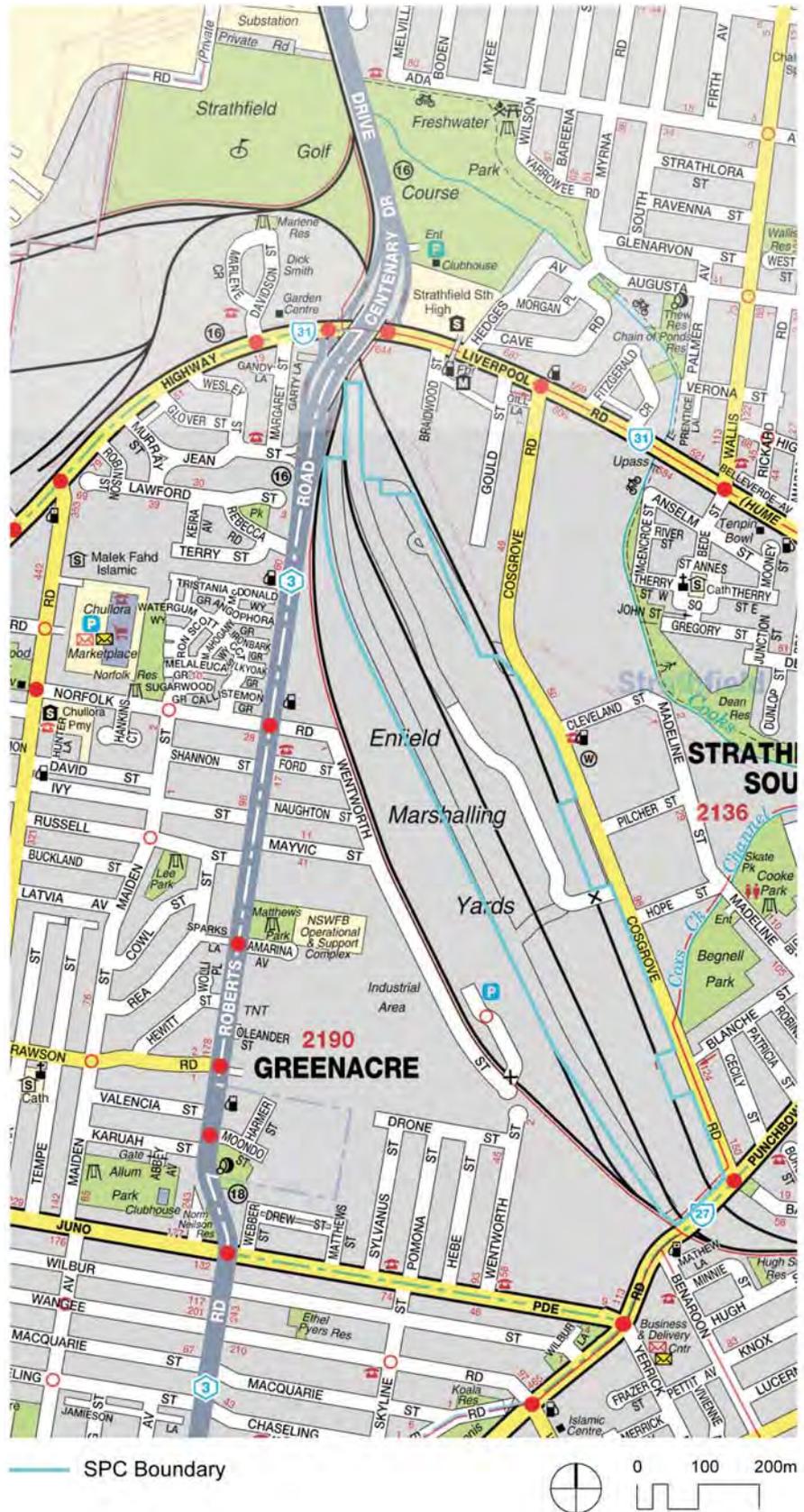


Figure 1.1 Location Plan.

**Table 1.1: Heritage Items and other structures of interest to be included in the HIPS**

Heritage Item	SPC's Required Outcome as per Project Approvals
Yard Master's Office	Reuse of components if appropriate, archival recording and demolition
Wagon Repair Shed	Reuse of components if appropriate, archival recording and demolition
Tarpaulin Factory	Stabilisation
Pedestrian Footbridge	Stabilisation and relocation*
Administration Building	Reuse of components if appropriate, archival recording and demolition
Pillar Water Tank	Stabilisation and relocation*
DELEC Service Centre	Reuse of components if appropriate, archival recording and demolition

\* The need to stabilise the items prior to or after relocation will be determined during detail design

The SPC's brief for the HIPS includes the following:

- the adopted recommendations for the stabilisation, relocation, reuse or demolition of each of the heritage items identified in the OR Report and as agreed by SPC and the NSW Heritage Office.
- additional details, including any methodologies or design detail, required to implement the recommendations.
- provisions to ensure that heritage items to be retained and/or relocated on the ILC Site will be protected during site preparation, construction and operation of the ILC at Enfield and maintained in accordance with the requirements of the NSW Heritage Act, 1977 and any relevant Guidelines.
- a strategy for the on-going management and interpretation of heritage items and values on the ILC Site, prepared in accordance with NSW Heritage Office Guidelines.

The DELEC Service Centre was not identified as a heritage item by Graham Brooks and Associates' *Assessment of Heritage Impact* (2005), and there are no specific requirements relating to it in the Project Approval. The SPC brief however required that the DELEC area be included in the Heritage Interpretation Plan and Strategy, if appropriate, and that it be photographically archival recorded in accordance with undertakings in the Environmental Assessment.

The *Environmental Assessment* (SKM, 2005) was based on a number of studies that are referred to in this report, in particular the 'Assessment of Heritage Impact' by Graham Brooks and Associates.

## 1.2 Scope of Work for Heritage Interpretation Plan and Strategy

The items that are addressed in this Heritage Interpretation Plan and Strategy are listed in Table 1.1 above. These items have been assessed in terms of their significance, condition, location and how they may be interpreted. CM+'s scope of work included inspection of each item, providing recommendations on stabilisation, relocation or demolition as required under the Project Approval or obligations under the Environmental Assessment and Preferred Projects Report. This report also includes information on items that have been previously demolished, as they contribute to the story of the Marshalling Yards.



Figure 1.2 Aerial image of the south section of the ILC site showing the existing location of heritage items and other structures of interest.  
Source: Sydney Ports Corporation

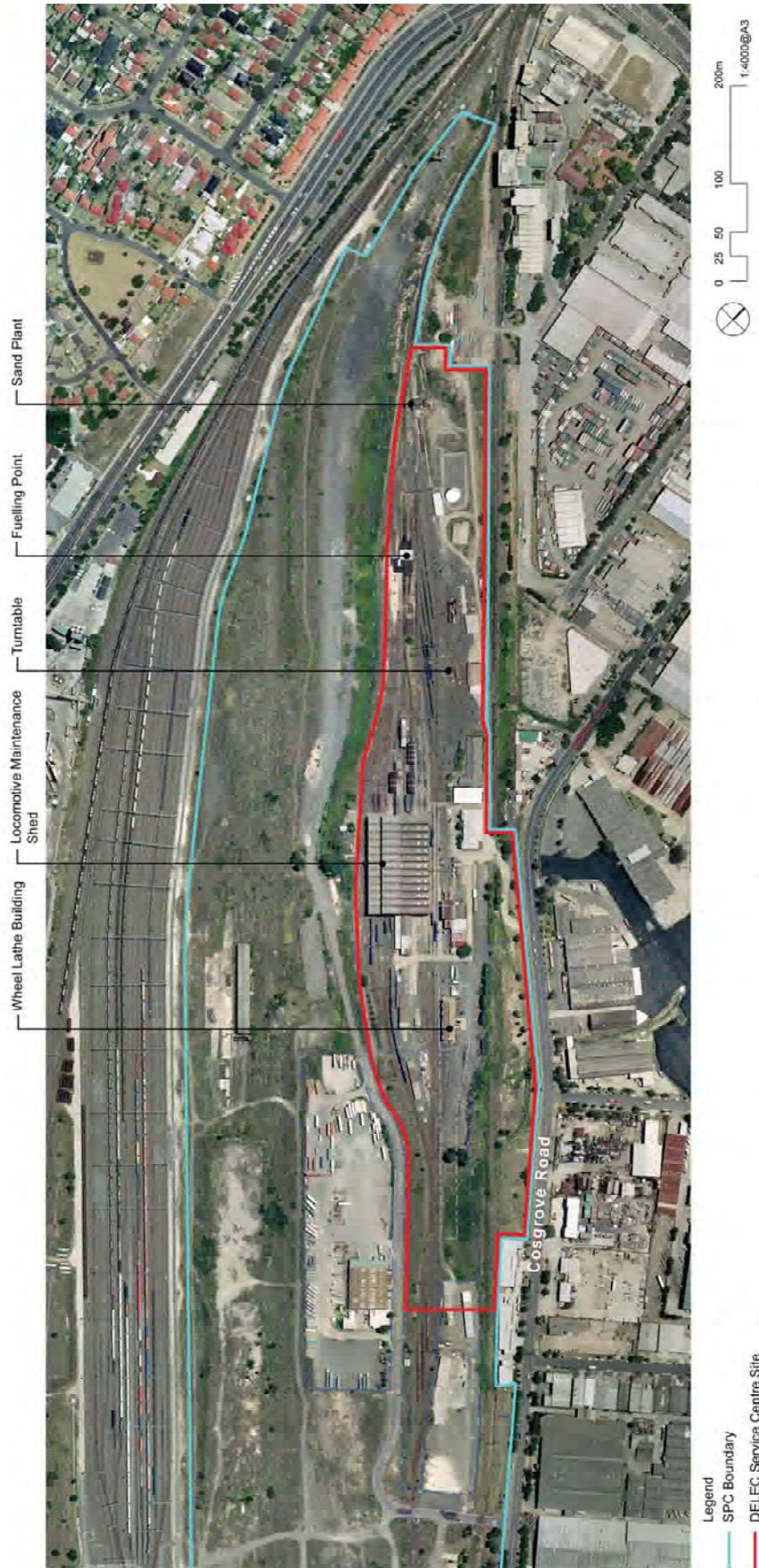


Figure 1.3 Aerial image of North section of the SPC site with the DELEC Service Centre, showing the location of the main DELEC structures.  
Source: Sydney Ports Corporation.

### 1.3 Project Approval Requirements

The ILC at Enfield comprises the development of a new container terminal, associated off-site road and rail infrastructure works, services and environmental enhancement works (Figure 1.4). The site has been deemed to be a 'Major Project' under Part 3A of the Environmental and Planning Act 1979 (EP&A Act), and therefore the Minister for Planning is the Approval Authority.

The SPC has obtained Project Approval under Part 3A of the EP&A Act from the Minister for Planning on the 5 September 2007. The existing heritage structures, depending on the relevant conditions of approval (2.34 to 2.38), must be archival recorded before being stabilised, relocated, interpreted or demolished. Condition of Approval No. 6.3c relates to the preparation of the HIPS and requires that:

*As part of the Construction Environmental Management Plan (CEMP) for the project, the Proponent shall prepare and implement a Heritage Interpretation Plan and Strategy to detail how heritage items to be retained on-site will be protected during site preparation and construction, and how relocated heritage items will be protected and maintained during those works. The Plan shall include a strategy for the ongoing management and interpretation of heritage items and values on the site, and shall be prepared in accordance with NSW Heritage Office guidelines.*

The HIPS must be suitable for incorporation into the relevant Construction Environmental Management Plan(s) required by the Minister for Planning's CoA (Condition 6.3) and must satisfy the Minister for Planning's CoA, the requirements of NSW Heritage Office Guidelines and must be approved by the Director-General of the Department of Planning.

The Environmental Assessment by SKM recommended:

*A Heritage Interpretation Plan and Strategy for the entire site will be undertaken prior to construction works commencing on site. Prior to relocation or demolition of any structures listed for relocation or demolition, those structures will be appropriately recorded and the recording reports lodged with the Local Studies Collection of Strathfield Public Library.*

### 1.4 Author and Consultant Identification

Garry McDonald, Heritage Specialist with Conybeare Morrison International Pty Ltd prepared this report with review by Judith Rintoul, Associate Director of Conybeare Morrison International Pty Ltd.

Hari Gohil of Shreeji Consultants was engaged by Conybeare Morrison to prepare a structural engineering report for the relocation and stabilisation of the nominated items (refer Appendix A). Archaeological advice was provided by Tony Lowe of Casey & Lowe, and archival photography was carried out by David Liddle. Archival drawings and some photographs used in this report were sourced and provided by David Sheedy.

CM+ wishes to acknowledge the assistance of SPC staff including Stephen Zaczekiewicz, Daniela Vujic, Bruce Royds, Ricardo Prieto-Curiel and Alison Tourle in the preparation of this report.

## 1.5 Conservation Terminology and Guidelines

The conservation terminology and guidelines used in this report are those defined in *the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (The Burra Charter)*.

The Interpretation Strategy will be guided by the following principle of access and understanding:

*Interpretation should communicate the values of the cultural heritage sites, to enhance visitor experience, increase public respect and understanding of the significance of the site.*<sup>1</sup>

## 1.6 Objectives of the HIPS Report

The objectives of this Heritage Interpretation Plan and Strategy are to:

- Establish site interpretation measures and the granting of access for future generations to appreciate and understand the history and significance of the site from the early 20<sup>th</sup> century until the present day.
- To develop a method of communicating the significance of the place to users and visitors to the site, including the use of relocated items from the former Enfield Marshalling Yard. The conserved and relocated elements of the site must be presented so that the community can easily comprehend the history of the site.
- Address the requirements of the Conditions of Approval.

## 1.7 Recommendations from the Options and Recommendations Report

Recommendations were made in the Options and Recommendations Report reflecting the constraints and opportunities for interpretation posed by the development of the ILC site. A summary of the relevant recommendations are as follows:

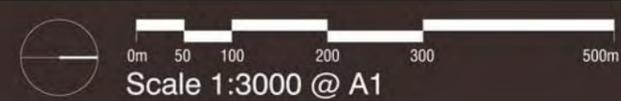
- 1 CM+ to prepare a Heritage Interpretation Plan and Strategy, based on the outcomes of the OR report in consultation with the Heritage Office, and SPC to submit to the Department of Planning for approval.
- 2 SPC and CM+ to identify items on the ILC site suitable for relocation based on Interpretation requirements.
- 3 SPC and CM+ to establish suitable methods of dismantling the items for relocation.
- 4 SPC to stabilise the Tarpaulin Factory, the Pillar Water Tank and the Pedestrian Bridge, and prepare items for relocation and/or storage.
- 5 SPC to submit copies of archival recordings to the NSW Heritage Office and Strathfield Council.
- 6 SPC to demolish the Yard Master's Office, Administration Building, Wagon Repair Shed and DELEC, as per the Project Approval, after removal of components identified as feasible for relocation and interpretation.
- 7 SPC to survey the area of the Community and Ecological Area including the Cosgrove Road and Punchbowl Road street alignments, railway line and the perimeter of the Tarpaulin Factory to establish relative heights.

<sup>1</sup> ICOMOS Ename Charter for the Interpretation of Cultural Heritage, pp.4-7

- 8 SPC to establish the extent and timing of public access to the Interpretative area of the Community and Ecological Area.
- 9 SPC and CM+ to confirm a suitable site for the Pillar Water Tank along the Punchbowl Road frontage.
- 10 SPC to confirm a suitable location for the Pedestrian Bridge if it is to be retained on the ILC site, or relocated externally.
- 11 SPC, in liaison with Shreeji Consultant, to establish bearing conditions for the design of the footings of the Pillar Water Tank and Pedestrian Bridge.



**LEGEND**



**ENFIELD INTERMODAL LOGISTICS CENTRE LANDSCAPE AND URBAN DESIGN CONCEPT PLAN**

EDAW gillespies SKM

**CONCEPT PLAN - MASTERPLAN**

**FIGURE 7**

June, 2005

Figure 1.4 Landscape Masterplan. (Concept design presented in the EA: SKM 2005).

Source: Sydney Ports Corporation.

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## 2.0 History and Significance of the Site and its Structures

The early European history stems from the first land grants in the area in the first decade of the 19th century. The area became an agricultural, timber getting and tannery industry, probably related to Cox's Creek and Cooks River. <sup>2</sup> This changed with the opening of the railway in 1855 from Central to Parramatta. With the expansion of the new railway system and the needs of the transportation of freight, the Enfield Yard was established in 1916 as a steam locomotive depot and shunting yard for goods wagons. The area at the time had yet to be occupied by residential development and provided a large relatively open area but with a slight gradient from north to south, which assisted in the shunting process from un-coupling to placement in sidings.<sup>3</sup>

As the technology of locomotives changed over time, so the use of the site also changed, one of the most significant being the transition from steam to diesel-electric power, marked by the establishment of DELEC on the north-east part of the site in 1957. The introduction of containerisation also marked a change in the nature of freight transportation, resulting in the disuse of tarpaulins for example.

The significance of the surviving items on the site is also reflected in the fact that they span the history of the Yard from its beginnings and as indicated in the Table 2.1 chronology of remaining items in the former Enfield Marshalling Yard:

**Table 2.1 Surviving Items and Current Status**

Item	Date	Present Status (Graham Brooks and Associates' assessment)
Yard Master's Office	1916	Local significance
Pillar Water Tank	c 1919	State significance
Wagon Repair Shed	c.1920	marginal Local significance
Gantry crane	1949	
Tarpaulin Factory	c.1925	State significance
Pedestrian Footbridge	c.1937	Local significance
Administration Building	1948	No significance
DELEC Service Centre	From 1957	No significance

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance for the Enfield Marshalling Yard Landscape:

*The scale and extent of demolitions at the former Enfield Marshalling Yard site have removed the essential elements that characterise the qualities of a railway marshalling yard. Although there are a small number of isolated buildings and structures surviving in this disrupted landscape, they no longer have a contextual setting. This assessment concludes that, viewed holistically, the landscape of the former Enfield Marshalling Yard can no longer communicate any degree of railway heritage significance.* <sup>4</sup>

<sup>2</sup> Brooks p15

<sup>3</sup> Cserhalmi p4

<sup>4</sup> Brooks p37

## 2.1 Yard Master's Office

The Yard Master's Office was an important element in the original Marshalling Yard, being at the centre of the yard, not only physically but also operationally. The building was constructed in 1916 when the yard was established as a steam locomotive depot.<sup>5</sup> It was used to control and observe the movement of the locomotives and freight within the yard, and organising the assembly of the wagons into train units.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*A survey of the NSW Heritage Office's State Heritage Register and the State Heritage Inventory suggests that this is the only surviving Yard Master's Office in the former rail network. There are no other Yard Master's Offices listed on the electronic database.*

*While there are over 34 railway station and yard groupings on the State Heritage Register (February 2005) research commissioned from Ray Love by Graham Brooks and Associates states that the Enfield Yard Master's Cottage is the only Yard Master's Office remaining in the former railway network. It is important to note that the building was the operations centre and provided space for shunters, timekeepers and other railway employees as well as the Yard Master.*

*The significance of the building is largely historical as extensive alterations have erased operational elements such as the observation area, clock, communication devices (telephone and telegraph) and encircling verandahs that could give the building its links with railway heritage significance. As a consequence of the continued alterations to the building and the deterioration of its rail yard setting, this assessment concludes that the building's ability to communicate its importance has been severely reduced through losses of significant role-defining heritage fabric. Accordingly, the Yard Master's Office has only LOCAL SIGNIFICANCE for the former Enfield Marshalling Yard.<sup>6</sup>*

## 2.2 Pillar Water Tank

The pillar water tank is presently located on the ILC site south of the Wagon Repair Shed (Figure 3.1). It is a precast concrete structure bolted to an insitu concrete square base. Used to water the steam locomotives, it may have been on site since c.1919 as indicated on a drawing 'Foundations for Concrete Parachute Tanks', dated 23/12/19.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*This moulded concrete water tank was designed and produced ca.1918 as a watering station for steam-driven locomotives. It possesses a sophisticated ribbed construction and was cast as three distinct elements, the column, the jib base and the tank. Very little is known of the design and origin of this form of tank within the railway system and this tank was thought to be the last surviving pillar tank of the NSW Government railway system. It displays particular significance as an item of engineering significance as a ca.1918 design using moulds, steel reinforcing mesh and a modular design assembled on site. As a sole representative of a unique concrete form, the tank has STATE SIGNIFICANCE.<sup>7</sup>*

<sup>5</sup> Brooks, p.42

<sup>6</sup> *ibid.* p.50

<sup>7</sup> Brooks p76

Although identified as of State significance by Graham Brooks and Associates, it is noted that the Pillar Water Tank is not formally listed on the State Heritage Register (as of March 09).

### 2.3 Wagon Repair Shed

The Brooks' report notes that this structure was originally a 'Transshipment Shed' that was later adapted to a Wagon Repair Workshop.<sup>8</sup> Located in the centre of the Enfield site, the timber post and beam structure was used to transfer goods from one train to another in parallel (Figure 3.3). The internal structure has a corbelled beam with steel rail track, indicating the use of a gantry crane for this purpose. There is also a substantial gantry crane (mid C20th) at the southern end of the shed which may have been used for the later purpose of a wagon repair workshop.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*The timber shed, once used for transshipping, later adapted for wagon maintenance is a large timber building of considerable span and length. It is not a technically innovative building, based on traditional timber construction techniques. Its adaptation for a number of uses such as transshipment and wagon repair has damaged its clarity for heritage appreciation once the tools and devices used within the building were removed.*

*In its current setting, the ability to communicate its significance is diminished due to limited access to the site, condition, loss of associated tools and equipment and its original context. As a consequence, the heritage significance of the structure, in and of itself, is considered to be of marginal LOCAL SIGNIFICANCE.*

*The external gantry crane, a mid-20th century addition to the building, is a commonplace sight on supply yards, coastal wharves and transshipment points (ships, trucks, railways) throughout the Sydney region. It is considered to have low heritage significance as an independent object and has only marginal LOCAL SIGNIFICANCE through its use as a Transshipment Shed and Wagon Repair Workshop at the former Enfield Marshalling Yard.<sup>9</sup>*

### 2.4 Tarpaulin Factory

The Tarpaulin Factory is located in the south east corner of the ILC site, adjacent to the Cosgrove Road and Punchbowl Road intersection. The eastern side of the building runs north-south along the boundary line with Cosgrove Road while there is a 40 metre open space to Punchbowl Road to the south. On the western side there is a through railway line that runs under the Punchbowl Road bridge and continues to the DELEC area in the north of the site.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*The Tarpaulin Factory is assembled from the columns, beams and trusses of the transshipment shed and hay shed at the former Sydney Yards. This yard area is now the approximate location of Central Station. These sheds date from the expansion of the NSW Government Railways at the end of the 19th century. They were fabricated from cast iron columns supplied by Pope, Maher & German, Darlington Ironworks. Darlington Ironworks was an important supplier of iron products in 19th century Sydney.*

<sup>8</sup> Brooks, p.52

<sup>9</sup> *ibid.* p.58

*The Tarpaulin Factory operated as a tarpaulin factory from 1925 to 1991. Although most elements of the operation have been lost such as timber flooring, equipment and tarpaulins, the site has been well documented in a study by Godden Mackay in 1991. This study preserves factory methods of working, images, canvas patterns and an interview with a lifelong employee of the factory. The tarpaulin factory was a unique operation amongst the NSW Government Railways infrastructure.*

*An annex to the tarpaulin factory, called the waxing room, was also moved from Sydney Yard where in 1920, it served as a "Fireproof Tarpaulin Store".*

*The waxing room annex has significance in its association with the unique factory building but it has low significance without this association. The adjacent amenities annexes to the factory building are intrusive.*

*As an uncommon building with unusual construction elements and as the remainder of a factory building housing the manufacture of tarpaulins for the NSW Government Railways, the two bays of the Tarpaulin Factory should be assigned STATE SIGNIFICANCE.*

*The former "Fireproof Tarpaulin Store" of 1920 has no unique features other than its association with the factory but must be considered to be of STATE SIGNIFICANCE because of its association with the factory. The additional amenity annexes to the two bays of the Tarpaulin Factory are derelict structures that detract from the importance of the building.<sup>10</sup>*

Although identified as of State significance by Graham Brooks and Associates, it is noted that the Tarpaulin Factory is not formally listed on the State Heritage Register (as of March 09).

## **2.5 Pedestrian Footbridge**

The 80 metre long Pedestrian Bridge is presently located south of the Yard Master's Office, and runs east-west with a stairway at each end (Figure 3.2). It is evident that it has been reduced in length, perhaps by about a third. It is a 'walk-through' truss, that is with overhead bracing, over 3 spans with a concrete floor.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*The Warren Truss bridge, developed in the mid-19th (ca. 1838) century was a bridge technology approximately 100 years old by 1937. This simple form of bridge was well refined, simple to design and easy to erect. As a consequence, this type of truss bridge was produced in great quantities. There are over 230 footbridges listed on the NSW Heritage Inventory and 30 of these bridges are of the Warren Truss type. However, of these surviving Warren Truss types, there are only three "Through" Warren Truss types: the former Enfield Marshalling Yard, Albury and Rose Hill footbridges. As one of three surviving examples, it is considered to be of LOCAL SIGNIFICANCE. However, isolated in the former Enfield Marshalling Yard, now stripped of its sidings and ancillary buildings, the footbridge cannot communicate its significance in its setting or to a potential audience.<sup>11</sup>*

<sup>10</sup> Brooks p103

<sup>11</sup> Brooks p68

## 2.6 Administration Building

Located north of the Yard Master's Office and what may have been its functional replacement, the Administration building is a 70 metre long brick building on two main floor levels. Built just after the Second World War, the design was influenced by Inter-war Dutch architecture in its use of asymmetrical massing, particularly that of Willem Dudok's Hilversum Town Hall. The Assessment of Heritage Impact by Graham Brooks & Associates provides the following Statement of Significance:

*The administration building is the sole item in the former Enfield Marshalling Yard designed in a 20th century modernist style. It is a handsome building with good proportions and represents an example of a typical Dutch-inspired civic building of the mid-20th century.*

*While its setting in the abandoned former Enfield Marshalling Yard gives the building immediate prestige, it is not considered to be a structure possessing important architectural significance when it is compared to similar buildings in that style. Due to the popularity of the style, there are many similar buildings in NSW. Graham Brooks and Associates consider that the Administration Building has no Local or State Significance.<sup>12</sup>*

## 2.7 DELEC Service Centre

The Diesel Electric Locomotive Depot is located in the north east section of the SPC site and was built in 1957. As a service facility it represents the changeover in technology from the steam locomotive era. Spread over a wide area the Centre consists of a main workshop, a wheel lathe, various storage, fuelling and sanding points.

The Assessment of Heritage Impact by Graham Brooks & Associates provides the following assessment of DELEC:

*As an operational yard providing maintenance for diesel locomotives and electric car sets, the DELEC Service Centre provides "Best Practice" maintenance for rail operations. This means that as tools and equipment become obsolete, they are discarded and replaced.*

*The wheel lathe device, for example, has been replaced and updated throughout its lifespan. The original 1961 wheel lathe has been discarded. The buildings housing these operations are conventional mid-20th century industrial buildings found throughout the NSW railway network and other industrial sites.<sup>13</sup>*

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<sup>12</sup> Brooks p90

<sup>13</sup> Brooks p110

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### **3.0 Interpretation Constraints, Opportunities and Approach**

#### **3.1 Introduction**

This section outlines the constraints, opportunities and approach that can be utilised for interpreting selected items and locations within the south-east corner of the ILC site, which is available for public access, although likely to be on limited terms.

Interpretation is the art of explaining the significance of a place to the people who visit it, with the objectives of promoting an understanding of its values and the need to conserve remaining significant items. Interpretation also involves conveying messages including presentation of particular points of view about places and history. Interpretative methods might include, but not be limited to, conservation, signage, public programs, publications, heritage trails, museum displays and web sites on the internet.

#### **3.2 Objectives**

The objectives of ILC site heritage interpretation are to:

- Convey the story of the site to the public;
- Maximise conservation of the heritage values of the ILC as a significant site;
- Ensure the public is allowed the maximum possible access to the site for understanding the layers of the site's history and fabric;
- To enhance an understanding of the place through the design and layout of interpretation spaces and landscape;
- Encourage wider public interest in the former Enfield Marshalling Yard site;
- Encourage links with other railway museums or interest groups.

#### **3.3 Identifying the Audience**

The story of the former Enfield Marshalling Yard, its people and the relationship of the site to the broader economy of Sydney and the state of NSW, is to be conveyed to visitors as they move through the identified and accessible area of landscape. The audience to the site may include:

- interested members of the public visiting the site because of its heritage values;
- the general public;
- regular visitors or workers to the Intermodal Logistics Centre;
- passers by;
- members of the local residential community, and
- those attending functions held on the site.

The significance of the former Enfield Marshalling Yard is multi-faceted, and it is impracticable to communicate every facet of that significance. It is therefore appropriate to identify themes and strategies for communicating these themes to the foreseen audience effectively and creatively, largely based on the relatively well known items as listed in Table 1.1.

#### **3.4 Constraints of the Site**

The developed ILC site will be a predominantly industrial area and there will be very few suitable locations within or external to the site where heritage could be interpreted (Figure 1.4). There would be a very limited audience in the vicinity of the Cosgrove Road and Punchbowl

Road intersection and less in other parts of the site. The site is almost completely surrounded by industry and will have a sound wall and mounding built around portions of it.

The Interpretation Strategy cannot rely on a passive audience or a 'passing parade'. An audience must have some form of access to the site and the use of the 'Community and Ecological Area' becomes critical to the feasibility and viability of an Interpretation Plan and Strategy.

Public access to the 'Community and Ecological Area' will be restricted to protect the Green and Golden Bell frog habitat creation area, and due to concerns regarding vandalism and public safety.

The area available for interpretation is therefore confined to the southern end of the 'Community and Ecological Area', along Punchbowl Road, east of the through railway line, and along the railway line adjacent to, and for the length, of the Tarpaulin Factory (Figure 4.1). Public access to the proposed interpretation area, although desirable, will be restricted and will require monitoring.

### 3.5 Opportunities and Approach to Site Interpretation

The approach to interpreting the site, as outlined in the OR report and subject to detail design, is as follows:

- The use of the south east corner of the ILC site, adjacent to the Tarpaulin Factory, as the most accessible part of the site suitable for interpretation (Figure 1.4).
- The relocation of the Pillar Water Tank (Figure 3.1) to an area adjacent to the Punchbowl Road frontage (Figure 4.1). This provides maximum public visibility and an identifying 'icon'. The tank can only be located so that it does not interfere with future planning for the Tarpaulin Factory.
- The relocation of the Pedestrian Bridge (Figure 3.2), with possible use as access from the area south of the Tarpaulin Factory, across the railway line to the south of the existing mound in the proposed community and ecological area (Figure 1.4). This allows an elevated view of the site, although it would require the full length of the structure to be as far west as possible to afford a view past the mound to the north-west. The location of the bridge across the rail line assumes that the structure is strong enough to span the rail line. The potential use of the bridge for pedestrian access also assumes the bridge is strong enough to carry pedestrian traffic. The final location and configuration of the bridge within the area available for interpretation will be determined during detail design.
- If it is found to be suitable, the bridge can also be utilised as a platform for the location of interpretative panels. Otherwise the panels can be placed at a high point adjacent to Punchbowl Road (Figure 4.1).
- The relocation of a number of salvageable timber columns and panelling from the Wagon Repair Shed to the area south of the Tarpaulin Factory to provide interpretative evidence of the type and scale of structures in the former yard site (Figure 3.3). They could also be used for landscaping elements at ground level, depending on the condition of the timbers.
- The proposed relocation of the DELEC turntable to this area to provide a robust industrial element, reflecting the former use of the site and relating to the function of the original Roundhouses (Figure 3.4). It is noted that the DELEC turntable is not a heritage item and that the project approval does not require its relocation. The relocation of the turntable to the site's heritage interpretation area or off-site to a heritage organisation is currently being

considered by SPC. The final destination of the turntable will be determined during detail design.

- The possible use of selected metal panels from the DELEC area for use as part of the interpretative signage.
- The retention of the through railway line track (Figure 3.5), which may include overhead stanchions (not the overhead wiring), to a point to the north of the Tarpaulin Factory (Figure 4.1).
- If available, Pacific National's sand wagon, currently located in the DELEC area, could be relocated to the existing through railway line (Figure 3.6).
- The retention of a section of the track could enable future use by steam trains, such as the 3801, as a stopover for 'customers' to view the site.

The preliminary location of these items is shown on Figure 4.1. Final positions of the items will be determined in the detail design stage of the project.

The Tarpaulin Factory could be used as part of the Heritage Interpretation Plan and Strategy for the location of heritage items and interpretative panels; however this is dependent on the future use of the building with a semi-public function that allows access to an audience. SPC, in accordance with the commitment made in the EA (SKM, 2005), will undertake further feasibility investigations and consultation regarding the future function of the Tarpaulin Factory, with a final use determined at a later stage. The Tarpaulin Factory at present can only be used as a backdrop, providing context and understanding of the former use of the site.

### **3.6 Interpretative Devices**

The following sections describe the range of various interpretive devices that could be used for the Site Interpretation Plan and Strategy, some of which could be developed in the future.

#### **3.6.1 Interpretation of Items**

Interpretation can make use of available heritage objects or items of interest to convey the story of the site, which in the case of the former Enfield Marshalling Yard, includes the incorporation of the Water Tank, Pedestrian Bridge and other available items discussed in Section 3.5.

#### **3.6.2 Access to the Setting**

Interpretation allows public access to a section of the available site that maximises the opportunity for visual catchment of the former Marshalling Yard. This could be potentially enhanced with the possible use of the pedestrian bridge as a viewing platform as discussed in Sections 3.5 and 4.1. The location of the proposed Interpretation area relates to its proximity to the former Marshalling Yard.

#### **3.6.3 Interpretative media**

Proposed Interpretative media consists of text panels incorporating photographs, images and drawings based on historic material as well as archival photography of items to be demolished, such as the Yard Master's Office, Wagon Repair Shed, Administration Building and DELEC.

#### **3.6.4 Publications**

For possible future use, publications could also be part of the interpretation of the site and could include:

- A brief free guide/ brochure dealing with the history of the site;
- A more detailed, illustrated publication examining the history and use of the site.

- Future 'publication' could also extend to having a web site on the internet.

The development of interpretative publication material will be investigated by SPC at the completion of detail design or after construction of the heritage interpretation area.



Figure 3.1 Pillar Water Tank



Figure 3.2 Pedestrian Bridge



Figure 3.3 Wagon Repair Shed from the north



Figure 3.4 DELEC turntable



Figure 3.5 Tarpaulin Factory with western through railway track and overhead stanchions



Figure 3.6 Sand Wagons

### 3.6.5 Open Days and Education Programs

As noted previously, the site presents a problem in terms of safety and vandalism to allow general open public access. It is recommended that the site be allowed to open only on weekends, during daylight hours. Greater access may be afforded when a use for the Tarpaulin Factory is found as the area would benefit from more visible activity.

Landscaping, with the provision of seating and shade areas, could contribute to public appreciation of the site, encouraging longer stays rather than the site being regarded only as a single use activity. To enable greater recognition, open days may be a method of allowing the site to become a part of the local community.

Education programs could be developed to broaden the potential 'audience' available to schools, historical societies, museums and special interest groups. Liaison with other railway groups may help an awareness of the railway museums that are accessible and related in their displays. Given that a number of items were moved from Enfield when the Rail Transport Museum was relocated to Thirroul in 1975, a link could be made between the sites. In addition, in late 2008 some items were also relocated to the facilities of the railway interest groups listed in Appendix E.

## 3.7 Development and Management of the Interpretation

The development and management of the Heritage Interpretation Plan and Strategy should be undertaken in conjunction with the proposed development of the Intermodal Logistics Centre and maintained as part of the ongoing management of the site. The implementation of the Interpretation Plan and Strategy is covered in *Section 5.0 Implementation*.

The Interpretation Strategy provides a methodology to ensure the identified heritage items are conserved, or in the case of the Pillar Water Tank and Pedestrian Bridge, stabilised and carefully relocated. Maintenance requirements for each of the following items (Sections 3.7.1-3) were outlined in the OR report and are provided, more fully developed, in Appendix D. Once any item has been stabilised, a Maintenance Plan is to be implemented.

### 3.7.1 Protection of Heritage Items

In accordance with the requirements of Condition of Approval 6.3c, the Heritage Interpretation Plan and Strategy must detail how heritage items to be retained on site will be protected during site preparation and construction, and how relocated heritage items will be protected and maintained during those works. Protection of items is required during the following phases:

- Protection of items in their original locations during site works (eg. demolition)
- Protection during any temporary storage
- Protection of relocated items during construction and operation

Recommended protection measures during these phases are provided in the Heritage Protection Plan contained in Appendix C. The Heritage Protection Plan for demolition (eg. Protection of items in their original location) is also appended to SPC's Construction Environmental Management Framework (rev 8) and its provisions have been adopted by the demolition and remediation Contractor working on the site. It will be necessary for the Pillar Water Tank and Pedestrian Bridge to be moved from their current location before main construction works begin on the ILC site

There may be a time interval between the removal of the Water Tank and Bridge from their current location and reinstatement in their final position while the Interpretation area is being prepared in the Community and Ecological Area. After disassembly, and during site construction, the Water Tank and Pedestrian Bridge can be temporarily stored in the vicinity of the Tarpaulin Factory, which is currently protected by security fencing. SPC should ensure the boundary fencing is secure without any access along the stormwater channel (Cox's Creek). Depending on the location of temporary storage, additional fencing may be required for the Water Tank and Bridge if construction is carried out in their vicinity.

Once the ILC is fully operational, a permanent fence will be erected to separate the ILC operational area from the Community and Ecological Area. This should complete a perimeter security fence around the Community and Ecological Area, thus protecting the Interpretation area.

### 3.7.2 Pillar Water Tank

The OR report (CM+, October 2008) recommended that the Pillar Water Tank be stabilised and relocated to an area south of the Tarpaulin Factory. Hari Gohil of Shreeji Consultant, structural and civil engineers, has inspected and reported on the structural condition of the Tank, with specifications for its remediation contained in Appendix A. These measures may be subject to review and development during detail design. The need to stabilise the Pillar Water Tank prior to or after relocation will be determined during detail design. During ILC on-site demolition works the water tank will be protected in its original location with a wire mesh fence (Appendix C).

As part of the remediation of the Water Tank and before detailed inspection is commenced (as specified by Shreeji Consultant), all steel accessory items attached to the concrete structure are to be carefully removed without damage to the concrete fabric or the item to be removed. The items are to be treated for corrosion and applied with a protective coating as specified by Shreeji Consultant (Appendix A). Accessory items are to be safely stored, possibly in the Tarpaulin Factory, until their reinstatement to the Water Tank.

As indicated above, a suitable location for any temporary storage of the Water Tank structure is within the boundary fenced area, adjacent to the Tarpaulin Factory. Repairs and maintenance details are provided in Appendix A and D respectively.

Shreeji Consultant has recommended that the structure is repaired should temporary storage be required. This is to arrest the deterioration that has set in and to strengthen the upper part of the tank where the deterioration has gone through the tank walls. The tank is to be stored in a manner that protects its structure and does not compromise its heritage value. Once the above repairs are undertaken, a maintenance plan is to be implemented as detailed in Appendix D.

### 3.7.3 Tarpaulin Factory

The OR report (CM+, October 2008) recommended that the Tarpaulin Factory be stabilised to protect it from the weather. Hari Gohil of Shreeji Consultant, together with Garry McDonald of CM+ have inspected and reported on the structural condition of the Tarpaulin Factory. Stabilisation measures recommended by Shreeji Consultant and CM+ are contained in Appendix B. Stabilisation measures for the Tarpaulin Factory were agreed by the Heritage Office (HO) in HO's correspondence to SPC, dated 24 February 2009.

A demarcation fence across the railway line will be erected at the northern end of the building during rail line demolition works occurring in the vicinity of the building (Appendix C).

As a part of a Maintenance Plan a regular inspection schedule should be established by SPC, as outlined in Appendix D, to ensure the maintenance of the building in accordance with NSW Heritage Office guidelines of *Minimum Standards of Maintenance and Repair*. Although these measures are only applicable to State Registered items, it is recommended that they are applied to the identified heritage items as discussed in Section 5.3.

#### 3.7.4 Pedestrian Bridge

The OR report (CM+, October 2008) recommended that the Pedestrian Bridge is relocated to the area south of the Tarpaulin Factory and incorporated into the interpretation strategy, possibly as a viewing platform for the site if structurally adequate. Shreeji Consultant has provided specifications for stabilisation contained in Appendix A. These measures may be subject to review and development during detail design.

During demolition of the nearby Yard Master's Office and Administration Building, a fence is to be provided to each stairway of the bridge at its current location to prevent access. An existing fence around the Yard Master's Office and Administration Building will largely remain in place while this demolition takes place (Appendix C).

Prior to relocation, the bridge is to be carefully dismantled including accessory items. Before disassembly commences the contractor is to clearly tag each item and locate on a drawing so that the items can be reinstated in their correct original position. The contractor will provide the drawing to the SPC representative, to their satisfaction, before commencement of works. Accessory items are to be stored in the Tarpaulin Factory until their treatment and reinstatement on the Bridge.

Items on the bridge that can be removed and disposed of are:

- The corrugated sheeting;
- Various conduits and wiring;
- Flood and spot lighting;
- PA speakers;
- Adjacent timber power poles (no. 3).

All other items are to be retained as a part of maintaining heritage significance and as nominated in Appendix C. If any item is in doubt refer to CM+ for comment.

The contractor is to refer to the Hazardous Materials Survey Report by Noel Arnold & Associates (April 2008) for recommendations on the asbestos cement and lead paint referred to above.

If the bridge is to be re-used as a viewing platform (to be determined during detail design), remediation will be undertaken with the intent of conforming to current loading codes, as well as providing a new glazed balustrade conforming with the Building Code of Australia or as determined during detailed design.

If the bridge is to be stored temporarily for longer than a year before re-erection, Shreeji Consultant has advised a review of the structural steelwork to assess its condition. The bridge can be stored temporarily in the vicinity of the Tarpaulin Factory, on the north side, which is provided with a secure boundary fence. Although consideration may be given to storage of

items to the south of the Tarpaulin Factory, this may conflict with future landscape works that are likely to be carried out for the Interpretation area, as well as remedial works to the Tarpaulin Factory itself.

The steel work framing should be stored in a position, raised off the ground. The concrete slab to the bridge sections and the concrete treads to the stairs will be cast once a suitable location has been identified. The need to stabilise the bridge prior to or after relocation will be determined during detail design.

A regular inspection schedule should be established by SPC as outlined in Appendix D to ensure the maintenance of the structure in accordance with NSW Heritage Office guidelines of *Minimum Standards of Maintenance and Repair*.

### **3.7.5 Other Items**

Other items nominated for potential relocation for interpretation, including the turntable (to be determined during detailed design) and sand wagon, if successfully acquired by SPC, are to be inspected for surface deterioration due to rust and any other damage. Remediation will include for the use of a specified protective coating as nominated in Appendix A (Section 2: Steel Protective Paints and Coatings) or as otherwise determined during detail design.

The sand wagon can be moved to the railway line on the west side of the Tarpaulin Factory for inspection, and protective works ready for display. If relocated, the turntable will require inspection for any remedial works and will also be subject to a maintenance plan (Appendix D).

## 4.0 Heritage Interpretation Plan and Strategy

### 4.1 Interpretation Strategy

CM<sup>+</sup> have developed an Interpretation Plan and Strategy for the proposed ILC site that will transmit the story of the site to the community by embedding its history into the proposed built form and retained elements, so that an audience can learn about the site in an informal manner.

The main areas of the Strategy are described below and recommended locations shown on Figure 4.1:

- The use of the Pillar Water Tank as a 'draw card' for the site and as a starting point of entry into a landscaped area that leads to the bridge.
- Subject to detailed design, the pedestrian bridge can be used as an access point from the east, over the railway line, to the west. The pedestrian bridge can also be a viewing platform that will allow an audience to take in as much of the site as possible, thus providing context for the scale of the former marshalling yard as well as being able to locate the various items of interpretation in their original context.
- The installation of seven interpretative panels across the bridge at appropriate intervals:
  - Panel 1: as an introduction to the site, located adjacent to the top of the stairs;
  - Panel 2: Pillar Water Tank and bridge;
  - Panel 3: Tarpaulin Factory - the elevated location of this panel allows for an appreciation of the size and form of the building;
  - Panel 4: Yard Master's Office;
  - Panel 5: Administration Building;
  - Panel 6: Wagon Repair/Gantry crane/Roundhouses - located in proximity to the relocated DELEC turntable;
  - Panel 7: DELEC.

Figure 4.2 provides two sections proposing how the interpretative signage could be located on the pedestrian bridge. The signs are proposed to be made of anodised aluminium faced on to a stainless steel sheet for longevity.

Table 4.1 outlines the potential location, strategy and details of the way in which the significance would be physically communicated to the community by the Interpretation Plan. The location of the panels on the bridge is the preferred position, however an alternative location could be a high point adjacent to Punchbowl Road (Figure 4.1).

Figures 4.3 to 4.9 illustrate the preliminary design proposals for the interpretative panels prepared by CM<sup>+</sup> and provide conceptual images for how the story of the Enfield Yard is proposed to be conveyed to an audience. These may be subject to further refinement and design development including information contained therein, as well as confirmation of various salvaged items being made available for interpretation.

The proposal for the interpretation panels is that they are attached to rusted steel plates salvaged from the DELEC site, providing a robust 'industrial' background to each sign. If however the steel plates prove to be unsuitable, alternatives include:

- Corten steel – a steel plate that is purposely rusted;
- 'Axolotl metal' that supplies a range of decorative sheets that have the appearance of various rusted finishes;
- Copper mesh.



**Legend**

- SPC Boundary
- - - Area available for Interpretation



<b>Proposed Panels:</b>	P4 Wagon Repair Gantry/ Round Houses
P1 Site	P5 Yard Masters Office
P2 Pillar Water Tank/ Bridge	P6 Administration Building
P3 Tarpaulin Factory	P7 DELEC

*Figure 4.1 Interpretation Opportunities. Possible position of relocated items subject to detail design, including proposed Interpretative panels.*

*Note: the location of the bridge across the rail line assumes that the structure is strong enough to span the distance. The potential use of the bridge also assumes that it is strong enough to carry pedestrian traffic. The final location of the bridge and other relocated items within the area of interpretation, will be determined during detail design*

Source: Sydney Ports Corporation modified by CM\*

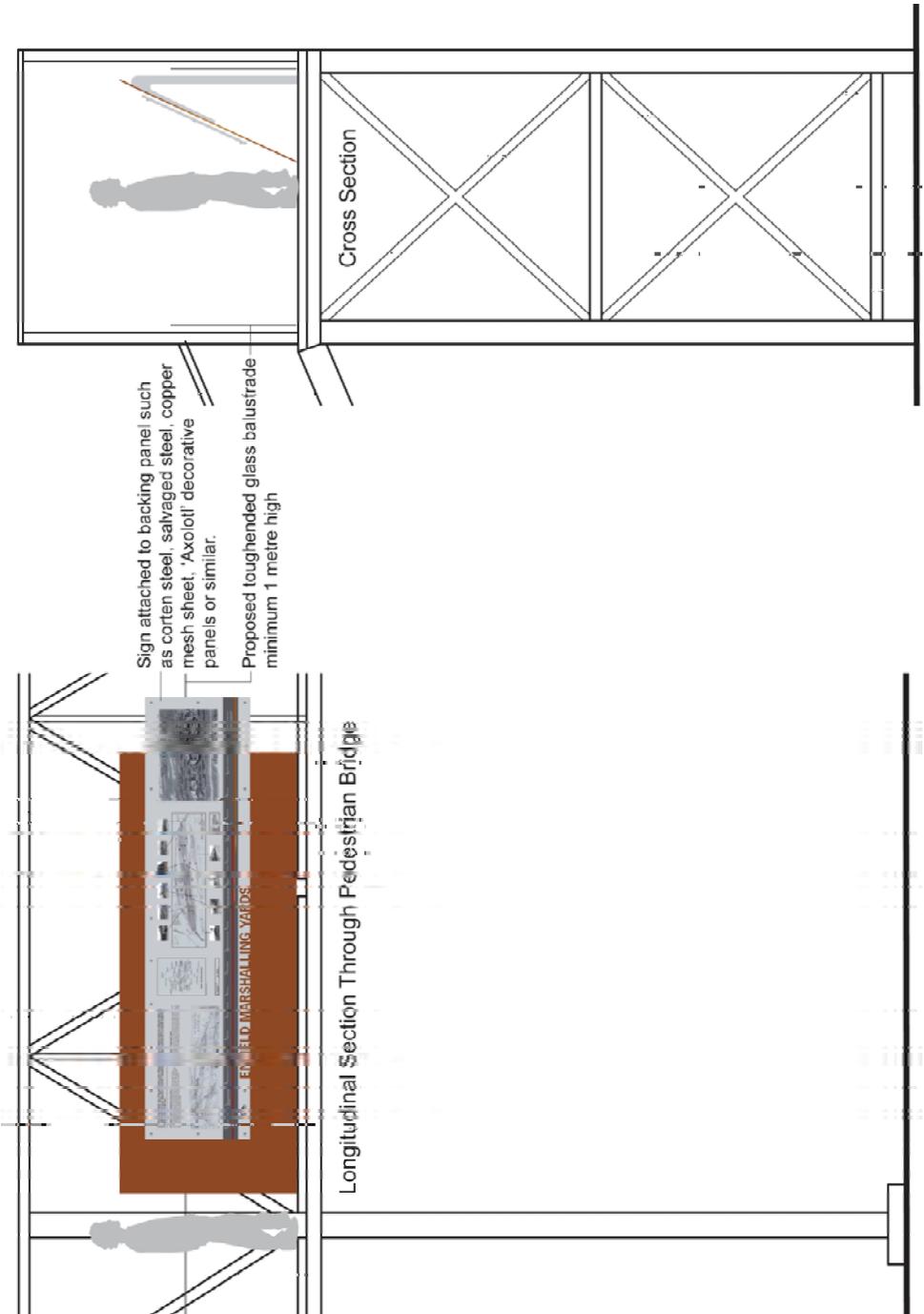


Figure 4.2 Interpretation Signage Sections.

## 4.2 Interpretation Plan

**Table 4.1: Interpretation Plan - Interpretation Panels**

Interpretation Panel	Strategy Theme	Interpretative Media/ Method (Proposed photographs in the panels are subject to availability and therefore some of them may be changed during the manufacturing of the panels)	Proposed Type of Panel (subject to detailed artwork design)	Figure
<b>Panel 1:</b> Enfield Site	To provide an overall concept of what the former Yard was and its function, history, why the land was selected for the Yard; phases of development	<ul style="list-style-type: none"> <li>▪ Provide a Timeline to reflect the history of the site and 3 main phases of technology: steam, diesel/electric and containerisation</li> <li>▪ Text of a quotation from a worker</li> <li>▪ Metropolitan goods line map to provide context for the Enfield Yard</li> <li>▪ Image of the site NSW Railways' drawing of the "New Marshalling Yard at Enfield" dated 1.5.1917</li> <li>▪ 1969 Signal drawing to illustrate the extent of railway lines and</li> <li>▪ Aerial photograph</li> <li>▪ Various historical photos</li> </ul>	<ul style="list-style-type: none"> <li>▪ Freestanding all-weather panel bolted to pedestrian bridge, mounted on salvaged steel plate or similar, facing north so audience can view the site</li> <li>▪ Anodised coloured aluminium panel on stainless steel</li> <li>▪ Approximate panel size: A0 x 3</li> </ul> <p>Note: if the bridge is not available for use as a viewing platform and the signs are located at ground level, then the panels (1-7) can be bolted to salvaged timber (from the Wagon Repair Shed)</p> <p>Note: all panels will be protected with an anti-graffiti coating, <i>UV Clearcoat</i> or similar</p>	Figure 4.3-4.6
<b>Panel 2:</b> Pillar Water Tank/Pedestrian Bridge	To provide an understanding of each functional use and its relationship in the Yard. The extant bridge was 1 of 2 known bridges on the site, but each was of a slightly different design	<ul style="list-style-type: none"> <li>▪ Provide original drawings of the Tank and Bridge to illustrate its construction and use</li> <li>▪ Historical photograph of the bridge</li> </ul>	<ul style="list-style-type: none"> <li>▪ Freestanding all-weather panel bolted to pedestrian bridge, mounted on salvaged steel plate or similar, facing in the direction of the water tank</li> <li>▪ Anodised coloured aluminium on stainless steel</li> <li>▪ Approximate panel size: A0</li> </ul>	Figure 4.8
<b>Panel 3:</b> Tarpaulin Factory	To provide an understanding of the purpose of the building and its constructional significance; Its history of relocation from Sydney Yard and therefore significance in the history of NSW railways	<ul style="list-style-type: none"> <li>▪ Provide historical drawing and obtain significant historical photograph from Thirlmere Museum</li> <li>▪ Provide current archival photos of the interior</li> <li>▪ Text on how the building functioned</li> </ul>	<ul style="list-style-type: none"> <li>▪ Freestanding all-weather panel bolted to pedestrian bridge. Mounted on salvaged steel plate, facing north so audience can view the building from a high point to appreciate its overall size</li> <li>▪ Anodised coloured aluminium on stainless steel</li> <li>▪ Approximate panel size: A0</li> </ul>	Figure 4.9

Interpretation Panel	Strategy Theme	Interpretative Media/ Method	Proposed Type of Panel (subject to detailed artwork design)	Figure
<b>Panel 4:</b> Wagon Repair Shed/Gantry Crane/Roundhouse	To provide an understanding of how some of the largest buildings of the Yard functioned and relate the use of turntables to the relocated turntable from DELEC	<ul style="list-style-type: none"> <li>Provide historical and archival photographs of the items</li> </ul>	<ul style="list-style-type: none"> <li>Freestanding all-weather panel bolted to pedestrian bridge. Mounted on salvaged steel plate, facing north so audience can view the original site</li> <li>Anodised coloured aluminium on stainless steel</li> <li>Approximate panel size: A0</li> </ul>	Figure 4.10
<b>Panel 5:</b> Yard Master's Office.	<p>To provide an understanding of how the Yard functioned and was run; what the personnel did.</p> <p>To illustrate the architecture and construction of the building and its functional use</p>	<ul style="list-style-type: none"> <li>Provide a historical photograph of the item at its 'height' as well as archival photos before demolition;</li> <li>1916 drawings of plans, elevations and details</li> </ul>	<ul style="list-style-type: none"> <li>Freestanding all-weather panel bolted to pedestrian bridge. Mounted on salvaged steel plate, facing north so audience can view the original site.</li> <li>Anodised coloured aluminium on stainless steel</li> <li>Approximate panel size: A0</li> </ul>	Figure 4.11
<b>Panel 6:</b> Administration Building	To provide an understanding of the purpose of the building and its relationship with the Yard Master's Office. Provide an understanding on its architectural influence	<ul style="list-style-type: none"> <li>Provide historical drawings and recent archival photos to illustrate its design before demolition</li> <li>Provide a photo of Dudok's Hilversum Town Hall</li> </ul>	<ul style="list-style-type: none"> <li>Freestanding all-weather panel bolted to pedestrian bridge. Mounted on salvaged steel plate, facing north so audience can view the original site.</li> <li>Anodised coloured aluminium on stainless steel</li> <li>Approximate panel size: A0</li> </ul>	Figure 4.12
<b>Panel 7:</b> DELEC	To provide an understanding of the purpose of the complex and its significance as a transition in technology	<ul style="list-style-type: none"> <li>Provide recent archival photos to illustrate its design and items on the site before demolition</li> </ul>	<ul style="list-style-type: none"> <li>Freestanding all-weather panel bolted to pedestrian bridge. Mounted on salvaged steel plate, facing north so audience can view the original site.</li> <li>Anodised coloured aluminium on stainless steel</li> <li>Approximate panel size: A0</li> </ul>	Figure 4.13

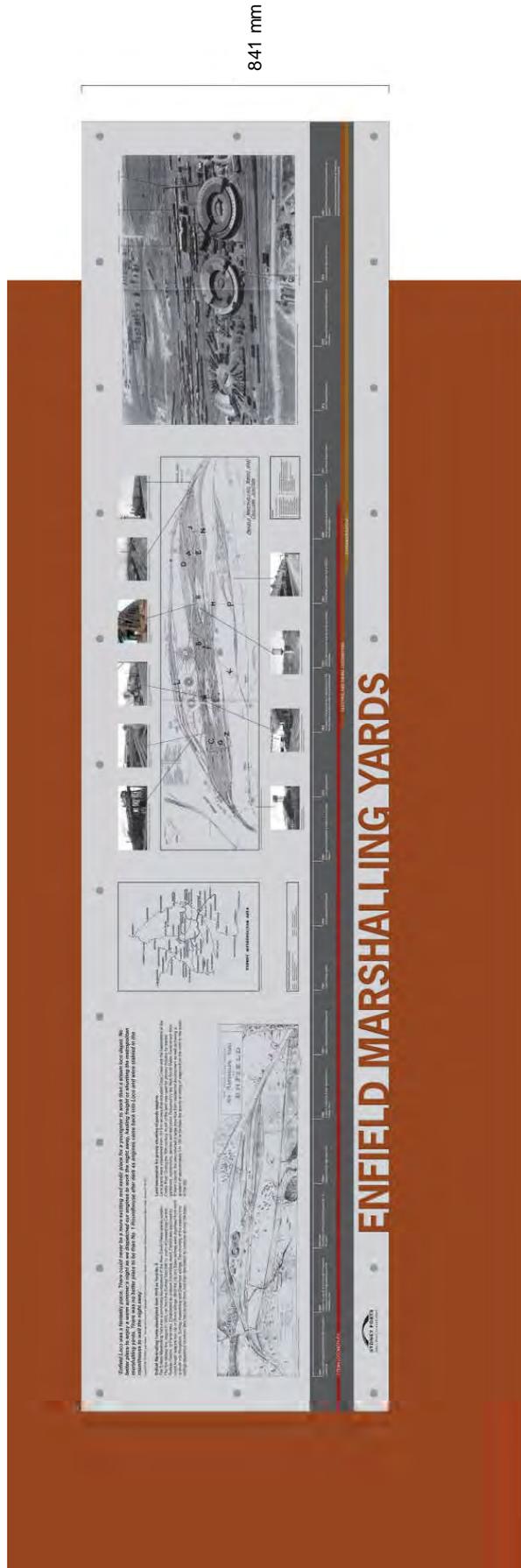


Figure 4.3 Site Panel 1. Refer to Figures 4.3-4.6 for details.

**'Enfield Loco was a fantastic place. There could never be a more exciting and exotic place for a youngster to work than a steam loco depot. No better place to enjoy a warm summer's night as we dispatched our engines to work the night away, hauling freight or shunting the metropolitan marshalling yards. There was no better place to be than No. 1 Roundhouse after dark as engines came back into Loco and were stabled in the roundhouse to wait the night away'.**

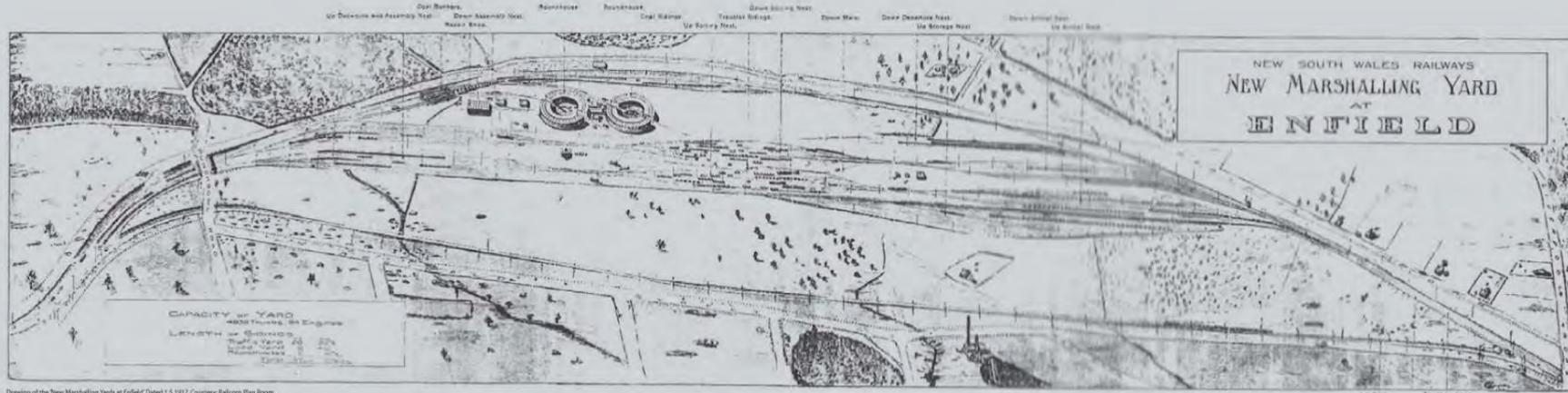
David Shield: 'Enfield's Last Steam, Through the Eyes of a Teenager Firing the Imagination'. Bulletin of the Australian Railway Historical Society, March 2006, Volume 57, No 821.

**Enfield Marshalling Yards established from 1916 as Yard No. 6**

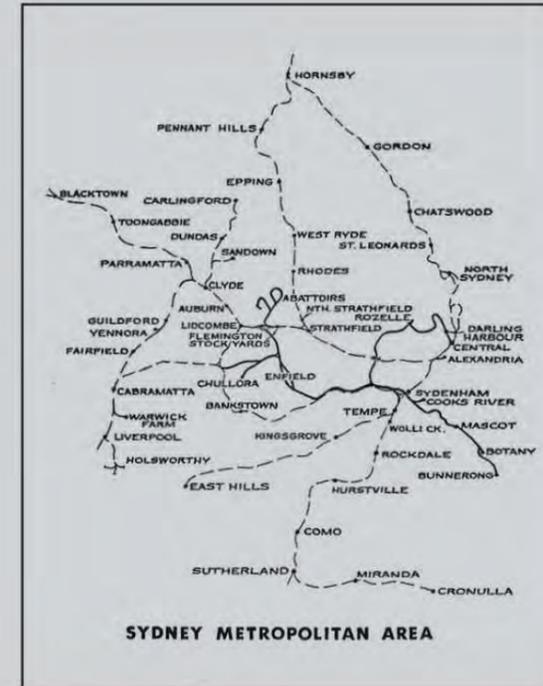
The Enfield Marshalling Yard was a continuing development of the New South Wales railway system. The first railway line, begun in 1855, ran from the Sydney Yard (No.1), south of present day Central Railway Station, to Parramatta. Established as a steam locomotive depot, Enfield was also used to shunt freight wagons into Up or Down sidings. Both the Up and Down sidings were organised from north to south into Reception, Sorting, Assembling and Departure sidings. The shunting of the wagons into sidings depended on where they had arrived from, and their destination to locations all over the state.

**Land resumption for gravity shunting of goods wagons**

Land grants were established from 1810 in an area that included Coxs Creek and the headwaters of the Cooks River. During the 19th century, much of the land was used for primary industry by market gardeners, woodcutters, tanners and dairymen. Resumed by the New South Wales Government from Enfield Council, the site provided a large area free from residential development as well as having a gradient of approximately 1 in 100 to facilitate the gravity shunting of wagons from the north to the south of the site.



Division of the New Marshalling Yards at Enfield. Dated 1.5.1917. Courtesy Railcross Plan Room.



Goods lines in 1965 (shown as solid line). Courtesy: ARHS.

Sequential Numbering of Locomotive Depots			
Yard No. 1	Sydney Loco Depot (re-established, 1855)	Yard No. 4	Bathurst Loco Depot
Yard No. 2	Broadmeadow Loco Depot	Yard No. 5	Junee Loco Depot
Yard No. 3	Goulburn Loco Depot	Yard No. 6	Enfield Yard (disestablished, 1916)

- 1915** Locomotive Depot established with the metropolitan goods line.
- 1916** Goods line opened from Campsie to Rookwood (Lidcombe) with the first western part of the marshalling yard.
- 1916/ 1917** Yard Master's Office and Roundhouses No. 1 & No.2 built.
- 1920s** Wagon and Carriage Depot built.
- 1925** Tarpaulin Factory built after relocation from Sydney Yard.
- 1927** Major central marshalling sidings built.
- 1934** Down' sidings added.
- 1948** Administration Building built.

**STEAM LOCOMOTIVES**

Figure 4.4 Site Panel 1 - Detail 1.

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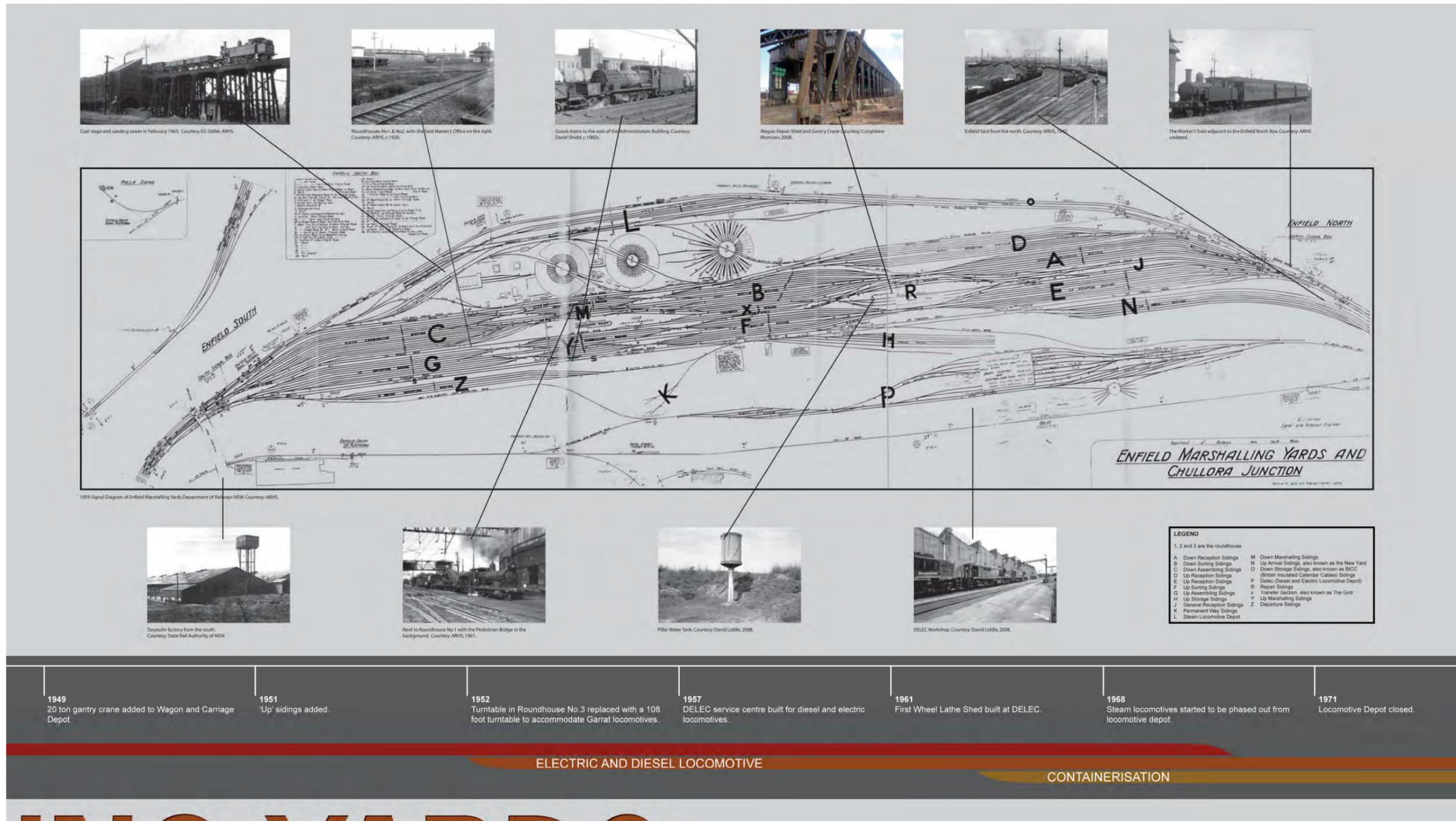
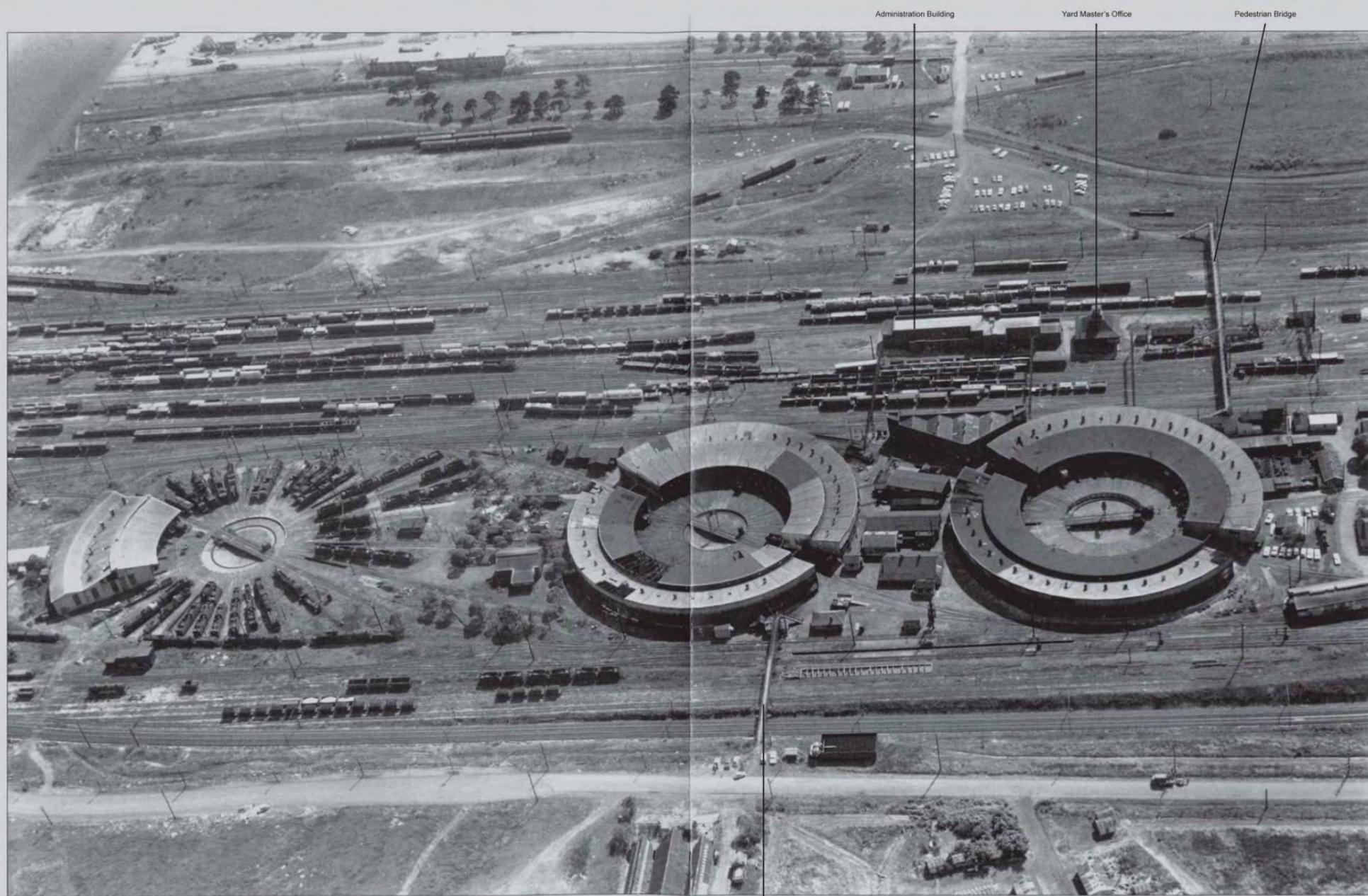


Figure 4.5 Site Panel 1 - Detail 2.

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Aerial view of the roundhouses from the west photographed in December 1969, with Roundhouses No.1, No.2 and No.3, from right to left. Courtesy: Dale Budd.

Wentworth Avenue Footbridge.

1972  
Rail Transport Museum.

1975  
Rail Transport Museum closed and transferred to Thirlmere.

1976  
Locomotive Depot demolished.

1985  
Second Wheel Lathe Shed built on western side of yard.

Yard divided into ownership entities for State Rail, Freight Corp, Rail Infrastructure Corporation.

Figure 4.6 Site Panel 1 - Detail 3.

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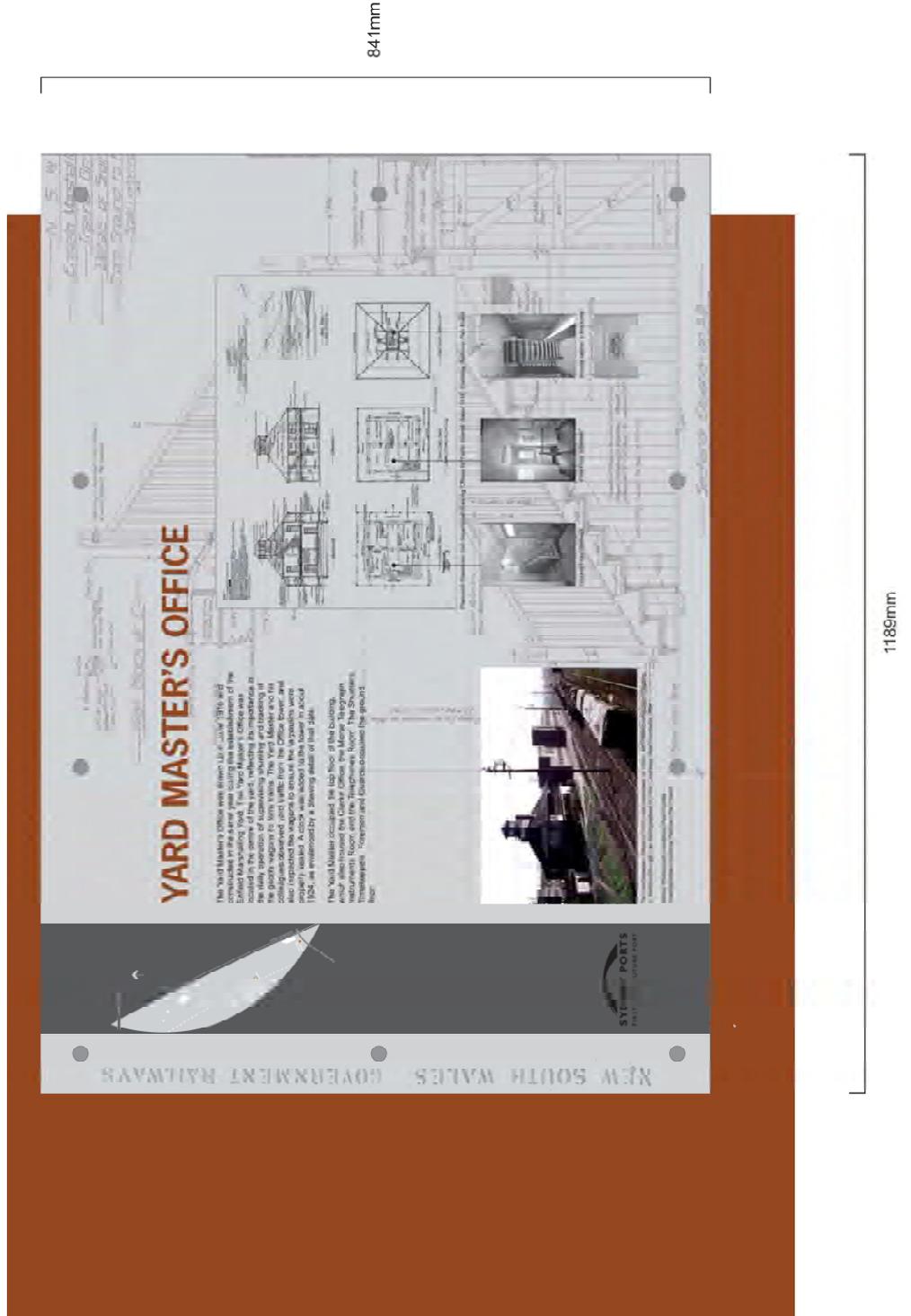


Figure 4.7 Indicative Panel with steel plate backing.

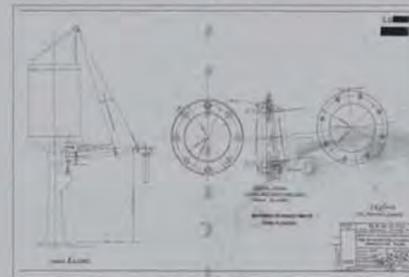
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## PILLAR WATER TANK

Pillar Water Tanks were also known as 'water columns' or 'parachute tanks'. The tanks usually consisted of a cylindrical shape in concrete or steel plate, mounted on a single column. Water tanks were known from the earliest years of steam powered locomotives, but gradually became redundant as steam power gave way to electric and diesel powered locomotives in the 1950s and 60s.

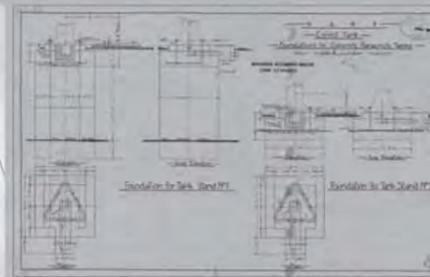
The Enfield tank may have been installed in about 1919, as indicated on the drawing 'Foundations for Concrete Parachute Tanks'. It was originally located in the centre of the Enfield Yard, north of the Wagon Repair Shed. This tank is the only surviving example of a Pillar Water Tank remaining in NSW.



Original drawing showing how the suspended job is attached to a parachute tank to deliver water to steam locomotives.



Courtesy: David Liddle, 2008.



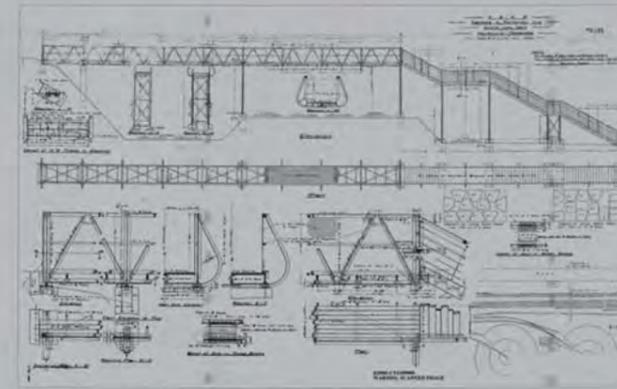
Original 1919 drawing of the substantial 'Foundations for Concrete Parachute Tanks', required to support a 4,000 gallon tank.

Original drawings courtesy: Railcorp Plan Room.

## PEDESTRIAN BRIDGES

This relocated pedestrian bridge is known as a 'through' bridge because the 'Warren' trusses on each side of the structure are connected with overhead cross bracing. A common bridge type found all over the state, the bridge was built c.1937 based on technology developed from the middle of the 19th century. This bridge originally provided access from Cosgrove Road to the Yard Master's Office and then on to the Roundhouses.

Another bridge was built in the Enfield Yard further to the west, completing the crossing from one side of the Yard to the other. Known as the Wentworth Street bridge, it is referred to as a 'Workmens Footbridge' on the drawing to the right.



Original drawing of 'Workmens Footbridge' dated 1920. This bridge connected the Yard with Wentworth Street to the west. Courtesy: Railcorp Plan Room.



The Wentworth Street footbridge, photographed in May 1949, from the north-west. Roundhouses No. 1 & No.2 are in the background on the left. Courtesy: ARHS 1949.



Engine 3638 passes under the Pedestrian Bridge, photographed in December 1968 from the north. Courtesy: David Shield.



Figure 4.8: Panel 2 for Pillar Water Tank and Bridge.

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NEW SOUTH WALES GOVERNMENT RAILWAYS



# TARPAULIN FACTORY

The Tarpaulin Factory was originally built in the Sydney Yard, just south of present day Central Railway Station, in about 1890. The cast and wrought iron structure was dismantled to make way for the city electric railway, and reconstructed at Enfield in 1925. The accompanying drawing shows the construction of the Tarpaulin Factory for its relocated position at Enfield.

The Tarpaulin Factory was primarily used to fabricate and repair tarpaulins that covered the goods wagons for protection. A variety of other railway fabric articles were fabricated here such as tool covers, flags, leggings, ticket satchels and manchester items.

One of the various processes that was carried out in the Tarpaulin Factory was the waxing of tarpaulin to achieve a degree of moisture resistance. This process was carried out in the 'wax dressing room', a steel structure at the north end of the building. This structure was also relocated from the Sydney Yard, as noted on the accompanying drawing, where it was known as the 'Fireproof Tarpaulin Store'.

The Tarpaulin Factory structure is significant in that it marks the transition in building technology during the 19th century from timber to steel, via the use of cast iron. The factory operated until 1991 after which tarpaulins for goods wagon coverings became redundant due to the transition to containerisation.



Cast iron columns and central gutter.



The waterproofing of tarpaulins using melted wax being carried out in the 'Fireproof Tarpaulin Store'.



Repairing Tarpaulins in the western half of the Factory.



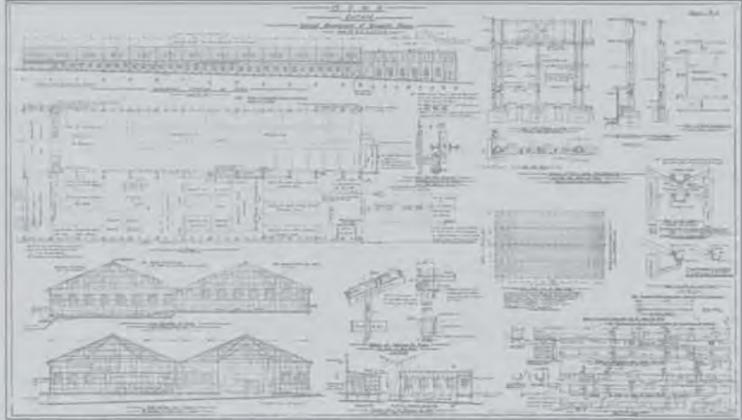
Stitching the edges of the tarpaulins.



Interior looking north.



Safety First' Industrial artwork on canvas.



c.1924 drawing of 'General Arrangement of Tarpaulin Shops'. Courtesy: Railcorp Plan Room.



Archival photography courtesy: David Liddle, 2008;

Figure 4.9: Panel 3 for Tarpaulin Factory.

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## WAGON REPAIR SHED/ GANTRY CRANE

*'In the depot, the men, the locos, the roundhouses and the equipment we used were all unique. Nowhere outside this fraternity would you find these jobs or this technology. And our time of relevance was quickly ebbing away.'*<sup>1</sup>

The Wagon Repair Shed was originally used as a Transhipment Shed, where goods were transferred from one train to another in parallel. It was later used as a wagon repair shed with the addition of a gantry crane in around 1947.

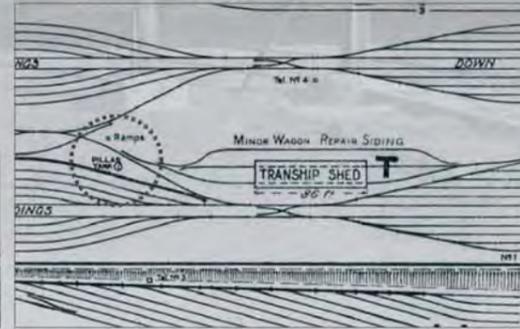
<sup>1</sup> David Shield, ARHS Bulletin, March 2006.



Gantry Crane control cabin.



Gantry Crane and Wagon Repair Shed from the south.



Wagon Repair Interior.



Wagon Repair Shed from the north-east.



Gantry Crane from the West.

Archival photography courtesy: David Liddle, 2008.

## ROUNDHOUSES

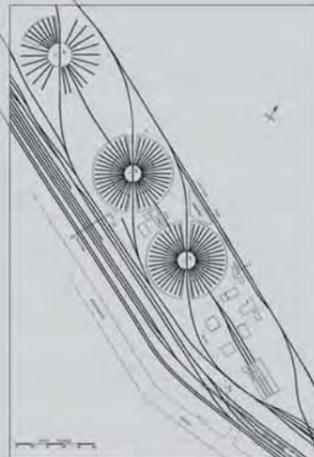
*'At times, the roundhouses seemed a grim place of fire and darkness. On any night, the fitters used flare lamps to supplement the meagre overhead electric lights.'*<sup>2</sup>

Roundhouses No.1 and No.2 were built with the establishment of the Enfield Marshalling Yard in 1916 to house the steam locomotives. Roundhouse No. 3 was built later in 1919. They each had a central turntable to facilitate the movement and efficient accommodation of the locomotives within the roundhouse.

Before electrification the turntables were operated manually. Roundhouse No.1 had a turntable of 90 feet, No.2 a turntable of 75 feet, while No.3 eventually had a replacement turntable of 108 feet. No.3 was also known as the 'bullring' and was only partially covered.

*'In the depot we still used the tools, techniques and technology from last century. But surely that was the allure of a steam depot. Where else could you find hostlers, washout men and sand burners? We were the last bastion of a previous age. A living anachronism.'*<sup>3</sup>

<sup>3</sup> David Shield, ARHS Bulletin, March 2006.



The 'bullring' and Roundhouse No.2 in the background, with the Yard Master's Office at the top left. Courtesy: CC Singleton. Undated, pre 1940s.



Roundhouse No.1 looking north in the early 1920s when the turntable was operated manually. Courtesy: AHRS.



Roundhouses No. 1 and No. 2 with the Yard Master's Office c.1920. Courtesy: ARHS.



Roundhouse No.3, the bullring and the 108' turntable with Garratt locomotives. Courtesy: Graham Evans. Early 1960s.

Figure 4.10: Panel 4 for Wagon Repair/Gantry Crane and Roundhouses.

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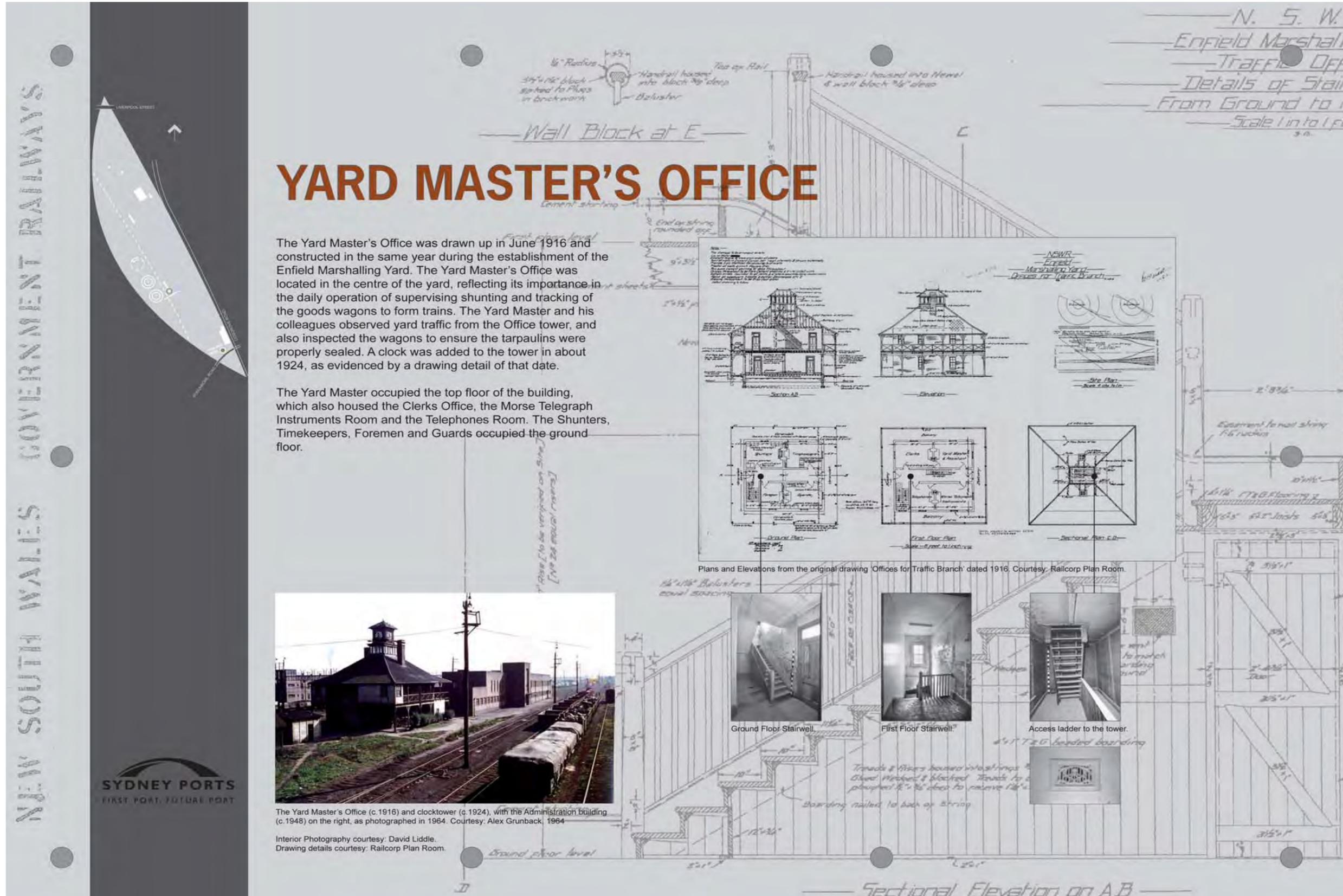


Figure 4.11: Panel 5 for Yard Master's Office.

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NEW SOUTH WALES GOVERNMENT RAILWAYS

ADMINISTRATION BUILDING

The Administration Building was built after World War II in about 1948, and was likely to have replaced the Yard Master's Office as the main office accommodation. The floor plans refer to offices for Yard Controller, Train Delay Clerk and a large area provided for the shunters', porters' and guards' locker rooms. The floor plan also indicates the changing functions of the original 'Yard Controller's' offices.

The Administration Building is of interest as the design has been influenced by inter-war Dutch architecture, notably that of Willem Dudok's Hilversum Town Hall. The brickwork style is characterised by the use of asymmetrical block massing with strong horizontal parapet roof lines. A distinctive first floor control room at the north end has curved glazing and brickwork.

Goods train shunting to the east of the Administration building.  
Courtesy: David Shields, c. 1960s.

Right: Hilversum Town Hall  
Architect: Willem Dudok. Courtesy: Garry McDonald.

North-west

North elevation showing curved glazing and brickwork.

South-east with Yard Master's Office in foreground.

Original Drawings by the Department of Railways NSW, Way and Works Branch. Dated 1948.  
Courtesy: Railcorp Plan Room.

Detail photographs along east elevation.

Main stairwell.

Archival photography courtesy: David Liddle, 2008.

Figure 4.12: Panel 6 for Administration Building.

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NEW SOUTH WALES GOVERNMENT RAILWAYS




# DELEC

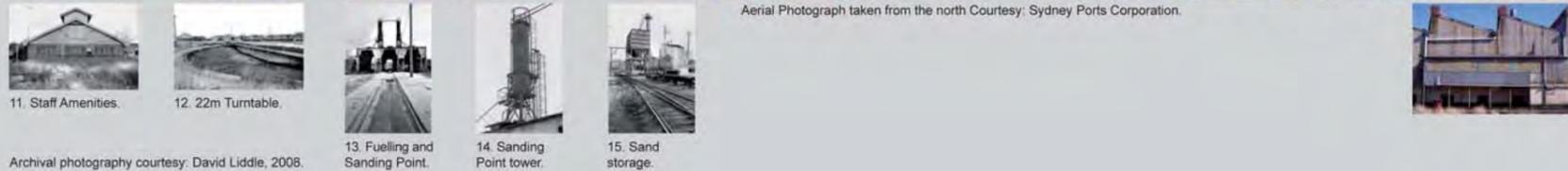
The Diesel-Electric Locomotive Depot (DELEC) was purpose built in 1957 to service the newly introduced non-steam locomotives. Roundhouse No. 2, which was previously used for maintenance, was not suitable for maintaining non-steam locomotives. Located in the north east of the Enfield Yard, the main structure was a Maintenance Workshop 100 metres long x 60 metres wide. Constructed with a saw tooth truss system, the roof incorporated a smoke exhaust system for the removal of diesel fumes, as well as providing natural light from the south.

In the Wheel Lathe Shed, a significant advance in work practice occurred because the locomotive bogies were able to be serviced without the need to remove the wheels.

DELEC also contained a 22 metre turntable, sanding towers and refuelling points. The sanding towers were used to provide dried sand that was stored in the locomotives, and could be dispensed onto the tracks when slippery.



Aerial Photograph taken from the north Courtesy: Sydney Ports Corporation.



Archival photography courtesy: David Liddle, 2008.

Figure 4.13: Panel 7 for DELEC.

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## 5.0 Implementation

The implementation of this Heritage Interpretation Plan and Strategy follows on from the recommendations of the OR (CM+, October 2008) report as referred to in Section 1.7 of this report. It includes for ongoing management of the site and for the items contained within.

### 5.1 Implementation of the HIPS

In terms of the existing items that have been identified for retention or relocation, and fulfilling Project Approval requirements for interpretation:

- 1 SPC is to ensure protection of the Pillar Water Tank, Pedestrian Bridge and Tarpaulin Factory during demolition, construction and operation works on the ILC site (Appendix C and D).
- 2 SPC is to obtain a reduced level survey within the Community and Ecological Area, for the proposed location of the Water Tank, Pedestrian Bridge and Turntable. Ensure engineering review of the footing design of the Water Tank, Pedestrian Bridge and Turntable based on the final location of each item.
- 3 Design development of the Interpretation area including for final item location, building code compliance, extent of public access and preparation of a landscaping brief. This also includes for the final location of interpretation panels and selection of a backing plate material and fixing details. Salvaged materials from the Wagon Repair Shed are to be assessed for re-use in the Interpretation area.
- 4 Engagement of a landscape architect to provide a sketch design in conjunction with design development of No. 3 above. Production of contract documents for tender and construction.
- 5 SPC to carefully remove nominated accessories from the Pillar Water Tank and Pedestrian Bridge for treatment and later reinstatement when the items have been relocated (refer to Sections 3.7.2 and 3.7.4). The retention of accessories is important to maintaining heritage significance.
- 6 SPC to relocate the Pillar Water Tank and Pedestrian Bridge, including for their remediation, suitable for interpretation (Appendix A).
- 7 SPC to relocate as possible, items of interest such as the DELEC turntable (relocation to be determined during detail design), sand wagon (subject to acquisition by SPC), and other available items (eg. timber panelling from the Wagon Repair Shed), including for their assessment for remediation and protection.
- 8 SPC to commission a suitably qualified company for final development and artwork preparation of the interpretation panels, including for the sourcing of original photographic images and drawings in digital format where available. SPC to organise copyright clearances and liaise with the author/supplier of the digital images for approved attribution.
- 9 Liaison with a suitably qualified and preferred sign manufacturer to confirm artwork suitability for manufacture. Obtain quotations based on the finished artwork and panel specifications.
- 10 Manufacture of the signs and delivery to site for installation by a nominated contractor.
- 11 Management of the interpretation area with the implementation of a Maintenance Plan including inspection cycle for all the interpreted items, as well as for the associated landscaped area. The Maintenance Plan is to include security measures for protection against vandalism and graffiti.
- 12 SPC is to stabilise the Tarpaulin Factory for weather protection and safety (Appendix B).
- 13 In accordance with Conditions of Approval 2.34, any proposal to destroy, modify, redevelop, relocate or otherwise physically affect the Tarpaulin Factory, except for agreed

stabilisation works, will be the subject of further assessment and approval in accordance with the Environmental Planning and Assessment Act 1979

- 14 In consultation with the Heritage Office and the community, options for the reuse of the Tarpaulin Factory at its present site will be investigated. Only if on-site reuse is found to be unachievable or unacceptable will consideration be given to its relocation offsite to a railway heritage museum or demolition.

## 5.2 Ongoing Management of the Interpretation Site

Management of the Interpretation Area and its heritage items should include for:

- The establishment of a Maintenance Plan that includes for a cyclic inspection program tailored to each structure (Appendix D), and the formulation of a budget to provide for adequate funds to carry out regular maintenance that will prevent rapid deterioration of the heritage structures. SPC to ensure minimum standards of maintenance and repair as required under the Heritage Act (Section 5.3 below).
- SPC to establish and maintain an archive with records of maintenance, photographs and other material that relates to the site.
- SPC to implement a security plan to ensure protection of the items from vandalism (Appendix D, Table D.1).
- SPC to obtain ongoing advice from suitably qualified personnel for monitoring the maintenance of the Tarpaulin Factory.
- Subject to further investigations and feasibility of the possible reuse of the Tarpaulin Factory, SPC to comply with statutory requirements and approvals for any future adaptive re-use.

## 5.3 Minimum Standards of Maintenance and Repair

In order to ensure heritage significance is maintained, the NSW Heritage Office, in a 1999 amendment to the Heritage Act, requires owners of items listed on the State Heritage Register, to achieve minimum standards of maintenance and repair in the following areas:

- Weather protection
- Fire Protection
- Security
- Essential Maintenance and Repair

Although the Tarpaulin Factory and Water Tank are not formally listed on the State Heritage Register, they have been identified as of State significance by Graham Brooks and Associates. Therefore it is recommended that the following measures are carried out, based on the Heritage Office minimum standards, and pertaining to a potential listing of an item of state significance. The exception to this is the installation of fire detection equipment, which is a measure to be considered in the future as noted below under Clause 5.3.3.

### 5.3.1 Inspections

The standard requires that inspections are carried out as a minimum, yearly for weather protection, fire protection and security, and at least every 3 years for essential maintenance and repair. An inspection schedule for the Water Tank, Tarpaulin Factory and Pedestrian Bridge has been provided in Appendix D that incorporates the following protection requirements.

### 5.3.2 Weather Protection

The standard requires that all elements of the exterior envelope of a building have to be protected, and in the case of stormwater drainage systems, properly maintained and functioning. The standard also has requirements for unoccupied buildings in terms of blocking

up all openings, including where there is intended to be doors and windows. Appendix B details the remedial works necessary to upgrade and maintain the stormwater system of the Tarpaulin Factory as well as other required protection.

These minimum standards for weather protection are to be incorporated into a regular inspection schedule as listed in Appendix D.

### 5.3.3 Fire Protection

The standard outlines measures for the prevention of fire by the removal of potential fire hazards such as rubbish and vegetation (Appendix D).

Additional fire protection measures for unoccupied buildings include for:

*Permanent or temporary smoke detection systems must be installed with associated communication systems connected to the Fire Brigade and, if the building will be unoccupied for a period of 6 months or more, provided with a permanent power supply.*<sup>14</sup>

The Tarpaulin Factory in its present state is empty of any items and contains little that is of flammable material. The structure of columns and roof trusses is largely metal and the external wall lining is also of metal. There is no power to the building and therefore to carry out the above additional fire protection measure at the present time would be at a considerable cost. As the Tarpaulin Factory is not formally listed on the State Register, there is no legal requirement for this measure to be implemented, although it is recommended that consideration is given to this particular safety measure in the future.

### 5.3.4 Security

The standard outlines measures to secure the building, particularly from vandalism (Appendix D). Additional security measures for unoccupied buildings (greater than 60 days):

*If no electronic surveillance or alarm system is installed, arrangement must be in place for regular surveillance of the building, work or relic, as appropriate to its nature and location.*<sup>15</sup>

### 5.3.5 Essential Maintenance and Repair

The standard outlines where essential maintenance and repairs are required including measures to control pests such as termites, as well as structural components and the fabric of the building (Appendix D). Thus the need to identify deterioration and potentially serious problems with regular inspections. It is more cost effective to have regular ongoing preventative maintenance rather than the larger costs of repair work as a result of rapidly deteriorated structure and fabric that has not been attended to when the problem first appeared.

### 5.3.6 Conservation Management Plans

The standard refers to exceptions that may be applicable if there is a Heritage Council endorsed conservation management plan. In the case of the State significant items, the Tarpaulin Factory and Water Tank, this does not apply as there are no CMP's for either item.

<sup>14</sup> NSW Heritage Office, Minimum Standards of Maintenance and Repair, Clause 9E

<sup>15</sup> *ibid*, Clause 9G

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## 6.0 Conclusion

This Heritage Interpretation Plan and Strategy will fulfil its stated objectives (Section 3.2) as well as the Conditions of Approval of the Minister of Planning (No. 6.3c). Items of State significance are to be stabilised and conserved, and in the case of the Pillar Water Tank and Pedestrian Bridge, relocated to the southern area of the ILC site for interpretation.

The implementation of the Heritage Interpretation Plan and Strategy in conjunction with the development of the 'Community and Ecological Area', will maximise the communication of the heritage significance of the former Enfield Marshalling Yard to the public and create a valuable heritage facility for the community.

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## 7.0 References

Graham Brooks and Associates: *Assessment of Heritage Impact, Proposed Intermodal Logistics Centre at Enfield, European Heritage Assessment*. 2005

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## Appendices

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## **Appendix A**

### **Shreeji Consultant**

Structural remediation drawings and specification  
for the Pillar Water Tank and Pedestrian Bridge

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## **Appendix B**

### **Conybeare Morrison** Stabilisation Works to the Tarpaulin Factory

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## ENFIELD TARPAULIN FACTORY

### Stabilisation Works

#### 1.0 Generally

- Clean out all gutters that are not being replaced.
- Test stormwater system for blockages.
- Install new grated drain or a 'V' drain across the south end of the building including excavation and battering back of the ground level from the edge of the building – refer plan.
- Where noted on the drawing as 'F', flash the window head by ensuring the overlapping of the corrugated sheet above the window with the sheet covering the window below.
- Where the hole in the roof is not greater than 12mm, a silicone resin can be applied instead of a roofing sheet.

#### Schedule of Rates:

Provide the following rates for the purpose of calculating variations

Item	Works	Unit	Rate (including all costs and overheads)
1	Installation of a corrugated galvanised roofing sheet	1 sheet width wide x 7 metres long	\$
2	Installation of a corrugated polycarbonate sheet to a window opening	1 sheet per opening 2 x 1.2 metres	\$

#### 2.0 External Works (cross reference to drawing)

Item	Works	Grid
	<b>East Section - Roof</b>	
	Note: the new roofing and walling material shall be corrugated galvanised sheeting to match existing profile; new guttering and downpipes shall be galvanised unless noted otherwise The contractor is to take into account the existing roofing consists of 2 sheet lengths from ridge to gutter Contractor to ascertain the exact location of holes on site	
1	Replace all corrugated acrylic sheeting with new corrugated polycarbonate sheeting approx. 3000 x 1800 long (4 sheets wide)	
2	Allow 1 sheet to cover hole	E/F2
3	Re-sheet and re-fix opening with new roofing from ridge to gutter x 4 sheets wide	D/E5
4	Allow 1 sheet to cover hole	E6
5	Allow 1 sheet to cover hole (1 each on both sides of ridge)	E7
6	Re-sheet roof of central room above box gutter level- allow 8 sheets 2000 long. Re-sheet north end gable	C/D8-9
7	Re-sheet section of roof with holes, between cast iron columns – allow 3 sheets	C/D8
8	Allow 2 sheets to cover 2 holes	D/E10-11
9	Replace sheeting 2000 wide over 4 purlins	D/E11
10	Re-fix sheet	E/F 13-14
11	2 sheets to cover 2 holes in north annexure roof	E 17-19
12	Re-fix sheet	C/D 13

Item	Works	Grid
<b>West Section - Roof</b>		
13	Cover hole with sheet from ridge	A/B 12
14	Cover holes at mid span along middle purlin fixings	A/B 11
15	Replace rusted internal gutter for approx. 8m length	C 10/11
16	Cover hole at bottom of wall with corrugated sheet 400x400 (internal)	A12
17	Cover holes at mid span along middle purlin fixings	A/B 9
18	Re-fix wall sheets at bottom (internal)	A 9
19	Generally cover holes	A/B 1 to 9
20	Replace sheets from ridge to gutter x 2 sheets wide	B/C 5
21	Replace sheet for the length of 3 purlins	B/C 4
22	Replace a sheet for the length of 4 purlins and re-fix adjacent sheet	B/C 2
23	Cover hole	C 2
24	Cover holes from mid span purlin fixings to gutter	A/B ½
<b>South Wall</b>		
D1	Clear away and reduce the ground level along the length of the south wall and install a stormwater drain from the south-east corner of the building to the west adjacent to the railway line. Exact route of the line determined on site	A/F 1
S1	Cover opening with corrugated sheet, approximately 1800h x 450w	C/D 1
S2	Connect downpipe/rainwater head to stormwater	C/D 1
S3	Replace missing barge capping approx. 12m	C/E 1
S4	Cover wall sheeting hole	F1
S5	Cover opening for approx. 8m with corrugated roofing sheet secured against the weather	B/C 1
S6	Replace missing barge capping approx. 6m	A/B 1
S7	Cover 3 windows with corrugated sheet approx. 2000h x 1.3m	A/B 1
S8	Cover hole in barge capping	A1
<b>West Wall</b>		
W1	Replace gutter for the full length of the building and connect to DPs	A 1-14
W2	Cover all window openings with corrugated polycarbonate sheet (allow 2000h x 1200w – ensure weather protection at window head with overlap of sheeting)	A 1-14
W3	Reinstate approx. 2m length of DP	A2
W4	Re-fix sheet at bottom for 1.3m	A6
W5	Re-fix sheet at bottom for 1m	A8
W6	Re-connect DP elbow at cast iron base	A10
W7	Re-connect DP elbow at cast iron base	A11
W8	Replace DP full height - 100ø	A12
W9	New DP full height – 75ø	Grid 12
W10	New quad gutter – approx. 16m	Grid 12-14
W11	New DP full height – 75ø	Grid 14
W12	Replace broken elbow PVC at base	A14
W13	Replace quad gutter and DP – approx. 12m	Grid A
<b>North Wall of Tarpaulin Factory</b>		
N1	Replace barge capping – approx. 3m	A14
N2	Cover window opening	A/B14
N3	Cover holes to north gable	C/D 14

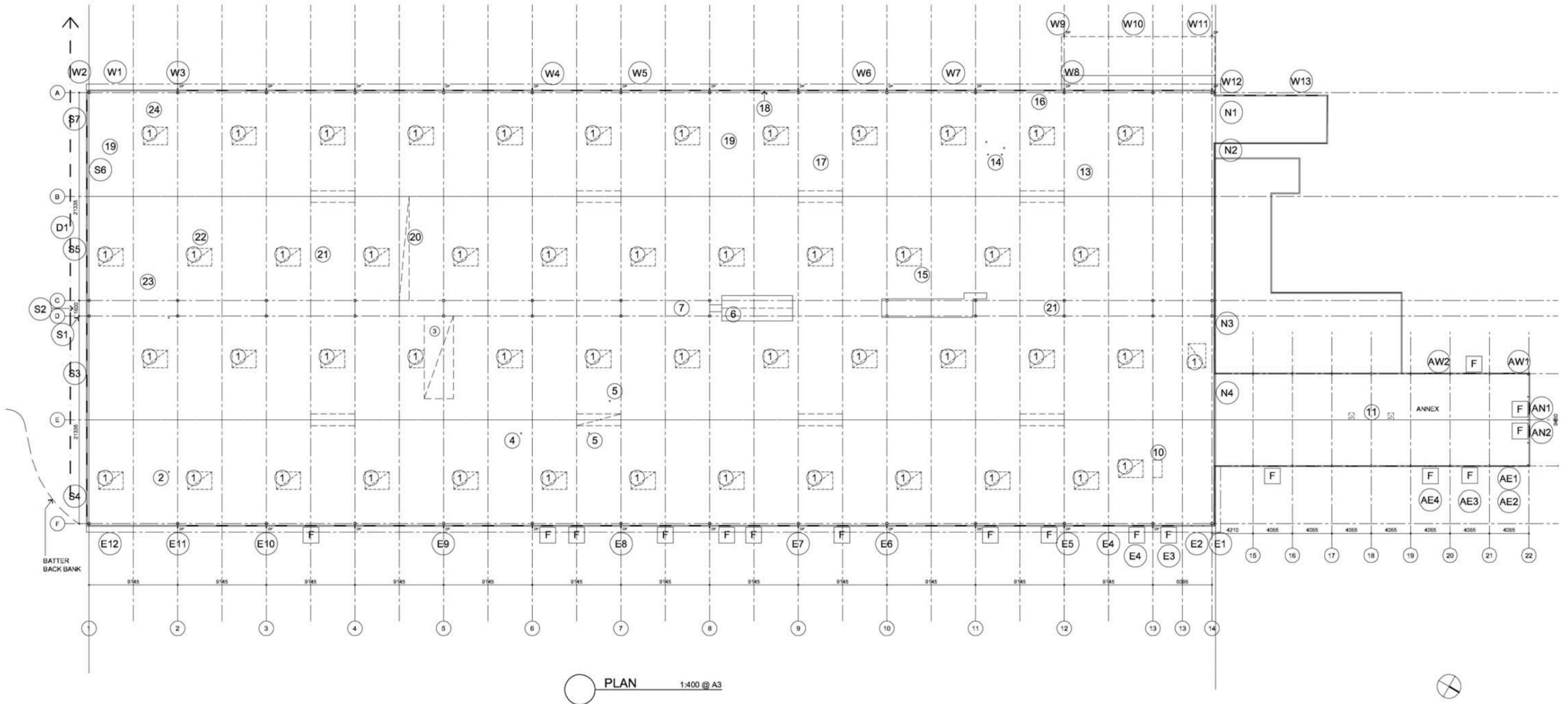
Item	Works	Grid
N4	Cover barge capping - approx. 2m	C/D 14
	<b>Annex west</b>	
AW1	Replace guttering and connect to DPs – approx. 37m	Grid 14-23
AW2	Allow to cover approx. 6 holes at high level	Grid 19-20
	<b>Annex north</b>	
AN1	Flash over window heads to bottom windows	E23
AN2	Cover over broken glass to upper window – 2 panes	E23
	<b>Annex east</b>	
AE1	Replace guttering and connect to DPs – approx. 37m	Grid 14-23
AE2	Replace DP – 75ø and connect to stormwater	Grid 22
AE3	Fix new sheet x 2m high	Grid 20-21
AE4	Cover holes in sheeting over window	Grid 19-20
	<b>East Wall</b>	
	Note: gutter to be checked for complete replacement	
E1	Re-connect DP at base	F14
E2	Remove beehive at top opening	F14
E3	Replace 5m length of rusted gutter	F13-14
E4	Re-fix sheet for proper head flashing	F12-13
E5	Re-fix sheet at top	F12
E6	Re-connect DP at top	F10
E7	Remove beehive at top opening	F9
E8	Replace rusted DP connection at gutter	F7
E9	Replace rusted DP connection at gutter	F5
E10	Clear blocked DP	F3
E11	Replace rusted DP connection at gutter	
E12	Replace horizontal DP for 10m length and reconnect to gutter	F1-2

### 3.0 Internal Works (Shreeji Consultant recommendations)

Internal works will be undertaken once SPC has undertaken feasibility studies and consultation regarding the future of the Tarpaulin Factory and a final use determined. The scope of the internal works will also be reviewed at this time of determined use. Weather protecting the building (external works) will alleviate further internal deterioration.

Item	Works	Grid
	<b>Mid Term Stability (3 - 5 years)</b>	
1	<b>Roof Trusses and Columns</b>	
	Clean all steelwork of dust and debris using high-pressure air and mist spray (the dust is collecting moisture and affecting the steel)	
	<b>Long Term Stability</b>	
1	Clean all existing steelwork of loose and flaking paint and protect it with rust inhibiting primer and a coat of protective paint as per engineer's specification. Existing paintwork is to be tested for lead contamination before any removal of paint is carried out	
2	Install a suitable floor or an interim alternative method, such as polythene sheet, to minimise the drying out of the foundations. The method shall be confirmed with Shreeji Consultant after the external stabilisation of the building	

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Date	Description	Issue
20.11.08	Draft	A



## **Appendix C**

### **Conybeare Morrison Heritage Protection Plan**

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# INTERMODAL LOGISTICS CENTRE ENFIELD HERITAGE PROTECTION PLAN

## 1.0 Introduction

As part of the former Enfield Marshalling Yard, the ILC site at Enfield is an area of heritage significance. There are a number of items that require protection during site preparation works, construction works and during ILC operation (Figure C.2):

- Pillar Water Tank
- Pedestrian Bridge
- Tarpaulin Factory

Other items of interest may also be nominated by the SPC's Representative for protection and as directed.

The Pillar Water Tank and the Pedestrian Bridge will be relocated to a Heritage Interpretation area located within the Community and Ecological Area at the southern end of the site following completion of detailed design (refer to Figure 4.1 of HIPS).

The phases during which the Heritage Protection Plan will be implemented comprise:

- protection of items in their original locations during demolition and any remediation and construction activities that may occur in their vicinity;
- protection of items during storage (including any temporary storage), subsequent to any removal from the original location but prior to installation in their final location within the Heritage Interpretation Area;
- protection of items subsequent to installation in the Heritage Interpretation Area during construction and operation of the ILC.

Details of the required protection measures during these phases are outlined in the sections below. Stabilisation works and maintenance requirements for the Tarpaulin Factory are detailed in Appendix B and Appendix D respectively. Stabilisation works for the Pedestrian Bridge and the Pillar Water Tank are provided in Appendix A.

## 2.0 Protection of Items in Original Locations during Site Works (eg. Demolition Phase)

The Contractor with control of the site is responsible for the protection of the Pillar Water Tank and the Pedestrian Bridge while still in their original locations, as well as the Tarpaulin Factory (which is not subject to relocation under the Minister's conditions of approval) during demolition works and any other works that may occur in the vicinity of the items prior to relocation. The responsible Contractor must erect and maintain heritage protection fences, to the satisfaction of the SPC representative, before and during demolition, remediation or construction work occurring in the vicinity of the item. The Contractor with control of the site is responsible for the maintenance of the heritage protection fences, and for ensuring that site personnel do not compromise or damage the identified items.

As a part of site induction the responsible contractor is to inform all staff and sub-contractors that the above listed items have heritage significance and must be protected. The required protection for each item is described in the following sections.

### **2.1 The Pillar Water Tank**

Maintain a buffer zone of 5 metres from the tank with the erection of a temporary fence 1.8 metres high around the tank.

### **2.2 Pedestrian Bridge**

Close off the stairs at each end of the bridge with a 1.8 metre high temporary fence to prevent access up the stairs.

Access to the Administration Building and Yard Master's Office (located to the north of the pedestrian footbridge) by demolition machinery will generally be via the access road to the north of the Administration Building (refer to Figure C.2). It is intended that demolition machinery will not need to pass by the pedestrian footbridge during demolition works. All works required for the demolition of the Administration Building and Yard Master's Office will be undertaken within the existing wire mesh fence surrounding the two buildings, or otherwise separated by a demarcation fence between the Yard Master's Office and the Pedestrian Bridge.

### **2.3 Tarpaulin Factory**

The responsible Contractor is to install a demarcation fence across the railway tracks at the northern end of the Tarpaulin Factory to ensure that no demolition machinery are able to access the Tarpaulin Factory area. The final position of the fence is to be determined on site in consultation with SPC's Representative. This demarcation fence is to remain in place during construction and until approval is obtained from the SPC Representative for its removal.

### **2.4 Wagon Repair Shed**

The Contractor is required to retain a number of timber sections (number to be determined in consultation with SPC) following the demolition of the Wagon Repair Shed. Selected undamaged timber sections will be transported to the area south of the Tarpaulin Shed for the purpose of further heritage interpretation.

## **3.0 Protection during Temporary Storage of items**

There may be a time interval between the removal of the Pillar Water Tank and Pedestrian Bridge from their current locations and reinstatement in their final positions while the Heritage Interpretation Area is being prepared. Temporary storage of these items may therefore be required.

### **3.1 Pillar Water Tank**

A suitable location for temporary storage of the Pillar Water Tank would be within the vicinity of the Tarpaulin Factory, which is currently protected by security fencing. SPC should ensure that the boundary fencing is maintained and secure to prevent any access from the Coxs Creek stormwater channel. Additional temporary fencing may be required for the Water Tank if construction is carried out in its vicinity.

The OR report (CM+, October, 2008) recommended that the Pillar Water Tank be stabilised and relocated to an area south of the Tarpaulin Factory. Hari Gohil of Shreeji Consultant, structural and civil engineers, has inspected and reported on the structural condition of the Tank, with detailed specifications for its remediation contained in Appendix A. These measures may be subject to review and development during detail design.

Steel accessory items dismantled from the Pillar Water Tank are to be carefully removed without damage to the concrete fabric or the accessory item to be removed. The items are to be treated for corrosion and applied with a protective coating as specified by Shreeji Consultant (Appendix A). Accessory items are to be safely stored, possibly in the Tarpaulin Factory, until their reinstatement to the Water Tank.

Shreeji Consultant has recommended that the structure is repaired should temporary storage be required. This is to arrest the deterioration that has set in and to strengthen the upper part of the tank where the deterioration has gone through the tank walls. The tank is to be stored in a manner that protects its structure and does not compromise its heritage value. Once the above repairs are undertaken, a maintenance plan is to be implemented as detailed in Appendix D.

### **3.2 Pedestrian Bridge**

A suitable location for temporary storage of the Pedestrian Bridge would also be within the vicinity of the Tarpaulin Factory, which is protected by security fencing. SPC is to ensure the fencing is maintained and secure. Although consideration may be given to storage to the south of the Tarpaulin Factory, this may conflict with future landscape works that are likely to be carried out for the Interpretation area, as well as stabilisation works to the Tarpaulin Factory itself.

Depending on the location of temporary storage, additional temporary fencing may be required for the Pedestrian Bridge if construction is carried out in its vicinity.

Shreeji Consultant, structural and civil engineers, have prepared detailed specifications for stabilisation of the Pedestrian Bridge which are contained in Appendix A. These measures may be subject to review and development during detail design.

Prior to relocation, the bridge is to be carefully dismantled including accessory items. Before disassembly commences the contractor is to clearly tag each item and locate on a drawing so that the items can be reinstated in their correct original position. The contractor will provide the drawing to the SPC representative, to their satisfaction, before commencement of works. Accessory items are to be stored in the Tarpaulin Factory until their treatment and reinstatement on the Bridge.

Items on the bridge that can be removed and disposed of are:

- The corrugated sheeting;
- Various conduits and wiring;
- Flood and spot lighting;
- PA speakers;
- Adjacent timber power poles (no. 3).

All other items are to be retained as a part of maintaining heritage significance including the following (refer Figure C.1):

- Steel lamp posts with curved tops (no. 3);
- All ceramic insulators and associated metal fittings attached to the bottom of the walkway. The contractor is required to tag and remove the insulators and supports to prevent breakage;
- Timber and steel balustrades to the walkway and stairs, including timber balusters and newel posts (note lead paint);

- Metal electrical boxes and hanging rods (no. 4) (allow for the appropriate removal of the asbestos cement backing boards).

If the contractor does not remove accessory items before relocation, they are to demonstrate how those items are to be protected without damage, to the satisfaction of the SPC representative. This qualification does not include the insulators, which are required to be removed for protection. If any item is in doubt refer to CM+ for comment.

The contractor is to refer to the Hazardous Materials Survey Report by Noel Arnold & Associates (April 2008) for recommendations on the asbestos cement and lead paint referred to above.

If the bridge is to be stored temporarily for longer than a year before re-erection, Shreeji Consultant has advised a review of the structural steelwork to assess its condition. The steelwork framing should be stored in a position, raised off the ground. The need to stabilise the bridge prior to or after relocation will be determined during detail design.



Figure C.1 Image of Pedestrian Bridge with items that are to be salvaged, treated and then reinstated when the bridge is in its final location  
Source: CM+

### 3.3 Wagon Repair Shed

If the selected timber sections from the Wagon Repair Shed require temporary storage they can be located to the south of, or inside, the Tarpaulin Factory. The timbers should be stored off the ground in a dry location to deter termite infestation.

### **3.4 Other Items**

The sand wagon (if acquired by SPC from PN) can be moved to the existing railway line on the west side of the Tarpaulin Factory. If relocated, the turntable can be temporarily stored near the Tarpaulin Factory.

### **4.0 Protection of Items in the Heritage Interpretation Area**

Following completion of the detailed design of the Heritage Interpretation area, the items will be relocated, installed and stabilised in accordance with the designs and methodologies provided in Appendix A of the HIPS and any modifications of these methodologies developed during detailed design. Maintenance of the items will be carried out in accordance with Appendix D of the HIPS.

#### **4.1 Construction Phase**

If landscaping works involving heavy machinery are required in the Heritage Interpretation Area once the items have been permanently relocated in this area, then the protective fencing requirements discussed in Section 2 for the Pillar Water Tank and the Pedestrian Bridge will be applied to the works.

If works elsewhere at the site occur once the items have been relocated to the Heritage Interpretation Area, no machinery associated with these works will be allowed to enter the Heritage Interpretation area. Given the physical separation between the Heritage Interpretation Area and the actual ILC site, no further protection measures are required. Existing boundary fencing will be maintained around the southern part of the site until permanent fencing has been installed.

The Tarpaulin Factory will be stabilised as part of the works to protect it from the weather in accordance with the measures provided in Appendix B of the HIPS. As outlined in Appendix D of the HIPS, a maintenance plan including a regular inspection schedule will be established by SPC.

#### **4.2 Operation**

Prior to the commencement of full operation of the ILC, a permanent perimeter security fence will be erected around the Community and Ecological Area, including the Heritage Interpretation area, to separate it from the ILC operational area. Maintenance requirements are detailed in Appendix D of the HIPS.

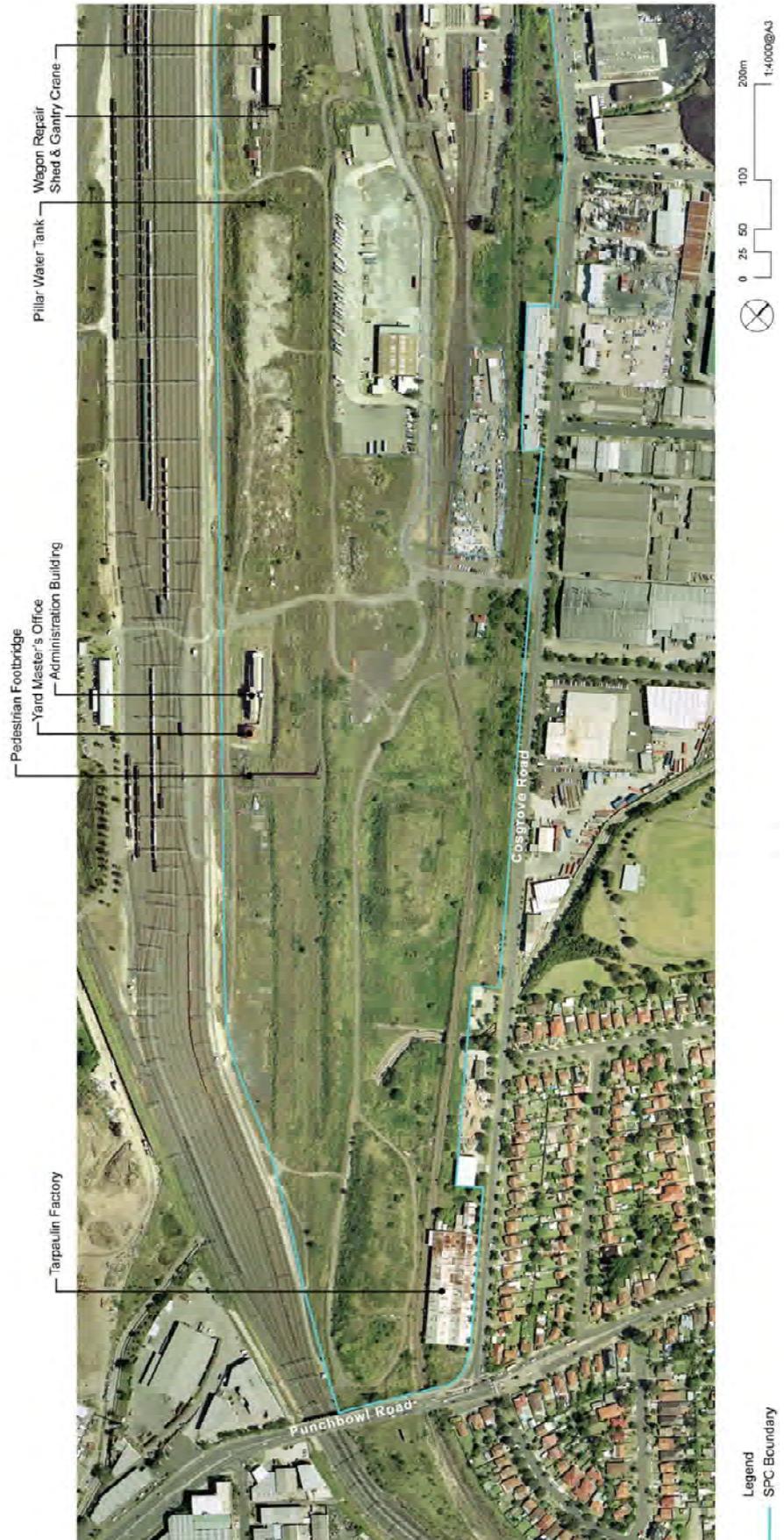


Figure C.2 Aerial image of South section of the ILC site

## Appendix D

### **Conybeare Morrison**

#### Maintenance Inspections

- D.1 Community and Ecological Area
- D.2 Pillar Water Tank
- D.3 Tarpaulin Factory
- D.4 Pedestrian Bridge
- D.5 Turntable, Sand Wagon and other items

## MAINTENANCE INSPECTIONS

### 1.0 Introduction

The following tables contain maintenance inspections for heritage items based on Heritage Office statutory requirements for items on the State register. None of the items however are formally listed on the Heritage Office Register. Two items, the Pillar Water Tank and Tarpaulin Factory, have potential for listing at the State level, and therefore the inspections listed below are recommended for the long term maintenance of these items. Maintenance tables have also been prepared for other items as this is necessary for their protection and longevity.

**Table D.1 Security Inspections for the Community and Ecological Area**

Element	Inspect for	Frequency
<b>Property protection</b>		
Generally (Passive security)	Inspect all perimeter fencing and gates for the whole area of the site including pad locks	6 months

**Table D.2 Maintenance Inspections for the Pillar Water Tank**

Element	Inspect for	Frequency
<b>Weather protection</b>		
Generally	Inspect the structure for any signs of cracking or deterioration of the concrete surface	yearly
Steel items	Inspect steel attachments for any signs of rust	2 years
Foundations and footings	Inspect for any movement or subsidence	3 years
Exterior	Close inspection from access equipment for drummy concrete and signs of concrete spalling	10 years
Interior	Interior signs of water leakage and constant dampness	10 years

Note: where drummy concrete has been found, the concrete should be repaired as soon as possible. Reinstate the protective coating where repairs have taken place.

**Table D.3 Maintenance Inspections for the Tarpaulin Factory**

Element	Inspect for	Frequency
<b>Weather protection</b>		
Generally	Interior signs of water leakage	yearly
External cladding & roof	Lifting sheets, holes signs of water leakage	yearly
Roof cappings	Missing sections, lifting edges	yearly
Gutters, rainwater heads	Lifting flashings, blocked outlets, rust	yearly
Stormwater drainage lines	Check for blockage, broken lines	yearly
Cover sheets to windows and doors	Lifting or vandalised sheets; ensure they are secured against high wind	yearly
Surface and sub-surface drainage systems	Check for blockage, broken lines and ensure surface water flows away from the building perimeter	yearly
General exterior	Check adjacent trees for potential falling branches in high wind	yearly

Element	Inspect for	Frequency
Lightning conductor	Check for the existence of a lightning conductor and its condition	yearly
External openings	Ensure all openings are boarded up and secure	yearly
Exterior ground levels	Ensure ground line does not encroach up the exterior walls	2 years
<b>Fire Protection</b>		
Generally	Remove any vegetation or rubbish that may be a fire hazard; keep the site clean of accumulated rubbish	yearly
Services	Ensure any gas or heating service is turned off at the mains	
<b>Security</b>		
Fencing and gates	Check all fencing is secure and repair any holes or any signs of vandalism; check all pad locks	yearly
Boarded windows and doors	Check the openings are secure and repair any holes or any signs of vandalism	yearly
Surveillance	Ensure regular surveillance of the building as a part of security 'rounds'	
<b>Essential maintenance and repair</b>		
Pest control	Inspect for termites, rodents, birds and bee infestation	yearly
Foundations and footings	Inspect for any movement or subsidence	5 years
Structural elements	Inspect wall structure, columns, beams and trusses	5 years
Steel structure	Engineering inspection for corrosion	10 years

**Table D.4 Maintenance Inspections for the Pedestrian Bridge**

Element	Inspect for	Frequency
<b>Weather protection</b>		
Generally	Inspect the steel structure for any signs of rusting or cracking of the concrete walkway and steps	yearly
Concrete walkway	Inspect drainage holes for any blockage	2 years
Timber balustrades	Inspect for termites or rot as well as support fixings	2 years
Foundations and footings	Inspect for any movement or subsidence	3 years
Accessory attachments	Inspect for rusting connections between the light poles, insulator connectors	5 years
Steel structure	Using access equipment, close inspection of the steel components, particularly of the joints and the soffit of the concrete walkway	10 years

If any part of the structure is found to have deteriorated, repair any damaged paint, coating and concrete.

**Table D.5 Maintenance Inspections for the Turntable (if relocated), Sand Wagon and other items**

Element	Inspect for	Frequency
<b>Weather protection</b>		
Generally for steel elements	Inspect the steel structure for any signs of rusting or cracking, particularly at the joints	2 years
Foundations for turntable	Inspect for any movement or subsidence	3 years
Other items	Generally as above	3 years

## Appendix E

Relocated Items from the ILC site  
Information provided by SPC

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**Items that have been relocated from the former Enfield Marshalling Yard/ILC site before demolition works carried out in 2008-09****RailCorp's heritage rolling stock storage facility at Broadmeadow**

- Turntable control cabin including the cabin, internal controls and drive mechanism of the turntable (but not including the turntable itself or the turntable pit components).

**NSW Rail Transport Museum (Valley Heights Locomotive Depot Heritage Museum)**

- Pallet rack originally located eastern end Maintenance Shed Building 1;
- Turntable locating bars (x2) on Turntable Pit 5;
- Air reservoir originally located adjacent to Wash Shed Building 17;
- Service Platforms (x2) inside Building 18B;
- Sand Bin located adjacent to Car Park 32.

**Dorrigo Steam Railway & Museum**

- RACE 20' Shipping Container originally located between buildings 18B and 18C;
- Overhead Wiring Structure Portals (not including overhead wiring) from various locations within the DELEC area;
- Water Tank - 3 panel tank originally located within the DELEC car park;
- Wagon Lifting Cradle originally located on the western upright of the gantry crane.