

## 5. Proposal description

### 5.1 Existing configuration and rail operations

As described in section 1.5, the NSRU proposal is located in the vicinity of North Strathfield and Concord West stations in Sydney's inner west, approximately 11 kilometres west of the Sydney CBD. The majority of the works are proposed within and adjacent to the existing rail corridor, between Parramatta Road and Homebush Bay Drive on the Main North Line (the railway line between Strathfield and Newcastle). Minor RailCorp services relocation/upgrades are also proposed within the rail corridor to the south of Parramatta Road along the Goods Loop to the Homebush Main Signal Box and north of the main proposal area, between Concord West and Rhodes.

This section outlines the existing track and station configuration at the site, including rail movements. In the following description and figures, use of the term 'Up' refers to the direction of travel towards Central Station (or tracks that travel in that direction), and 'Down' refers to the direction of travel away from Central Station (or tracks that travel in that direction).

#### 5.1.1 Track configuration

Figure 5.1 shows the existing (and proposed) configuration of tracks between Parramatta Road and Homebush Bay Drive. The rail corridor between Parramatta Road and Homebush Bay Drive currently comprises three operational tracks:

- The **Up Main** (easternmost operational track) is used by passenger trains (both fast and slow) travelling towards Central Station. Freight trains currently use the Up Main north of Concord West Station; although, under the current configuration, freight trains are required to cross the Down Main north of Concord West Station in order to get onto the Down Relief. This can take approximately six to seven minutes to complete from the moment the southbound freight train is given clearance to the moment northbound passenger trains are given clearance to continue their journey.
- The **Down Main** (central operational track) is used by passenger trains travelling towards Hornsby.
- The **Down Relief** (westernmost operational track) is used mainly by freight trains.

Freight trains travelling in both the Up (southern) and Down (northern) directions use the Down Relief between the Goods Loop (the railway loop linking the Main North and Main West Lines) and Concord West. The bidirectional Goods Loop is used by freight trains travelling between Homebush Station and the Main North Line.

To the east of the operational tracks is a currently disused track (Up Relief) that runs along the eastern edge of the rail corridor between Concord West Station and Parramatta Road.

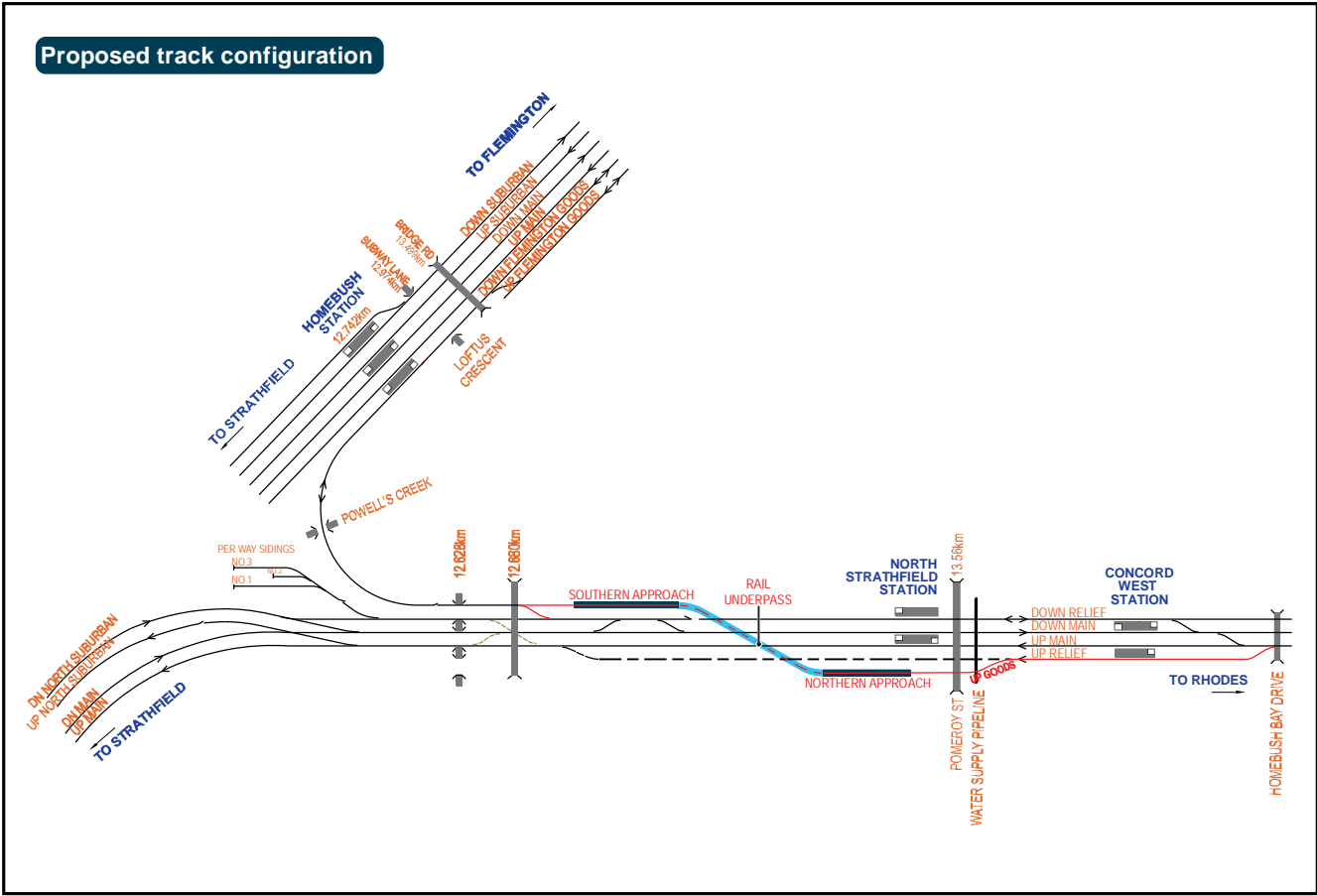
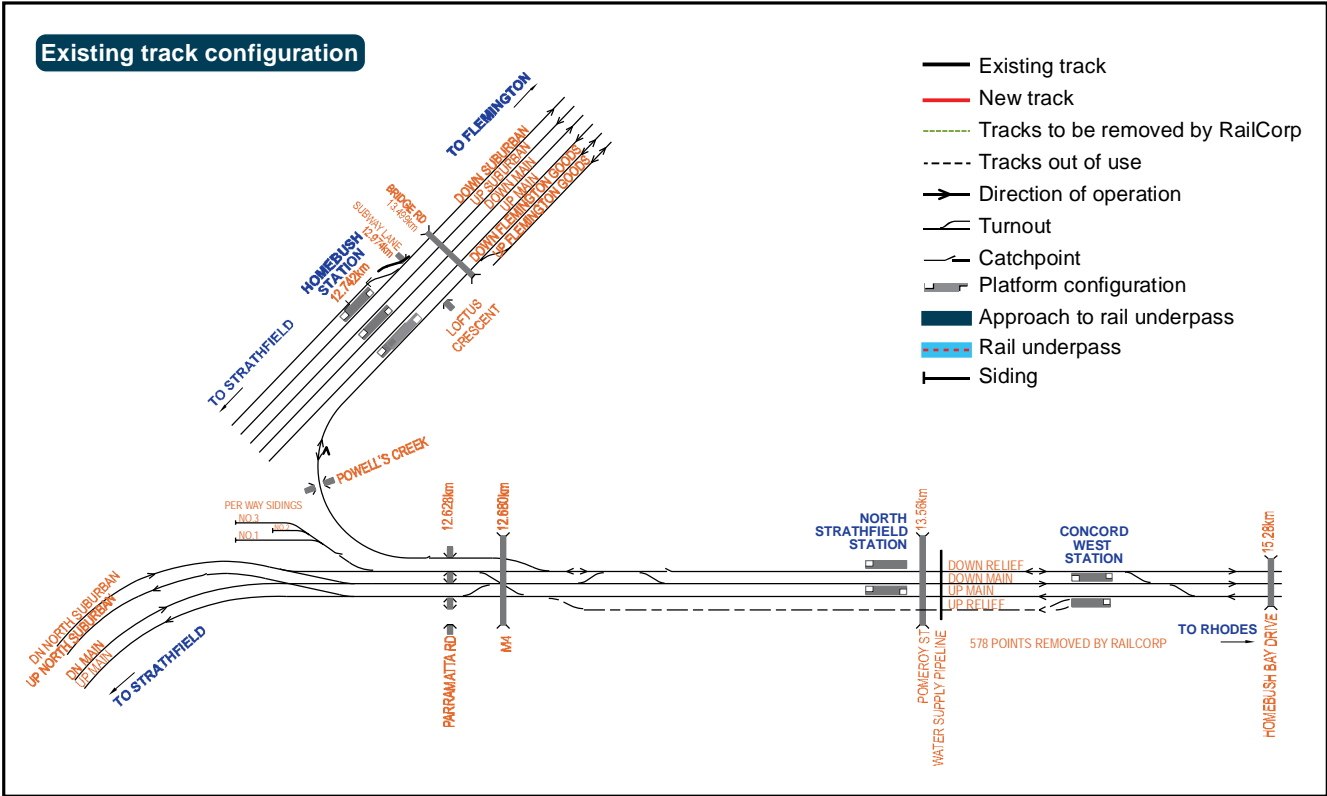


Figure 5.1 Existing and proposed track configuration

## 5.1.2 Rail movements

Table 5.1 outlines the existing (2009) passenger and freight rail movements along the Main North Line in the vicinity of the NSRU proposal.

**Table 5.1 Existing average daily train movements along Main North Line**

| Daily freight train movements <sup>1</sup> |                         |       | Daily electric (diesel) passenger train movements <sup>1</sup> |                         |          |
|--|-------------------------|-------|--|-------------------------|----------|
| Day time <sup>2</sup>                      | Night time <sup>2</sup> | Total | Day time <sup>2</sup>  | Night time <sup>2</sup> | Total    |
| 11   | 9                       | 20    | 207 (10)   | 50 (0)                  | 257 (10) |

Notes:

1. Train movements quoted are trains per weekday period.
2. Day time = 7am to 10pm; Night time = 10pm to 7am.

## 5.1.3 Stations

North Strathfield Station and Concord West Station are located within the proposal area.

North Strathfield Station has three platforms. Platforms 1 and 2 are located on an island platform (a two-sided platform with running tracks on either side), and are used for passenger services travelling in both directions (Up and Down respectively). Platform 3 is a single-faced island platform located on the Down Relief. This platform is used occasionally for passenger services.

Concord West Station has three platforms. Platform 1 is a single-faced platform located to the east of the Up Main, and used by passenger services travelling towards the Sydney CBD (in the Up direction). This platform is directly accessible from Queen Street via an at-grade access point. The ticketing facilities and station office are located on the footbridge, although a single ticket machine is located on Platform 1. Platforms 2 and 3 are located on an island platform, with Platform 2 used by passenger services travelling towards Hornsby (in the Down direction). Platform 3 is used occasionally for passenger services. Platforms 2 and 3 are not currently accessible to less mobile passengers.

## 5.2 Physical description of the proposal

### 5.2.1 Overview of the proposal

As described in section 1.3 and shown on Figures 1.2a, 1.2b and 1.2c, the NSRU proposal involves a range of infrastructure improvements to remove existing operational impediments that currently prevent the corridor from operating at the levels required to meet future demand for freight services.

A detailed description of the design components associated with the NSRU proposal is provided in sections 5.2.2 to 5.2.9.

## 5.2.2 Track configuration

The NSRU proposal would include the construction of approximately three kilometres of track (both new track and refurbished track). The proposed track work, as shown in Figure 5.1, includes:

- construction of new track as an extension to the currently disused Up Relief (to be reinstated, see dot point below) from Homebush Bay Drive to the south of Concord West Station
- reinstatement and upgrade of 850 metres of the existing disused Up Relief between Concord West Station and Pomeroy Street overbridge
- construction of a driven tunnel (underpass) beneath the existing tracks within the corridor, including approaches on both sides of the corridor (to be referred to as the 'Up Goods')
- construction of new track on the Down side between the southern entrance to the underpass and the Goods Loop.

## 5.2.3 Station works

### North Strathfield Station

The proposed alignment for the northern approach to the rail underpass conflicts with positioning of the existing pier for the North Strathfield Station pedestrian bridge. To remove the need to construct a pier adjacent to the Up Relief, a cantilevered support structure would be installed atop the eastern northern approach wall. This cantilevered structure would then support the existing bridge structure. The existing pier would then be removed once the cantilever structure is supporting the bridge.

Figure 5.2 shows a cross-section of the new support structure positioned over the proposed northern approach to the rail underpass.

The support structure would be constructed primarily of precast concrete to minimise the amount of construction required on-site and to provide an aesthetically pleasing finish and shape to the structure. Anti-climb screens would be provided on the structure to reduce the safety risk.

### Concord West Station

The construction of the new Up Relief to the east of Concord West Station would result in the loss of the at-grade access to the existing Up Main platform (currently Platform 1). The new Up Relief would also affect the supporting structure of the existing elevated (aerial) concourse.

Due to the above impacts, the NSRU proposal involves construction of a new elevated station concourse in the middle of the existing platforms (at their widest point), to the south of the existing concourse. The positioning of the access would ensure efficient and safe circulation on the platform, as well as the required standard clearances.

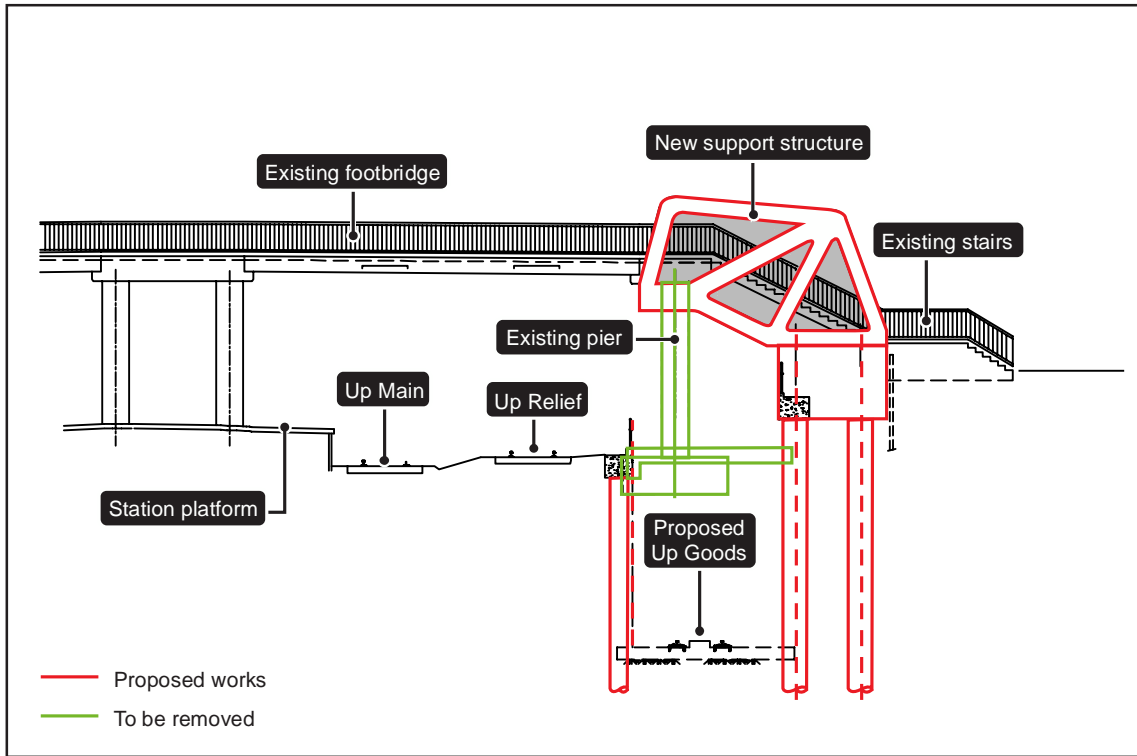


Figure 5.2 North Strathfield pedestrian footbridge

Note: Indicative only, subject to detailed design.

Figure 5.3 shows the proposed layout of the new Concord West Station concourse.

The new concourse would contain the following facilities:

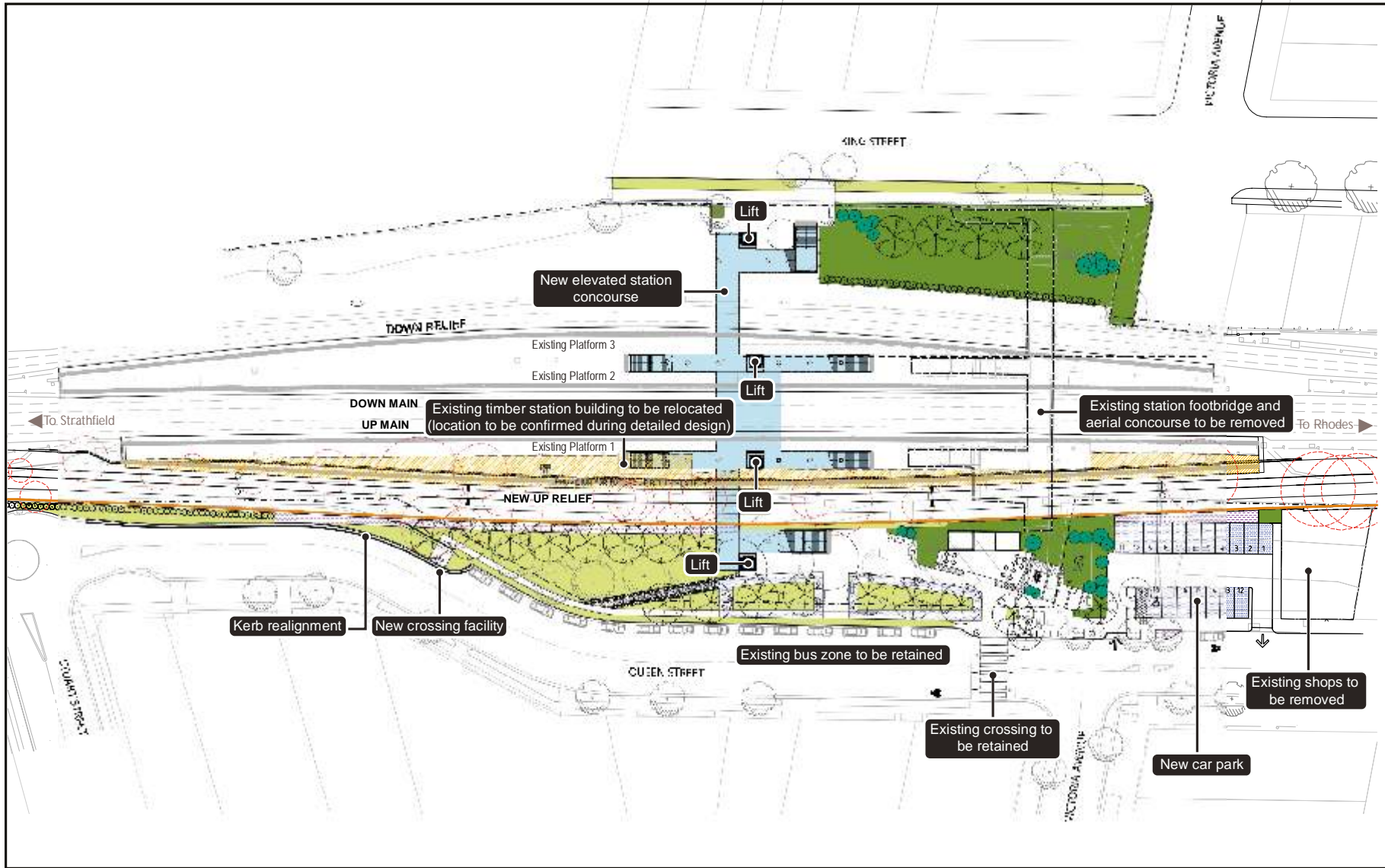
- ticket office, including meal room and station master's office
- staff and public toilet facilities
- queuing area positioned away from the main circulation space on the bridge
- new plant room, to which the equipment currently located in the timber building on the Up Main platform would be relocated
- four new lifts, to provide access to Queen Street, King Street, the existing island platform (Platform 2/3) and the new island platform (Platform 1)
- stairs to both Queen Street and King Street and to the platforms.

The main concourse structure would consist of reinforced concrete, while the concourse buildings would be constructed using lightweight structures on a concrete floor slab. Platforms would be accessed from the concourse by stairs and lifts. Each island platform would be accessible via a lift and two sets of stairs (one set to the north and one set to the south). Enclosures would be constructed beneath the stairs to accommodate the following facilities:

- switch room
- cleaners store
- station store
- communication equipment.

The following works would be undertaken on the existing platforms:

- removal of platform extensions to the north of Platforms 1 and 2/3 (which were previously installed at the station for use during the 2000 Olympics)
- construction of new platform face to the new Up Relief and safety fencing along this face (as this face would not be used at opening for passenger services)
- refinishing of the existing platform edge
- regrading and resurfacing of platforms to meet existing requirements
- construction of canopies along the platform (approximately 60 per cent of the platform length)
- adding tactile tile indicators to the platform edge
- providing lighting, seating, closed circuit television (CCTV) and 'help points' on the platforms in accordance with RailCorp standards.



- Proposed fence
- RailCorp boundary
- Existing trees to be retained
- Existing trees to be removed
- Proposed trees
- Proposed shrubs
- Proposed hedge - screening
- Proposed low shrub/hedge planting
- Proposed grasses and ground cover plant
- Proposed turf
- Permeable paving
- Decomposed granite paving
- New platform works

**Figure 5.3 Proposed Concord West Station modifications**  
 Note: Indicative only, subject to detailed design.

Construction of the new Up Relief would turn the existing Up Main platform into an island platform. The design of the proposal includes a new platform face to the Up Relief for use by potential future passenger services. However, as this platform face is not proposed to be used for passenger services in RailCorp's immediate operational plans, a security fence would be constructed along the platform.

The existing station concourse and stairs would be demolished upon commissioning of the new concourse.

Construction of the Up Relief would also require removal of the existing timber waiting shed on the Up Main platform. TfNSW is currently investigating options to retain (but relocate) the waiting shed on one of the station platforms. This would be confirmed during detailed design, in consultation with RailCorp and City of Canada Bay Council.

Works in the vicinity of Concord West Station would also require demolition of the existing set of three shops and associated car parking area to the north-east of the station. This, along with the removal of some parking along Queen Street, would result in an overall loss of parking in the vicinity of Concord West Station. To replace the loss of parking, the site of the former shops and car park would be reconstructed as a car park, resulting in no net loss in parking due to the proposal.

#### **North Strathfield Maintenance Facility**

The location of the proposed Up Relief conflicts with the position of the existing RailCorp North Strathfield Maintenance Facility, which is located on the eastern side of the rail corridor to the south of North Strathfield Station.

The maintenance facility would be demolished and relocated to another location by RailCorp prior to the construction of the NSRU proposal. The removal and replacement of the facility would be subject to a separate assessment and approval process.

### **5.2.4 Stormwater drainage**

#### **Trunk drainage**

The existing inter-track drainage system requires adjustments to suit the proposal. Four existing culverts crossing the rail corridor would be decommissioned and the associated track drainage would also be removed.

A new underground trunk drainage line would be constructed along the eastern side of the rail corridor between Pomeroy Street and the M4 Motorway. This drainage line would be positioned along the eastern boundary of the rail corridor. The drainage line would cross the rail corridor at about chainage 12.780 kilometres. It would then continue across Railway Lane, along Georges Lane, across George Street, through and underneath a privately owned car park and connect into Powells Creek just upstream of the M4 viaduct.

This drainage line would be sized to cater for run-off from a 100-year annual recurrence interval (ARI) storm event from the external catchments and the rail corridor, to protect the proposed rail tunnel and the approaches from flooding. The drainage line would vary in size from an approximately 600 millimetre diameter pipe at the Pomeroy Street end, to a pair of pipes approximately 2,100 millimetres in diameter where it crosses beneath the railway tracks.

#### **Surface drainage**

Cess drains would be constructed along the majority of the eastern side of the rail corridor to capture flows from neighbouring properties. South of the Pomeroy Street bridge, these drains would discharge to the new trunk drainage system; whereas north of the bridge, they would drain to existing culverts.



### **Water treatment within the underpass**

The concept design currently proposes to install a water treatment plant (WTP) to treat groundwater (and stormwater entering the underpass and associated approaches) prior to discharge to local stormwater systems. During detailed design, alternative options will be investigated (in consultation with relevant stakeholders) with the aim of removing the need for a WTP. Further discussion of the water treatment plant and existing ground water conditions are outlined in Section 6.12.1.

## **5.2.5 Electrical**

### **Overhead wiring (OHW)**

The new track would be electrified to allow operational flexibility (i.e. to allow passenger electric passenger trains to also operate along this track occasionally if required). As a result of the proposed track reconfiguration and civil works, a number of existing OHW structures would need to be modified, demolished or relocated. The main OHW work required as part of the NSRU proposal comprises:

- new OHW on the new Up Goods track (underpass and the two approaches)
- refurbishing the existing Up Relief OHW
- new OHW on the new Up Relief.

### **Signalling**

The NSRU proposal would require the construction of new signalling infrastructure to suit the new track and connections to the existing track. The disused Up Relief currently contains some existing signalling, but this infrastructure would need to be upgraded to meet current standards. The signalling work would include:

- relocation of some existing signalling services and equipment prior to the start of construction activities
- refurbishment or replacement of trackside equipment on the Up Relief track, to replace existing disused equipment
- installation of a combined services route (CSR) between Parramatta Road and the Homebush Main Signal Box building along the Goods Loop and also through to Rhodes at the northern end of the proposal (existing services would be consolidated with new services)
- installation of signalling infrastructure and trackside equipment on the new Up Relief and on the new Up Goods (within the underpass and the associated approaches)
- installation of a new signal bungalow.

### **Substations**

The proposal includes construction of two transformers to power the underpass and North Strathfield and Concord West stations. A high voltage distribution substation would be installed near North Strathfield Station and a padmount substation would be installed near Concord West Station.

### **Other electrical work**

A range of other electrical works would be undertaken during construction of the NSRU proposal to facilitate its operation. This would include electrical work associated with construction of the new Concord West concourse.

## **5.2.6 Other components**

### **Retaining walls**

Embankments and retaining wall structures would need to be constructed at various locations along the rail corridor. The locations of retaining walls are shown on Figures 1.2a, 1.2b, and 1.2c.

### **Other utility adjustments**

TfNSW would consult with service utility providers to protect and/or relocate utility services where required. Preliminary investigations have identified the following utilities in the vicinity of the NSRU proposal:

- electrical cables (varying size and voltage)
- telecommunication cables
- water and sewer mains
- gas mains.

A new services bridge is to be constructed as part of the NSRU proposal. This bridge would replace the existing services bridge to the north of the Pomeroy Street overbridge. The new services bridge would convey two gas mains and a sewer rising main across the rail corridor. The existing bridge would be removed as its eastern abutment is on the alignment of the Up Goods.

The location of this bridge is shown on Figure 1.2b.

### **Vegetation clearance**

The Main North Line rail corridor is largely cleared of vegetation; however, some vegetation clearance along Queen Street near North Strathfield Station and Concord West Station would be required as part of the proposal. Further details of the vegetation impacts are identified in section 6.8.

### **Demolition of Bakehouse Quarter awning**

An awning located in the rail corridor attached to the former Arnott's building (now the Bakehouse Quarter) would need to be removed to allow for construction of the NSRU proposal. The location of the awning is shown on Figure 5.4a.

## **5.2.7 Property acquisition**

The footprint of the NSRU proposal lies mostly within the existing rail corridor, which is owned by RailCorp. Several parcels of land are, however, to be permanently acquired as a result of the proposal, as follows:

- A small portion of land adjacent to Queen Street, south of Concord West Station would be permanently acquired in order to provide the required clearances for the new Up Relief. This land is owned by City of Canada Bay Council.

- Three commercial properties (shops) adjacent to Concord West Station on the western side of Queen Street near the intersection with Victoria Avenue would need to be permanently acquired. This land is owned by private land holders.
- The parking area adjacent to the north-eastern side of Concord West Station would need to be permanently acquired. This is located in what used to form part of Victoria Avenue, prior to the removal of the former level crossing. This land is owned by City of Canada Bay Council.
- A small portion of privately owned land at the northern end of Harrison Avenue, Concord West would be permanently acquired to provide the required space to provide access to the Harrison Avenue work site during construction and access to the rail corridor during operation for larger vehicles.

The location and approximate size of the land parcels to be acquired are shown in Figures 5.4a to c.

### **5.2.8 Temporary property arrangements**

In addition to the permanent property acquisitions, some temporary and permanent property arrangements would be required during construction as follows:

- A part of the existing car park located underneath the M4 overbridge and street parking on Railway Lane would need to be acquired during the construction phase, in order to provide adequate space for a construction worksite at George Lane. This site would be returned to its current state, or as otherwise agreed with relevant parties (e.g. City of Canada Bay Council and RMS), at the end of construction.
- The existing reserve adjacent to the rail corridor to the south of Homebush Drive, off Harrison Avenue, is to be temporarily acquired for the purpose of a construction site. This site would be returned to its current state, or as otherwise agreed with City of Canada Bay Council as the owner of the land, at the end of construction.



**Figure 5.4a Indicative property adjustments and structures to be removed**  
 Note: Indicative only, subject to detailed design.

Joins Figure 5.4b (map B)

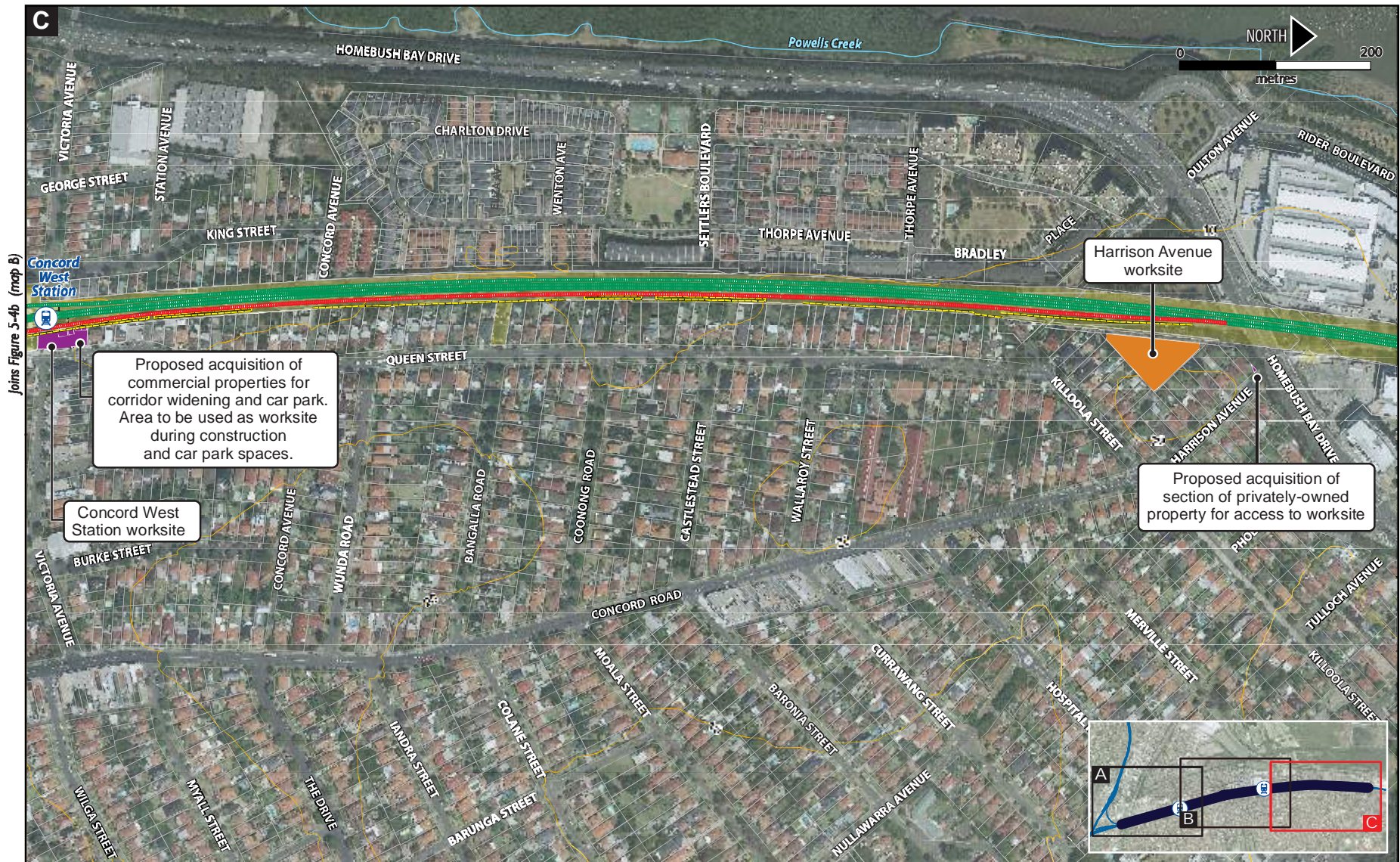


Joins Figure 5.4a (map A)

Joins Figure 5.4c (map C)

- |                        |                               |                     |                                 |
|------------------------|-------------------------------|---------------------|---------------------------------|
| Existing rail corridor | Proposed underpass approach   | New/extended bridge | Permanent property adjustment   |
| Existing track         | New retaining wall/embankment | New access road     | Topographic contour (10 metres) |
| New track              | Drainage                      |                     |                                 |

**Figure 5.4b Indicative property adjustments and structures to be removed**  
 Note: Indicative only, subject to detailed design.



Joins Figure 5-4b (map B)

**Figure 5.4c Indicative property adjustments and structures to be removed**  
 Note: Indicative only, subject to detailed design.

## 5.2.9 Urban design and landscaping

An outline of the urban design and landscaping approach and aims for key aspects of the proposal is detailed below.

### Retaining walls

The following urban design principles will be considered during the detailed design phase for retaining walls and embankments:

- Retaining wall materials should provide a consistent aesthetic appearance throughout the length of the proposal and with other structural elements (such as bridges and abutments, etc.) to provide an integrated urban design approach to all elements.
- Wall layouts should have simple, straight or large radius curved alignments and be sympathetic to the rail corridor and adjoining land uses.
- All exposed hard surfaces, including concrete, will be finished to ensure that panels are appropriately sized so that RailCorp can paint over any graffiti that occurs.
- Where retaining walls are above natural ground level and face the adjacent neighbourhood, a strong vertical pattern and texture should be applied to all precast and earth reinforced walls.
- Retaining walls should be located to maximise the effective width for landscape treatments for screening.
- The tops of retaining walls should form a smooth, continuous profile, without abrupt changes in level.
- Handrails must be provided at the top of all cuttings and retaining walls in accordance with RailCorp standards.
- Handrail posts should align with vertical patterns in the wall beneath them.
- Batter slopes, which are to be landscaped, should be no steeper than 2.5 horizontal to 1 vertical to facilitate maintenance and durability.

### Bridges

The following urban design principles will be considered during the detailed design phase for bridges that form part of the proposal:

- Bridge designs consider and exploit of views from bridge decks to the rail corridor and local environment.
- Bridge designs should consider of the appearance of the bridge elevation from the rail corridor and local environment.
- Wing walls and abutments below bridge spans should form a continuous wall structure or clad concrete face.
- Parapet details should create a continuous uninterrupted line that extends the full length of the bridge, and should extend below the deck soffit in order that any services or drainage and the deck soffit are screened.

- All hard surfaces that are accessible to graffiti artists are to be treated to facilitate easy removal of graffiti. Any surface requiring treatment must be treated across the entire surface and not change the appearance of the structure.
- All pipework and cabling should be concealed from public view except when viewed from directly underneath.
- Bridge approaches, embankments, retaining walls, acoustic walls and abutments must be treated as part of the bridge design process to provide a totally integrated design outcome.

The design of the Pomeroy Street overbridge extension, North Strathfield pedestrian overbridge and the new services bridge would be further developed during detailed design in line with the above urban design requirements.

### **Concord West Station precinct**

The existing station concourse is positioned within a landscaped forecourt on the eastern side of the corridor. As part of the NSRU proposal, the forecourt area would be modified to suit the new location of the concourse to the south of the existing station concourse. Urban design and landscaping of this new forecourt would be defined as part of the detailed design, but an indicative plan is identified in Figure 5.3. The overall aim for the design of the station precinct is to:

- Provide a seamless extension to the Concord West public domain/streetscape both visually and in terms of materials and finishes.
- Retain and re-use existing trees, street furniture and heritage items as far as practicable.
- Provide a series of spaces within the overall forecourt for a variety of activities.
- Provide equitable, legible, easy access to the station entry points.
- Incorporate sustainable design such as water sensitive urban design into the design of the car park and landscape.
- Integrate security design in the physical environment to reduce opportunity for crime to occur and damage from incidents.
- Provide landscape mitigation measures (such as screening) to reduce the impact of new freight line.

The introduction of the new elevated station concourse into the landscape at Concord West has the potential to result in visual impacts to the surrounding visual receptors (see section 6.7.3). In order to minimise visual impacts the following urban design treatments are proposed at Concord West Station:

- The new elevated concourse is to be constructed of materials which are sympathetic of the surrounding landscape. Such materials are to be further investigated during detailed design.
- The eastern forecourt at Concord West, is to be reinstated, including planting of vegetation within the park to replace screening trees which are to be removed as a result of construction of the new Up Relief. The reinstatement of the forecourt would minimise the dominance of the new concourse in the visual catchment.



- Low level hedges are to be planted along the corridor to screen adjacent land uses from the rail corridor and corridor fencing, while still providing adequate views for passive surveillance.
- A new park is to be established on the western side of the corridor (see Figure 5.3). This would include the establishment of vegetation within this park to minimise impacts of the new elevated concourse.

#### **Rail corridor landscape treatment**

A concept landscape design has been developed for the rail corridor section of the proposal (excluding at Concord West Station). This design would be developed further during detailed design; however the following aspects have been incorporated into the concept landscape design:

- All vegetation is to be setback from the edge of the live rail track a minimum of 4.2 metres.
- All vegetation taller than four metres is to be setback from the edge of the live rail track a minimum of six metres.
- All vegetated and planted batters steeper than 1 horizontal to 2 vertical will include engineered slope reinforcement material over imported topsoil to reduce erosion and improve plant establishment.
- Groundcovers, tussocks and shrubs are to only be planted on new batters, with no trees to be planted on the batters.
- Only native grasses are to be planted below a services route (GST) for a distance of 1.5 metres on each side.
- Existing vegetated areas which are not affected by the proposal are to be protected during construction.
- Landscape treatment is to be provided at car parks and adjacent to access roads.

## **5.3 Construction of the proposal**

### **5.3.1 Construction program and staging**

The detailed construction staging plan and method for the NSRU proposal would be finalised before commencement of construction. An indicative construction program, staging and construction approaches are provided in the sections below.

#### **Program**

As the work required for the NSRU proposal is located mainly within the rail corridor and within the area of active rail tracks, the sequence of proposed construction work must minimise any impacts on existing passenger and freight rail operations. As a result of this constraint, some components of the proposed work would be undertaken during rail closedown periods (temporary track closures).

An indicative construction program that takes into account this constraint is shown in Figure 5.5. This program is based on the preliminary construction methodology and may change as the design and construction methodology are refined.

Construction of the NSRU proposal is currently anticipated to start in November 2012. Based on the current indicative construction methodology, the works (including testing and commissioning) would take approximately 38 months.

### **Rail closedowns**

Rail closedowns are periods when part of the rail network is temporarily shut down in order to facilitate maintenance, construction or emergency works in a safe manner when trains are not operating.

During these periods, rail services and access to train services are suspended and replacement buses operate. Rail closedowns are normally conducted at weekends or holiday periods. These periods are traditionally quieter periods with lower patronage demand and, therefore, disruptions and impacts are generally less significant.

A number of construction activities would be required to occur during rail closedown periods to avoid impacts on the existing network, including:

- OHW and rail systems work
- installation of the new footbridge cantilever abutment at North Strathfield Station
- removal of the existing Concord West Station concourse and stairs
- installation of the new Pomeroy Street bridge abutment and span extension
- relocation of existing services and utilities located within corridor
- pre-operational commissioning (testing).



### **5.3.2 General construction approach**

#### **Enabling work**

Enabling work would be the first stage of construction and would include:

- adjustment/relocation of any existing RailCorp services located within the construction footprint
- establishment of construction sites.

Following completion of this enabling work, the main civil construction work would start.

### **5.3.3 Main civil construction work**

#### **Rail underpass**

The rail underpass would comprise a shallow driven tunnel beneath the operational tracks to the south of North Strathfield Station. Two approaches, on either side of the rail corridor, would also form part of the rail underpass structure. The approaches would be constructed using retaining walls.

The driven tunnel would be constructed by excavator using the canopy tube method. Canopy tubes would incrementally reinforce the roof of the tunnel, with the excavator removing material underneath each incremental reinforced section. As the excavator excavates the tunnel, the tunnel arch would be sprayed with shotcrete to provide the arch with added strength. Further layers of shotcrete would be sprayed on the arch, and would include a waterproofing membrane and passive fire protection system.

The excavator would advance one metre at a time, and in tandem with the above shotcreting. This method would allow approximately seven to nine metres of tunnelling to occur per week, recognising that the shotcrete would need to reach a minimum strength prior to advancing the excavation.

#### **North Strathfield Station footbridge**

The new North Strathfield Station footbridge abutment would be constructed adjacent to the northern approach retaining wall. The precast, concrete frame elements would provide cantilever support to the bridge span. Works in this location would not result in any impacts on the operation of North Strathfield Station.

#### **Concord West Station modifications**

Modifications to the station would be undertaken in stages, and would comprise the following works:

- removing the existing timber waiting shed on Platform 1 (with investigations into its potential relocation undertaken during detailed design)
- constructing foundations for pier protection walls, concourse structure columns and lifts (on Queen Street and King Street)
- constructing the new pier protection walls adjacent to the Up Relief and Down Relief lines, with continued construction of the King Street lift behind the pier protection wall
- completing foundations for the new lifts on the platforms

- constructing new concourse columns, installing spans and stairs, and completing fit-out to the new concourse, including installation of concourse buildings
- constructing the new lift shafts and connecting these to the new concourse
- removing previous platform extensions (undertaken for the 2000 Olympics)
- commissioning the new concourse and closing the at-grade access to Queen Street
- completing the new platform face at the existing public access from Queen Street and safety fencing
- demolishing the existing concourse structure and completing any platform modifications to ensure compliance with the Commonwealth *Disability Discrimination Act 1992*.

### **Pomeroy Street overbridge**

In order to lengthen the eastern span on the Pomeroy Street overbridge, a new abutment is required to the east of the existing abutment and clear of the new Up Goods track. Piling works for the new abutment would be undertaken during a period of road closures. Closures are to be determined during construction planning and are to be detailed in the construction environmental management plan. This abutment would be shotcreted to provide a flush finish for both aesthetic and safety reasons. During construction, the existing abutment would be temporarily anchored, in case the existing bridge deck is stabilising the abutment.

To minimise traffic impacts during construction, the span lengthening would be staged to allow the bridge to remain open to traffic at all times. Temporary traffic barriers and screens along the centre-line of the bridge would be installed, with traffic control measures (contra-flow traffic). The existing deck would then be replaced with precast planks.

The traffic barriers would then be relocated to the other side of the bridge, which would allow the same process (see above) to occur on the second half of the bridge. Once the second side of the bridge is complete, the demolition of the old abutment would occur, along with excavation of the cutting below the newly lengthened third span.

Works on the bridge would also include construction of a deflection wall on the eastern pier of the overbridge. This would involve construction of concrete walls between the existing columns. These new walls would be flush with the existing columns.

### **Services bridge**

The services bridge to the north of the Pomeroy Street overbridge would be constructed by installing piles for the two abutments on either side of the rail corridor. A capping beam would be placed on these piles. The precast girders would then be lifted into position during a rail closedown. Fit-out of the bridge would then occur, including realignment of utilities to the new bridge. The existing utilities bridge would then be demolished during a rail closedown as its eastern abutment conflicts with the proposed Up Goods track.

### **Demolition of commercial properties at Concord West Station**

To the north-east of Concord West Station, the new Up Relief would encroach on three existing commercial properties (shops and associated parking) at the intersection of Queen Street and Victoria Avenue. In order to provide the required clearances for the new Up Relief, these commercial buildings would be acquired and demolished as part of the NSRU proposal. The site would also be used as a construction site.

### 5.3.4 Construction worksites and access points

#### Construction worksites

Construction worksites, including stockpile sites and laydown areas, would be located in the following areas:

- George Lane
- North Strathfield Station on Queen Street
- Concord West Station on Queen Street
- off Harrison Avenue south of Homebush Bay Drive adjacent to the rail corridor.

Locations of the construction worksites are shown in Figures 5.6 a to c. Construction routes and access points are described below.

#### George Lane worksite

A construction worksite would be required to the west of the rail corridor at George Lane for construction of the rail underpass and the southern approach to the underpass. Prior to completion of the underpass and approach, the western side of the rail corridor would be severed from the Queen Street worksite by the Main North Line. Travel between the sites would either be by foot access via the North Strathfield Station footbridge or road access via Pomeroy Street and George Street.

The George Lane worksite would be located within the existing sealed car park located beneath the M4 Motorway overpass which is used as an overflow car park for the Bakehouse Quarter. This area is bounded by George Lane, George Street, Parramatta Road and the rail corridor. This land is owned by RMS and City of Canada Bay Council.

The George Lane worksite would be used for the following main construction activities:

- access for piling rigs for the construction of the southern approach retaining walls
- delivery of precast elements, concrete and reinforcing steel for the construction of the southern approach
- removal of spoil from the southern approach and southern section of the driven tunnel
- possible location for a jacking pit (or receiving pit) for construction of the proposed trunk drainage diversion to Powells Creek under the rail corridor. Signalling and RailCorp services works may also be undertaken from this site.

The following additional activities would be undertaken at the George Lane worksite:

- staff parking
- toilet facilities
- canteen, office and meeting room facilities
- lockable steel containers for plant, equipment and materials storage
- lay down areas for delivery of materials

- possible storage area for precast elements
- spoil storage zone (generally for night-time construction operations).

The site would be returned to its current state, or as otherwise agreed with RMS, Council and RailCorp, once construction has finished. Figure 5.7 outlines an indicative layout of the George Lane worksite.

#### **North Strathfield Station worksite**

The worksite at North Strathfield would be located adjacent to Queen Street on the eastern side of the rail corridor (on land between Queen Street and the rail corridor). This land is currently used as RailCorp's North Strathfield Maintenance Facility and hardstand area (between the station footbridge and Pomeroy Street). The existing facility would be demolished and relocated by RailCorp under a separate approval, prior to commencement of the NSRU proposal construction.

The area of this worksite is constrained as the northern section of the site contains high voltage aerial cables for safety reasons. The site is also narrow and there is a need to provide access down to the track from Queen Street via a ramp. This ramp is required to provide access to the northern approach for construction and the removal of spoil from the underpass.

The North Strathfield worksite would be used for the following main construction activities:

- access for piling rigs for the construction of the northern approach retaining walls
- delivery of precast elements, concrete and reinforcing steel for construction of the northern approach
- storage and removal of spoil from the northern approach and northern section of the driven tunnel.