

Appendix H

Services facility between Five Dock and The Bays

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Existing case studies

Services facilities similar to the one proposed between Five Dock Station and The Bays Station have been previously constructed at Epping and Cheltenham for the Metro North West Line. The Epping and Cheltenham services facilities provide tunnel ventilation and emergency access and egress to the metro rail tunnels. Construction works for these services facilities associated with shaft excavation and tunnelling at the construction sites included:

- Construction of temporary acoustic sheds (maximum height of 15 metres)
- Excavation of shafts
- Removal of spoil
- Support for roadheader tunnel excavation works
- Construction support facilities (such as workshops, equipment laydown, spoil handling and storage facilities, site offices, car parking, water treatment plant)
- Provision of temporary power supply routes (4.3 Mega Volt Ampere at each site)
- Tunnel boring machine retrieval (Epping construction site only).

While the construction works were similar at both Epping and Cheltenham construction sites, the size and locational context of the sites were substantially different. The characteristics of both construction sites are outlined in the following sections.

Epping services facility

The Epping services facility construction site had a construction footprint of about 3,400 metres with a construction duration (associated with shaft excavation) of about 24 months. The below ground shaft structure was constructed to depths of about 20 metres with a surface footprint of about 15 metres by 20 metres.

The construction site was located on land zoned for local business under the Hornsby Local Environmental Plan 2011 on the western side of Beecroft Road within the established town centre of Epping. Establishment of the construction site involved the demolition of a commercial building, and the car park access for three additional commercial buildings. The Epping commercial area is centred on the existing Sydney Trains railway station and provides a mix of smaller scale retail, cafes, restaurants, health services, community facilities and medium to high density residential development, with surrounding lower density residential dwellings.

The closest sensitive receivers to the construction site were residential dwellings about 20 metres from the construction site boundary.

Cheltenham services facility

The Cheltenham services facility construction site had a construction footprint of about 12,000 square metres with a construction duration (associated with shaft excavation) of about 20 months. The below ground shaft structure was constructed to depths of about 35 metres with a surface footprint of about 20 metres by 20 metres.

The construction site was located in an area of open space zoned for public recreation under the Hornsby LEP 2011, incorporating the netball courts at Cheltenham Oval and some vegetation associated with Beecroft Reserve. The locality is characterised by low density residential dwellings surrounded by areas of established vegetation, open space and recreational areas, with no designated employment uses within the immediate area.

A number of aged care facilities were located in the vicinity of the construction site, including Beecroft Nursing Home and Chesalon Care Beecroft. The closest sensitive receivers to the construction site were residential dwellings about 30 metres away from the construction site boundary.

Types of construction impacts

The types of construction impacts predicted (as part of the North West Rail Link – Major Civil Construction Works Environmental Impact Statement) at the Epping and Cheltenham construction sites are outlined in the following sections. This information has been supplemented by community feedback provided during construction at these sites and by the results of monitoring during construction where data is available.

Construction traffic

The potential construction traffic impacts from both construction sites were predicted to arise primarily from the addition of heavy vehicles and light vehicles (cars and utes) onto surrounding roads. Eighty heavy vehicle movements and 34 light vehicle movements per day were predicted for the Epping construction sites, with 68 heavy vehicle movements and 34 light vehicle movements predicted for the Cheltenham construction sites. These vehicle movements were assessed as having:

- Minimal impacts on traffic congestion and on local intersection performance
- Minimal impacts on bus services, pedestrians and cyclists.

Existing on and off street car parking was also identified as being potentially affected from construction works and/or construction worker vehicle parking.

Community feedback provided during construction works on construction traffic at the Cheltenham construction site was limited to temporary changes to traffic access and construction traffic behaviour on local roads. There was no community feedback provided during construction works on construction traffic at the Epping construction site.

Construction noise and vibration

Construction noise at the Epping construction site was expected to be largely compliant with noise management levels set in the Environmental Impact Statement. Low, moderate and high exceedances for the closest residential receivers (about 20 metres away) were anticipated during some daytime works and limited evening works, with low to moderate exceedances expected for the closest commercial and educational receivers (about five metres and 135 metres away respectively) during limited daytime works.

Construction noise at the Cheltenham construction site was also expected to be largely compliant with noise management levels. Moderate to high exceedances were anticipated for the closest residential receivers (about 30 metres away) during some daytime works, with low exceedances for the closest recreational receivers (about 15 metres away).

Both construction sites were predicted to have a low risk of sleep disturbance and ground-borne noise impacts for surrounding receivers, with the potential for perceptible ground-borne vibration due to the proximity of the closest receivers (commercial receivers at the Epping construction site and residential receivers at the Cheltenham construction site).

During works, construction noise was monitored at various locations within and around both construction sites during construction works in response to community feedback. Noise levels were found to be compliant with the noise management levels during all monitoring.

Non-Aboriginal and Aboriginal heritage

Impacts to Non-Aboriginal heritage were predicted to involve limited impacts to a small number of local heritage items near the Epping and Cheltenham construction sites. The area around the Epping construction site was characterised by late nineteenth and early twentieth century residential development, and the Cheltenham construction site was located within the Beecroft/Cheltenham Heritage Conservation Area as identified in the Hornsby Local Environmental Plan 2011.

No impacts to Aboriginal heritage were predicted as a result of the Epping construction site, with limited potential for impacts at the Cheltenham construction site. Impacts to both Non-Aboriginal and Aboriginal heritage were expected to be successfully managed through the mitigation measures provided in the Environmental Impact Statement. No community feedback was provided on Non-Aboriginal or Aboriginal heritage matters during construction at the Epping and Cheltenham construction sites.

Property and land use

The Epping construction site resulted in a change in land use from a commercial area to a construction site for the duration of construction. It required the demolition of one commercial building, with the potential construction impacts to an additional four commercial buildings in the vicinity of the construction site. The construction site was located within the area covered by the Epping Town Centre Study and required modifications to the future town planning included in this study.

The Cheltenham construction site resulted in a change in land use from an open recreational space to a construction site for the duration of construction. It required the temporary removal of Cheltenham Netball Courts and associated facilities and the removal of vegetation within Beecroft Reserve. No residential or commercial properties were acquired at this location.

No community feedback was provided on property and land use matters during construction at the Epping and Cheltenham construction sites.

Landscape character and visual amenity

Landscape character and visual amenity impacts at the Epping and Cheltenham construction sites were expected to be limited to negligible to minor temporary impacts as a result of the visibility of structures, equipment and construction works at the sites. Vegetation removal adjacent to the construction sites and construction traffic on local roads was also expected to have landscape and visual impacts at both locations. The Cheltenham construction site had the potential for moderate impacts on recreational receivers at Cheltenham Oval and Beecroft Reserve due to the proximity of these facilities to the construction site.

Community feedback during construction regarding landscape character and visual amenity matters was limited to night-time visual impacts associated with lighting at the Epping construction site.

Social impacts

Social impacts at the Epping construction site were expected to be limited to reduced amenity at nearby community facilities including places of worship, educational establishments and a scout hall. Social impacts at the Cheltenham construction site were expected to include the loss of active recreation facilities, including Cheltenham Netball Courts, cricket nets and a playground. Reduced amenity was expected at the nearby Cheltenham Oval and on walking trails and bike tracks within Beecroft Reserve.

No community feedback was provided on social impact matters during construction at the Epping and Cheltenham construction sites.

Business impacts

Business impacts at the Epping construction site were expected to include benefits to local retail, accommodation, cafes, restaurants and the health and community services sector as a result of increased expenditure and patronage from construction workers. Construction noise and air quality impacts were predicted to result in a temporary reduction in amenity for nearby outdoor cafes, food outlets and eateries, with potential reduced accessibility to businesses caused by heavy vehicle movements on local roads.

There were no business impacts expected at the Cheltenham construction site, as it was located in a predominantly residential area with no businesses nearby.

No community feedback was provided on business impact matters during construction at the Epping and Cheltenham construction sites.

Groundwater and ground movement

No groundwater drawdown impacts were expected as a result of the Epping and Cheltenham construction sites, with limited potential for ground movement and groundwater seepage impacts identified.

No community feedback was provided on groundwater or ground movement matters during construction at the Epping and Cheltenham construction sites.

Soils and surface water quality

Both Epping and Cheltenham construction sites were located in the Devlins Creek catchment. Soils and surface water quality impacts at both construction sites were predicted to include potential erosion caused by excavation activities and sediment transport into stormwater and nearby waterbodies within the catchment. These potential impacts were expected to be successfully managed through the standard soils and water quality mitigation measures provided in the Environmental Impact Statement.

No community feedback was received during construction at the Cheltenham or Epping sites regarding soils and surface water quality impacts.

Contamination

The Environmental Impact Statement predicted a low likelihood of encountering contamination at both the Epping and Cheltenham construction sites, with any potential impacts to be managed through the mitigation measures provided in the Environmental Impact Statement.

No community feedback was provided on contamination matters during construction at the Epping and Cheltenham construction sites.

Hydrology and flooding

The Epping and Cheltenham construction sites were predicted to alter the extent of impervious surfaces in the local area, with potential impacts for catchment response times during flooding events. These potential impacts were expected to be successfully managed by the mitigation measures provided in the Environmental Impact Statement, including the design of construction sites to account for potential flooding risks and the implementation of stormwater discharge controls.

No community feedback was provided on hydrology and flooding matters during construction at the Epping and Cheltenham construction sites.

Biodiversity

Limited temporary impacts to street trees were expected at the Epping construction site due to its location within the Epping town centre. Biodiversity impacts at the Cheltenham construction site were expected to include a temporary reduction in public open bushland space and potential temporary habitat disturbance. These potential impacts at both construction sites were expected to be successfully managed by the mitigation measures provided in the Environmental Impact Statement, including the use of offsets and replanting of vegetation following construction.

Community feedback was received during construction at both the Epping and Cheltenham construction sites regarding the removal of trees during construction.

Air quality

Air quality impacts at both construction sites were predicted to include dust generation and emissions from construction plant and vehicles that may affect surrounding residential, community and recreational receivers. These potential impacts were expected to be successfully managed through the standard air quality mitigation measures provided in the Environmental Impact Statement.

Community feedback was received during construction at both the Epping and Cheltenham construction sites regarding visible dust generation during construction. Inspections were carried out at a number of properties in the vicinity of the Epping construction site in response to community feedback, at which time construction dust was not visible.

Spoil and waste management

The Epping construction site was expected to produce about 5,600 cubic metres of spoil, and the Cheltenham construction site was expected to produce about 12,000 cubic metres of spoil. Spoil and waste generated at the construction sites was expected to be successfully managed through the standard spoil and waste mitigation measures provided in the Environmental Impact Statement.

No community feedback was provided on spoil and waste management matters during construction at the Epping and Cheltenham construction sites.

Services facility between Five Dock and The Bays

The case studies provided by the Epping and Cheltenham services facilities and the qualitative assessment of a services facility between Five Dock and The Bays (in Table 1) indicate that construction of this type of facility is able to be carried out with limited environmental impacts and can be managed using common construction mitigation measures. The site would also be managed in accordance with the Sydney Metro suite of environmental management documents including the Construction Environmental Management Framework, the Construction Traffic Management Framework and the Construction Noise and Vibration Strategy, as well as the relevant mitigation measures and performance outcomes identified in this Environmental Impact Statement.

These case studies and the assessment undertaken in this Environmental Impact Statement for the construction of similar facilities at Silverwater and Rosehill for Sydney Metro West have been applied to the proposed construction of a services facility between Five Dock and The Bays. The types of potential impacts for this construction site are outlined in Table 1. It is unlikely that all the potential types of impacts identified would be realised. The actual impacts during Stage 1 construction works would depend on the preferred location of the facility. For example, potential impacts such as the relocation of bus stops would only occur if the preferred facility was located directly adjacent to an existing bus stop.

Table 1: Types of potential impacts associated with Stage 1 construction works for a services facility between Five Dock and The Bays

Aspect	Type of potential impact
Construction traffic	Construction traffic volumes are likely to be relatively minor and would be managed in accordance with the Construction Traffic Management Framework. Potential impacts would be reduced through measures such as reducing construction vehicles in network peak periods and minimising the interface with high volume pedestrian areas. Potential impacts would include: <ul style="list-style-type: none"> • Temporary road network impacts due to heavy and light vehicle movements • Potential temporary loss of on-street parking in the immediate vicinity of the construction site • Potential temporary reduced and/or altered pedestrian and cycle access • Potential temporary relocation of bus stops, taxi ranks and/or kiss and ride areas, including route diversions • Potential temporary alternative access requirements for private properties and businesses in the immediate vicinity of the construction site.
Construction noise and vibration	Construction works for the services facility would typically be undertaken during standard daytime construction hours. The Epping and Cheltenham case studies identified that some construction works could comply with the relevant noise management levels with some works resulting in moderate to high exceedances. Potential construction noise and vibration impacts would be managed in accordance with the Construction Noise and Vibration Strategy. Potential impacts would include: <ul style="list-style-type: none"> • Temporary airborne noise impacts, particularly associated with noisy works such as rock breaking and piling • Limited temporary ground-borne noise and vibration impacts on sensitive receivers.
Non-Aboriginal and Aboriginal heritage	Based on the locational and design criteria in Chapter 9 (Stage 1 description) of this Environment Impact Statement, the facility would avoid direct impacts to item listed in the State heritage register and would not directly impact on significant elements of the local listed item. Potential impacts would include: <ul style="list-style-type: none"> • Potential direct impacts to local listed Non-Aboriginal and Aboriginal heritage items during construction • Potential indirect visual impacts where heritage items may be located adjacent to the construction site.
Property and land use	Based on the locational and design criteria in Chapter 9 (Stage 1 description) of this Environment Impact Statement, the facility would not be located on existing residential land. The amount of land required for construction would be minimised as far as possible and would be co-located with the permanent infrastructure footprint. Potential impacts would include: <ul style="list-style-type: none"> • Property acquisition for the construction site. Property acquisitions would be managed in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> and the land acquisition reforms implemented by the NSW Government. Sydney Metro would offer assistance and support throughout the acquisition process to those directly impacted. • Land use change from the current land use (such as commercial, industrial or open space) to a construction site. Due to the size of the facility, this land use change would be relatively minor.

Aspect	Type of potential impact
Landscape character and visual amenity	Potential landscape and visual impacts would be minimised as far as possible. For example, the removal of vegetation and street trees would be minimised and the construction site would be planned to minimise visible elements. Potential impacts would include: <ul style="list-style-type: none"> • Potential impacts associated with removal of vegetation and introduction of a temporary construction site to existing residential, commercial or recreation areas which may contrast in scale and character • Temporary alteration to footpaths, street and precinct arrangements with potential temporary impacts to local wayfinding, accessibility or legibility.
Social impacts	The construction site would be planned to avoid or minimise impacts to community facilities where possible. Potential social impacts would be minimised through the implementation of standard mitigation measures for amenity related impacts. Potential impacts would include: <p>Potential temporary disruption to pedestrian and vehicle movements, changes to road and public transport routes and access patterns, changed wayfinding and pedestrian accessibility, resulting in potential temporary disruption to daily routines</p> <p>Potential temporary perceived safety impacts associated with changed sightlines, changes to wayfinding, the reduced (or increased) activation of construction precincts at night, and the influx of unfamiliar construction workers to neighbourhoods, particularly if the construction site is located close to sensitive receivers (e.g. schools, childcare centres, nursing homes)</p> <ul style="list-style-type: none"> • Potential temporary reduced car parking, resulting in increased inconvenience and disruption • Potential temporary changes to access to local retail, community facilities and recreation facilities • Potential temporary perceived changes to sense of community associated with property acquisition and introduction of the construction site.
Business impacts	Where possible, direct impacts to businesses would be avoided. Potential indirect local business impacts would be minimised through the implementation of standard mitigation measures for amenity related impacts. Potential impacts would include: <ul style="list-style-type: none"> • Potential temporary amenity impacts to businesses in the immediate vicinity of the construction site. Businesses that are located on busier roads may be less susceptible to amenity impacts due to the existing lower amenity from high traffic volumes compared to quieter local roads • Potential temporary access impacts to local businesses due to potential parking losses or potential traffic congestion during heavy vehicle movements.
Groundwater and ground movement	Due to the small scale of the shaft required for the future services facility, the potential for impacts associated with ground movement and groundwater drawdown is low.
Soils and surface water quality	Due to the small scale of the construction site and excavation works, potential impacts associated with soils and water quality would be minor and manageable through the implementation of standard mitigation measures identified in Chapter 19 (Soils and surface water quality - Stage 1) of this Environment Impact Statement. Potential impacts would include: <ul style="list-style-type: none"> • Potential soil erosion from the temporary exposure of soil to water runoff and wind through the removal of vegetation, overlying structures (such as buildings and footpaths) and excavation works • Potential disturbance of saline or acid sulfate soils • Potential mobilisation of soils and/or contaminants into stormwater runoff and nearby watercourses.

Aspect	Type of potential impact
Contamination	<p>There is potential for contamination to be present on the site due to former or current land uses. Any potential contamination would be manageable through standard management and mitigation measures identified in Chapter 20 (Contamination – Stage 1) of this Environmental Impact Statement.</p> <p>Potential impacts would include:</p> <ul style="list-style-type: none"> • Potential introduction of minor volumes of contaminants during construction associated with leaks and spills from construction plant and equipment • Potential disturbance of contaminants during construction works associated with former and current land uses.
Hydrology and flooding	<p>Due to the small scale of the construction site, potential hydrology and flooding impacts would be minor and manageable through standard measures.</p> <p>Potential impacts would include:</p> <ul style="list-style-type: none"> • Potential temporary minor impacts to existing flooding behaviour through the disruption of existing drainage conditions, floodplain storage and/or overland flow paths by temporary construction site infrastructure • Potential temporary minor increase in runoff volumes following rainfall events due to an increase in impervious surfaces at the construction site.
Biodiversity	<p>The location between Five Dock Station and The Bays Station is generally an urban environment and has been subject to previous development. As a result, biodiversity impacts are unlikely to occur or would be minor. In addition, based on the locational and design criteria in Chapter 9 (Stage 1 description) of this Environment Impact Statement, the facility would not impact vegetation that constitutes a locally occurring Plant Community Type.</p> <p>If vegetation clearing is required for the site potential impacts would include potential disturbance of native vegetation, habitat, species and ecosystems. These impacts are likely to be confined to a small isolated area and the biodiversity would be negligible.</p>
Air quality	<p>Due to the small scale of the construction site and excavation works, potential air quality impacts would be minor and manageable through the implementation of standard mitigation measures identified in Chapter 23 (Air quality – Stage 1) of this Environmental Impact Statement.</p> <p>Potential impacts would include potential temporary nuisance and human health impacts of construction dust and exhaust emissions generated during construction works, which would be managed appropriately through mitigation strategies.</p>
Spoil and waste management	<p>Construction and excavation works would generate relatively minor volumes of spoil and general construction waste. The spoil volume would likely be less than 40,000 cubic metres. This would be managed in accordance with standard mitigation measures identified in Chapter 24 (Spoil, waste management and resource use – Stage 1) of this Environmental Impact Statement.</p>