



Planning &
Environment

***MODIFICATION REQUEST:
Sydney Metro City and Southwest -
Chatswood to Sydenham***

***Modification to Victoria Cross
Station and Artarmon Substation
SSI 7400 (MOD 1)***



Secretary's Environmental Assessment
Report
Section 115ZI of the
Environmental Planning and Assessment
Act 1979

October 2017

Cover Photo — Artist impression of the Victoria Cross Northern Services Building and Station Entry (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

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Published October 2017
Department of Planning and Environment
www.planning.nsw.gov.au

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1. BACKGROUND

Transport for NSW (TfNSW – the Proponent) has submitted a request to modify the Sydney Metro City and Southwest – Chatswood to Sydenham State significant infrastructure approval (SSI 7400) to relocate the northern services building and include a new station entrance at Victoria Cross; and relocate the substation at Artarmon.

The Sydney Metro City and Southwest – Chatswood to Sydenham was approved on 9 January 2017 by the Minister for Planning under Section 115ZB of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It forms part of a future modern high capacity rail network which also includes Sydney Metro Northwest (currently under construction) and the proposed Sydenham to Bankstown upgrade project.

The project is primarily an underground metro rail line, 16.5 kilometres in length, between Chatswood Station and just north of Sydenham Station. New metro stations would be provided at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo; and new underground platforms at Central.

Construction of the Chatswood to Sydenham section commenced in June 2017. Operation is proposed to commence in 2024.

This modification request addresses changes in impact, compared to the approved project, of relocating the Victoria Cross services building and Artarmon substation resulting from the Proponent's commitment to consider alternative locations of the Victoria Cross services building and Artarmon substation in accordance with the *Chatswood to Sydenham Submissions and Preferred Infrastructure Report* and condition A21.

Condition A21 addressed concern about unresolved potential for significant construction noise and vibration impacts to use of the multi-use theatre and music space at 194-196A Miller Street and enforced the Proponent's commitment to consider alternative locations for the Victoria Cross services building.

Alternative locations for the proposed substation at Artarmon were considered in line with the Proponent's commitment in the *Chatswood to Sydenham Submissions and Preferred Infrastructure Report* in response to submissions received concerned about construction and operational noise impacts to residents.

2. PROPOSED MODIFICATION

2.1. Victoria Cross Northern Services Building and New Station Entrance

TfNSW proposes to relocate the Victoria Cross northern services building from 194-196A Miller Street to a new location at 50 McLaren Street, North Sydney and provide a new lift only station access at this location (see **Figure 1**). The northern entrance and services building would be at the north-east corner of McLaren and Miller Streets and cover an area of 4,180 square metres.

This site is located within a mixed-use precinct with commercial, health, residential, community facilities and educational institutions nearby. The proposed site is vacant land with development approval for an aged care facility.

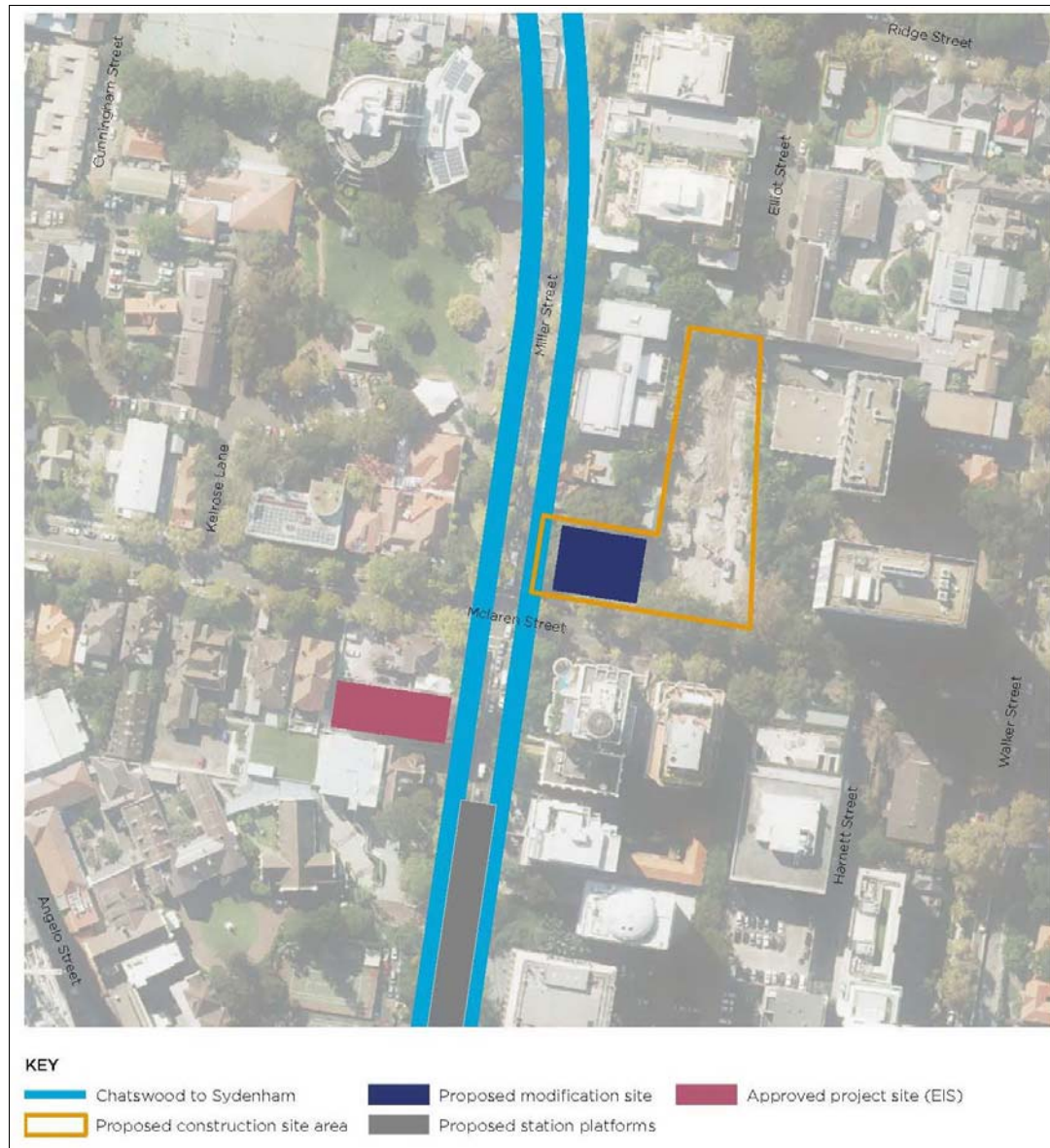


Figure 1: Proposed relocation of Victoria Cross northern services building, additional access and construction site (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

The northern station entrance and services building includes:

- a three storey northern services building with an approximate 6.8 metre set back from Miller Street and 3.3 metre setback to the boundary of 243 Miller Street (**Figure 2**);
- a lift only station entry with four 27 person lifts;
- a 38 metre long underground pedestrian walkway connecting the lifts to the station concourse located within the underground services adit; and
- use of 52 McLaren Street, North Sydney as a construction site to support construction of the northern services building and new station entry works; and
- maintenance vehicle access from the eastern side of the services building via McLaren Street.

Construction at this site is expected to take two years.

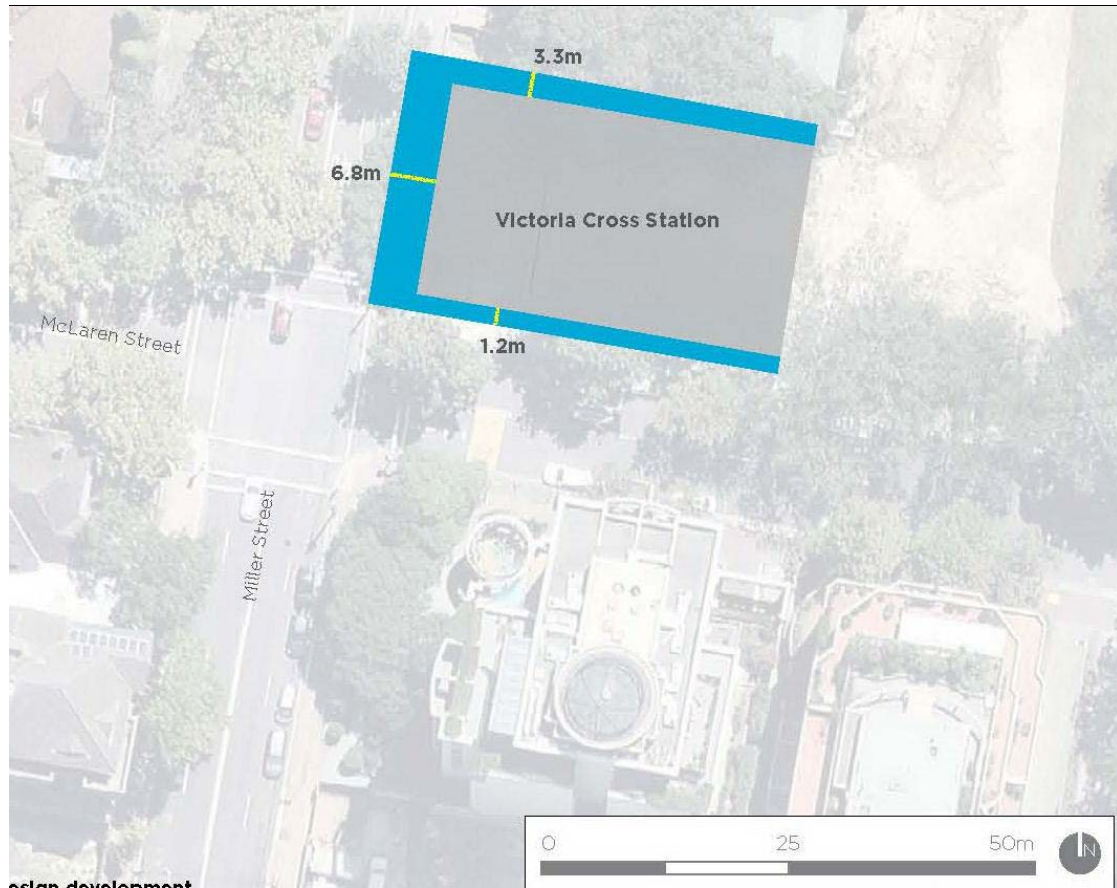


Figure 2 Northern station entrance and services building proposed setbacks (Source: Victoria Cross Station and Artarmon Substation Modification Submission Report, TfNSW 2017)

The proposed relocation site was chosen following an analysis of alternative locations for the northern services building in accordance with condition A21 which states:

The Proponent must undertake a further detailed analysis of alternative locations for construction of a services building to support Victoria Cross Station. The analysis must include a rigorous options assessment which considers constructability, property impacts, operational efficiency and comparative impacts, including construction and operational noise impacts in consultation with the Acoustics Advisor required by Condition A25. The analysis must be submitted to the Secretary and where the analysis identifies a better alternative to the Victoria Cross North site identified in the EIS, the Proponent must submit the recommendation to the Secretary for approval before commencement of construction at the Victoria Cross North construction site.

The relocated services building with additional station access is expected to have improved environmental outcomes compared to the approved location as the site:

- is currently vacant and building demolition is not required;
- would result in fewer and less severe exceedances of the noise management levels during construction;
- would avoid ground-borne noise management level exceedances at the O'Regan Arts and Cultural Common at Monte Sant' Angelo College; and
- would improve amenity and access for customers with the addition of lift only access and increase the catchment area serviced by Victoria Cross station.

Over station development and possible future use is not considered by this modification. Any surplus land would be sold consistent with TfNSW property disposal guidelines.

2.2. Artarmon Substation

TfNSW proposes to relocate the Artarmon substation from its approved location at Butchers Lane, north of the Gore Hill Freeway to 98-104 Reserve Road, in the Artarmon industrial area (**Figure 3**). The substation form would be consistent with the approved aboveground building and associated shaft for cables to the metro tunnels below. Construction would take approximately two years to complete.

Relocation of the substation would involve:

- demolition of two industrial/commercial buildings;
- construction of a two storey high substation, set back approximately one metre from Reserve Road and 0.04 metres from Whiting Street (see **Figure 4**);
- vehicle access from Whiting Street;
- an excavated shaft for conduits to the metro tunnel, and
- security fencing.



KEY

- | | | | | | |
|--|---------------------------------|--|----------------------------|--|-----------------------------|
| | Chatswood to Sydenham | | Proposed modification site | | Approved project site (EIS) |
| | Proposed construction site area | | | | |

Figure 3 Proposed relocation of Artarmon substation (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

Relocation of the substation would transfer construction and operational noise and amenity impacts from residences on Barton Road and Butchers Lane, particularly during construction, to the Artarmon industrial area which is considered an area with a more compatible land use.



Figure 4 Artarmon Substation proposed setbacks (Source: Victoria Cross Station and Artarmon Substation Modification Submission Report, TfNSW 2017)

3. STATUTORY CONTEXT

3.1. Modification of the Minister's Approval

In accordance with Section 115ZI of the EP&A Act, a proponent may request the Minister to modify the approval for State significant infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval. Relocation of the Victoria Cross northern services building, inclusion of an additional station entrance and relocation of the Artarmon substation are not considered consistent with the existing approval. Consequently, modification of the Minister's approval under Section 115ZI of the EP&A Act is required.

3.2. Delegated Authority

Under the Instrument of Delegation dated 16 February 2015, the functions and powers of the Minister for Planning to determine a modification of the Minister's approval may be delegated to the Director, Transport Assessments, whereby:

- the relevant local council has not made an objection;
- a political disclosure statement has not been made; and
- there are no public submissions in the nature of objections.

A political disclosure statement has not been made, the relevant local councils have not made an objection and no public submissions in the nature of objections were received. Accordingly, the Director, Transport Assessments, is delegated the authority to determine the modification request.

4. CONSULTATION AND SUBMISSIONS

4.1. Public Notification

Under Section 115ZL(1)(g) of the EP&A Act, the Secretary is required to make requests for modification of approvals given by the Minister publicly available. Accordingly, the Department made the modification request publicly available from Wednesday 7 June 2017 on its website and at:

- NSW Service Centres;
- Willoughby Council Customer Service Centre;
- Chatswood Library;
- Artarmon Library;
- North Sydney Council Customer Service Centre;
- Stanton Library;
- Lane Cove Council Customer Service Centre; and
- The Nature Conservation Council.

The Department accepted submissions until Wednesday 5 July 2017, a period of 28 days. The modification request was referred to North Sydney Council, Willoughby City Council, Lane Cove Council, City of Sydney, Inner West Council, Office of Environment and Heritage, Heritage Office, Environment Protection Authority, Department of Primary Industries and Fire and Rescue NSW who are the relevant authorities in regards to the proposed modification. Monte Sant' Angelo Mercy College was also notified of the exhibition.

During the exhibition period, the Department attended two community information sessions hosted by the proponent and has continued to consult with both North Sydney and Willoughby councils.

The Department received ten submissions; consisting of two submissions in support and eight providing comments. Five submissions were from public authorities, two from educational facilities and three public submissions. No objections to the modification request were received.

4.2. Submissions from Government Agencies and Local Government

Environment Protection Authority commented on potential for groundwater impacts, management and assessment against the ANZECC Guidelines, management of potential contamination at the Artarmon substation site and changes to noise and vibration impacts for different receivers including impacts to sleep disturbance and from ground-borne noise.

Office of Environment and Heritage (as delegate of the Heritage Council of NSW) noted that the existing conditions of approval would be sufficient to manage the likely heritage impacts.

Department of Primary Industries commented on the design (tanked or drained) and how this would impact the management of groundwater, including any potential for long term water quality impacts to the groundwater and monitoring and reporting arrangements at the Artarmon substation and Victoria Cross Station.

North Sydney Council commented on the proposed location of the Victoria Cross Northern Services Building and additional station entrance. Council provided comments on construction and operational impacts including support for the additional station entrance and taxi and kiss and ride infrastructure being provided at the northern site and future land use.

Willoughby City Council commented on the proposed location of the Artarmon substation and noted the potential for contamination could be managed by the existing conditions of approval and that the proposed substation site at Artarmon is acceptable.

4.3. Submissions from the Public and Educational Facilities

The three public submissions, from residents located close to the Victoria Cross Northern Services Building and additional station entrance, raised concerns about consultation, construction impacts, disabled and pedestrian access, setbacks from property boundaries, impacts to trees and the future use of the site.

Wenona School Limited commented on the potential for overlap of construction at the Victoria Cross site and construction within the school, traffic impacts and access, pedestrian connectivity and future over station development. Wenona also noted that the proposed location provides sufficient separation that would make it unlikely to create a disturbance for the school.

Monte Sant' Angelo Mercy College noted its strong support and public benefits of the proposed modification at Victoria Cross.

4.4. Proponent's Response to Submissions

Following completion of the formal exhibition period, the Department directed the Proponent to prepare a response to submissions received. The Proponent's response to submissions also outlines a number of changes to the modification. The changes to the modification include:

- reductions in setbacks for both the Victoria Cross services building and northern station entry and Artarmon substation;
- impacts to two fig trees at Victoria Cross services building and northern entry;
- clarification of potential over station development and sale of surplus land at Victoria Cross services building and northern station entry; and
- revised tables and mapping to correct inconsistencies in the noise assessment presented in the modification report.

5. ASSESSMENT

The proposed modification would result in changes to access, traffic and transport; noise and vibration; land use, landscape and visual aspects and heritage when compared to the approved Project. The acceptability of these impacts is assessed below.

Other impacts, such as the management of groundwater and contamination as raised in submissions by the Environment Protection Authority and Department of Primary Industries, are considered to have been appropriately considered by the Proponent in its Response to Submissions and residual impacts can be managed by the existing conditions of approval.

This includes the requirement to prepare a Site Contamination Report in accordance with the *Contaminated Land Management Act 1997* and constructing and operating the project to maintain or contribute towards achieving the *NSW Water Quality Objectives*.

5.1. Victoria Cross northern services building

Access, Traffic and Transport

Construction

The proposed site would be used to support the approved station cavern excavation further south along Miller Street and spoil removal activities. This would generate up to 24 heavy vehicles and 10 light vehicle movements per hour during off peak times (10am to 3pm and 7pm to 6am) and up to six heavy vehicles and two light vehicles in peak periods.

Construction traffic movements would be limited to primarily left-in and left-out of 52 McLaren Street (**Figure 5**) and scheduled to avoid school drop off and pick up times. The proposed haulage route is similar to that proposed in the EIS, with the exception of traffic using McLaren Street and Walker Street. Secondary and/or alternate access may also be established from Elliot Street (zoned mixed use but partly adjoins a low density residential area), McLaren Street and Miller Street.

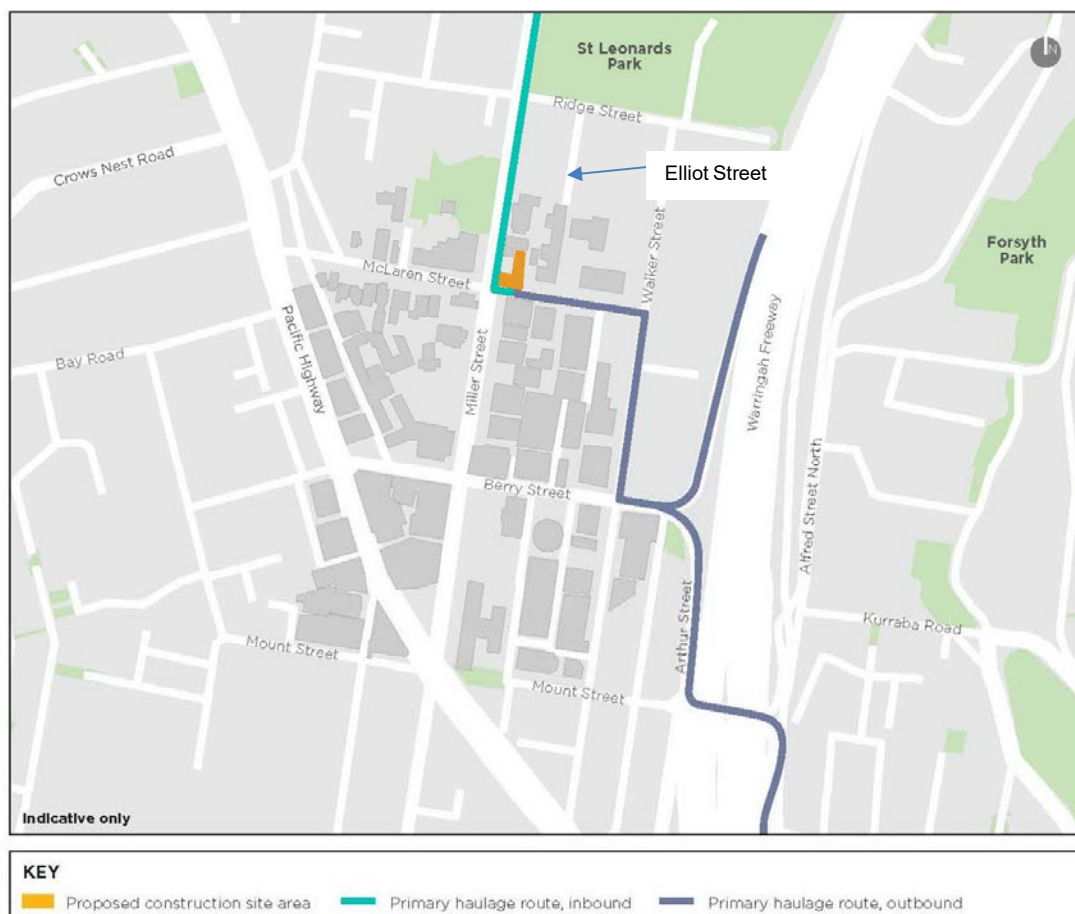


Figure 5 Proposed haulage route for Victoria Cross northern services building (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

Active transport routes along Elliot Street and the eastern boundary of 52 McLaren Street would be retained throughout construction, including the informal pedestrian route used by students from Wenona School.

The Department notes that there is an increase in construction traffic of an additional 20 heavy vehicles and nine light vehicle movements per hour during off-peak time (10 am to 3 pm and 7 pm to 6 am) and five heavy vehicles and two light vehicles in peak periods

compared to the approved project. Despite this, the predicted level of service at key intersections would not be changed from the approved project and the performance of the road network around Victoria Cross would not be significantly impacted.

In its submission, Wenona School requested that Elliot Street access be restricted due to potential conflicts with the school and users of Rydges Hotel. Elliot Street is a narrow, no through road, which passes residences, a hotel and the school. TfNSW confirmed its intention to only use Elliot Street as a secondary access where access is required for emergency situations. The Department, has therefore, recommended a condition restricting use of Elliot Street to emergency situations. The approach to managing pedestrian access and safety must be addressed in the Construction Traffic Management Framework and detailed in a Construction Traffic Management Plan for the site. The Department considers that the conditions in the Minister's approval will appropriately address this issue.

Operation

The northern lift-only station entry would provide approximately 2,300 trips to/from Victoria Cross Station in the AM peak hour in 2036. This includes trips generated from the increased catchment area. The four 27 person lifts would mean that with the expected AM peak patronage (at 2056), there would be a maximum queue of 20 people at any one time and a maximum wait time of 21 seconds. This would increase to 48 seconds with a queue length of 33 people should one lift be out of service. No other access is proposed at this location.

Lift-only entrances to stations exist in other countries (Hong Kong, Barcelona and the USA). In the unlikely event that all lifts are out of service, passengers would reroute and use the main entrance/exit to the station located approximately 280 metres south of the northern entrance on Miller Street.

Transfers to car-based modes (kiss and ride and taxis) would be relocated to the new northern entry subject to further consideration of the sloping gradient of McLaren Street and ease of accessibility. Bus transfers would remain at the southern station entry. Four marked motorcycle, two car share and two time restricted parking spaces currently located on the McLaren Street frontage would be permanently lost. North Sydney Council has indicated support for the northern access and for taxi and kiss and ride facilities to be moved out of the CBD. Separation of road-based transport modes between the two station access points and opportunities to minimise cars accessing the busier areas of the North Sydney CBD is supported.

The Department considers that existing conditions are sufficient to manage construction and operational access, traffic and transport related impacts with the addition of a condition restricting use of Elliot Street. The existing conditions include requirements for the:

- project to be designed, constructed and operated with the objective of integrating existing and proposed road and related transport networks and to minimise adverse impacts resulting from permanent and operational changes (Condition E75);
- establishment of a Traffic and Transport Liaison Group, that includes Council, to inform traffic and transport management measures to be implemented (Condition E77);
- preparation of Construction Traffic Management Plans to manage construction traffic and access (Condition E82); and
- avoidance of heavy vehicle haulage on local roads unless there is no feasible alternative (Condition E85).

Noise and vibration

Airborne noise

The Noise Management Level (NML, levels derived from the *Interim Construction Noise Guideline* that guide the need to apply work practices to minimise noise impacts) will be exceeded during construction by up to 20 dBA at nearby receivers (including nearby residential and commercial receivers) (**Figure 6**). This is less than the exceedance at the approved location (greater than 20 dBA exceedance at the nearest educational and commercial receivers) but consistent with the nearest residential receiver. The Department recognises that, while fewer exceedances of the NMLs are expected compared to the approved project, some will be experienced by different receivers. Notwithstanding, the approach to construction noise management is consistent with the existing approval and exceedances of a 45 dBA internal noise level at night would require the proponent to offer additional mitigation in accordance with the project's noise and vibration strategy.

Ground-borne noise

Ground-borne noise exceedances during station shaft excavation (approximately seven months in duration) are predicted to be up to:

- 30 dBA above the NML during the day and up to 2 dBA during the night for a residential receiver (243 Miller Street) located five metres from the works site (noise catchment A);
- 22 dBA above the NML for the commercial receiver located seven metres from the excavation (noise catchment B);
- 15 dBA above the NML for the residential receiver located 20 metres away from the excavation (noise catchment C); and
- 5 dBA above the NML at Wenona School, located 35 metres away (noise catchment E).

Ground-borne vibration

Excavation of the shaft using a medium rock breaker may result in the cosmetic damage screening criterion being exceeded at 243 Miller Street, a local heritage building. This building was not affected by vibration from excavation at the approved site. The Proponent has committed to managing vibration levels by developing appropriate limits for the building from a more detailed structural assessment and undertaking attended vibration monitoring during construction to manage vibration generating activities. The Department considers that this is appropriate and notes that the existing conditions also require the Proponent seek the advice of a heritage specialist on methods and locations for installing equipment used for vibration, movement and noise monitoring. Any damage would need to be rectified by the Proponent.

Construction traffic noise

Construction traffic noise is expected to exceed the relevant criterion by 2.5 dB on McLaren and Miller streets at commercial and residential receivers. The sleep disturbance screening criterion and external sleep disturbance Noise Management Level are also likely to be exceeded (by up to 13 dB and 14 dB respectively) in these locations.

The Proponent considers this impact would be similar to noise impacts from other heavy vehicles already using these streets but has committed to considering alternative traffic routes for night time heavy vehicle movements to avoid Walker Street if the road traffic noise criterion cannot be met. The Department notes the concern raised in submissions regarding noise impacts and potential for sleep disturbance from 24 hour truck movements and supports the Proponent's revised commitments including investigating opportunities to minimise heavy vehicles from the northern construction site at night. Existing conditions also require additional mitigation to be offered where internal night time noise levels exceed $L_{eq(15 \text{ minute})}$ 45 dB(A) for residences.

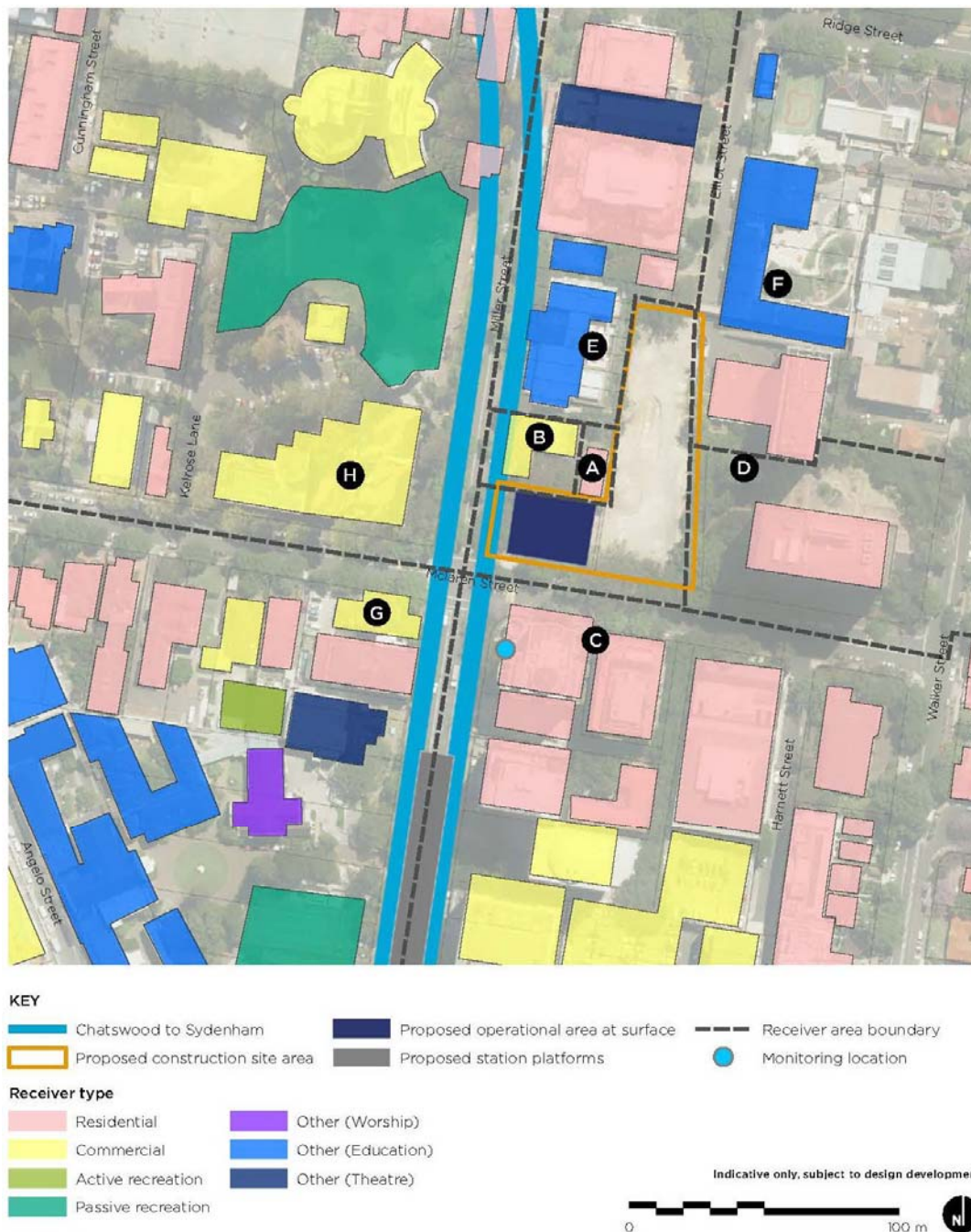


Figure 6 Victoria Cross Noise Catchment Areas (labelled with letters) (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

McLaren, Miller and Walker streets support high density residential, mixed use and commercial core zones and the approval includes conditions requiring:

- consultation with occupants of affected buildings when preparing the Construction Noise and Vibration Impact Statements;
- consideration of additional mitigation measures for residents within residential and non-residential zones; and
- the identification of particularly sensitive receivers and sensitive periods when construction must not be timetabled, unless other reasonable arrangements are made with the affected institutions or noise and vibration sensitive businesses.

Operational noise from service facility

Operational noise from mechanical and electrical services would be managed by designing the facility to include appropriate noise attenuation measures to meet the applicable criteria in the *Industrial Noise Policy*. The Department notes that the criteria expected to be achieved are the same as for the approved project and that the conditions of approval require an operational performance audit to confirm the environmental performance of the project meets the stated objectives, including noise levels.

The Department is satisfied that the existing conditions of approval with the Proponent's revised commitments including investigating opportunities to minimise heavy vehicle use at night are appropriate to manage the construction and operational noise and vibration impacts.

Land use, landscape and visual impacts

The proposed site is located on vacant land with development approval for an aged care facility in a mixed-use precinct. Commercial, health, residential, community facilities and educational institutions are located nearby. The services building and station entrance is considered compatible with these surrounding land uses.

Over station development is not proposed in this modification. The proponent has also committed to selling any surplus land in accordance with TfNSW's property disposal guidelines.

The addition of a station entry at this location would increase the station catchment and improve connectivity consistent with State and local priorities. It would also enable car-based transfers (for example kiss and ride and taxi) and bus transit opportunities to be split between the northern and southern entries respectively, thereby minimising potential conflict of mixed modes using the same road-space in a relatively congested area.

The revised boundary setbacks from the property boundary on Miller Street (from 12 metres to approximately 6.8 metres) and McLaren Street (from approximately 4.5 metres to 1.2 metres) would enable the services building and station entry height to be reduced by approximately five metres. North Sydney Council initially indicated concern with the change in setback, particularly from Miller Street, however following a meeting with TfNSW to clarify this proposed change, council officers advised the Department that the setbacks, being from the property boundary and not the kerb, were acceptable and that it had no further concerns with the proposed modification.

Tree removal and pruning

The proposed modification would require:

- removal of a single Port Jackson Fig (*Ficus rubiginosa*) on Miller Street due to impacts from the construction of the proposed entry plaza (**Figure 7**); and
- potential partial loss of the root zone of a Morton Bay Fig (*Ficus macrophylla*) on McLaren Street (**Figure 8**) due to a three metre offset required between the tunnels and the station excavation to ensure structural integrity.

North Sydney Council advised TfNSW that it was not opposed to removal of the Port Jackson Fig on Miller Street as it is self-sown; does not hold any particular significance; and is located on private property.



Figure 7 Port Jackson Fig (*Ficus rubiginosa*) on Miller Street to be removed

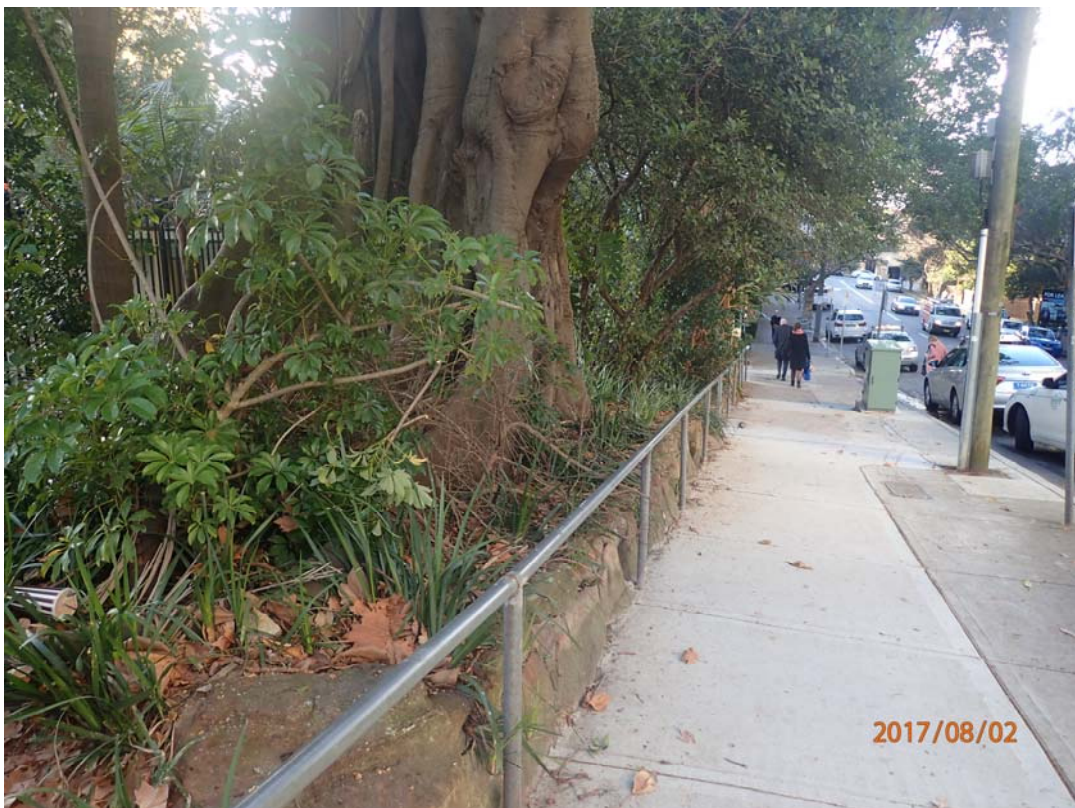


Figure 8 Morton Bay Fig (*Ficus macrophylla*) on McLaren Street

Construction is unlikely to damage the structural root zone of the Morton Bay Fig on McLaren Street that would require its removal. It may be avoided if the roots have been previously impacted by construction adjacent to it, however some pruning may be required. TfNSW has committed to locating temporary facilities to avoid further encroachment of the tree protection zone and to confirm the location of the tree roots by a qualified arborist during initial excavation works.

Adverse visual impacts are expected during construction at all locations considered from the establishment and operation of a construction site and the westward view along McLaren Street during operation due to the eastern façade being accentuated by the sloping gradient (see existing view west along McLaren Street in **Figure 9**). Minor visual improvements are predicted for the locations looking northeast across the intersection of McLaren and Miller Streets and south along Miller Street due to the proposed visually open and transparent station entry and plaza (see an artist's impression of the northern entry in

Figure 10).



Figure 9 Existing view west along McLaren Street (Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

The Department considers that the existing conditions of approval are sufficient to manage landscape and visual impacts during both construction and operation including the requirement:

- to minimise visual impacts of construction sites;
- to engage an arborist to prepare a Tree Report prior to any tree removal and to replace trees; and
- to establish a Design Review Panel to review design objectives and provide advice on the application of those objectives to key design elements.



Figure 10 Artist impression of new station entry from McLaren Street and Miller Street
(Source: Victoria Cross Station and Artarmon Substation Modification Report, TfNSW 2017)

Heritage

Minor or negligible indirect impacts to the views and vistas of six locally listed heritage items (including two heritage conservation areas, North Sydney Council Chambers, a shop, house and an office building) were identified. The shop, 243 Miller Street, may also be affected by vibration. Locally significant archaeological remains associated with previous buildings may be uncovered during excavation.

Seven locally listed heritage items would have been impacted by construction at the approved location (194-196A Miller Street). All but one of those sites (the McLaren Street Conservation Area) would be avoided at the proposed new location. The resulting impact is predicted to be a minor to negligible indirect impact to the six locally listed heritage items resulting in a similar overall impact to local heritage as the approved project.

The Department considers the impacts to heritage can be appropriately managed by the existing conditions of approval which include the requirement to seek the advice of a heritage specialist on methods and locations for installing equipment used for vibration, movement and noise monitoring of heritage structures and conditions relating to unexpected heritage finds. This view is supported by the Heritage Council of NSW.

5.2. Artarmon Substation

Traffic and transport

Four heavy vehicles per hour are expected to access the site during construction. Left in/left out vehicle access via Whiting Street (a low trafficked road within a commercial/light industrial area) is proposed during site establishment and excavation. Impacts to pedestrian footpaths, crossings, cyclist facilities, taxi ranks, parking or the Artarmon bus loop during construction or operation are expected to be minimal with alternate routes available if needed.

The Department notes that the intersection performance and regional road operations are expected to be consistent with that for the approved project and that construction vehicles will use roads within an industrial zone compared to the previous residential zone. This is considered to provide a significant improvement over the approved site, particularly for

residential amenity and safety improvements during construction due to separation from the Artarmon Public School.

The Department considers the conditions of approval are sufficient to manage the construction and operation traffic related impacts and that no further conditions or amendments are required to manage these impacts.

Noise and vibration

Airborne Noise

Building demolition, excavation with rock breakers and substation construction are expected to exceed the NML up to and greater than 20 dB at the two closest commercial receivers and by less than 10 dB at residential, educational and childcare (175 metres away) receivers. The NML exceedance in the residential area is similar to the level predicted for the approved project. No works out of standard construction hours are proposed for the Artarmon substation construction.

Ground-borne Noise

Ground-borne construction noise levels of greater than 90 dBA are expected at the closest commercial receivers; motorcycle sales and service and car repairs and detailing (less than five metres away) or more than 20 dB above the Noise Management Level. This is greater than that predicted at the closest residential receivers (25 metres away) considered in the approved project.

Ground-borne Vibration

Ground-borne vibration is predicted to exceed the screening criterion for cosmetic damage at one commercial building immediately adjacent to the substation during shaft excavation using a medium rock breaker. No buildings were expected to exceed the vibration screening criteria at the approved site due to intervening distance. The proponent has committed to:

- conducting a more detailed assessment of the building to determine its ability to withstand vibration at anticipated levels and inform appropriate vibration goals;
- prepare pre-construction and post-construction building condition surveys; and
- monitor vibration during construction to exposure to vibration is consistent with identified levels and to respond as required.

The existing conditions also require that vibration from construction does not exceed the limits set out in the British Standard BS 7385-2:1993 and that owners of properties at risk are notified before construction that generates vibration commences and measures to ensure compliance outlined in the Noise and Vibration management sub plan. The Department is satisfied that these conditions are appropriate to manage potential impacts.

Traffic related noise

A child care centre located 175 metres from the substation site is likely to experience construction traffic noise up to 10 dB above the Noise Management Level during most construction activities. The proponent proposes to reassess the impacts once the existing and predicted traffic volumes and the noise mitigating performance of the child care centre's façade are known. This will inform appropriate noise mitigation measures.

Operational Noise

Operational noise from mechanical and electrical services is proposed to be managed by designing appropriate noise attenuation measures to meet the applicable criteria in the *Industrial Noise Policy* for commercial receivers.

The Department considers that the existing conditions relating to noise and vibration are appropriate to address/manage the impacts of construction and operation of the relocated

Artarmon substation. This includes the requirements for the preparation of Construction Noise and Vibration Impact Statements prepared in consultation with receivers, such as the child care centre and to identify particularly sensitive receivers and sensitive periods when works must not be timetabled unless alternative arrangements are made.

Land use and visual impacts

The proposed substation site, 98-104 Reserve Road, is currently used for industrial/commercial purposes; motorcycle sales and service and car repairs and detailing (**Figure 11** and **Figure 12**). This reduction in available industrial land is expected to be minor. The Department also notes that other industrial/commercial land is available for sale within the Artarmon Industrial area.



Figure 11 View northwest from Reserve Road



Figure 12 View northeast along Whiting Street

Minor adverse visual impacts from publicly accessible roadsides are expected during construction, however, during operation negligible impacts and no perceived change is anticipated as the substation is not proposed to contrast with the scale and character of the surrounding built form.

Willoughby Council has stated that the proposed substation location is more appropriately located within Artarmon industrial area than the previously proposed residential area. Council has also not raised any substantive issues regarding the revised setbacks. The Department considers that the revised setbacks are acceptable, align with the location of the current and adjoining buildings and would result in a structure of similar scale to that in the area.

The existing conditions of approval are considered appropriate to manage land use and visual impacts. These include the requirement to minimise visual impacts of construction sites and the involvement of the Design Review Panel to refine design objectives for place making, public realm and urban integration.

5.3. Administrative Modifications

The proponent, in addition to the above modification request, has sought approval for a variety of minor administrative modifications. The Department has accepted the request to improve readability, remove potential conflicts between conditions and clarify the intent of conditions. These conditions are outlined in Table 1 below.

Table 1. Proposed administrative modifications

Condition	Proposed modification	Reason for change
Table 1. Unexpected Heritage Finds	Clarify that an item identified in documents listed in the revised definition is not an unexpected find if encountered.	To clarify the intent of the condition.
Table 3. Reports and notifications -E82	Note the requirement for Construction Traffic Management Plans to be submitted to the Secretary for information.	Included in response to change proposed to condition E82, as outlined below.
Table 3. Reports and notifications -E92	Clarify that the (Station) Access Plans delivery and implementation program is required to be approved by the Secretary.	To clarify requirement for approval.
A24(d) Environmental Representative	Clarify that the ER is not required to review or endorse specialist content by a specialist reviewer.	To clarify the role of the ER to confirm the requirements of the approval have been fulfilled not to endorse specialist content.
A24(f) Environmental Representative	Amend condition to include the requirement of the ER to review the Proponent's notification of incidents.	To clarify that it is the Proponent's responsibility to notify incidents and that the Environmental Representative has a review role.
A25 Acoustic Advisor	To allow for qualified persons to assist the Acoustic Advisor.	To address concerns about the workload of the position.
A38 Environmental Audit	Clarify that this condition does not apply to operations.	Condition D11 addresses operational audit requirements.
B15 Provision of Electronic Information	To clarify that documents to be placed on the web can be agreed to by the Secretary.	To clarify what documents must be placed on the web.
C3. Requirements for CEMP sub-plans	Delete the requirement for Construction Traffic Management Plans to be prepared in accordance with the Construction Traffic Management Framework.	Conditions E81 and E82 manage construction traffic. E82 includes the requirement for the approval of Construction Traffic Management Plans by RMS.
C3(f). Requirement for the approval of a blasting subplan	Delete requirement for Secretary's approval of the blasting sub plan in condition C3(f).	Conditions E50 – E53 manage blasting and include a review by an independent specialist.
C3(h) requirement for the approval of a Construction Traffic subplan	Delete requirement for the approval of the Construction Traffic sub plan in condition C3(h).	Conditions E81 and E82 manage construction traffic. E82 includes the requirement for the approval of Construction Traffic Management Plans by RMS.

Condition	Proposed modification	Reason for change
C11 provision of access to real time monitoring data.	Amend title of Plan to be consistent with terminology used in Condition C10 and clarify that access to real time monitoring data is to be made available in real time for all parties listed in the condition.	To clarify the intent of this condition.
E4(c) materials and storage guidelines	Replace the superseded reference document with: <ul style="list-style-type: none"> • <i>Storing and Handling Liquids: Environmental Protection - Participants Manual</i> • <i>Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation.</i> 	To reflect current reference documents for materials handling and storage.
E6 - Trees	To clarify requirements of the tree report and replacement tree sizes to be determined with Council.	To clarify the requirements for the tree report and replacement trees.
E20 management of relics	Amend condition to refer to state significant relics.	To clarify the intent of this condition.
E29 Noise and Vibration	To clarify the requirement for the Noise and Vibration Management Sub Plan to outline management of properties at risk of exceeding the screening criteria for cosmetic damage.	To clarify the intent of this condition.
E34 Noise and Vibration	To clarify that this condition applies to institutions.	To clarify the intent of the condition
E41 and E42 mitigation for residential and non-residential zones	Amend the acoustic unit reference to refer to dB(A) instead of dB and change the word 'regenerated' to 'ground-borne' consistent with other conditions in this approval.	To clarify the applicable acoustic measurement unit to be used.
E44(f)	To clarify that the Out of Hours Works Protocol does not apply to works where an Environmental Protection Licence applies	To clarify the intent of this condition.
E46 restrictions on rock breaking	Amend condition to remove conflict with other conditions and clarify when rock breaking is not permitted.	To clarify the intent of this condition.
E47 Out of Hours Work Protocol	To note that the Out of Hours Works Protocol does not apply where an Environmental Protection Licence applies to those works	To clarify the intent of this condition.
E82 Construction Traffic Management Plans	Include requirement for the Construction Traffic Management Plans to be consistent with the CEMF and submitted to the Secretary for information.	To clarify the requirement for these plans to be submitted to the Secretary for information.
E88 Construction Traffic and Access	Replace the requirement for endorsement of the relevant roads authority with consultation with the Traffic and Transport Liaison Group.	To clarify the intent of this condition.

6. CONCLUSION AND RECOMMENDATION

The proposed modification to the approved project has been made in response to commitments to consider alternative locations of the Victoria Cross services building and Artarmon substation.

Overall, the residual impacts from this modification request are consistent with those considered for the approved project, but both relocation proposals provide improved community outcome. The Victoria Cross northern entry and services building will provide an additional station access and increase the station catchment while resulting in fewer noise impacts to residents, commercial and educational receivers during construction. The

Artarmon substation, located within an industrial area, would reduce construction noise and amenity impacts for residents located on Barton Road and Butchers Lane and avoid potential conflicts with the Artarmon Public School.

While there will be some additional and different impacts from these changes when compared to the approved project, the Department is satisfied these can be managed by the implementation of the proponent's commitments and with existing and amended conditions of approval. This includes an additional condition to ensure that construction traffic impacts on Elliot Street are restricted to emergency situations only.

It is recommended that the Director, Transport Assessments, as delegate for the Minister for Planning:

- consider the findings and recommendations of this report;
- determine that the application falls within the scope of section 115ZI of the EP&A Act;
- approve the modification application Modification Sydney Metro City and Southwest – Chatswood to Sydenham Modification to Victoria Cross Station and Artarmon Substation SSI 7400 Mod1, subject to conditions; and
- sign the attached notice of modification (Appendix D).

Recommended by:



12.10.17

Lisa Mitchell
Team Leader Rail

DECISION

Approved by:



18.10.2017

Kane Winwood
Acting Director
Transport Assessments

APPENDIX A MODIFICATION REQUEST

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7400

APPENDIX B SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7400

APPENDIX C RESPONSE TO SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7400

APPENDIX D RECOMMENDED MODIFYING INSTRUMENT
