

LANDSCAPE CHARACTER AND VISUAL AMENITY

CHAPTER SIXTEEN

16 Landscape character and visual amenity

This chapter provides an assessment of the potential impact on landscape character and visual amenity as a result of the project, and identifies mitigation measures to address these impacts. This chapter draws on information in Technical paper 6 – Landscape character and visual amenity.

16.1 Secretary’s environmental assessment requirements

The Secretary’s environmental assessment requirements relating to landscape character and visual amenity, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 16-1.

Table 16-1 Secretary’s environmental assessment requirements – landscape character and visual amenity

Ref.	Secretary’s environmental assessment requirements	Where addressed
14. Urban Design		
14.1	<p>The Proponent must:</p> <ul style="list-style-type: none"> a. identify the urban design and landscaping aspects of the project and its components; b. include consideration of urban design principles adopted by each council or within each station precinct; c. assess the impact of the project on the urban, rural and natural fabric; d. explore the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process, including natural surveillance, lighting, walkways, signage and landscape; and e. identify urban design strategies and opportunities to enhance healthy, cohesive and inclusive communities. 	<p>Impact on urban, rural and natural fabric is assessed in Section 16.4.</p> <p>Urban design, landscaping, CPTED are addressed in Section 16.2.</p>
15. Visual Amenity		
15.1	<p>The Proponent must assess the visual impact of the project and any ancillary infrastructure on:</p> <ul style="list-style-type: none"> a. views and vistas; b. streetscapes, key sites and buildings; and c. the local community. 	<p>Visual impacts are addressed in Section 16.4.</p>
15.2	<p>The Proponent must provide artist impressions and perspective drawings of the project to illustrate how the project has responded to the visual impact through urban design and landscaping.</p>	<p>Photomontages showing the project from selected key viewpoints are included in Section 16.4.</p>

16.2 Assessment methodology

Landscape character and visual amenity were assessed to identify the likely impacts during construction and operation of the project. The assessment methodology is outlined below.

16.2.1 Landscape impact assessment

Landscape in the urban context refers to the overall character and function of a place. It includes all elements within the public realm and the interrelationship between these elements and the people who use them.

A range of landscape elements may be directly or indirectly impacted by the project. To identify these impacts, the assessment identified the sensitivity of the element to change and the magnitude of change expected as a result of the project, and then made an overall assessment of the level of impact expected.

The degree of sensitivity of each landscape element to change was identified as neighbourhood, local, regional, State or national (defined in Table 16-2).

The magnitude of modification to landscape quality of each landscape element was identified as considerable reduction, noticeable reduction, no perceived change, noticeable improvement, or considerable improvement (defined in Table 16-3).

The assessed sensitivity and landscape modification were then combined for each element to identify a level of landscape impact (see Table 16-4).

Table 16-2 Landscape sensitivity levels

Landscape sensitivity	Description
National	Landscape feature protected with national or international legislation, for example the Sydney Opera House World Heritage Listed building and its surrounding public realm.
State	Landscape feature or urban place that is heavily used and is iconic to the State, for example Martin Place and Hyde Park.
Regional	Landscape feature that is heavily used and valued by residents of a major portion of a city or a non-metropolitan region, for example Blues Point Reserve and the foreshores of Barangaroo.
Local	Landscape feature valued and experienced by concentrations of residents, and / or local recreational users. Provides a considerable service to the community. For example, it provides a place for local gathering, recreation, sport, street use by cafes and / or shade and shelter in an exposed environment, for example Richard Johnson Square on Hunter Street and Willoughby Road in Crows Nest.
Neighbourhood	Landscape feature valued and appreciated primarily by a small number of local residents, for example street trees in a local street. Provides a noticeable service to the community. For example, it provides a seat or resting place, passive recreation, and / or some shade and shelter in a local street, for example Unwins Bridge Road in Marrickville and Drake Street in Chatswood.

Table 16-3 Landscape modification levels

Landscape modification	Description
Considerable reduction or improvement	Substantial portion of the landscape is changed. This may include substantial changes to parkland function, footpath continuity, building access, permeability of local streets, and / or street tree cover for example. Substantial changes to the level of comfort, vibrancy, safety and walkability, enhancement, connectivity, diversity, and enduring legacy of the public realm.
Noticeable reduction or improvement	A portion of the landscape is changed. This may include the alteration of parkland function, footpath continuity, building access, permeability of local streets, and / or street tree cover for example. Some alteration to the level of comfort, vibrancy, safety and walkability, enhancement, connectivity, diversity, and enduring legacy of the public realm.
No perceived reduction or improvement	Either the landscape quality is unchanged or if it is, it is largely mitigated by proposed public realm improvements. Does not alter or not noticeably alter the level of comfort, vibrancy, safety and walkability, enhancement, connectivity, diversity, and enduring legacy of the public realm.

Table 16-4 Landscape impact matrix

		Landscape sensitivity				
		National	State	Regional	Local	Neighbourhood
Landscape modification	Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
	Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
	No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
	Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial	Negligible
	Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

16.2.2 Visual impact assessment (daytime)

The daytime visual impact assessment considered visual amenity as experienced by the users of the site and surrounds. It aimed to identify the range of views to the site that may be impacted, including views from residential areas, offices and streets. To identify these impacts, the assessment involved identifying the existing visual conditions, views that are representative of these conditions, the sensitivity of the views (as defined in Table 16-5), and the magnitude of change expected as a result of the project (as defined in Table 16-6). An overall assessment was then made of the level of impact expected (refer to Table 16-7).

Table 16-5 Visual sensitivity levels

Visual sensitivity	Description
National	Heavily experienced view to a national icon, for example view to Sydney Opera House from Circular Quay or Lady Macquarie's Chair, or a view to Parliament House Canberra along Anzac Parade.
State	Heavily experienced view to a feature or landscape that is iconic to the State, for example view along the main avenue in Hyde Park, or a view to Sydney Harbour from Observatory Hill.
Regional	Heavily experienced view to a feature or landscape that is iconic to a major portion of a city or a non-metropolitan region, or an important view from an area of regional open space, for example views to the Sydney Town Hall from George Street, a Sydney CBD skyline view from Centennial Park, or views from Blues Point Reserve to Sydney Harbour.
Local	High quality view experienced by concentrations of residents and / or local recreational users, local commercial areas, and / or large numbers of road or rail users, for example view from Chatswood Park or Chifley Square.
Neighbourhood	Views where visual amenity is not particularly valued by the wider community such as views from local streets, pocket parks and small groups of residences.

Table 16-6 Visual modification levels

Visual modification	Description
Considerable reduction or improvement	Substantial part of the view is altered. The project contrasts substantially with surrounding landscape.
Noticeable reduction or improvement	Alteration to the view is clearly visible. The project contrasts with surrounding landscape.
No perceived reduction or improvement	Either the view is unchanged or if it is, the change in the view is generally unlikely to be perceived by viewers. The project does not contrast with the surrounding landscape.

Table 16-7 Daytime visual impact matrix

		Daytime visual sensitivity				
		National	State	Regional	Local	Neighbourhood
Visual modification	Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
	Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
	No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
	Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial	Negligible
	Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

16.2.3 Visual impact assessment (night-time)

The assessment of night-time impacts was carried out with a similar methodology to the daytime assessment.

Australian Standard *AS4282 Control of the obtrusive effects of outdoor lighting* (1997) offers some useful terminology and principles for assessing night time impacts; however, this standard excludes ‘public lighting’, which is defined as ‘lighting for the provision of all-night safety and security on public roads, cycle paths, footpaths, and pedestrian movement areas’. For this reason, the night time assessment also drew on the *Guidance for the reduction of obtrusive light* (Institution of Lighting Engineers (UK), 2005).

The *Guidance for the reduction of obtrusive light* (Institution of Lighting Engineers (UK), 2005) identifies environmental zones, useful for the categorising of night-time landscape settings. It also defines a number of features of these environmental zones at night, including sky glow, glare and light trespass. The resulting impact levels are shown in Table 16-8.

Table 16-8 Night-time visual impact matrix

		Night-time visual sensitivity			
		E1: Intrinsically dark landscapes	E2: Low district brightness	E3: Medium district brightness	E4: High district brightness
Visual modification	Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse
	Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse
	No perceived change	Negligible	Negligible	Negligible	Negligible
	Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial
	Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial

16.3 Existing environment

16.3.1 Chatswood dive site (northern)

The Chatswood dive site comprises a length of railway corridor extending from around Brand Street, Artarmon to Albert Avenue, Chatswood. The high-rise skyline of Chatswood is prominent in northerly views along the corridor, framed by the steep embankments and surrounding vegetation in some parts. The corridor is mostly a residential precinct with a mix of brick detached houses and two to three storey unit blocks. A television tower sits prominently on an elevated location at Hampden Road near Mowbray Road. This tower is a local visual landmark, and is seen from surrounding residential and commercial areas.

Between Mowbray Road and Nelson Street, and west of the rail corridor towards the Pacific Highway, is an Ausgrid depot with a larger grain of built form including a mix of light industrial buildings and institutional style office buildings. The Chatswood Bowling Club is located beside the railway corridor, and a wide shared footpath, the Frank Channon Walk, runs alongside the railway corridor, connecting the Chatswood Station precinct at Albert Avenue with Nelson Road.

Chatswood Park, including Chatswood Oval, is located within the setting of multi-storey residential and high-rise buildings at the Chatswood Centre. This parkland includes a mature framework of trees and a manicured sports oval, formal gardens and a number of small recreational buildings. Chatswood Station, and the bridge over Albert Avenue, and adjacent formal parkland, create a gateway into the Chatswood CBD.

16.3.2 Artarmon substation

The Artarmon substation site is currently being used as a temporary facility for Artarmon Public School and contains a number of temporary classrooms. The site also includes grassland and scrubby vegetation around its eastern perimeter and along Butchers Lane. Residential areas are located to the north, east and south and include a mix of low residential buildings (including early 20th century single-storey brick houses) and brick unit blocks two to four storeys high. The Gore Hill Freeway forms the southwestern boundary of the site. It is about 13 lanes wide in this area and about 10 metres lower than the site.

Views of the Freeway are protected somewhat due to the level changes and noise barriers. Trees lining Butchers Lane filter views from the rear of properties on the southern side of Milner Street, which have rear gardens directly opposite the project site.

16.3.3 Crows Nest Station

The Crows Nest Station site and surrounds has a mixture of built form typologies of varying ages, heights, styles, uses and setbacks, and is influenced by a recent influx of high-rise and mid-rise office and residential tower developments. Low scale highway oriented showroom developments are located along the Pacific Highway, alongside a concentration of 19th century two storey shopfront facades to the south of Hume Street.

Oxley, Hume and Clarke streets are lined with a mixture of office and apartment buildings (up to ten storeys), as well as other uses such as an indoor sports complex, child care centre, community centre, post office and a historic substation. As Clarke Street rises to Willoughby Road, the street narrows, and is lined with double storey Victorian terraces with ground level retail.

The St Leonards Centre, located adjacent to the project site at the corner of Oxley and Clarke streets, is a local visual landmark. Mature London planetrees along the Pacific Highway, Oxley Street and Clarke Street soften views and provide a unifying element along an otherwise eclectic and architecturally disjointed urban streetscape.

Willoughby Road is a nearby retail and restaurant precinct, and the heart of the Crows Nest village. It includes over 400 metres of single and double storey, mostly Victorian, shopfronts functioning as a 'high street' between the Pacific Highway in the south and Albany Street in the north. The streetscape is narrow and prioritises pedestrian movement. London planetrees, podium planting and planter boxes soften the street and create a sheltered environment for alfresco dining. Views north along Willoughby Road feature the spire of St Leonards Catholic Church as a quaint local focal point.

Hume Street Park provides the only local green space in the vicinity of the project site. It is located opposite the project on Clarke Street and consists of a mounded grassy area with shade trees and paved pathways.

Several high-rise apartment buildings have been recently built and are being constructed in the vicinity, to support the growing population and emerging role of St Leonards Town Centre as a 'Specialist Centre'. This includes the building currently under construction on the corner of Oxley and Albany streets. There is also a Development Application in place to increase the maximum allowable height to 42 metres to allow an 11 storey apartment building on the northern part of the project site, at the corner of Oxley Street and the Pacific Highway (521 Pacific Highway), which is currently vacant.

16.3.4 Victoria Cross Station

Generally, the built character of this area is of a high-rise typology in the south, stepping down to mid-rise and low-rise frontages to the north. This predominantly commercial area is interspersed with schools, tertiary education facilities, restaurants and retail. It includes several heritage buildings and conservation areas. In terms of architectural style, there is a predominance of glazed and rendered concrete office towers juxtaposed with the brick and stone facades of North Sydney's remnant heritage buildings.

The intersection of Miller Street and the Pacific Highway forms an important focal point in the centre of North Sydney. The North Sydney Post Office and court house, sits prominently on the corner with its distinctive curved stair and clock tower, alongside a cluster of several other iconic buildings including the clock tower of the Northpoint Plaza, and the heritage listed MLC building. The public realm in this area generally consists of urban plazas, building entry spaces / courtyards and streetscapes.

Berry and Miller streets are flanked by fully paved footpaths, from building to kerb, with intermittent awnings, and are heavily used by pedestrians throughout the day. Mature London planetrees, provide a canopy over Miller Street, softening this urban environment.

To the north of the precinct, McLaren Street is located on a local ridgeline with a low to mid-rise built form typology and a mix of heritage and modern buildings. An avenue of mature London planetrees line the street, with grass verges, footpaths, and parallel parking, creating a suburban feel.

The precinct, particularly between Berry Street and the Pacific Highway, includes a number of development projects. A commercial and retail development is currently under construction at 177 Pacific Highway, to the west of the site. At 150 Pacific Highway there is approval for a high-rise apartment building to replace a six storey office building ('Polaris'). In addition, at the corner of the Pacific Highway and Miller Street, there is a Development Application to demolish the 1990s retail podium in front of Northpoint (100 Miller Street), and replace it with a 10 storey hotel building with street level retail.

16.3.5 Blues Point temporary site

Blues Point Reserve includes sandstone embankments, mature trees, playground equipment and open lawns. The site and surrounds have important views towards Sydney Harbour, the Sydney Harbour Bridge and Sydney Opera House. Views from this location include a rare view of the Opera House framed by the Bridge. Conversely, the site is visible from the forecourt of the Sydney Opera House (which is World Heritage Listed), from the Bridge and from locations across Sydney Harbour.

Blues Point Tower sits prominently at the end of Blues Point Road and is set within Blues Point Reserve. The large expanse of roadway and surface car parking at the end of Blues Point Road detracts somewhat from the character of this parkland.

On the southern shores of the harbour, there are northerly views to the site from the Ives Stairs, under the Harbour Bridge, Hickson Road, the finger wharves and the newly opened Barangaroo Reserve.

16.3.6 Sydney Harbour ground improvement work

The site is located within a busy area of the Sydney Harbour, surrounded by Blues Point, McMahons Point, Lavender Bay, and Milsons Point in the north, the Sydney Harbour Bridge and Sydney Opera House in the east, Walsh Bay and the Barangaroo Reserve in the south, and Balmain East, Goat Island and the Balls Head in the west.

In particular, views from the Sydney Harbour Bridge and Sydney Opera House, and the site's contribution to the setting of these places are important. In addition, there are numerous other important historic and cultural buildings and landscapes located within view of this area of the harbour. These include the Blues Point Tower, Luna Park, Barangaroo Reserve, a heritage listed Victorian Mansion at Balmain East, the Goat Island National Park, Balls Head Reserve and Waverton Peninsula Reserve. There are also views from surrounding foreshore and elevated residential areas where views of the harbour are the focal point.

Although the site comprises the undeveloped, open water of the harbour, this is a busy section of the waterway. It is often frequented by a range of vessels from small boats, yachts and ferries, to tankers and large cruise ships. Visually this creates a dynamic and animated landscape.

16.3.7 Barangaroo Station

Barangaroo is currently being redeveloped, with the area divided into three precincts:

- Barangaroo Reserve is located at the northern end of Barangaroo where it meets Millers Point. It is a six hectare foreshore park opened in 2015, designed as a contemporary interpretation of the pre-1836 headland, with bush walks, grassed areas, lookouts, walking and cycle paths. A plaza has been created at North Cove, marking a southern entry to the Reserve at Hickson Road
- Central Barangaroo is currently being planned. The site for the proposed station is in Central Barangaroo. It will be the cultural heart of Barangaroo and is expected to include civic and cultural attractions with recreational, residential, retail and commercial uses. Although the actual building heights, form and massing are not yet known, the planned site development envelopes allow for medium and high density urban form
- Barangaroo South will be a major extension of the Sydney CBD with a number of high-rise buildings and stepping down to mid-rise development along the harbour foreshore. Planned as a mixed use precinct, it will have office buildings, residential apartments, an international hotel, shops, cafes and restaurants, and a waterfront promenade. Transport for NSW has planning approval for a ferry hub at Barangaroo, which is expected to open to customers in 2016.

Hickson Road forms the eastern boundary of the Barangaroo site. Hickson Road is located at the base of a distinctive cliff about four storeys high. The cliff is a local visual feature, with its exposed sandstone rock face and masonry, heritage railings and staircase cut into the stone. The cliff also creates a strong spatial 'edge' to the Barangaroo peninsula between Munn Street and the High Street stairs in the south, and a physical barrier to east-west movement.

South of the High Street stairs, there are mixture of contemporary and heritage buildings which align with the line of the wall, addressing the road with a mix of commercial, offices and service entries. In this area, there is a second staircase, providing access to the upper levels of the peninsula along Kent Street.

Hickson Road is currently two lanes with parking and an avenue of mature Fig trees on the western side, and a cluster of Livistona palms to the east, adjacent to the cliff, marking the stair entry on the eastern side of the road.

High Street runs along the top of the escarpment, offering panoramic, open views across Barangaroo, and the harbour beyond. A line of heritage listed terrace houses ('Terrace duplex group' at 2-80 High Street) line the eastern side of High Street, and are a visual feature in views towards the site, as well as in local streetscape views.

The Barangaroo South and Central precincts will provide activation to the west of Hickson Road, with a high quality public realm incorporating streets, plazas, and parks, as well as active street level frontages, which will be populated by a large number of users from the commercial, civic and residential buildings of Barangaroo. A new 30 metre footbridge over Hickson Road is proposed as a part of the Central Barangaroo precinct, and will connect Barangaroo with Central Sydney CBD, via High Street. This footbridge will require the removal of three heritage listed fig trees on Sussex Street, near the junction of Napoleon Street (Barangaroo South Public Domain Stage 1A, Aspect and Oculus, 2014).

16.3.8 Martin Place Station

The area around Martin Place Station precinct is influenced by two of central Sydney's most prominent urban plazas – Chifley Square and Martin Place. The precinct is traversed by several important civic streets, including Elizabeth, Castlereagh and Hunter streets, which are lined by office towers, with intermittent mature trees, creating important streetscape vistas.

The setting of the proposed northern station building is characterised by the unique and historic semi-circular urban form of nearby Chifley Square, including Qantas House and Chifley Tower, which follow the curved alignment of Chifley Square. These buildings create a distinct sense of enclosure for Chifley Square and this part of the Sydney CBD.

The proposed southern station building is located on the southern side of Martin Place, between Castlereagh and Elizabeth streets, opposite the historic Commonwealth Bank building. There is an office tower (of about 20 storeys) on the site with an entry-level plaza, stairs and retail space. The character of this site is influenced by the verticality of buildings flanking the southern edge of Martin Place. The built form of Martin Place is marked by iconic and identifiable buildings that both attract attention and channel views along surrounding streets.

16.3.9 Pitt Street Station

The Pitt Street Station site is located in the heart of the Sydney CBD, in one of the busiest parts of the city for vehicular and pedestrian movement. The site is a short walk, and in view of, some of Sydney's most prominent landmarks and attractions including Hyde Park, Town Hall, Pitt Street Mall, St Andrew's Cathedral and World Square.

The nearby streets are lined by a mixture of low and high-rise office, commercial and apartment buildings of varying ages and styles. They mainly include retail space, restaurants and cafés at street level. Near the corners of Pitt and Park streets, Pitt and Bathurst streets, and extending somewhat up Pitt Street, are a number of four to six-storey buildings with decorative historic facades, a number of them in stone, brick and masonry, and in Victorian and Art Deco styles.

These streets are flanked by paved footpaths, from building to kerb, with intermittent awnings, which are heavily used by pedestrians throughout the day. Several small mature trees are located on Park and Pitt streets, which provide some shade and softening to this intensely urban environment.

The Edinburgh Castle Hotel is a local visual feature on the southeastern corner of Pitt and Bathurst streets. It is a three storey hotel of Inter War Georgian Style and has been trading as a hotel since the 1860s. This building has 'aesthetic significance' due to its contribution as a landmark building.

Important views within the vicinity of the northern station site include those to the east along Park Street to and from Hyde Park, views north along Castlereagh Street to the Sydney Tower, views to the rear of The Great Synagogue, and glimpsed views west along Park Street to Town Hall.

Important views within the vicinity of the southern station site include those along Bathurst Street to Hyde Park and its Obelisk (identified as a primary vista in the Hyde Park Plan of Management, 2006), views west towards the St Andrew's Cathedral and views to the distinctive historic brick façade of the of the Edinburgh Castle Hotel on the corner of Pitt and Bathurst Streets.

A development project in this precinct which is likely to influence the existing visual setting includes the 66-storey 'Greenland Centre' apartment tower proposed at the corner of Pitt and Bathurst streets, which will be Sydney's tallest residential tower. Similarly, 'The Castlereagh' apartments are currently under construction at the corner of Castlereagh and Bathurst streets.

16.3.10 Central Station

Central Station is set within a rich and diverse townscape. It is characterised by a concentration of low to medium scale (three to seven storey) heritage buildings and streetscapes juxtaposed with modern and contemporary office and apartment towers, a series of varied interrelated and historic open spaces, and a large mix of uses and activities, including commercial, industrial, institutional, residential and hotels.

Railway Square is the major visual and functional gateway to the city from west and south. The intersection of George and Pitt streets is one of Sydney's busiest and largest intersections, and has traditionally dispersed traffic and pedestrians into and out of the city. Railway Square itself includes sandstone walls and a ramping roadway, which reaches a colonnaded station entry. Parkland occupies the main square, with a wide footpath leading to the station entry flanked by trees, framing views to the main station buildings and clock tower.

Opposite the station on a wedge of land created by Lee and George Streets is a plaza that is also called Railway Square. This plaza is the main bus interchange area for the station and is connected to the station by underground pedestrian tunnels.

The U-shaped Central Station building faces Eddy Avenue and is the location of one of the main station entrances. This includes a ramped entry leading from Eddy Avenue. The entrance is marked by a mature London planetree. Several shopfronts flank this entry, located both within the ground floor of the former Lost Property building and alongside an elevated sandstone rail bridge. This pedestrian plaza provides a transition from the vehicular dominated Eddy Avenue to the station entry and concourse.

The central rail yard is surrounded by several rail lines entering Central Station from the south and west, giving it an open, working railway character. This area of the station merges visually with the surrounding rail lines, characterised by corridors of ballast, and overhead wiring equipment.

Prince Alfred Park is an historic parkland south of Central Station, within the suburb of Surry Hills. The park is bounded by Chalmers Street, Cleveland Street and the railway. Trees and elements of the layout from the original 1870 plan of the park still exist on the site today, including Moreton Bay fig trees arranged as an informal row along the boundaries.

Regent Street is a wide, heavily trafficked five-lane road, located along the western side of Central Station, connecting Chippendale to the Pitt Street / George Street intersection. Adjacent to Central Station, Regent Street incorporates five terrace style houses, a two-storey petrol station, a Masonic Temple, a three-storey contemporary residential building and the heritage Mortuary Station.

The visual character around Central Station (including areas along Eddy Avenue and Chalmers Street) is expected to change following the introduction of the CBD and South East Light Rail, which will introduce a light rail stop on Chalmers Street, light rail tracks and associated infrastructure.

Another key development project in this precinct, which would substantially affect the existing visual setting, includes the proposed Central to Eveleigh Transformation Program. This is a 30-year project that aims to gradually transform 80 hectares of largely under-used government owned land in and around the rail corridor from Central to Macdonaldtown and Erskineville stations. It involves the development of land to provide thousands of additional homes and jobs and new open space.

16.3.11 Waterloo Station

The Waterloo Station site comprises one block bounded by Botany Road to the west, Raglan Street to the north, Cope Street to the east, and Wellington Street to the south. The site generally has a strong and consistent building line, with a dense coverage of medium grain built form, including a mix of commercial, light industrial and warehousing. The precinct is characterised by late 19th and early 20th century warehouses many of red brick construction. To the north are a row of two-storey early 20th century commercial buildings and a number of buildings with commercial ground floors and residences above.

Botany Road is a wide road lined by some small street trees and accommodating mostly large scale factory retail outlets. To the west of the road, the buildings are set back with 'nose-in' parking creating a vehicle-dominant streetscape. To the east, on the site of the proposed metro station, the footpath is narrower and the building line is closer to the roadway. To the south of this block, the buildings are of recent construction. To the north, buildings are mostly historic brick warehouses. Within this block is the Waterloo Congregational Church, which is a local visual landmark.

Raglan Street is characterised by three-storey brick buildings with shopfronts at street level and residences on the upper levels, creating a small shopping precinct, and stepping up to six-storey modern unit buildings beyond. A number of tall high-rise residential blocks can be seen beyond in the northeast. Leafy streets with mature Brush Box trees on the corner of Raglan and Cope streets, combined with this parkland, create a visual relief from the intensely urban environment of the area around the project site.

Cope Street has a disjointed overall character with an abrupt change in character from east to west. To the west, the project site has a strong building line, with medium grain, mostly late 19th and early 20th century warehouses. These buildings are mostly red brick or masonry with a mix of pitched, stepped, clerestory and flat roofs. A narrow road verge is fully paved, and includes numerous large garage doors and service access ways. Power lines run parallel to the road, creating a historic, industrial character.

16.3.12 Marrickville dive site (southern)

The character of this area is strongly influenced by its industrial history and transport network including the railway, busy main roads and Sydney Airport. The area includes heritage items dating back to its time as an industrial and manufacturing hub during the 19th and early 20th centuries when activities included steel works, mills, brick making and pottery. In particular, this includes a local heritage listed brick-lined drainage pit on Garden Street. Buildings in this area are mainly one and two-storey industrial buildings. There are also some three and four-storey commercial / industrial buildings.

The area comprises a mix of residential and industrial buildings reflective of its historical development. Land use is mainly light manufacturing with a mix of tertiary uses such as light industry and urban support services, retail, residential, freight and logistics, and offices. A clothing warehouse now operates on part of the Sydney Steel site in Sydney Steel Road.

To the south, land use between the railway and Unwins Bridge Road generally consists of large scale light industrial, including the Sydney Trains Sydenham Network Base, constructed in 2013. The character abruptly changes into low density residential to the south of Unwins Bridge Road, including mostly 19th and early 20th century single storey brick terraces, cottages and houses lining the narrow and dense grid street pattern, interspersed with low-rise industrial development and parkland.

Important views in the vicinity of the Marrickville dive site include those from Sydenham Station, local views from Camdenville Park, and from the Bedwin Road bridge.

16.4 Potential impacts

This section summarises the potential impact on landscape character and visual amenity as a result of the Project.

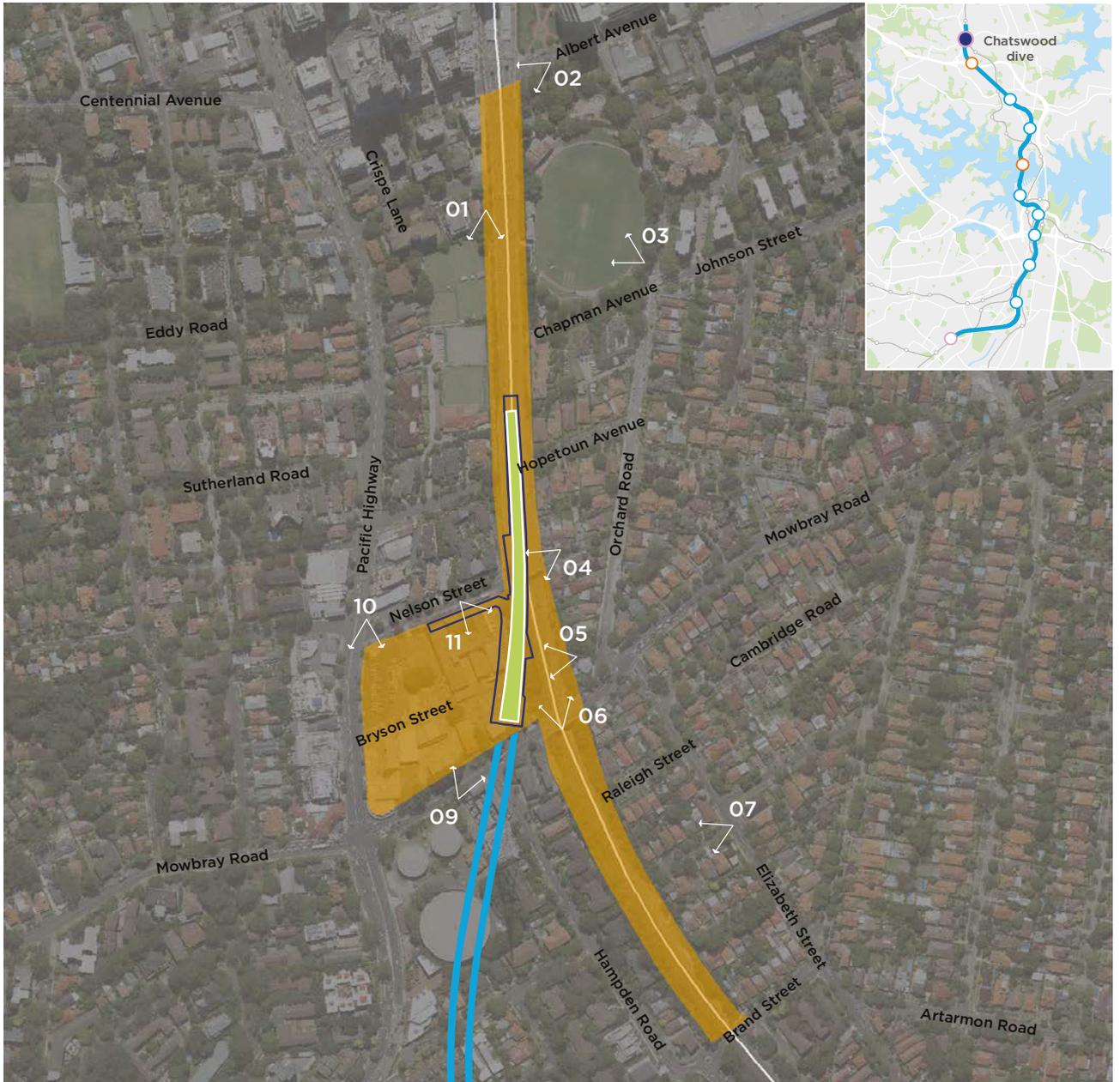
16.4.1 Chatswood dive site (northern)

Two landscape character areas and 11 representative viewpoints were selected to inform the landscape character and visual amenity assessment for the Chatswood dive site.

The landscape character areas are:

- Chatswood Park and Oval
- Frank Channon Walk.

Representative viewpoints are shown in Figure 16-1.



KEY

- Chatswood to Sydenham
- Proposed dive structure
- Proposed operational area at surface
- Proposed construction site area
- Existing suburban rail
- Viewpoint location

Indicative only, subject to design development



Figure 16-1 Chatswood dive site (northern) – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-9.

During construction, there would be:

- A moderate adverse landscape impact on the Frank Channon Walk, primarily due to direct impact on the path, including temporary short-term closures to enable construction (Frank Channon Walk would be reopened during operation of the project)
- A negligible landscape impact on Chatswood Park.

During operation, there would be:

- Minor adverse landscape impacts on the Frank Channon Walk due to the proposed removal of trees, the scale of the adjacent retaining structure and noise barriers, and associated overshadowing
- A negligible landscape impact on Chatswood Park.

Table 16-9 Chatswood dive site (northern) – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Chatswood Park	Local	No perceived change	Negligible	No perceived change	Negligible
Frank Channon Walk	Local	Considerable reduction	Moderate adverse	Noticeable reduction	Minor adverse

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-10.

During construction there would be:

- Minor and moderate adverse visual impacts on viewpoints from Nelson Street, Gilham Street, Mowbray Road and residential properties to the east of the existing rail corridor. These impacts would primarily be due to the scale and extent of the proposed work, including removal of vegetation along the rail corridor (between Nelson Street and Mowbray Road) and construction activities at the Chatswood dive site (for example, spoil removal and tunnel support works)
- Minor adverse visual impacts on viewpoints from elevated residences to the west of the Frank Channon Walk. This impact would be due to the removal of vegetation within the rail corridor, which would open up views to both existing rail infrastructure and metro infrastructure under construction.

During operation, there would be minor to moderate adverse daytime visual impacts on viewpoints from the following locations:

- Residential properties to the west of the Frank Channon Walk
- Residential properties and streets between Nelson Street and Mowbray Road
- Residential properties and streets between Mowbray Road and Hawkins Street.

These impacts would be due to the proposed removal of vegetation from within the rail corridor and scale of metro infrastructure, which would result in unfiltered views of the rail corridor, noise barriers and dive structure.

Table 16-10 Chatswood dive site (northern) – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View south along Frank Channon Walk	Local	Considerable reduction	Moderate adverse	Noticeable reduction	Minor adverse
Residential areas to the west of Frank Channon Walk	Neighbourhood	Considerable reduction	Minor adverse	Considerable reduction	Minor adverse
Viewpoint 2: View southwest along Albert Avenue	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 3: View northwest across Chatswood Oval	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Residential areas between Chapman Avenue and Nelson Street	Neighbourhood	Noticeable reduction	Negligible	Considerable reduction	Minor adverse
Viewpoint 4: View west along Nelson Street	Neighbourhood	Considerable reduction	Minor adverse	Considerable reduction	Minor adverse
Viewpoint 5: View west from Gilham Street	Neighbourhood	Considerable reduction	Minor adverse	Considerable reduction	Minor adverse
Viewpoint 6: View north from Mowbray Road bridge	Local	Considerable reduction	Moderate adverse	Considerable reduction	Moderate adverse
Viewpoint 7: View west along Drake Street	Neighbourhood	Considerable reduction	Minor adverse	Considerable reduction	Minor adverse
Viewpoint 8: View north from Brand Street	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 9: View northeast along Mowbray Road	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible
Views from residential properties on Mowbray Road	Neighbourhood	Considerable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 10: View along the Pacific Highway	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 11: View south from Nelson Street	Neighbourhood	Considerable reduction	Minor adverse	Noticeable reduction	Negligible
View from the rail corridor	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-11.

During construction, there would be a moderate adverse visual impact on the locality due to the requirement for vehicle deliveries and haulage outside of daytime construction hours.

During operation, there would be a negligible visual impact as the project would be visually absorbed into the existing character of the rail corridor and surrounding area of E3 Medium district brightness.

Table 16-11 Chatswood dive site (northern) – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Chatswood dive site (northern)	E3: Medium district brightness	Noticeable reduction	Moderate adverse	No perceived change	Negligible



Chatswood dive site – existing view from viewpoint 11, Nelson Street Chatswood



Chatswood dive site – artist's impression during construction from viewpoint 11, Nelson Street Chatswood

16.4.2 Artarmon substation

One landscape character area and three representative viewpoints were selected to inform the landscape character and visual amenity assessment for the Artarmon substation.

The landscape character area is Butchers Lane and Barton Road. Representative viewpoints are shown in Figure 16-2.

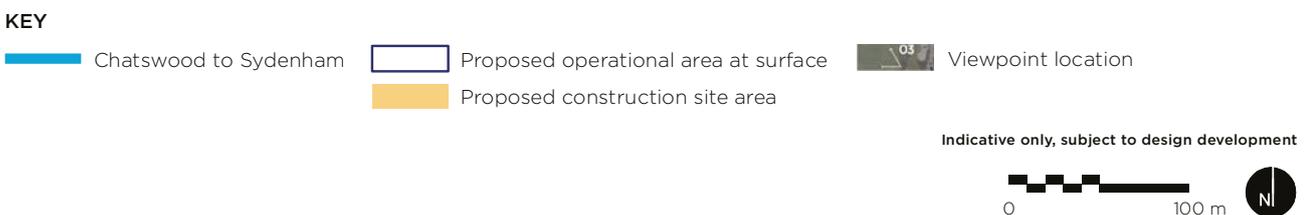


Figure 16-2 Artarmon substation – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-12.

During construction, there would be negligible landscape impacts, as the proposed work would be contained within a relatively small site. Furthermore, there would be only a minor requirement for haulage and deliveries during construction.

During operation, there would be negligible landscape impacts, as the functioning of this precinct would be restored following the completion of construction. It is therefore expected that there would not be a perceived change in the landscape quality of this area.

Table 16-12 Artarmon substation – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Butchers Lane and Barton Road	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-13.

During construction and operation, there would be negligible visual impacts on surrounding viewpoints due to the change from views of temporary school buildings, to a less visually intensive activity.

Table 16-13 Artarmon substation – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southeast from Milner Road	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 2: View southwest along Butchers Lane	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Views southwest from Residential units between Barton Road and Butchers Lane	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Viewpoint 3: View west from Barton Road	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-14.

During construction, there would be negligible visual impacts due to the existing lighting levels of the area (assessed as being ‘E3: Medium district brightness’) and the minimal lighting required during construction, given that out of hours work would generally not be required at the site.

During operation, there would be negligible visual impacts due to the existing lighting levels of the area and the minimal lighting required to operate the facility.

Table 16-14 Artarmon substation – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Artarmon substation site	E3: Medium district brightness	No perceived change	Negligible	No perceived change	Negligible

16.4.3 Crows Nest Station

Four landscape character areas and five representative viewpoints were selected to inform the landscape character and visual amenity assessment for Crows Nest Station.

Landscape character areas are:

- Willoughby Road restaurant precinct
- Oxley, Hume and Clarke streets
- Pacific Highway
- Hume Street Park.

Representative viewpoints are shown in Figure 16-3.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- 03 Viewpoint location

Indicative only, subject to design development



Figure 16-3 Crows Nest Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-15.

During construction, there would be a minor adverse landscape impact on Oxley, Hume and Clarke streets and the Pacific Highway. This impact would be primarily due to proposed direct impacts on pedestrian movement and the loss of mature street trees at these locations.

During operation, there would be minor beneficial landscape impacts on these areas due to the improved accessibility of public transport and the provision of additional pedestrian crossings, which would improve overall accessibility around the entire precinct.

Table 16-15 Crows Nest Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Willoughby Road restaurant precinct	Local	No perceived change	Negligible	No perceived change	Negligible
Oxley, Hume and Clarke streets	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Pacific Highway	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Hume Street Park	Local	No perceived change	Negligible	Noticeable improvement	Minor benefit

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-16.

During construction, there would be minor and moderate visual impacts due to the extent of demolition and the scale of the proposed acoustic enclosures and construction sites. The range of impact levels at this location reflects the scale and proximity of the works to the viewing location. Generally, impacts would be more substantial in the vicinity of Hume Street where the construction site works would be more complex and have a larger footprint.

During operation, there would be a negligible visual impact on surrounding viewpoints. In addition, the proposed station entry and streetscape upgrades would likely improve the overall quality of views from the corner of Hume and Clarke streets.

Table 16-16 Crows Nest Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southeast along the Pacific Highway	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Viewpoint 2: View south along Oxley Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Viewpoint 3: View west along Hume Street to Clarke Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Viewpoint 4: View northwest along Clarke Lane	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 5: View northeast from corner of Hume Street and Pacific Highway	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-17.

During construction, there would be a negligible visual impact on the locality due brightly lit visual context of the area.

During operation, there would be a negligible visual impact as the station and associated development would be visually absorbed into the surrounding area, which is brightly lit.

Table 16-17 Crows Nest Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Crows Nest Station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible

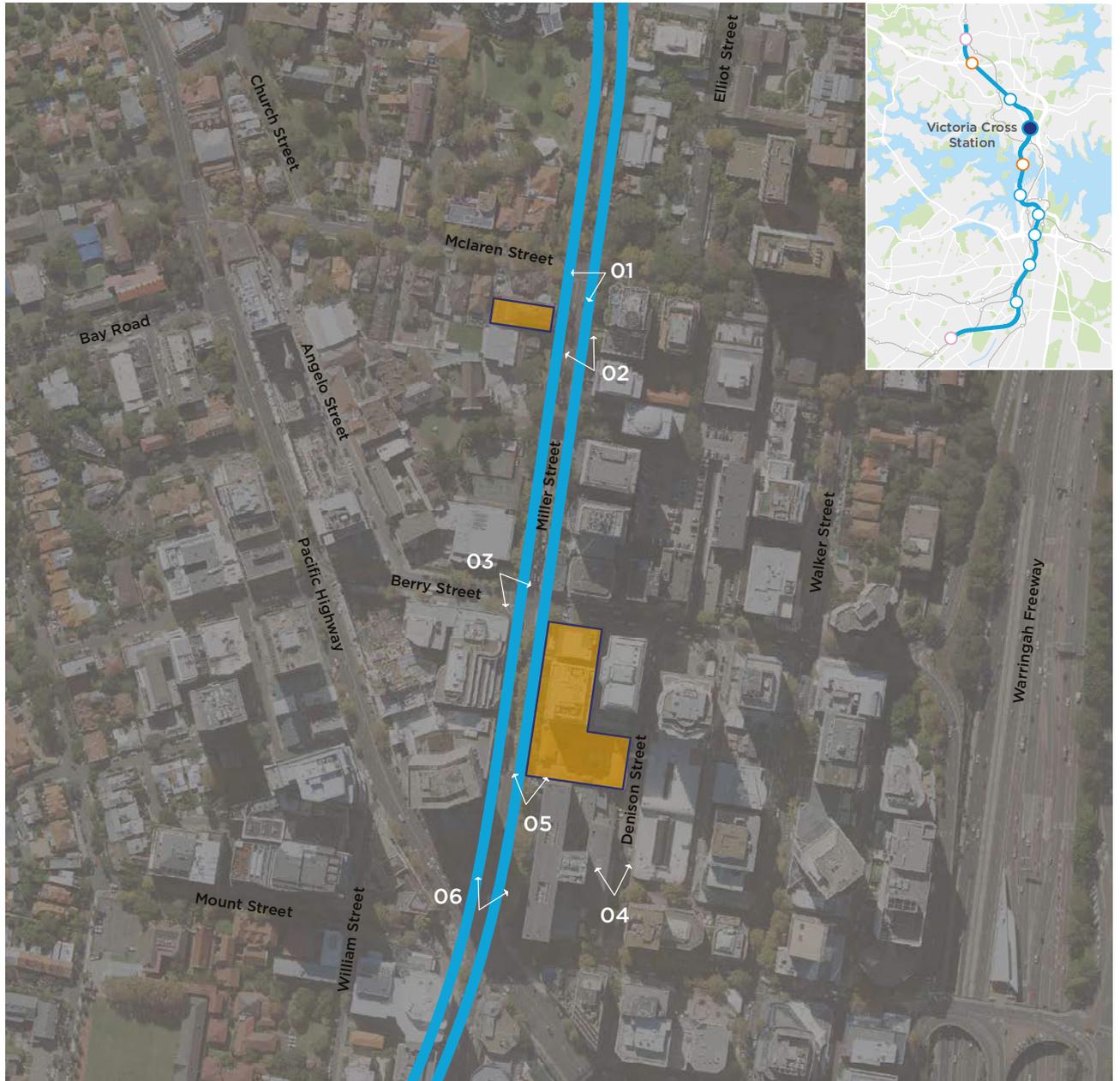
16.4.4 Victoria Cross Station

Five landscape character areas and six representative viewpoints were selected to inform the landscape character and visual amenity assessment for Victoria Cross Station.

Landscape character areas are:

- Harbour cycles sculpture
- Berry and Miller streets
- Monte Sant' Angelo Mercy College
- MLC building sculpture garden
- Brett Whiteley Place.

Representative viewpoints are shown in Figure 16-4.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- Viewpoint location

Indicative only, subject to design development



Figure 16-4 Victoria Cross Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-18.

During construction, there would be a moderate adverse landscape impact on the Harbour cycles sculpture as it would be removed to make way for the construction site. There would also be a minor adverse landscape impact on Berry and Miller streets. This impact would be primarily due to direct impacts on pedestrian movement and the removal of mature street trees at these locations. There would, however, be negligible landscape impacts on the surrounding landscapes of the Monte Sant' Angelo Mercy College, MLC Building sculpture garden and Brett Whiteley Place as there would be no direct impacts on these areas.

During operation, there would be moderate beneficial landscape impacts on Berry and Miller streets. These benefits would be due to the improved accessibility of public transport, footpath widening, the proposed mid-block crossing and the creation of a plaza which would improve overall accessibility around the entire precinct. There would also be negligible landscape impacts on the Monte Sant' Angelo Mercy College, MLC Building sculpture garden and Brett Whiteley Place as the project would not result in a direct change to these areas.

Table 16-18 Victoria Cross Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Harbour cycles sculpture	Local	Considerable reduction	Moderate adverse	N/A	N/A
Berry and Miller streets	Local	Noticeable reduction	Minor adverse	Considerable improvement	Moderate beneficial
Monte Sant' Angelo Convent and Girls School	Local	No perceived change	Negligible	No perceived change	Negligible
MLC Building sculpture garden	Local	No perceived change	Negligible	No perceived change	Negligible
Brett Whiteley Place	Local	No perceived change	Negligible	No perceived change	Negligible

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-19.

During construction, there would be minor and moderate adverse visual impacts on viewpoints from surrounding streets. These impacts would be primarily due to demolition and the establishment of acoustic enclosures. Visual impacts experienced at surrounding viewpoints would vary depending on the sensitivity of the viewpoint and proximity to the site.

During operation, there would be a minor adverse visual impact at the northern station building site due to the introduction of a utilitarian structure and the associated loss of visual interest and reduced visual compatibility. Conversely, at the southern station building site, there would be minor beneficial impacts created by the uncluttering of views to the site, and the introduction of a broad open plaza, street trees, and a prominent, architectural station entry and plaza.

Table 16-19 Victoria Cross Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site					
Viewpoint 1: View west from corner of McLaren and Miller streets	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 2: View northwest along Miller Street	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Southern station site					
Viewpoint 3: View southeast across the intersection of Berry and Miller streets	Local	Considerable reduction	Moderate adverse	Noticeable improvement	Minor benefit
Viewpoint 4: View north along Denison Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Viewpoint 5: View north along Miller Street	Local	Considerable reduction	Moderate adverse	Noticeable improvement	Minor benefit
Viewpoint 6: View north at the intersection of the Pacific Highway and Miller Street	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit

Night-time visual amenity impacts

As indicated in Table 16-20, there would be negligible night-time visual impacts at both the northern and southern station building sites during both construction and operation. Station lighting would generally be in character with the existing lighting levels of the area (assessed as being 'E4: High district brightness').

Table 16-20 Victoria Cross Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible
Southern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible



Victoria Cross Station – existing view from viewpoint 3, corner of Berry Street and Pacific Highway North Sydney



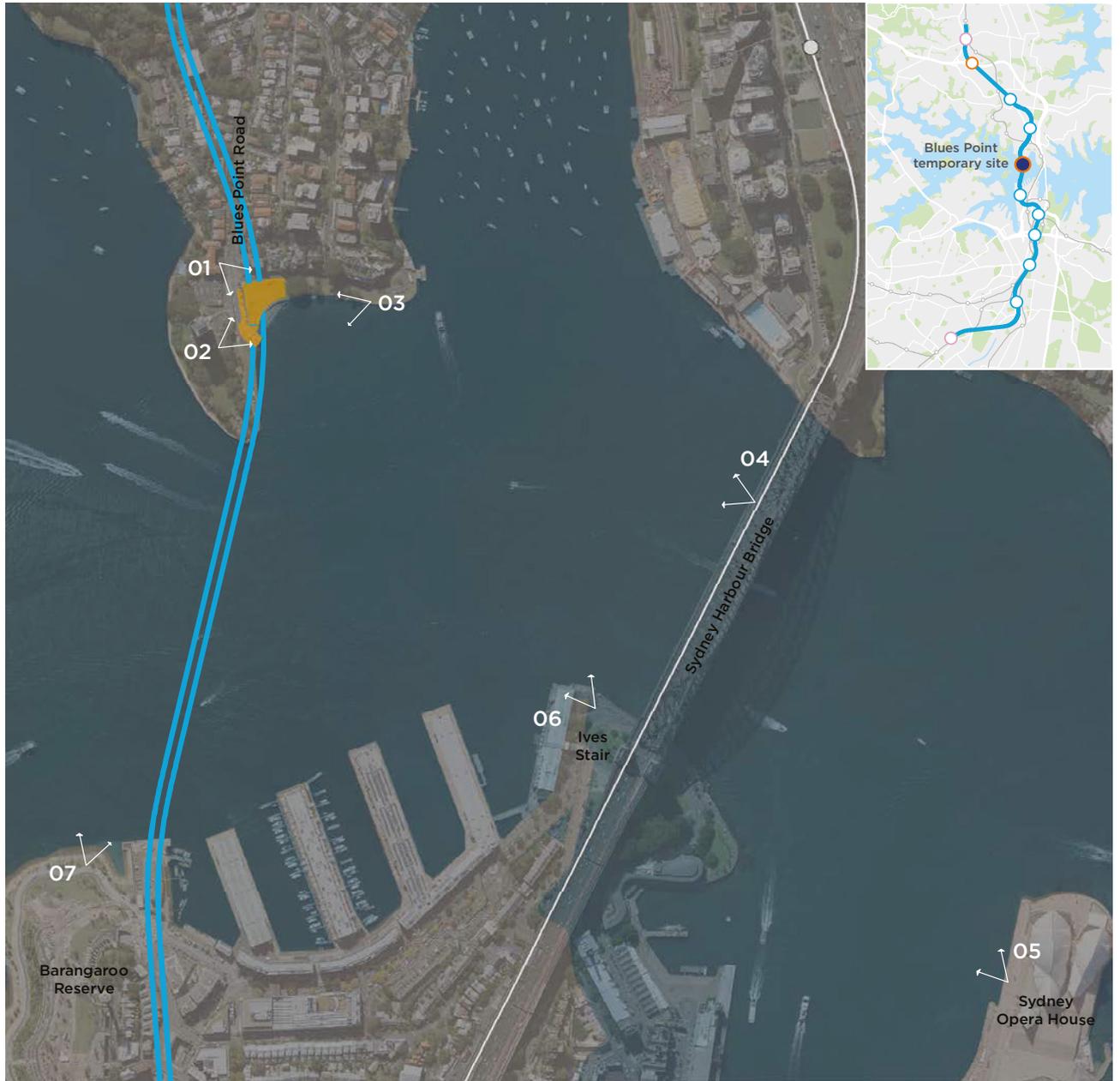
Victoria Cross Station – artist's impression from viewpoint 3, corner of Berry Street and Pacific Highway North Sydney

16.4.5 Blues Point temporary site

One landscape character area and seven representative viewpoints were selected to inform the landscape character and visual amenity assessment for the Blues Point temporary site.

The landscape character area is Blues Point Reserve.

Representative viewpoints are shown in Figure 16-5.



KEY

- Chatswood to Sydenham
- Proposed temporary construction site area
- Viewpoint location

Indicative only, subject to design development



Figure 16-5 Blues Point temporary site – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction are summarised in Table 16-21.

During construction, there would be a high adverse landscape impact on the Blues Point Reserve. This impact would be a consequence of the direct loss of harbour foreshore open space. It is noted, however, that there would be limited impacts on local vehicular movement, pedestrian access would be maintained around the foreshore edge, and existing mature trees would be retained.

During operation, there would be negligible landscape impacts as the reserve would be reinstated after construction.

Table 16-21 Blues Point temporary site – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Blues Point Reserve	Regional	Considerable reduction	High adverse	N/A	N/A

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction are summarised in Table 16-22.

During construction, there would be:

- Moderate to high adverse visual impacts on viewpoints from Blues Point and McMahons Point. These impacts would be due to the obstruction of views to the open water of the harbour and the incongruent character of the construction work with these views.
- A moderate adverse visual impact on viewpoints from the Harbour Bridge and St Ives stairs due to the disruption of the green foreshore edge, which is currently visible from across the harbour
- Negligible visual impacts from the Sydney Opera House and forecourt. Although the project site would be clearly visible from these locations, the distance and ability of the surrounding urban environment to absorb visual impacts would result in no perceived change in the amenity of views. Similarly, negligible visual impacts would be experienced from Barangaroo Reserve, where distance and intervening elements would limit the visibility of the site.

The Blues Point temporary site would not be required during the operation phase of the project. Following retrieval activities, this site would be rehabilitated and reinstated as public open space in consultation with North Sydney Council. As such, operational impact ratings are not applicable.

Table 16-22 Blues Point temporary site – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southeast from the corner of Blues Point Road and Henry Lawson Avenue	Regional	Considerable reduction	High adverse	N/A	N/A
Viewpoint 2: View northeast from Blues Point	Regional	Considerable reduction	High adverse	N/A	N/A
Viewpoint 3: View west from the foreshore park on Henry Lawson Avenue	Regional	Considerable reduction	High adverse	N/A	N/A
Viewpoint 4: View west from the Harbour Bridge	Regional	Noticeable reduction	Moderate adverse	N/A	N/A
Viewpoint 5: View northwest from the Sydney Opera House forecourt plaza	National	No perceived change	Negligible	N/A	N/A
Viewpoint 6: View northwest from the Ives Stairs	Regional	Noticeable reduction	Moderate adverse	N/A	N/A
Viewpoint 7: View north from Barangaroo Reserve	Regional	No perceived change	Negligible	N/A	N/A

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction are summarised in Table 16-23

During construction, there would be minor adverse visual impacts due to night-time work, particularly 24-hour tunnel boring machine retrieval activities.

As noted above, the operational phase at this site is not applicable.

Table 16-23 Blues Point temporary site – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Blues Point temporary site	E3: Medium district brightness	Noticeable reduction	Minor adverse	N/A	N/A



Blues Point temporary site – existing view from viewpoint 1, corner of Blues Point Road and Henry Lawson Avenue, McMahon's Point



Blues Point temporary site – artist's impression from viewpoint 1, corner of Blues Point Road and Henry Lawson Avenue, McMahon's Point



Blues Point temporary site – existing view (zoomed) from viewpoint 5, Sydney Opera House forecourt



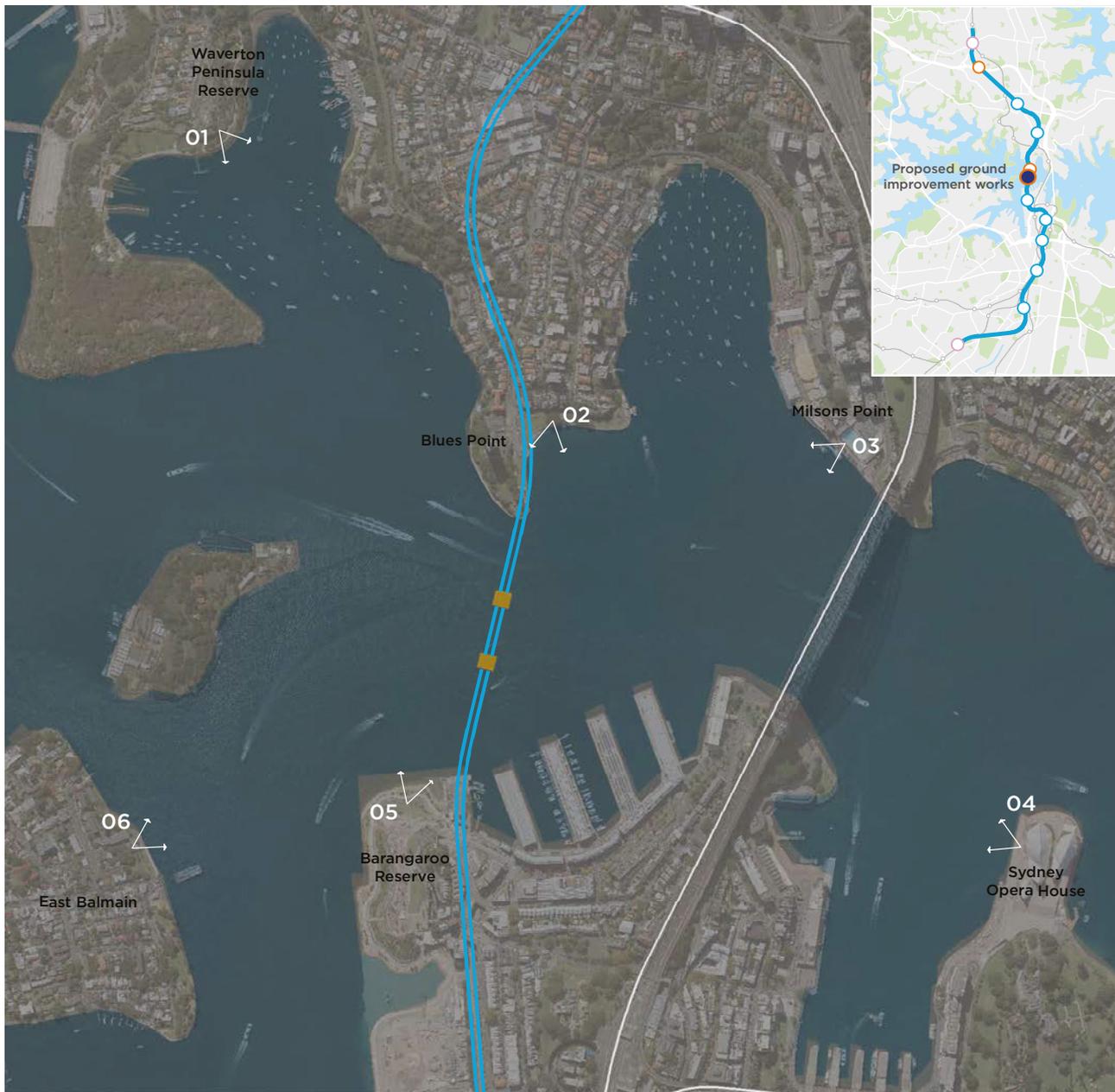
Blues Point temporary site – artist's impression (zoomed) from viewpoint 5, Sydney Opera House forecourt

16.4.6 Sydney Harbour ground improvement work

One landscape character area and six representative viewpoints were selected to inform the landscape character and visual amenity assessment for the proposed Sydney Harbour ground improvement work.

The landscape character area is Sydney Harbour.

Representative viewpoints are shown in Figure 16-6.



KEY
▬ Chatswood to Sydenham Proposed ground improvement works Viewpoint location

Indicative only, subject to design development



Figure 16-6 Sydney Harbour ground improvement work - representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction are summarised in Table 16-24.

During construction, the project would result in a negligible landscape impact due to the absorption capacity of the surrounding busy harbour. During operation, there would be no visible permanent infrastructure and areas affected by the harbour works would be reinstated after construction. As such operational impact ratings are not applicable.

Table 16-24 Sydney Harbour works – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Sydney Harbour	Regional	No perceived change	Negligible	N/A	N/A

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction are summarised in Table 16-25.

During construction, it is expected that the project would be visually absorbed into the busy waters of this section of the harbour or screened by intervening shoreline, resulting in negligible visual impacts from the Sydney Opera House and Waverton Peninsular Reserve.

In views where the site is seen at a closer proximity, and where both sites would be seen there are minor and moderate adverse visual impacts. This includes views from Blues Point Reserve, Milsons Point Wharf, Balmain East Wharf and Barangaroo Reserve. These impacts would however be temporary, and there are no operational components of the project at this site.

Table 16-25 Sydney Harbour works – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southeast from Waverton Peninsular Reserve	Local	No perceived change	Negligible	N/A	N/A
Viewpoint 2: View southeast from Blues Point Reserve	Regional	Noticeable reduction	Moderate adverse	N/A	N/A
Viewpoint 3: View southwest from Milsons Point Wharf	Regional	Noticeable reduction	Moderate adverse	N/A	N/A
Viewpoint 4: View southwest from the Sydney Opera House forecourt plaza	National	No perceived change	Negligible	N/A	N/A
Viewpoint 5: View north from Barangaroo Reserve	Regional	Noticeable reduction	Moderate adverse	N/A	N/A
Viewpoint 6: View northeast from Balmain East Ferry Wharf	Local	Noticeable reduction	Minor adverse	N/A	N/A

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction are summarised in Table 16-26.

During construction, it is expected that at night the project would create a noticeable reduction in the amenity of views in this area, including views from nearby residential properties and foreshore parkland. It is therefore expected that the project would result in a minor adverse visual impact during evening hours.

Table 16-26 Sydney Harbour works – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Sydney Harbour worksite	E3: Medium district brightness	Noticeable reduction	Minor adverse	N/A	N/A



Sydney Harbour ground improvement work – existing view from viewpoint 5, Barangaroo Reserve



Sydney Harbour ground improvement work – artist's impression from viewpoint 5, Barangaroo Reserve

16.4.7 Barangaroo Station

Three landscape character areas and eight representative viewpoints were selected to inform the landscape character and visual amenity assessment for Barangaroo Station. Landscape character areas are:

- Barangaroo Reserve
- Hickson Road
- Central Barangaroo.

Representative viewpoints are shown in Figure 16-7.



KEY

- Chatswood to Sydenham
- Proposed construction site area
- Proposed operational area at surface
- Existing suburban rail
- Viewpoint location

Indicative only, subject to design development



Figure 16-7 Barangaroo Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-27.

During construction, there would be a minor adverse landscape impact on Hickson Road due to the direct impacts on vehicular and pedestrian movement and the loss of mature street trees. However, it is expected that there would be no perceived change in the landscape quality of Barangaroo Reserve (resulting in a negligible landscape impact) due to the context of the continuing development across the Barangaroo peninsular, including works at Central Barangaroo.

During operation, there would be minor to moderate beneficial landscape impacts at Barangaroo Reserve, Hickson Road and Central Barangaroo due to improved accessibility to public transport and proposed footpath widening, which would improve overall accessibility and permeability around the entire precinct.

Table 16-27 Barangaroo Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Barangaroo Reserve	Regional	No perceived change	Negligible	Noticeable improvement	Moderate benefit
Hickson Road	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor benefit
Central Barangaroo	Local	N/A	N/A	Noticeable improvement	Minor benefit

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-28.

During construction, there would be minor and moderate adverse visual impacts. Project impacts would be mitigated by other surrounding construction activity at the adjacent Central Barangaroo site, but would still be moderate due to the high sensitivity of the site. In general, greater impacts would be experienced:

- In locations of higher visual sensitivity
- In locations such as from the Munn Street Bridge where construction is seen extending into new areas, such as the Millers Point cliff wall.

During operation, there would be negligible visual impacts from the majority of assessed viewpoints due to the integration of the project into the surrounding Central Barangaroo development. A moderate adverse visual impact is expected, however, from views at the North Cove plaza, where the Metro services would be located adjacent to the Millers Point cliff wall, which would become a prominent element in streetscape views.

Table 16-28 Barangaroo Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View west from Observatory Hill	State	No perceived change	Negligible	No perceived Change	Negligible
Viewpoint 2: View east to Barangaroo from Darling Harbour	Regional	No perceived change	Negligible	No perceived Change	Negligible
Viewpoint 3: View southeast from Barangaroo Reserve	Regional	No perceived change	Negligible	No perceived Change	Negligible
Viewpoint 4: View south from Hickson Road at Windmill Street Bridge	Local	Noticeable reduction	Minor adverse	N/A	N/A
Viewpoint 5: View south from the Munn Street Bridge	Regional	Noticeable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 6: View southeast from Northern Cove plaza	Regional	Noticeable reduction	Moderate adverse	Noticeable reduction	Moderate adverse
Viewpoint 7: View north along Hickson Road	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 8: View north along High Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Views to power supply route works	Local	Noticeable reduction	Minor adverse	N/A	N/A

Night-time visual amenity impacts

As indicated in Table 16-29, there would be negligible night-time visual impacts during construction and operation as due to its brightly lit Sydney CBD location and the intensity of the future Barangaroo precincts where there will 24 hour activity and lighting from surrounding buildings, urban plazas and streets creating both direct light sources and a general skyglow around the site. Additionally the Millers Point cliff wall provides a containing effect to viewing locations from the east.

Table 16-29 Barangaroo Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Barangaroo Station site	E4: High district brightness	No perceived change	Negligible	No perceived change	Negligible



Barangaroo Station – existing view from viewpoint 3, Barangaroo Reserve



Barangaroo Station – artist's impression during construction from viewpoint 3, Barangaroo Reserve



Barangaroo Station – existing view from viewpoint 5, Hickson Road



Barangaroo Station – artist's impression from viewpoint 5, Hickson Road

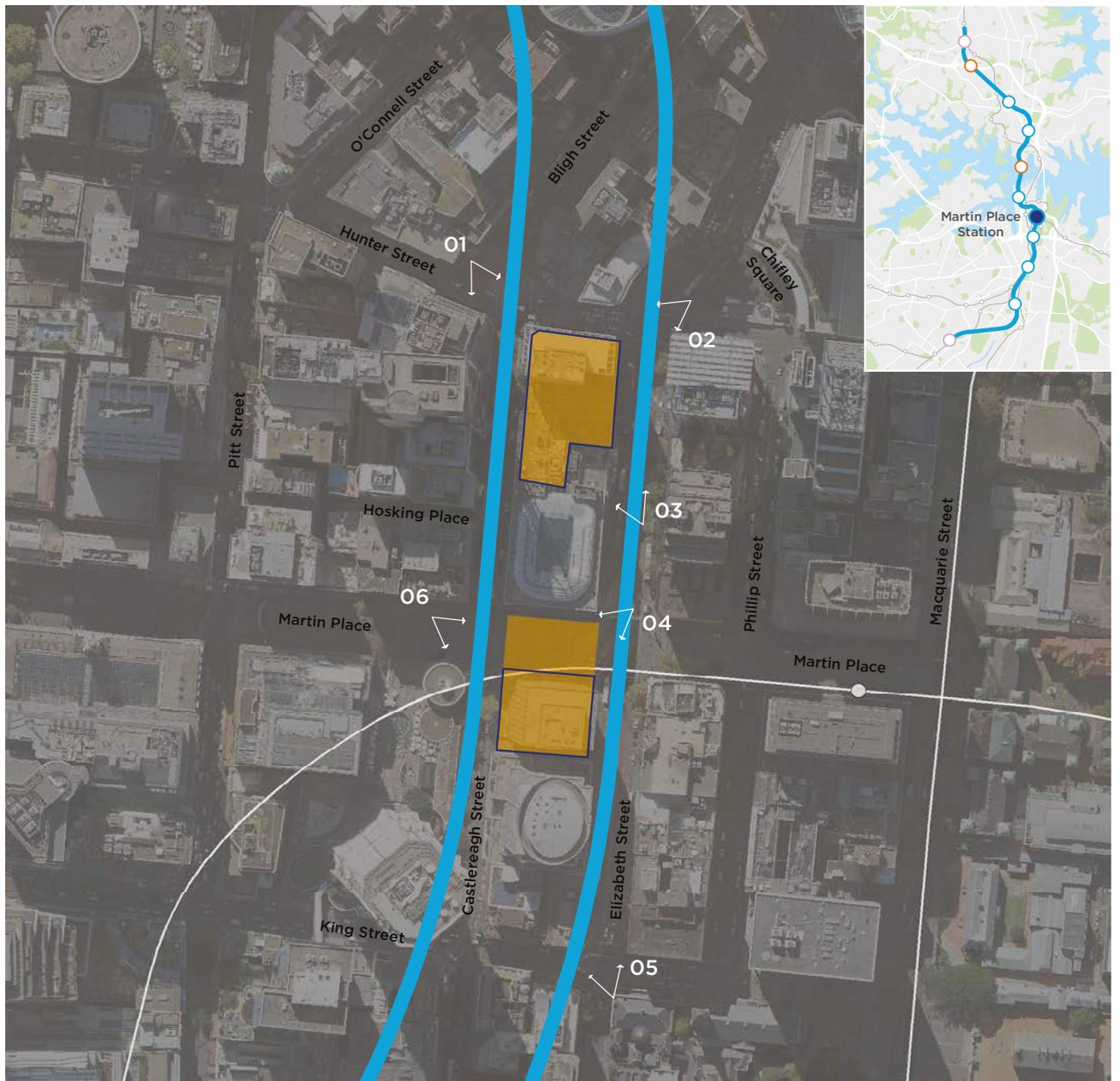
16.4.8 Martin Place Station

Six landscape character areas and six representative viewpoints were identified to inform the landscape character and visual amenity assessment for Martin Place Station.

Landscape character areas are:

- Richard Johnson Square
- Chifley Square
- P&O Fountain
- Castlereagh, Hunter and Elizabeth streets
- Martin Place
- Castlereagh and Elizabeth streets at Martin Place.

Representative viewpoints are shown in Figure 16-8.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- Existing suburban rail
- Viewpoint location

Indicative only, subject to design development



Figure 16-8 Martin Place Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-30.

During construction, there would be a minor adverse landscape impact on Hunter, Castlereagh and Elizabeth streets and a moderate adverse landscape impact on the P&O Fountain due to the removal of this item during the demolition of the 55 Hunter Street building. Construction of the project would also have a very high adverse landscape impact on Martin Place. This impact would primarily be due to the diversion of pedestrian movement on these streets and a portion of Martin Place during construction, as well as the loss of trees and plaza space for community use.

During operation, there would be a minor beneficial landscape impact on Hunter, Castlereagh and Elizabeth streets, as well as a high beneficial landscape impact on Martin Place due to the integration of the station and plaza, and improvements to legibility and accessibility.

Table 16-30 Martin Place Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Richard Johnson Square	Local	No perceived change	Negligible	No perceived change	Negligible
Chifley Square	Regional	No perceived change	Negligible	No perceived change	Negligible
P&O Fountain	Local	Considerable reduction	Moderate adverse	N/A	N/A
Castlereagh, Hunter and Elizabeth streets	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial
Martin Place	State	Considerable reduction	Very high adverse	Noticeable improvement	High beneficial
Castlereagh and Elizabeth Street at Martin Place	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-31.

During construction, there would be minor adverse impacts on viewpoints from Richard Johnson Square, moderate adverse impacts on viewpoints from Chifley Square, and very high adverse impacts on viewpoints from Martin Place.

Viewpoints from Martin Place (represented as Viewpoints 4 and 6 in Table 16-31) are considered to be of state visual sensitivity. Construction works (including the demolition of buildings and establishment of acoustic enclosures) would result in a considerable reduction in visual amenity for these viewpoints. In particular, the demolition of the 20 storey office tower at 39 Martin Place, which is visually prominent from Martin Place, would be a highly visible activity from Viewpoints 4 and 6. Consequently, it is expected that there would be a very high adverse visual impact on these viewpoints during construction.

During operation, there would be high beneficial impacts on views in the vicinity of Martin Place, as the design outcome would improve views in this area.

Table 16-31 Martin Place Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site					
Viewpoint 1: View southeast from Richard Johnson Square	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 2: View southwest from Chifley Square	Regional	Noticeable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 3: View north along Elizabeth Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Southern station site					
Viewpoint 4: View southwest towards Martin Place from Elizabeth Street	State	Considerable reduction	Very high adverse	Noticeable improvement	High beneficial
Viewpoint 5: View northwest from corner of Elizabeth and King streets	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 6: View south from Martin Place at Castlereagh Street	State	Considerable reduction	Very high adverse	Noticeable improvement	High beneficial
Views to power supply route works	Local	Noticeable reduction	Minor adverse	N/A	N/A

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-32.

There would be negligible visual impacts during construction and operation due to its brightly lit Sydney CBD location where there is 24 hour activity and lighting from buildings and streets creating both direct light sources and a general skyglow around the site. Additionally, during construction, the majority of the lighting would be contained within the acoustic enclosures.

Table 16-32 Martin Place Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible
Southern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible



Martin Place Station (northern entry) – existing view from viewpoint 2, Chifley Square



Martin Place Station (northern entry) – artist's impression from viewpoint 2, Chifley Square



Martin Place Station (southern entry) – existing view from viewpoint 6, Martin Place at Castlereagh Street



Martin Place Station (southern entry) – artist's impression from viewpoint 6, Martin Place at Castlereagh Street

16.4.9 Pitt Street Station

Two landscape character areas and nine representative viewpoints were selected to inform the landscape character and visual amenity assessment for Pitt Street Station.

Landscape character areas are:

- Pitt, Park and Castlereagh streets
- Pitt, Bathurst and Castlereagh streets.

Representative viewpoints are shown in Figure 16-9.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- Existing suburban rail
- Viewpoint location

Indicative only, subject to design development



Figure 16-9 Pitt Street Station - representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-33.

During construction, there would be a minor adverse landscape impact. This would primarily be due to the street-level impacts of construction on pedestrian movement. There would also be a temporary moderate adverse landscape impacts experienced during the construction of the power supply route within the public realm of Tumbalong Park, Darling Harbour.

During operation, there would be a minor beneficial impact as the highly urban environment would be improved by street activation and legible public transport access points.

Table 16-33 Pitt Street Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Pitt, Park and Castlereagh streets	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial
Pitt, Bathurst and Castlereagh streets	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial
Tumbalong Park, Darling Harbour	Regional	Noticeable reduction	Moderate adverse	N/A	N/A

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-34.

During construction, there would be a minor adverse visual impact on most views in the vicinity of the project. The impacts would primarily be due to the demolition of buildings. However, the mixed character of this precinct would readily absorb visual change. Notwithstanding, construction of the project would have a moderate adverse visual impact on views from Hyde Park, which is a more visually sensitive location. There would also be temporary moderate adverse visual impacts experienced during the construction of the power upgrade as it passes through Tumbalong Park, Darling Harbour in view of Cockle Bay.

During operation, there would be negligible visual impacts.

Table 16-34 Pitt Street Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site					
Viewpoint 1: View south along Pitt Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 2: View south along Castlereagh Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 3: View northwest from Hyde Park at the corner of Park and Elizabeth streets	Regional	Noticeable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 4: View northwest at the corner of Castlereagh and Park streets	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 5: View northeast at the corner of Park and Pitt streets	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Southern station site					
Viewpoint 6: View south along Pitt Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 7: View west along Bathurst Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 8: View west along Bathurst Street from Hyde Park	State	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 9: View north along Pitt Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Views to power supply route works (Surry Hills option)	Local	Noticeable reduction	Minor adverse	N/A	N/A
Views to power supply route works (Pyrmont option)	Local - regional	Noticeable reduction	Minor - moderate adverse	N/A	N/A

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-35.

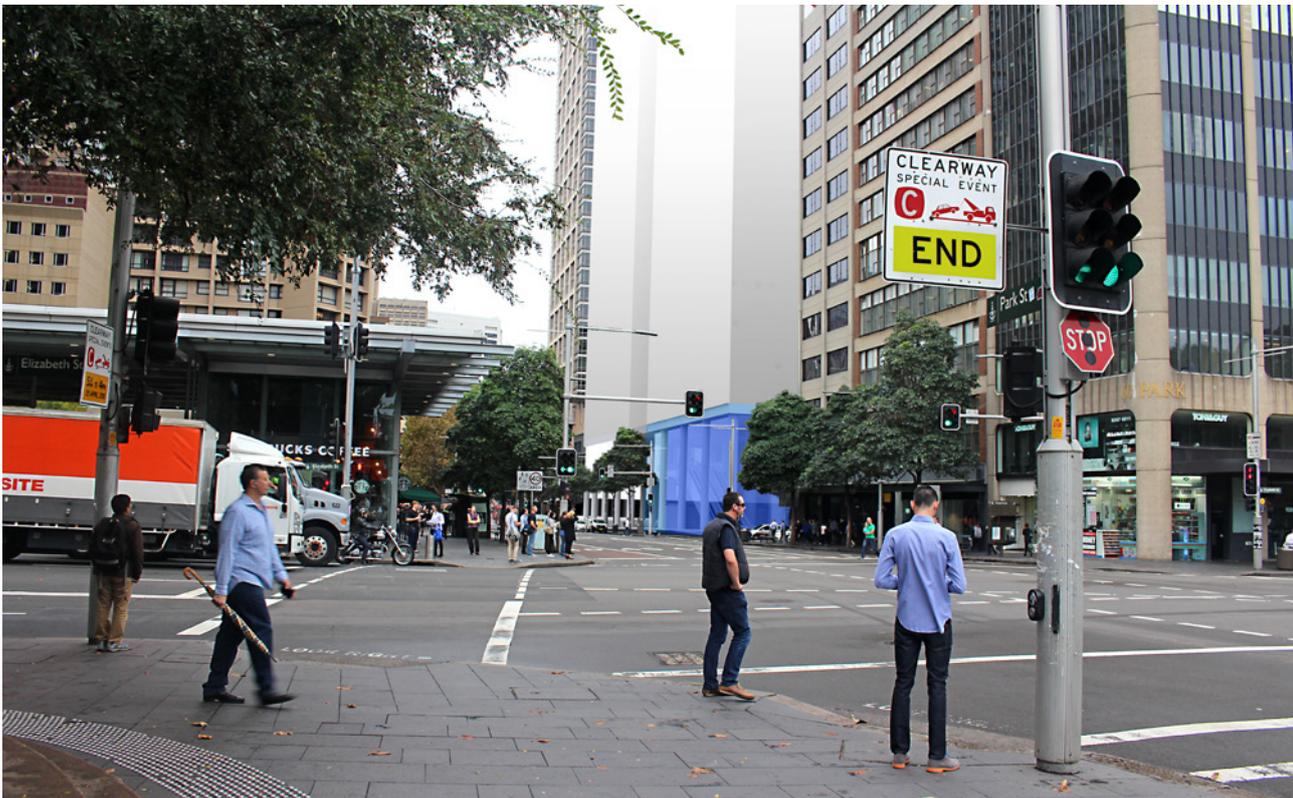
There would be negligible visual impacts during construction and operation due to its brightly lit Sydney CBD location where there is 24 hour activity and lighting from buildings and streets creating both direct light sources and a general skyglow around the site. Additionally, during construction, the majority of the lighting would be contained within the acoustic enclosures.

Table 16-35 Pitt Street Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible
Southern station site	E4: High district brightness	Noticeable reduction	Negligible	No perceived change	Negligible



Pitt Street (northern entry) – existing view from viewpoint 3, Hyde Park at Park Street



Pitt Street (northern entry) – artist's impression from viewpoint 3, Hyde Park at Park Street



Pitt Street (southern entry) – existing view from viewpoint 6, south along Pitt Street



Pitt Street (southern entry) – artist's impression from viewpoint 6, south along Pitt Street

16.4.10 Central Station

One landscape character area and seven representative viewpoints were selected to inform the landscape character and visual amenity assessment for Central Station.

The landscape character area is northern concourse.

Representative viewpoints are shown in Figure 16-10.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- Existing suburban rail
- 03
 Viewpoint location
- 08
 Artists impression

Indicative only, subject to design development



Figure 16-10 Central Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-36.

During construction the project would also have a moderate adverse landscape impact at the northern concourse due to impacts on pedestrian connectivity and activation of this plaza due to the loss of retail tenancies and construction activity.

During operation, there would be negligible landscape impacts at the northern concourse due to its reinstatement and the introduction of an improved public realm and metro station entries.

Table 16-36 Central Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Northern concourse	Regional	Noticeable reduction	Moderate adverse	No perceived change	Negligible

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-37.

During construction, there would be a range of adverse visual impacts including minor, moderate and high adverse visual impacts. These impacts would primarily be due to the sensitivity of views and the scale of construction activities, particularly the demolition of buildings (including heritage buildings and historic character buildings), the removal of trees, and the proposed scale of new built elements (particularly the temporary pedestrian bridge between platforms 4 and 23 and the access bridge from Regent Street).

Moderate visual impacts would be experienced in views to the Sydney Yard Access Bridge, from adjacent station platforms, and trains approaching and departing Central Station to the south.

During operation, there would be negligible visual impacts on the majority of assessed viewpoints as much of the site would be reinstated. However, moderate adverse visual impacts are anticipated to be experienced at Regent Street where the Sydney Yard Access Bridge would remain and continue to be used for access to the Yard.

Table 16-37 Central Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southwest from Eddy Avenue to the northern concourse	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 2: View south from platform 16	Regional	Noticeable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 3: View northwest from the corner of Devonshire and Chalmers streets	Local	Noticeable reduction	Minor adverse	N/A	N/A
Viewpoint 4: View west from Chalmers Street	Local	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 5: View west from Prince Alfred Park	Regional	No perceived change	Negligible	No perceived change	Negligible
Views from the rail corridor	Regional	Noticeable reduction	Moderate adverse	Noticeable reduction	Moderate adverse
Viewpoint 6: View southeast along Regent Street	Local	Considerable reduction	Moderate adverse	Considerable reduction	Moderate adverse
Viewpoint 7: View southeast from Meagher Street	Local	Considerable reduction	Moderate adverse	Considerable reduction	Moderate adverse
Viewpoint 8: View east across Regent Street to Mortuary Station	Regional	Noticeable reduction	Moderate adverse	Noticeable reduction	Moderate adverse
Views to power supply route works	Local	Noticeable reduction	Minor adverse	N/A	N/A

Night-time visual amenity impacts

As indicated in Table 16-38, there would be negligible night-time visual impacts during both construction and operation of the project.

During construction the site would be largely contained within the station and not likely to be overlooked by surrounding streets, residential properties or hotels. The construction lighting would be generally consistent with the brightly lit station area. Overall, it is expected that at night the project would not create a perceived change in the amenity of views in this area, which would result in a negligible visual impact during out of hours works.

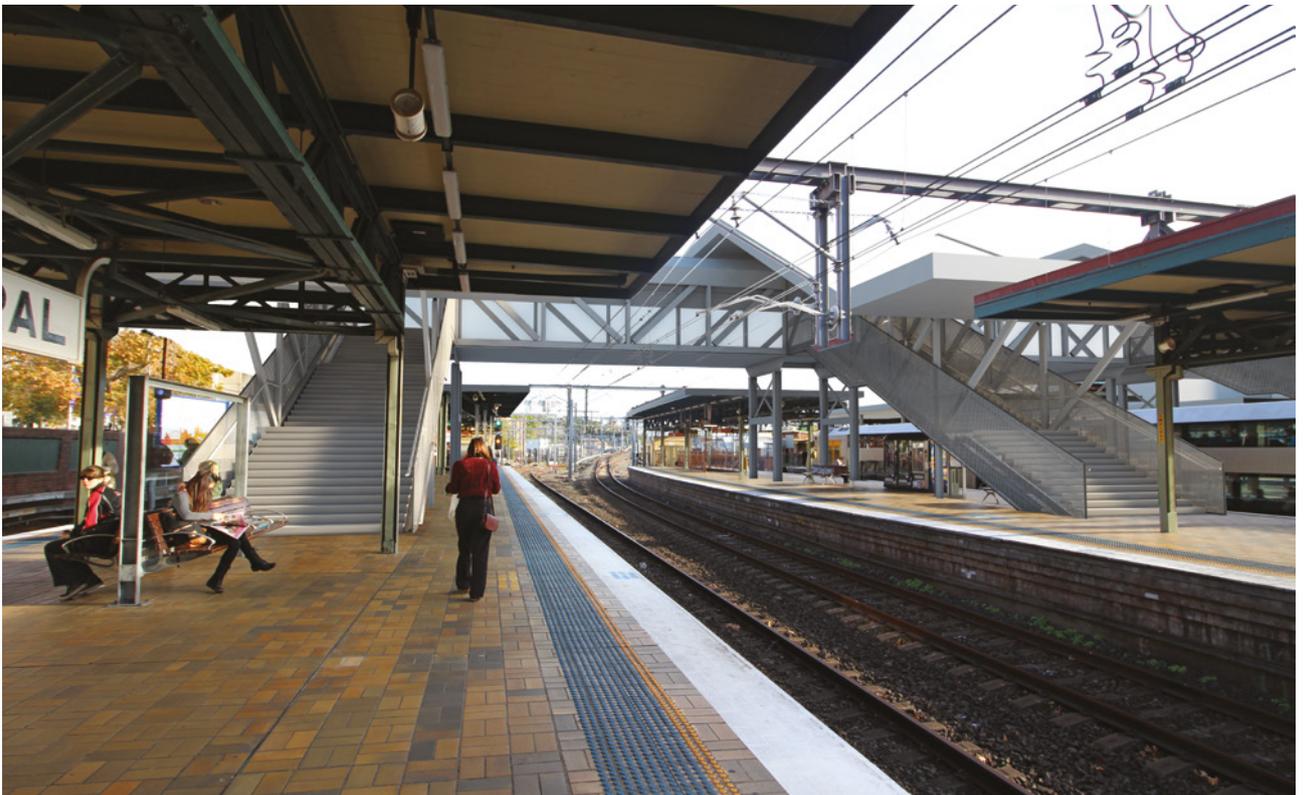
During operation, the station function would be restored and the associated lighting would be consistent with the high district brightness environment of the existing station. Therefore, the lighting of the project would not create a perceived change in visual amenity, resulting in a negligible visual impact for this area.

Table 16-38 Central Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Central station site	E4: High district brightness	No perceived change	Negligible	No perceived change	Negligible



Central Station – existing view from suburban platforms



Central Station – artist's impression of temporary pedestrian bridge from suburban platforms



Sydney Yard Access Bridge – existing view from the rail corridor



Sydney Yard Access Bridge – artist's impression from the rail corridor



Central Station – existing view from viewpoint 8, Regent Street



Central Station – artist's impression from viewpoint 8, Regent Street (showing Sydney Yard access bridge)

16.4.11 Waterloo Station

Two landscape character areas and five representative viewpoints were selected to inform the landscape character and visual amenity assessment for Waterloo Station. Landscape character areas are:

- Botany Road and Raglan Street commercial precinct
- Cope and Wellington streets.

Representative viewpoints are shown in Figure 16-11.



KEY

- Chatswood to Sydenham
- Proposed operational area at surface
- Proposed construction site area
- Existing suburban rail
- Viewpoint location

Indicative only, subject to design development



Figure 16-11 Waterloo Station – representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-39.

During construction, there would be negligible to minor adverse landscape impacts. These impacts would primarily be a consequence of the street-level impacts of construction on pedestrian movement and the reduced shade due to removal of buildings with awnings and street trees.

During operation, there would be a minor beneficial impact. This would be due to the combined effect of footpath improvements, increased connectivity through new pedestrian crossings and introduction of a public transport access point.

Table 16-39 Waterloo Station – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Botany Road and Raglan Street commercial precinct	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial
Cope and Wellington streets	Neighbourhood	Noticeable reduction	Negligible	Noticeable improvement	Negligible

Daytime visual amenity impacts

The anticipated daytime visual impacts on representative viewpoints during construction and operation are summarised in Table 16-40.

There would be a negligible to minor adverse visual impact on most views in the vicinity of the project during construction. These impacts are primarily derived from the demolition of existing buildings. There would also be a moderate adverse impact in views from Botany Road where the setting of the heritage listed church is altered.

During operation there would be negligible visual impacts as the precinct would readily absorb the visual change due to the existing eclectic mix of character.

Table 16-40 Waterloo Station – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View east from Wellington Street towards Botany Road	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 2: View northeast from Botany Road	Local	Considerable reduction	Moderate adverse	No perceived change	Negligible
Viewpoint 3: View southeast from the intersection of Botany Road and Raglan Street	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Viewpoint 4: View southwest from the corner of Cope and Raglan streets	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Viewpoint 5: View south from Cope Street	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Views to power supply route works	Neighbourhood	Noticeable reduction	Negligible	N/A	N/A

Night-time visual amenity impacts

The anticipated night-time visual impacts during construction and operation are summarised in Table 16-41.

During construction, there would be minor adverse visual impacts due to the requirement for out-of-hours vehicle deliveries and haulage.

During operation, there would be a largely negligible visual impact due to the existing lighting levels (assessed as being 'E3: Medium district brightness') and the existing commercial development at the site. However, there would be a potential for minor adverse impacts in the vicinity of the station where it is seen from adjacent residences. This would be due to the increased lighting required to increase public safety.

Table 16-41 Waterloo Station – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Waterloo Station site	E3: Medium district brightness	Noticeable reduction	Minor adverse	No perceived change	Negligible



Waterloo Station – existing view from viewpoint 4, corner of Cope and Raglan Streets



Waterloo Station – artist's impression from viewpoint 4, corner of Cope and Raglan Streets

16.4.12 Marrickville dive site (southern)

Two landscape character areas and 10 representative viewpoints were selected to inform the landscape character and visual amenity assessment for the Marrickville dive site.

The landscape character areas are:

- Marrickville flood storage
- Industrial areas of Sydenham and Marrickville – street art precinct.

Representative viewpoints are shown in Figure 16-12.



- KEY**
- Chatswood to Sydenham
 - Proposed operational area at surface
 - Proposed dive structure
 - Proposed construction site area
 - Viewpoint location

Indicative only, subject to design development



Figure 16-12 Marrickville dive site - representative viewpoints

Landscape character impacts

Landscape impacts anticipated during construction and operation are summarised in Table 16-42.

During construction, there would be a minor adverse landscape impact on the Marrickville Flood Storage and street art areas due to the loss of warehousing that is located directly adjacent to the site.

During operation there are expected to be negligible landscape impacts.

Table 16-42 Marrickville dive site (southern) – landscape impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Marrickville Flood Storage	Local	Noticeable reduction	Minor adverse	N/A	N/A
Industrial areas of Sydenham and Marrickville – Street Art precinct	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible

Daytime visual amenity impacts

The anticipated visual impacts on representative viewpoints during construction and operation are summarised in Table 16-43.

During construction, there would be negligible visual impact on most assessed viewpoints. This would primarily be due to the consistency in character between the existing light industrial landscape and the proposed construction site activities. There would be a minor adverse visual impact on views from the rail corridor due to the scale and increased sensitivity of these views which are seen by a large number of viewers.

During operation, there would be negligible visual impact on assessed viewpoints. This would primarily be due to the consistency in character between the existing light industrial landscape and the site features, as well as the relatively low sensitivity of surrounding viewing locations. Although the project would potentially create a slight reduction in the amenity of these views, the overall impact would not be substantial.

Table 16-43 Marrickville dive site (southern) – daytime visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Viewpoint 1: View southwest from Edgeware Road	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Viewpoint 2: View southwest from Bedwin Road Bridge	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 3: View west from Camdenville Park	Local	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 4: View northwest from Unwins Bridge Road to Sydney Trains Network System Base	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 5: View northeast along Bolton Street	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 6: View northeast along Railway Terrace	Neighbourhood	Noticeable reduction	Negligible	No perceived change	Negligible
Viewpoint 7: View southeast from Sydney Steel Road to footpath connection with Shirlow Street	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 8: View southwest from Sydney Steel Road	Neighbourhood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 9: View southeast from the corner of Murray Street and Edinburgh Road	Neighbourhood	Noticeable reduction	Negligible	Noticeable reduction	Negligible
Viewpoint 10: Views from the rail corridor	Local	Noticeable reduction	Minor adverse	No perceived change	Negligible
Views to power supply route works	Neighbourhood	Noticeable reduction	Negligible	N/A	N/A

Night-time visual amenity impacts

As indicated in Table 16-44, there would be negligible visual impacts during both construction and operation due to the relatively low sensitivity of surrounding viewing areas and absorption of the change into the surrounding area (which was assessed as having 'E3: Medium district brightness'). Although this activity would potentially create a slight reduction in the amenity of these views, the overall impact is not expected to be substantial.

Table 16-44 Marrickville dive site (southern) – night-time visual impacts

Location	Sensitivity rating	Construction impact		Operation impact	
		Modification rating	Impact rating	Modification rating	Impact rating
Marrickville dive site	E3: Medium district brightness	No perceived change	Negligible	No perceived change	Negligible



Marrickville Dive Site – existing view from viewpoint 2, Bedwin Road bridge



Marrickville Dive Site – artist's impression during construction from viewpoint 2, Bedwin Road bridge

16.5 Mitigation measures

The mitigation measures that would be implemented to address potential landscape character and visual amenity impacts are listed in Table 16-45 and Table 16-46.

Table 16-45 Mitigation measures – landscape character and visual amenity – construction

Ref	Mitigation measure	Applicable location(s) ¹
LV1	Where feasible and reasonable, the elements within construction sites would be located to minimise visual impacts, for example materials and machinery would be stored behind fencing.	All except metro rail tunnels
LV2	Existing trees to be retained would be protected prior to the commencement of construction in accordance with Australian Standard <i>AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties</i> .	All except metro rail tunnels
LV3	Lighting of construction sites would be oriented to minimise glare and light spill impact on adjacent receivers.	All except metro rail tunnels
LV4	Visual mitigation would be implemented as soon as feasible and reasonable after the commencement of construction, and remain for the duration of the construction period.	All except metro rail tunnels
LV5	Opportunities for the retention and protection of existing street trees would be identified during detailed construction planning.	All except metro rail tunnels
LV6	The design and maintenance of construction site hoardings would aim to minimise visual amenity and landscape character impacts, including the prompt removal of graffiti. Public art opportunities would be considered.	All except metro rail tunnels
LV7	The selection of materials and colours for acoustic sheds would aim to minimise their visual prominence.	CDS, CN, VC, BN, MP, PS, WS, MDS
LV8	Tunnel boring machine retrieval works at the Blues Point temporary site would be timed to avoid key harbour viewing events.	BP
LV9	Benching would be used where feasible and reasonable at Blues Point temporary site to minimise visual amenity impacts.	BP

¹ STW: Surface track work; CDS: Chatswood dive site; AS: Artarmon substation; CN: Crows Nest Station; VC: Victoria Cross Station; BP: Blues Point temporary site; GI: Ground improvement works; BN: Barangaroo Station; MP: Martin Place Station; PS: Pitt Street Station; CS: Central Station; WS: Waterloo Station; MDS: Marrickville dive site; Metro rail tunnels: Metro rail tunnels related – not related to other sites (eg TBM works).

Table 16-46 Mitigation measures – landscape character and visual amenity – operation

Ref	Mitigation measure	Applicable location(s) ¹
LV10	Cut off and direct light fittings (or similar technologies) would be used to minimise glare and light spill onto private property.	CDS, AS, MDS
LV11	Where feasible and reasonable, vegetation would be provided to screen and visually integrate sites with the surrounding area.	CDS, AS, MDS
LV12	Identify and implement appropriate landscape treatments for Frank Channon Walk.	STW, CDS
LV13	The architectural treatment of Artarmon substation would minimise visual amenity and landscape character impacts.	AS
LV14	The Harbour cycles sculpture at North Sydney would be reinstated at a location determined in consultation with North Sydney Council.	VC
LV15	The P&O Fountain at 55 Hunter Street would be reinstated at a location determined in consultation with City of Sydney Council.	MP
LV16	Opportunities would be investigated to provide a permanent wall for street art at Marrickville dive site in consultation with Marrickville Council.	MDS
LV17	Noise barriers would be transparent where they are augmenting existing transparent noise barriers.	STW

¹ STW: Surface track works; CDS: Chatswood dive site; AS: Artarmon substation; CN: Crows Nest Station; VC: Victoria Cross Station; BP: Blues Point temporary site; GI: Ground improvement works; BN: Barangaroo Station; MP: Martin Place Station; PS: Pitt Street Station; CS: Central Station; WS: Waterloo Station; MDS: Marrickville dive site; Metro rail tunnels: Metro rail tunnels related – not related to other sites (eg TBM works).