

CBD South East Light Rail

SSI 6042

City of Sydney Response to the EIS

Submission to NSW Department of Planning and Infrastructure
December 2013



CITY OF SYDNEY 
city of villages



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1.0 Executive Summary

The construction and operation of the Sydney Light Rail Project will be delivered by Transport for New South Wales (TfNSW) under a Public Private Partnership (PPP) model. The City of Sydney has committed \$220 million to the overall project budget of \$1.6 billion and has a binding Development Agreement with TfNSW to ensure a high quality urban design outcome for the City Centre and Surry Hills. The City has also contributed resources to assist TfNSW with transport planning, urban design, sustainability, traffic operations and community engagement.

The City strongly supports the project and has been working closely with TfNSW in order to ensure a superior outcome for the City Centre and Surry Hills. Given that the light rail will significantly intensify pedestrian activity along the route, main requirements for the City are:

- Maintenance of access to properties during construction and subsequent operation of the light rail.
- Mitigation of noise and construction disruption to residences and businesses along the alignment, in particular in Devonshire and Chalmers Streets, and near hotels in the city.
- Resolution of public amenity concerns including provision of trees and mitigation of the loss of on-street parking.
- High quality urban design outcomes for the City Centre and Surry Hills.
- A tunnel under Moore Park rather than the viaduct option which would have unacceptable amenity impacts.
- Provision of a new neighbourhood park at Olivia Gardens in Surry Hills.
- The upgrade of Devonshire Street through the reconstruction of footpaths and provision of new lighting and trees.
- Pedestrianisation of part of George Street and for this area to be free of overhead catenary wires.
- A requirement for the contractor's design team to consult with the City's staff during the development of detail designs for traffic management, public domain design and in-ground services from initial through to final phases.

The submission Recommendations are found in Sections 2 - 7 of this report.

Recommended draft Conditions of Consent are found in Appendix A of this report.

The Development Agreement between TfNSW and the City has addressed many of the City's concerns with the project, especially in areas related to urban design outcomes and protection of the interests of resident and business stakeholders. The Recommendations and resulting recommended Conditions of Consent do not repeat issues resolved in the Development Agreement, focusing on issues still to be resolved.

1.1 Executive Summary Expansion

1.1.1 Major Project Objectives

The project is intended to deliver a significant improvement in traffic and transport outcomes; however the City's objectives go beyond a transport solution. The pedestrianisation of parts of George Street and the urban upgrade of Devonshire Street are part of the City's requirements, linked to the financial contribution to the project. The following outcomes have been agreed with Transport for NSW in the Development Agreement.

The Project will provide:

- A functioning light rail service, extending from Circular Quay to the University of NSW and to Prince of Wales Hospital in Randwick;
- High design standards for the provision of paving, lighting, trees, Smartpoles, street furniture and light rail stops along the entire length of the alignment, consistent with the City's design standards;
- The pedestrianisation of part of George Street from Bathurst Street to Hunter Street;
- The project design will not preclude possible opportunities in the future for pedestrianisation between Liverpool Street to Bathurst Street, and Hunter Street to Bridge Street, or for a pedestrian bridge over Anzac Parade;
- The project design will not preclude future expansion of the Light Rail network to Oxford St, Walsh Bay/Barangaroo and Green Square;
- The pedestrianised area of George Street is to be "wire free" at least between the Town Hall stop and the Wynyard stop;
- The Project will include upgrading of both footpaths along the whole length of Devonshire Street, Surry Hills, with high quality concrete tile pavers, consistent with the City's standards for Village main streets;
- The Project will provide high quality new plazas and pocket parks where street closures are required adjoining Devonshire Street;
- TfNSW and the light rail operator will consider a second light rail stop in Surry Hills east of Bourke Street;

- The Project will create a new park for Surry Hills which will be dedicated to the City as “Community Lands” on the current Olivia Gardens site;
- The design of the project is to minimise above-ground infrastructure in Moore Park and to maximise accessible open space and view lines, and to minimise visual impacts. The tunnel portal is to be designed to avoid adversely affecting the open space of the park. The current design should be adjusted to meet these objectives;
- The project will provide a new pedestrian and cycleway connection along the light rail route from Bourke Street, crossing the Eastern Distributor to Moore Park;
- TfNSW will explore opportunities to mitigate the loss of on-street parking without affecting open space;
- Trees are to be retained wherever possible. New trees are to be planted along the route using species nominated by the City;
- Design and construction of the project is to comply with the City’s Public Domain Codes and standards to ensure that the City’s urban design requirements are met or exceeded.

1.2 Key Issues

1.2.1 Design Improvement

A number of design issues are in the process of revision by TfNSW. The City would strongly support the following design modifications currently being developed by TfNSW:

Olivia Gardens Alignment

The City proposes that the track alignment should run approximately through the centre of the Olivia Gardens site. This will allow the creation of a neighbourhood park with the potential to include community facilities such as a playground to address the needs of the nearby Bourke Street School, and the ability to include other community facilities. This solution would also avoid the requirement to acquire a second property on South Dowling Street and allows for a solution for the Langton Clinic car parking loss.

Configuration of the Chalmers Street design

The City proposes that Chalmers Street be replanned to reduce the number of tracks from three to two and that provision be made for a cycleway to connect the current route from Green Square through Prince Alfred Park to the newly-planned cycleway in Castlereagh Street, allowing a connection through to the northern part of the City. The third track, which is required for managing services during sporting events, can be accommodated in Eddy Avenue.

Location of the Moore Park Stop

The City would support a change in the location of the Moore Park stop that is closer to Cleveland Street, opposite Sydney Girls and Sydney Girls High Schools. This will reduce the impact on Moore Park and provide better connectivity for the sports arenas, the Entertainment Quarter and the two high schools.

Moore Park Crossing

The City is opposed to a viaduct over Moore Park and strongly supports the proposed cut-and-cover tunnel. A viaduct would not only cut Moore Park in half but would commence on Devonshire Street, adversely affecting the public amenity of Devonshire Street and the new park at Olivia Gardens. A tunnel solution will protect the park, and provide a much superior public domain for the residents of Surry Hills. Fill from the excavation should be used to raise the level of the park edge to minimise the impact of the portal on the park edge. The new raised level should be re-turfed.

In order to ensure a satisfactory outcome for the design of all public domain areas, the City proposes that the Proponent be required to consult with the City's designers during the development of all design detail. This will include urban design, in-ground services including drainage, traffic management and sustainability.

1.2.2 Construction Activities

The City has raised concerns about the impact of construction on the general business community in the City, and the residents and businesses in Surry Hills. It is essential that TfNSW and the construction contractor prepare a Construction Management Plan that addresses the following matters:

- Noise, dust and vibration arising from construction activities;
- Access to properties for residents and businesses;
- Pedestrian access on footpaths along the light rail route;
- Traffic management, including access for deliveries to businesses;
- Hours of construction appropriate to the area. Businesses and residents should be consulted on their preferred hours of construction to enable effective respite for residents and minimise impacts on local businesses.

The City suggests that the Proponent be required to implement and sustain a pro-active public communications process that will allow all affected stakeholders to be kept informed of progress of the works and day-to-day activities that affect businesses and residents.

1.2.3 Pedestrianised Area of George Street

A key element of the City's support for the project lies in the pedestrianisation of George Street between Bathurst and Hunter Streets. It is the City's intention that this area becomes a world class retail and business address that is focussed on pedestrian access and safety. High quality urban design, based on the City's current standards, is to include granite paving, new upgraded lighting and a new suite of public domain furniture. It is also proposed that this pedestrianised area be free of overhead catenary wires in order to enhance the appearance of the many significant heritage buildings.

Whilst managed vehicle access to properties needs to be maintained, pedestrians must have right of way and visual priority at all times, except in relation to light rail vehicles. Any vehicles accessing the George Street pedestrianised area should use the light rail tracks to obtain this access, as this is the safest path available.

The City is generally opposed to the operation of any through traffic, including taxis and hire cars in the pedestrianised area; however it may be appropriate to allow taxis to access the area via the light rail tracks, to service the late-night hospitality businesses. Any such proposal would need to be supported by a thorough risk analysis that would include pedestrian safety, numbers and movement, industry demand, economic and social outcomes, and the prospect of anti-social behaviour. For safety reasons, the City does not support taxi access during times when both light rail and outdoor dining are operating.

1.2.4 Surry Hills Precinct

The Development Agreement between the Proponent and the City requires compliance with the City's Public Domain Design Codes and an upgrade to Devonshire Street through the reconstruction of footpaths and provision of new lighting and street trees. In addition, a new neighbourhood park is to be provided on the current Olivia Gardens site. A light rail stop is provided at Ward Park, and the park will be reinstated after partial use as a construction compound with a side platform.

Further issues of concern in relation to the Surry Hills Precinct that should be addressed include:

- Minimising impacts on Ward Park during construction, including consideration of use of Marlborough Street;
- Minimising use of overhead wires, the loss of existing trees and increasing the overall number of street trees through re-plantings;
- Siting electricity cables and sub-stations underground where possible;
- Mitigating the loss of on-street parking;

- Maintaining vehicular access for local residents, through for example Marlborough Street or Clisdell Street.

1.2.5 Sustainability

TfNSW has listed a number of sustainability objectives related to standards established by the Infrastructure Sustainability Council of Australia (ISCA). The proposal identifies minimum standards to be attained by the project as well as much higher “aspirational” standards. The City submits that the aspirational standards should be adopted as mandatory requirements.

1.2.6 Community Engagement and Communication

TfNSW should adopt a community engagement strategy that is comprehensive in communicating information about the project and the EIS throughout the delivery and construction phase to allow for clear communications to affected stakeholders. It will be critical that residents and business are kept informed of day-to-day activities that may have an impact on access, noise and disturbance along the route. The communications strategy should include a mechanism allowing proactive community input, for example, a website response capability.

1.3 Key Topics requiring Conditions of Consent

The City’s recommended draft Conditions of Consent (Appendix A) fall into a range of categories as below:

Urban Design

The Proponent will be required to consult with the City of Sydney during the development of detail and final designs for the project. This is to include public domain urban design, in-ground services, locations of substations, traffic management, sustainability and construction methodology.

Pedestrianisation

George Street between the north side of Bathurst Street and the south side of Hunter Street will be closed to through traffic to create an area where pedestrians have right of way over all vehicles other than light rail vehicles.

Stop Design

Light rail stops and shelters are to be designed to maximise transparency and visibility and to the extent practicable, to minimise barriers for pedestrians, maintain permeability across the route and reduce clutter and signage.

Wire Free Area

The pedestrianised area of George Street is to be free of overhead catenary wires as

far as practically possible. The extent of any overhead charging systems at stops in this area is to be discussed and agreed with the City.

Street Trees

New street trees are to be provided in the City Centre and Surry Hills in accordance with the City's Public Domain design Codes and Standards. TfNSW is to strive to increase the overall number of street trees above the current numbers.

Moore Park West

The Proponent will construct a cut-and-cover tunnel for the alignment in Moore Park West and not a viaduct. The portal of the tunnel and any above-ground structures are to be designed to minimise loss of open space and adverse visual impact to the area.

Community Consultation and Communications

The Proponent will develop and implement a pro-active community engagement and consultation plan that includes provision of on-site liaison personnel with the ability to keep stakeholders informed of day-to-day activities and potential disruptions.

Parking

The Proponent will explore opportunities to mitigate the loss of on-street parking in Surry Hills without affecting open space.

Noise Management

The Proponent is to be required to comply with the Environment Protection Authority (EPA) Rail Infrastructure Noise Guidelines and the EPA Interim Construction Noise Guideline, and that Devonshire Street, Surry Hills, be designated as being a sensitive land use.

2.0 Social and Economic Impacts

2.1 Community Consultation

The City is broadly supportive of the community engagement strategy proposed by TfNSW and acknowledges that TfNSW has conducted extensive consultation prior to the submission of the EIS and during the EIS exhibition period.

However, Chapter 2 – Community and Stakeholder Consultation has little detail on what communications and consultation strategies are proposed going forward, especially during construction.

2.1.1 *Construction Stage – Community consultation*

The City expects that the community will be heavily consulted during construction, in an attempt to minimise impacts, as we consider disruption during construction will be a major concern to our community.

Recommendation 1

That the Proponent confirm details of communications and consultation strategies to manage issues arising from construction including: access and traffic changes, hours of works, noise, safety, and loss of amenity and public space. Respite for residents should be built into construction programming.

That clear communication is provided to the community (including visitors/tourists) on construction staging and timeframes to manage expectations, the notification and complaints handling process, and dedicated contact(s) for businesses and residents during construction. Consideration is to be given to issues arising from the visual effect of site damage, including graffiti and management of these impacts.

2.1.2 *Construction Stage – Consultation with business*

It is noted that working groups will be initiated with the City, Transport for NSW and businesses along with the preparation of a number of management strategies during the construction and operational stages. There is a requirement that businesses and representatives from Business Chambers (Surry Hills and Haymarket) are consulted as part of this process and representatives included on any work groups and provided with adequate time to respond to minimise negative impacts.

Recommendation 2

When developing Management Plans (i.e. the Environmental Management Plan, Business and Landowner Engagement and Management Plan, and Access Plan) engage with City of Sydney and representatives of Business Chambers, and invite businesses to contribute.

Include one-on-one discussions with businesses and stakeholders along the route to ensure consideration is made for direct access to properties for loading, deliveries, maintenance and parking.

That ongoing engagement and consideration of issues relating to loading and unloading generally, and particularly within the Haymarket and Surry Hills precincts, be included in the Business/Landowner Engagement & Management Plan.

2.1.3 City of Sydney Retail and Tourism Action Plans

Under the framework put in place by the City of Sydney Economic Development Strategy, the City has also released the first two of the City's Sector Action Plans, focusing on the retail and tourism sectors.

These Action Plans set out how the City will work with partners to maintain and further develop the important retail and tourism sectors in Sydney, and both reference the importance of the CSELR project for each sector within the stated actions. The Economic Impact Assessment should be amended to reference the relevant actions from the City of Sydney Tourism and Retail Action Plans.

3.0 Sustainability Impacts

3.1 Project Objectives

The City supports the sustainability objectives listed in Volume 1a, Table 7.4. Under Objective 3 of the CSELR Project Sustainability Strategy, the CSELR proposal is striving to achieve a 'Platinum' rating, with a minimum of 'Gold' rating under Transport for NSW's Sustainable Design Guidelines (Version 3.0). Under Objective 4 the CSELR proposal is striving for a 'Leading' rating, with a minimum 'Excellent' rating, under the Infrastructure Sustainability Rating Tool.

3.1.1 During Design Development

Recommendation 3

That the following changes are implemented in *Table 7.5 - Sustainability Initiatives* as follows:

Management systems:

- Annual sustainability reporting: a reporting standard (equal or at least equivalent to) should be specified, e.g. Global Reporting Initiative, or Infrastructure Sustainability Council Australia.
- Provide service corridors: Consultation with infrastructure agencies, utilities and local government must be specified.

Procurement and purchasing:

- Sustainability consideration in procurement: This should be a performance criteria in the selection process of the construction contractor(s) so that the market is pushed to apply innovation.

Climate Change Adaptation:

- Risk assessments: a risk and opportunity assessment must (not would) be undertaken. The details should then specify AS5334-2013 Climate Change adaptation for settlements and infrastructure – a risk based approach.

Water:

- “Maximise use of non-potable water uses” (p 7-12, volume 1a): This should be a firm commitment for implementation of non-potable water uses to be documented for capturing and re-using non-potable water for the washing bays for rolling stock.
- Table 7.3 Sustainability objectives and themes included in the CSELR Project Sustainability Strategy (p. 7-4, Volume 1a) does not mention WSUD in the “Sustainability themes” listed. WSUD to be identified as one of the main sustainability themes to ensure there is clear message as to the importance of this practice.

Materials:

- Material life cycle analysis consideration in design and procurement: If using a

large amount of a material with a sizable environmental impact, then an LCA will be carried out. This should also specify the industry standard for LCAs: ISO 14040 Environmental Management – Life cycle assessment.

3.1.2 ***During and After the Construction Stage***

Specific recommendations for Table 7.5 Sustainability Initiatives are as follows:

Recommendation 4

That the following changes are implemented in *Table 7.5 - Sustainability Initiatives* as follows:

Energy and Greenhouse:

- Energy efficient signals: This should also apply to the ongoing operations and maintenance so the standard is maintained throughout the life of this particular technology.
- Power factor correction: This should also apply to the ongoing operations.

Water:

- Water sub meters and real time meters: these should also be used during operations as part of the ongoing environmental management system.

Waste:

- Establishment of waste targets: this should apply to construction and operations as well as definition and design.

Materials:

- Material life cycle analysis consideration in design and procurement: If using a large amount of a material with a sizable environmental impact, then an LCA will be carried out. This should also specify the industry standard for LCAs: ISO 14040 Environmental Management – Life cycle assessment.

3.1.3 ***Sustainable procurement and supply chain management considerations***

The Social Impact Assessment (SIA) focuses on the physical dimensions of social sustainability, it does not address social procurement or socially responsible supply chain management associated with the construction project itself.

Opportunities to realise positive social impacts and outcomes through the project, for example through involvement of business with an evidenced commitment to social

outcomes and corporate social responsibility, should be considered in the context of good practice socially responsible business models.

4.0 Traffic Management

4.1 Construction

George Street, Rawson Place, Eddy Avenue and Chalmers Street are likely to have a reduced speed limit (40km/h) in the CBD for the duration of construction.

The City would support a 40km/h speed limit during the construction period in the CBD for safety, and the retention of the 40km/h limit following the completion of the light rail.

4.1.1 Construction Zones and Pedestrian Traffic Management

The Construction Zone indicates road closures of George Street and some side streets for the light rail construction.

It has been suggested that George Street be closed with vehicle/pedestrian access retained only around intersections. In the CBD there are a number of mid-block signalised pedestrian crossings (e.g. Central Street - Event Cinemas, Strand Arcade and middle of Queen Victoria Building), and the City considers that pedestrian access must be maintained at these points during construction. Without the mid-block crossing points, there would be significant detours for pedestrians (in some cases over 200m).

Recommendation 5

That all mid-block signalised pedestrian crossing points are to be maintained during the CSELR construction. If the signals cannot operate during construction, then an alternative must be provided (e.g. under traffic control, fenced crossing points).

4.1.2 Intersection works

Vol 1a, Section 6.10.1 of the EIS states that "Intersection closures would be staged in consultation with RMS and the Traffic Management Centre (TMC) to minimise network impacts". The City also needs to be included in the consultation for intersection closures.

Recommendation 6

That the City be included in consultation for intersection closures.

4.2 Traffic Management

The implementation of the Light Rail project will cause significant changes on George Street and other roads within the CBD, which will affect the flow of vehicles through the City.

Points in Section 5.2.7 on page 5-67 of Volume 1A are made in this section of the EIS as follows:

- the creation of a pedestrianised zone between Loftus and Pitt Streets
- conversion of Pitt Street to two-way operation between Bridge and Alfred Streets
- addition of a turning circle at the northern terminus of Pitt Street and Loftus Street.

The Pitt Street conversion to two-way is to maintain property access due to the closure of Alfred Street.

The provision of a turning circle in Pitt Street would take a significant amount of space and could reduce footpath widths. In addition, coach access to the hotel (Sydney Harbour Marriott) cannot be retained as there is insufficient space to provide a coach turning circle.

Recommendation 7

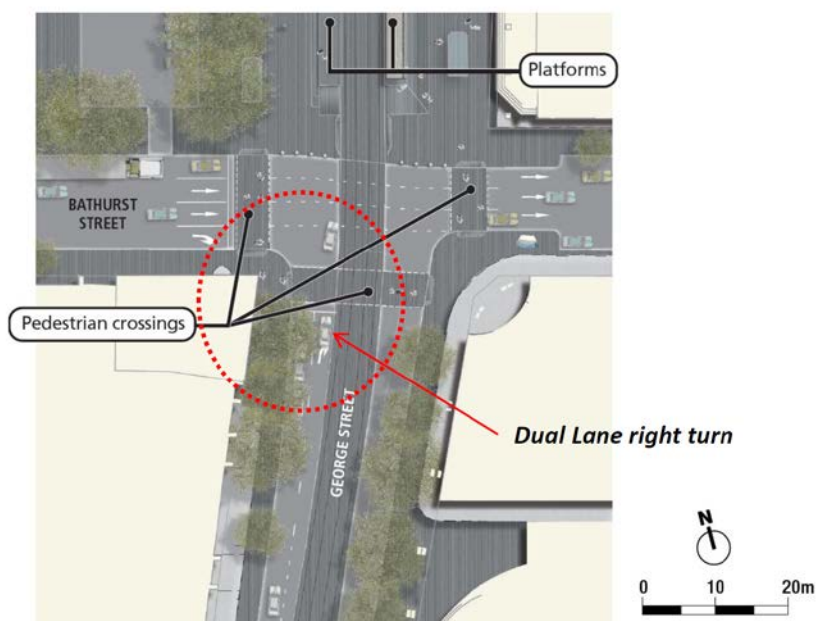
That the following traffic management options be carefully considered:

- Retain the existing Pitt Street one-way between Reiby Place and Bridge Street;
- Provide traffic access via Reiby Place from Loftus Street;
- Close Pitt Street between Reiby Place and Alfred Street to improve pedestrian arrangements;
- Retain Pitt Street one-way between Bridge St and Reiby Place to maintain Hotel coach access;
- Brewery truck deliveries to the Ship Inn should be maintained;
- Loftus Street to have restricted access for taxis and Customs House Lane north of Reiby Place. Taxis can rank on the western side of Loftus Street and U-turn to travel south towards Bridge Street;
- Make Loftus Street two-way from Customs House Lane to Bridge Street;
- Loftus Street between Customs House Lane and Alfred Street to be closed and pedestrianised.

4.2.1 *Right Turn from George Street to Bathurst Street*

Figure 5.14 on page 5-27 of Volume 1a indicates a dual lane right turn from George Street northbound to Bathurst Street eastbound. There is a single lane northbound in George Street past the cinemas with only a very short section of two lanes (2) to store right turning traffic.

If the light rail model shows there is little benefit with a dual lane right turn from George Street to Bathurst Street (north to east), the road space could be better used to provide more pedestrian space on the south-west corner of the intersection.



4.2.2 *O'Connell Street and Bent Street Intersection*

A direct result of the proposal in Section 5.2.7 on page 5-67 of Volume 1a that Pitt St be converted to two way operation, would be that a one-way reversal on O'Connell Street is proposed. This would be supported by the City, however the one-way reversal will require pedestrian improvements at O'Connell Street and Bent Street such as footpath extensions as presented in the figure below.

Recommendation 8

That the City supports the O'Connell Street reversal but requires footpath extensions at Bent Street to improve pedestrian access.

That traffic control at Bent and O'Connell Streets be investigated (e.g. to ban the right turn O'Connell Street to Bent Street or provide traffic signal control etc).

4.2.3 Left Turn from Campbell Street to George Street

Figure 5.18 on page 5-31 of Volume 1A has Campbell Street on the approach to George Street shown as two (2) left turning lanes. This would require a significant radius kerb to allow two (2) vehicles turn together, and should be only a single lane.

Recommendation 9

That Campbell Street is to have a single lane exit onto George Street. This would reduce the lane width required on George Street south of Campbell Street to a single lane and reduce the pedestrian crossing width in Campbell Street.

4.2.4 Road changes at Jamison Street

Section 6.10.5 on page 6-43 of Volume 1a of the EIS states that Jamison Street will be made two-way during construction, with all access via York Street. However, Jamison Street is only 10 metres wide and most of the parking will need to be removed to allow a two-way traffic flow. The footpath extension in Jamison Street at York Street will need to be removed to allow vehicle turning movements and sufficient separation between opposing traffic flows.

There are public car parking stations, hotels with coach access and high taxi use on Jamison Street.

Recommendation 10

That the Proponent discuss road realignment and parking removal on Jamison Street with the City prior to finalising plans.

That the Proponent consider alternative coach and taxi parking in lieu of Jamison St.

4.2.5 Surry Hills Precinct

Table 9.6 on page 9-17 of volume 1A mentions reinstatement of the Cooper Street connection to Riley Street, and the introduction of a westbound service lane connection between Bourke Street and Crown Street. The City requires clarification on these new road connections and where the westbound service lane is to be located. Cooper Street should only be opened if it is essential for local access.

The Proponent should consider that opening Cooper Street will help local circulation but will provide a by-pass from Elizabeth Street to Crown Street.

Recommendation 11

That the Surry Hills connections and closures be reviewed with the City, and tested with traffic modelling and consideration of local access requirements.

That the re-opening of Cooper Street only proceed if the Proponent demonstrates that it is essential to traffic flow and local access.

4.3 Operations

4.3.1 Cycleways

Cycle Access in Chalmers Street

In Figure 5.22: page 5-35 of volume 1a of the EIS, it is stated that Chalmers Street between Randle and Elizabeth Streets will operate as an interchange from light to heavy rail and bus access with all general traffic diverted to Randle Street.

There is no mention of a separated cycleway in Chalmers Street between Eddy Avenue and Prince Alfred Park. The Chalmers Street separated cycleway is a key part of the City's cycleway network and must be included in the light rail arrangements.

Figure 5.22 has two (2) lanes in Chalmers Street between Devonshire and Foveaux Streets.

One of these lanes must be a separated cycleway and the other a general traffic lane and/or bus lane.

Impact on Cycle Routes

The City is aware of the intention of having a northbound on-road cycle route only, between Devonshire Street and Elizabeth Street. The two-way off-road cycle route is located on the western side of Chalmers Street.

The City supports an on-road separated cycleway in Chalmers Street with a connection to Belmore Park, or alternatively across Eddy Avenue and then along the western side of Elizabeth Street to Castlereagh Street via Hay Street.

Recommendation 12

That a separated on-road cycleway be allowed for on Chalmers Street linking to either Belmore Park, or along the western side of Elizabeth Street to Castlereagh St via Hay Street.

Cycle Access in Liverpool St

Figure 5.16 on page 5-29 of Volume 1A has Liverpool Street on the approach to George Street shown as four (4) traffic lanes. The City has a proposed separated cycleway on Liverpool Street that needs to be shown.

Recommendation 13

That the City's Liverpool Street proposed separated cycleway needs to be included in the light rail traffic planning, and shown in relevant drawings.

4.3.2 Taxis

The City does not support any vehicles in the pedestrianised area of George Street including taxis. However, taxis need to be provided for on all side streets wherever possible.

The EIS states that a strategy would also be developed (through further detailed design by Transport for NSW and key stakeholders) to determine levels of access required by taxis at night (Vol 1a 5-10). The City does not support the suggestion that the new pedestrian area can accommodate vehicles in a shared zone.

Recommendation 14

That consideration will need to be given to the location of taxi ranks and drop off points on side streets off George St, and taxi ranks and drop off points in general.

4.3.3 On-street parking

Section 6.10.10 on page 6-45 of Volume 1a of the EIS states that the existing resident parking permits schemes are to be extended for residential precincts surrounding the light rail. In the case of Devonshire Street, most of the area is already residential parking.

Recommendation 15

That the Proponent investigate streets where angle parking can be provided to increase kerbside parking (including in Surry Hills).

4.4 Light Rail Capacity

4.4.1 Patronage Capacity in Surry Hills

Demand figures presented in the EIS indicate that by 2036 light rail vehicles are projected to experience very high loading, exceeding 95% in the busiest hour of the morning peak on the inbound line. The City notes that this projected demand is contingent on residential growth in Randwick and that in the short to medium term, the capacity is adequate.

However, there may be a future patronage issue for Surry Hills which should be addressed through operational solutions (such as short distance services) in order to provide adequate light rail service to Surry Hills. Future light rail routes could mitigate this situation.

An additional stop east of Bourke St should be considered in order to service the northern and eastern parts of Surry Hills.

Recommendation 16

That the Proponent demonstrates that the inbound peak hour light rail service at Surry Hills will have sufficient long term patronage capacity to serve the local community and passengers transferring from buses on Crown Street.

That the Proponent consider an additional stop east of Bourke St.

5.0 Urban and Technical Design

5.1 Consultation with the City

Recommendation 17

That the Proponent is to consult the City of Sydney during all phases of the development of detail and final designs for the project. This is to include public domain urban design, in-ground services, substations, traffic management, sustainability and

construction methodology.

5.2 Moore Park Tunnel

5.2.1 *Impacts on the Moore Park Heritage Conservation Area*

The proposed alignment of the Light Rail crosses Moore Park, a Heritage Conservation Area in the Sydney LEP 2012. This area was originally part of the Sydney Common and has been changed significantly by previous infrastructure initiatives such as the formation of Anzac Parade and the adjacent bus (former tram) roadway.

To the south of the alignment is the heritage listed Sydney Boys and Girls high schools.

The location, size and root systems of proposed new plantings may have a bearing on the depth and design of the cut-and-cover tunnel at Anzac Parade as it should allow re-planting of figs above it.

Recommendation 18

The cut and cover design for the crossing of Moore Park is preferred over any above-ground viaduct design as it ameliorates heritage impacts on Moore Park, Anzac Parade and the setting of Sydney Boys High school. The City considers that:

- the design of the portals should minimise intrusion into, and loss of, parkland;
- the design should minimise changes to existing ground contours in order to minimise disruption to the existing spatial setting between the Korean War Memorial and Sydney Boys' High School;
- the design should minimise loss of significant trees and landscapes;
- where tree loss is unavoidable, new plantings should respect the nature and scale of historic plantings;
- re-instatement of avenue fig trees on either side of Anzac Parade should ensure that any gaps in the avenue can grow back in the long term;
- all cuttings, retaining wall and related civil infrastructure must be of a design, material and construction quality commensurate with the historic and civic importance of this major public space, particularly the portals.

5.2.2 Cut-and-cover tunnel

Recommendation 19

That the flooding standard set for the design of tunnel portal and all other openings into tunnels/basements is to ensure the Light Rail users and infrastructure will not be at risk or affected during storm events.

5.3 Public Domain

5.3.1 Horizontal Alignment

The City supports the alignment on the southern side of Devonshire St subject to the access issues for adjacent properties being successfully resolved. It is acknowledged that part of the Devonshire St Reserve will be removed.

Access to two churches along Devonshire St is yet to be resolved.

Recommendation 20

That the Proponent expedite proposals for access to Devonshire St properties and provide these to the City of Sydney for input and review.

The City supports the preferred alignment through the “Olivia Gardens” site as stated in the EIS (Option 1b), as it will result in a new park with the light rail as a central feature running through the centre (Vol 1a, Cha 4). The City notes that some offset carparking for the loss of Langdon Clinic carpark may be included in the park design.

Recommendation 21

That the planning approval support Option 1b as the alignment through Olivia Gardens, and park be created and dedicated to the City.

5.3.2 Vertical Alignment

Recommendation 22

That design levels remove or minimise the differences in levels between the platforms and adjoining footpaths and roads.

The City is concerned that Devonshire St be designed as a permeable streetscape, and it is preferred that separation of footpaths and the road is undertaken as unobtrusively as possible, without the use of barrier walls.

Recommendation 23

That the Proponent's documentation require that design of the Devonshire St streetscape facilitates north/south pedestrian flow and is developed without the use of barrier walls.

The Light Rail alignment goes through areas affected by flooding. Any proposed changes to the vertical alignment of the existing road levels have implications that need to be considered. The implications of these issues are:

- Flooding (by directing stormwater flow)
- Flooding (by an obstruction)
- flooding (by transferring stormwater)
- compromise to Light Rail operations.

Recommendation 24

That flooding conditions are not to be worsened by construction of the light rail project, requiring the overland flow paths to be carefully designed without any compromises on private properties.

5.4 Light Rail Stop Architecture

5.4.1 Interchanges

Rawson Place

The City considers that further design resolution is required to alleviate impacts from significant level changes and retaining walls, and the visual scale and impact of the proposed canopy on the heritage streetscape. In addition, the high canopy currently proposed for the Rawson Place Light Rail/bus interchange may not provide weather protection.

The City would support redesign of the configuration and operation of the Rawson Place interchange and wishes to be involved in ongoing design resolution, with TfNSW having regard to the City's concerns. The City considers that marked level changes in the street environment resulting from this interchange would be unacceptable. Handrails without slab upturns are also preferred. In addition the scale and size of the canopy is not supported due to impacts on the heritage streetscape.

Chalmers St

The City supports an option for redesign of the Central Station/Chalmers St stop that provides for two light rail tracks only, some through bus routes and a separated on-road cycleway, with alternate vehicle access via Randle St. The canopy structure is to be minimised to reduce the impact in sensitive streetscapes.

The City would also support a redesign of the Eddy Ave streetscape to eliminate any requirement for barriers in the Central Station colonnade.

Recommendation 25

The detailed design resolution of the Rawson Place and Chalmers St interchanges are a priority, and should be resolved in consultation with the City.

5.4.2 Stops

The positioning and characteristics of bollards and low walls in the streetscape have the potential for a dominating visual impact on the streetscape, and the City's requirement is to minimise the use of barriers to facilitate pedestrian flow and universal access.

Recommendation 26

That detailed design drawings be produced for review by the City, showing integration of stops into the surrounding streetscapes, and that parameters for the detail of all anticipated elements required for stop architecture be provided in the Proponent's documentation.

5.4.3 Canopies

The EIS also discusses TfNSW's desire to define stops through infrastructure design including canopies. The City considers that small canopies will act as stop markers, but that canopies should not be designed to define the extent of a stop. The city prefers canopies to be minimal and be based on the need for shelter rather than markers for stop location, which can be achieved by the addition of wayfinding and signage.

Recommendation 27

That the extent and character of the shade and shelter structures at stops and interchanges should be subject to a high level of design and quality review.

5.4.4 Overhead Wiring

The City recognises that the wire-free operation of the pedestrianised area of George St includes the possibility of overhead conductor wiring for part of the platform length for recharging of LRVs at each stop within this zone. While the City notes this option, the City requires that the Proponent's documentation be flexible to allow innovative approaches in the provision of wire-free technology from Bathurst St to Circular Quay.

Recommendation 28

That the Proponent's documentation remain flexible to allow innovative approaches in the provision of wire-free technology to allow for the City's preference of wire-free operation between Bathurst St and Hunter St.

5.5 Parks Overview

A significant number of City parks and open spaces will be impacted by the light rail works. The requirement for pre-works condition assessments and for the return of the

assets to the City on completion of the project (in pre-construction condition) has been conveyed to TfNSW.

Recommendation 29

That the parks condition assessments undertaken prior to works commencing meet a level of accuracy and detail as required by the City. Assessments are to capture all park elements including park furniture, soft and hard landscaping elements, public art and heritage elements, turf and tree condition, path and internal road, signage, fencing and park lights.

That reinstatement timeframes be agreed by City.

All trees within worksites to be retained are to be physically protected using tree guards, with site specific tree protection measures for each tree to be implemented in accordance with AS4970.

For all heritage elements affected by these works, that an independent conservator is to develop a plan for handling, storage and reinstatements.

5.6 Street trees

5.6.1 Tree Removal

Within the Devonshire Street group of poplars some are currently earmarked for removal as they are in poor health, with one poplar having recently fallen across Devonshire Street. The substantial fig on South Dowling Street in the Langdon Clinic carpark is understood to be in private land therefore the City has not assessed this tree.

5.6.2 Design and Location of New Trees

The locations of new trees within the streetscape must be selected after thorough review and consideration of the size of the tree at maturity and possible conflicts with, and restrictions imposed by, above and below ground infrastructure.

Recommendation 30

That the City of Sydney be given the opportunity to review the new tree locations during the development of detailed designs. Any subsequent alterations or deletions of new tree locations shall be subject to further review by the City of Sydney.

5.6.3 **Pavement Sub-base**

In some sections, George Street potentially has one of the oldest pavements in Sydney, with unknown base and sub-base conditions. Further to this, the standards of design and construction have been upgraded over the last few years. The environmental impacts of the failures to the light rail infrastructure due to the use of poor sub-base or bases would be unacceptable.

Recommendation 31

That the Proponent's documentation include the provision for detailed geotechnical assessments to ensure that the existing base and sub-base of the existing pavement is not to be considered structurally sound unless proven as such by geotechnical analysis.

5.6.4 **Acid Sulfate Soils**

The EIS does not appear to address Acid Sulfate Soils. Given the potential for acid sulphate soils in a number of areas across the City's LGA (including Circular Quay), it is recommended that the EIS or CEMP address the risk of acid sulphate soils as per the *Acid Sulfate Soils Assessment Guidelines 1998*.

Recommendation 32

That investigation is undertaken in accordance with the Acid Sulfate Soils Assessment Guidelines 1998 to assess the presence of Acid Sulfate Soils prior to the works commencing, as part of the CEMP.

5.6.5 **Flood Assessment and Assumptions**

Flood studies will soon be available in draft and final formats show flooding areas along the light rail corridor. It is critical for the City to ensure that the stormwater system within the extent of works of the light rail project is designed and constructed in a way that allows for potential upgrades to be undertaken in the future. In addition, it is the City's expectation that some improvements are introduced to alleviate or enable the future improvement of flooding issues in certain points along the extent of works.

The City does not accept the following environmental impact:

“Localised flooding impacts associated with changes to the stormwater drainage capacity”

p. 19-1, Section 19.1.2 Key biophysical, economic and social impact of the proposal, Volume 1b, 2013

The changes to the stormwater drainage are to be designed and constructed so as not to reduce the existing capacity of the system, or to worsen existing flooding conditions at:

- Rawson Place
- George Street near Campbell Street at the Chinatown stop
- Alfred Street near Pitt Street
- Nobbs Lane

Recommendation 33

All proposed drainage infrastructure shall be adequately sized considering best practice even if the existing downstream network has a lower capacity. Documentation is to be provided to demonstrate that this standard has been achieved as per the City's specifications.

5.6.6 Drainage

Access to stormwater drainage infrastructure contained within the boundaries of the easement is to be maintained as part of the PPP contract by the operator.

5.6.7 Stormwater Drainage Relocation and Construction

Recommendation 34

That the design and construction of the stormwater drainage infrastructure is to be undertaken following established engineering practices to ensure the result is hydraulically efficient and enables future access for maintenance.

Known inefficiencies in the stormwater system, such as inaccessible pits among others, within the extent of works are to be identified and a corrective measure designed and constructed.

Sydney Water has remaining sections of the City's stormwater system connected to the sewer. Currently trapped road gully pits are installed along George Street, ensuring odours do not leave the system. Trapped road gully pits are to be designed and constructed along George Street as appropriate.

5.7 Other Utilities Relocation and Construction

5.7.1 *Provision of Power*

The City supports the gradual undergrounding of power in the LGA and it is considered that a project of this scale should provide for this outcome wherever possible.

Recommendation 35

Where possible to rationalise aerial power wiring as part of the project this should be included in the Proponent's scope of work.

5.7.2 *Electrical assets*

The City owns not only drainage assets but also an important group of electrical assets not identified in the EIS. It is important to highlight that, particularly for electrical cabling, there are cases where they are running inside Ausgrid's conduits and other cases where they are within the City's conduits.

Recommendation 36

That switchboards are to be installed for the City's electrical cabling at locations agreed with the City.

5.7.3 *Security and Safety – CCTV*

The City supports the security measures proposed especially:

- The development of a CCTV network for the CSLER that incorporates cameras at various critical locations;
- Lighting; and
- Help points.

Consideration needs to be given to establishing a link between the operations control centre of the light rail network and the NSW Police Operations Centre in Goulburn Street Surry Hills.

Recommendation 37

That the City requires more detail in regard to the CCTV network of the CSLER and its operation on the street and in the carriages. The City of Sydney to be consulted regarding placement of the new cameras in the LGA and how they will impact on the

existing City of Sydney network.

5.8 Waste collection – Surry Hills

Residential properties on the north side of Devonshire Street present waste bins every week out the front of their properties on Devonshire Street for collection as there is no rear lane access. During collection, the narrow nature of the street means that currently the collection vehicles block east bound traffic, as there isn't enough space on the road for cars to pass the truck safely.

As there aren't any other collection options available, the City considers that the current collection practice for this side of Devonshire Street can remain the same once the light rail is in operation, since eastbound traffic is already unavoidably blocked when the collection vehicle is in use.

Currently a section of Housing NSW's Northcott buildings present their bins for collection on the south side of Devonshire Street. The Light Rail construction and operation will make collection impossible from this location.

Another section of the Northcott buildings use a different storage and collection point which is accessed via Belvoir Street. This collection point has extra room to cope with additional bins.

Recommendation 38

That prior to construction, the Proponent liaise with Housing NSW to permanently change the residential waste collection point of the whole Northcott buildings from Devonshire Street to the existing communal collection point inside the property, which is accessible via Belvoir Street.

Recommendation 39

That the Proponent's documentation ensure the City's collection vehicles can access the proposed service lane connection on the southern side of Devonshire Street, between Bourke Street and Crown Street to access Nickson Street and Nickson Lane properties for waste collection, as this is the only entry point to these properties.

5.9 Operational Noise

5.9.1 Substation / Transformer Noise Criteria

The City notes that late night library civic functions and routine events are held frequently and after hours at all City's libraries. The following comments are made with respect to the Haymarket Library but apply equally to Customs House and Town Hall.

The correct noise assessment criterion for transformer noise impact upon Haymarket Library would be the Industrial Noise Policy (INP) evening acceptable amenity level of L_{Aeq} 50 dB(A) with modifying factors applicable. Not doing so may unduly impact upon existing library operations and a resource which is used by the community as a quiet place to escape from noise in the city, to read and relax.

Therefore, in Section 9.2 Table 37 in the EIS' Technical Paper 11 the reference to the controlling assessment period for Hay Street should be evening, not day.

Table 38 in the EIS Technical Paper 11 correctly notes that the internal amenity of the building should be considered. In reality the façade (older lap sash windows with heritage controls) may not achieve a 20 dB external to internal reduction. Notwithstanding the INP external amenity criteria, the internal amenity should comply with AS2107 for applicable Library spaces.

This will require the façade loss to be established at the detailed design stage and necessary amelioration treatments to the transformer established.

Recommendation 40

The noise assessment criterion for noise from the stabling and maintenance depot sites, stops and electrical substations is to be the Industrial Noise Policy (INP).

That late evening uses of the City's and other buildings are considered and that of those buildings, required amelioration for the transformer noise impact considers the older façade construction methodologies and acceptable internal noise amenities based on area usage.

5.9.2 Operational Noise Mitigation Options

The City strongly recommends that acceptance of higher operational noise levels at design stage should not be contemplated as an acceptable mitigation option. As far as possible, amelioration should be incorporated into the design to achieve the noise goals. The City notes the EIS assessment that existing ambient noise levels are likely to be similar to or higher than the predicted light rail noise levels, but minor

exceedences are predicted for some residences and significant exceedences are predicted for some non-residential sensitive receptors.

The City recommends that designing infrastructure projects to comply with criteria minimises the chance of having any meaningful exceedences of noise criteria at the final outcome. It is especially important to avoid meaningful exceedences at night time to avoid sleep disturbance for residents. Experience shows that accepting small compromises at the planning stage can, in combination with other unknowns that occur during other stages of the project, risk leading to higher and meaningful exceedences at the final outcome.

The City strongly supports the reasonable and feasible mitigation options listed in sections 5.8 of the Technical Paper 11, such as procurement criteria, rail and wheel maintenance standards and reduced speeds during off-peak periods in the later night time services.

Recommendation 41

That areas of predicted noise exceedences are explored in detail with the aim of resolution during the detailed design stage of the project, otherwise noise mitigation options must be undertaken.

5.9.3 Assessment Criteria for Operational Noise Impact

As identified in EIS Technical Paper 11, as the project will involve re-alignment of existing roadways, the NSW Road Traffic Noise Policy is applicable. Applying the Rail Infrastructure Noise Guideline, May 2013 (RING) will be in-line with criteria applicable to noise from other traffic on the roads but slightly more conservative in parts.

Recommendation 42

That the EPA Rail Infrastructure Noise Guideline, May 2013 (RING) be applicable to the whole of the project, with the residential component of Devonshire Street identified as "Sensitive Land Use".

That the operational trigger limits in the EPA Rail Infrastructure Noise Guideline, May 2013 (RING) should be achieved. Where reasonable and feasible, best practice should be adopted for mitigation of light rail noise, with state of the art technology employed through the detailed design and construction works.

5.9.4 Bridge Noise

The City notes that the Section 5.4.6 of the EIS Technical Paper 11 indicates that at this stage, there is to be no noise attenuation on the bridge over the eastern distributor. The City suggests that assessment of this noise is considered in detail at the detailed design stage. The option of having side screens and other noise amelioration in the bridge design should remain as an amelioration option, should bridge noise be higher than anticipated.

Recommendation 43

That the Proponent be required to assess the Eastern Distributor bridge noise in detail at the detailed design stage and, if necessary, consider noise attenuation in the bridge design.

6.0 Heritage Impacts

6.1 Review of the Statement of Heritage Impact

The Heritage Impact Statement and Heritage Interpretation Strategy prepared by GML (Vol 4 of the EIS) have a good coverage of issues of Aboriginal heritage, historical archaeology and adjacent heritage sites. The City is generally supportive of the recommendations made by GML in these reports.

6.2 Impact on historic streetscapes and conservation areas

It is noted that pre-1960, the Light Rail route north of the intersection of Devonshire and Elizabeth Streets has previously held extensive tram tracks and associated infrastructure. Most of the listed heritage items along the route were built in a context of existing tramlines and catenary infrastructure.

Devonshire Street, east of Elizabeth Street did not have tram tracks historically although trams did run through Surry Hills including north/south on Crown Street and Elizabeth Streets and east/west on Cleveland Street and Campbell Streets.

Provided that catenary and other related infrastructure is not fixed to or close to heritage items or contributory buildings, the net heritage impact of the proposed works in the built-up sections of the route can be considered neutral.

However, the proposed roof interchange at Rawson Place introduces an intensity and scale of development that exceeds historic precedents in this location. The design of this interchange will need careful consideration.

Recommendation 44

The scale of the proposed Light Rail/bus interchange canopy at Rawson Place is assessed to have a potentially major heritage impact on the adjacent heritage buildings and character of Rawson Place. The shelter at this location should be re-designed so that its visual impact can be reduced.

7.0 Construction Management

7.1 Archaeology

Given the long history of George Street and its role in the urban development of Sydney, any archaeological works will likely reveal plenty of historical information. Layers of public works on the street will provide an invaluable insight of Sydney history.

In addition to the archaeological recording and reports of any finds by the project archaeologist, the City is interested in collecting some of the relics and samples of early roadwork materials. Should such materials be discovered, the City is to be informed and invited for inspection as a courtesy.

7.2 Underground Structures

The City is aware that the initial analysis of the underground structures has made assumptions based on RLs (Reduced Levels) of stratum lots in registered Land Title Plans. However, these levels do not always reflect the as-built levels, and the City recommends that these RLs to be confirmed prior to excavation overhead.

The City is aware that TfNSW understands the risk to underground structures; however it is considered that the potential issues arising from underground structures relating to the City's stratum leases have not been adequately addressed in the EIS. The City recommends that an initial condition report, dilapidation report, noise and vibration assessment of affected underground structures, particularly those related to the City's stratum leases, is undertaken prior to works commencing.

Recommendation 45

That the exact location and structural integrity of all underground structures be investigated in the following way, prior to early works commencing:

- Detail (reduced levels) and boundary survey of all underground structures and an initial condition report prepared; and
- Structural assessment of underground structures, including a dilapidation

report, vibration and noise assessment; and

- Amendments (if necessary) to the design, materials used and methodology of the construction and excavation associated with the light rail in the vicinity of the underground structures (i.e. pedestrian tunnels), based on conclusions drawn in the structural assessment of the structures.

7.3 Disruption, noise and vibration

7.3.1 *Ancillary construction worksites*

Section 6.7.3 on page 6-30 describes the laydown areas, indicating the use of Devonshire Street and George and Alfred Streets.

Recommendation 46

That the Proponent consult with the City on laydown areas and potential alternatives to ensure there is minimal impact on City operations.

Recommendation 47

That the worksite shall be defined as per the attached plans (Appendix B) produced by TfNSW.

7.3.2 *Management of amenity impacts during the construction process*

Residential amenity impacts, particularly in high density neighbourhoods along the CSELR construction route, will require detailed consideration.

Recommendation 48

That community amenity issues be a primary focus of construction management strategies and processes, with particular consideration given to:

- Noise
- Visual amenity
- Pedestrian and vehicular access
- Community access to public open spaces in the inner city, particularly with regard to use of open spaces for construction compounds.

7.3.3 Other Regional Environmental Impacts and Environmental Management and Mitigation

Environmental risks posed by the project have been identified within Vol 1a Section 10 and Vol 1b Section 18 of the EIS. It is noted that controls for these risks will be set out in detail in the project's Construction Environmental Management Plan (CEMP).

Recommendation 49

That the City has the opportunity to review and comment on the CEMP once it is drafted.

7.3.4 Interim Construction Noise Guideline

Recommendation 50

The EPA Interim Construction Noise Guideline is to be applied to the CSELR.

The Proponent is to maintain a 24 hour construction hotline for the life of the project.

7.3.5 Identification of Noise & Vibration Sensitive Receptors

Relating to Section 4.2 of the EIS' Technical Paper 11, Table 3 – Noise & Vibration Sensitive Receivers, the City notes that Customs House library is adjacent to the proposed light rail interchange at Circular Key. The City's request its inclusion in the list of sensitive noise receivers for further consideration.

Recommendation 51

Customs House library to be included in Table 3 – Noise & Vibration Sensitive Receivers in Technical Paper 11.

7.4 Public space – parks and trees

7.4.1 Protection of existing trees to be retained

Trees that are to be retained within areas affected by the works need to be adequately protected to ensure they remain as valued assets within the finished new landscapes.

The most significant risk to trees within public open space is soil compaction. Methods shall be employed to avoid and minimise soil compaction as much as possible.

Arboricultural advice will need to be sought, and implemented, throughout the development of detailed designs and the various phases of project delivery.

Recommendation 52

All trees marked to be retained shall be protected in accordance with the Australian Standard 4970 Protection of Trees on Development Sites.

Tree Protection Plans

In addition to a generic street tree protection plan, site specific tree protection plans shall be prepared for the following sites:

- First Fleet Park
- Belmore Park
- Ward Park
- Martin Place
- Moore Park

7.4.2 Tree Pruning

The City acknowledges that some existing trees may need to be pruned to allow for access for construction activities or for clearance from new works or infrastructure. Roots of trees may also require pruning to allow the installation of below ground infrastructure.

Recommendation 53

All necessary tree pruning shall be documented within the relevant tree protection plan and clearly specified by the Project Arborist.

All pruning shall be in accordance with the Australian Standard 4373 Pruning of Amenity Trees (2007).

Any proposed pruning of trees listed within the City's Register of Significant Trees (2013) shall be subject to the approval of the City.

All pruning of trees (including root pruning) shall be performed by arborists with minimum certification of Australian Qualifications Framework Level 3. Any approved pruning of Significant Trees shall be directly supervised by the Project Arborist.

The pruning of any root greater than 50mm diameter shall be subject to assessment and approval by the Project Arborist. The pruning of any root within the Structural Root

Zone of any tree shall be directly supervised by the Project Arborist.

7.4.3 Tree Management and Protection – Moore Park

The proposed and other potential removal of mature Moreton Bay Fig trees should be avoided wherever an alternative option exists. These trees are listed as Significant in the City's Register of Significant Trees, and are recognised by the general community and important components of the natural and cultural landscape of the area.

Recommendation 54

That any proposal to removal mature Moreton Bay Fig trees from the Moore Park Precinct shall be reviewed by the City and all alternative options thoroughly investigated and considered that would allow their retention.

7.4.4 Tree Management and Protection – Belmore Park

There is a high risk of adverse impact to a number of mature trees listed within the City's Register of Significant Trees, including a Moreton Bay Fig near Hay Street, at least 4 x London Plane trees, and 1 x botanically rare and significant Seem tree (*Mryta denhamii*). Other trees also likely to be affected include a row of mature Brush Box trees on the eastern and southern side of the proposed compound.

There is a high risk of severe soil compaction within the tree protection zones of the above trees. Detailed and thorough consideration must be given to how these risks can be mitigated.

Recommendation 55

That a site specific Tree Protection Plan be developed for Belmore Park and submitted to the City for approval prior to any works in this area.

That excavation and trenching within the park shall be prohibited. Site sheds and other facilities shall be installed above existing grades. Raised platforms or walkways shall be installed to prevent soil compaction.

Laydown and loading areas shall be located away from trees to avoid the need for tree pruning and minimise the risk of soil compaction. All areas subject to vehicle access shall have a surface treatment installed to prevent or reduce surface compaction as much as possible.

Vehicle access to the site shall be located away from mature trees as much as

possible.

7.4.5 Tree Management and Protection – Martin Place

The extent of excavation for the substation and its likely impact on two White Poplar trees and other London Plane trees located adjacent to the Cenotaph is unknown. The two White Poplar trees located adjacent to the Cenotaph are listed within the City's Register of Significant Trees (2013).

Recommendation 56

A site specific Tree Protection Plan shall be developed for the proposed Martin Place site compound and submitted to the City for review prior to any works in this area.

7.4.6 Security and Safety – CCTV – Construction Phase

The City has the following concerns regarding the impact of the construction of the CSELR on the City's existing CCTV network:

- Maintenance of adequate CCTV coverage during construction works, including temporary relocations that provide unobstructed views.
- Ensuring adequate CCTV coverage post implementation, with the reactivation of CCTV in original locations (or as close to as possible).
- Preventing interruption to the broader CCTV network through damage to trunk fibres by excavation works.

Recommendation 57

The City to be consulted regarding maintenance of adequate CCTV coverage through all phases of construction and operation of the CSELR.

7.5 Maintenance and cleansing

7.5.1 Devonshire Street Cleansing and Waste Collection

The City's ongoing cleansing and waste collection services on the existing and new assets and infrastructure is important and should not be compromised during the Light Rail project's construction and operation. Consideration of these issues will facilitate:

- **access to the assets**, allowing for cleaning and servicing
- **access to building waste collection points**, allowing for servicing of waste bins

Recommendation 58

That access to all buildings is maintained during construction of the light rail corridor for the purpose of accessing waste collection points for servicing of waste bins from both commercial and residential properties.

Recommendation 59

The Proponent's documentation should include temporary presentation points in their construction site plans if construction restricts access to normal waste collection areas. These temporary presentation points will need to be accessible by both residents and the collection vehicle. For example, residential properties present bins for collection by the City of Sydney on the north side of Devonshire Street. This will not be possible during construction and temporary presentation points will need to be provided in consultation with City staff.

The City notes the closure of a number of local road intersections with Devonshire Street, including Buckingham Street, Holt Street, Waterloo Street, High Holborn Street and Clisdell Street.

Recommendation 60

That the Proponent assist the City in providing alternative routes for collection vehicles to access these areas for waste collection during construction and operations.

Appendix A

Recommended draft Conditions of Consent SSI 6042 CBD South East Light Rail

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
2.1.1	1	That the Proponent confirm details of communications and consultation strategies to manage issues arising from construction including: access and traffic changes, hours of works, noise, safety, and loss of amenity and public space. Respite for residents should be built into construction programming. That clear communication is provided to the community (including visitors/tourists) on construction staging and timeframes to manage expectations, the notification and complaints handling process, and dedicated contact(s) for businesses and residents during construction. Consideration is to be given to issues arising from the visual effect of site damage, including graffiti and management of these impacts.
2.1.2	2	When developing Management Plans (i.e. the Environmental Management Plan, Business and Landowner Engagement and Management Plan, and Access Plan) engage with City of Sydney and representatives of Business Chambers, and invite businesses to contribute. Include one-on-one discussions with businesses and stakeholders along the route to ensure consideration is made for direct access to properties for loading, deliveries, maintenance and parking. That ongoing engagement and consideration of issues relating to loading and unloading generally, and particularly within the Haymarket and Surry Hills precincts, be included in the Business/Landowner Engagement & Management Plan.
3.1.1	3	That the following changes are implemented in Table 7.5 - Sustainability Initiatives as follows: Management systems: Annual sustainability reporting: a reporting standard (equal or at least

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		equivalent to) should be specified, e.g. Global Reporting Initiative, or Infrastructure Sustainability Council Australia. Provide service corridors: Consultation with infrastructure agencies, utilities and local government must be specified. Procurement and Purchasing: Sustainability consideration in procurement: This should be a performance criteria in the selection process of the construction contractor(s) so that the market is pushed to apply innovation. Climate Change Adaptation: Risk assessments: a risk and opportunity assessment must (not would) be undertaken. The details should then specify AS5334-2013 Climate change adaptation for settlements and infrastructure – a risk based approach. Water: “Maximise use of non-potable water uses” (p 7-12, volume 1a): This should be a firm commitment for implementation of non-potable water uses to be documented for capturing and re-using non-potable water for the washing bays for rolling stock. Table 7.3 Sustainability objectives and themes included in the CSELR Project Sustainability Strategy (p. 7-4, Volume 1a) does not mention WSUD in the “Sustainability themes” listed. WSUD to be identified as one of the main sustainability themes to ensure there is clear message as to the importance of this practice. Materials: Material life cycle analysis consideration in design and procurement: If using a large amount of a material with a sizable environmental impact, then an LCA will be carried out. This should also specify the industry standard for LCAs: ISO 14040 Environmental Management – Life cycle assessment.

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
3.1.2	4	That the following changes are implemented in Table 7.5 - Sustainability Initiatives as follows: Energy and Greenhouse: • Energy efficient signals: This should also apply to the ongoing operations and maintenance so the standard is maintained throughout the life of this particular technology. • Power factor correction: This should also apply to the ongoing operations. Water: • Water sub meters and real time meters: these should also be used during operations as part of the ongoing environmental management system. Waste: • Establishment of waste targets: this should apply to construction and operations as well as definition and design. Materials: • Material life cycle analysis consideration in design and procurement: If using a large amount of a material with a sizable environmental impact, then an LCA will be carried out. This should also specify the industry standard for LCAs: ISO 14040 Environmental Management – Life cycle assessment.
4.1.1	5	That all mid-block signalised pedestrian crossing points are to be maintained during the CSELR construction. If the signals cannot operate during construction, then an alternative must be provided (e.g. under traffic control, fenced crossing points).
4.1.2	6	That the City be included in consultation for intersection closures.
4.2	7	That the following traffic management options be carefully considered:

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		• Retain the existing Pitt Street one-way between Reiby Place and Bridge Street; • Provide traffic access via Reiby Place from Loftus Street; • Close Pitt Street between Reiby Place and Alfred Street to improve pedestrian arrangements; • Retain Pitt Street one-way between Bridge Street and Reiby Place to maintain Hotel coach access; • Brewery truck deliveries to the Ship Inn should be maintained; • Loftus Street to have restricted access for taxis and Customs House Lane north of Reiby Place. Taxis can rank on the western side of Loftus Street and U-turn to travel south towards Bridge Street; • Make Loftus Street two-way from Customs House Lane to Bridge Street; • Loftus Street between Customs House Lane and Alfred Street to be closed and pedestrianised.
4.2.2	8	That the City supports the O'Connell Street reversal but requires footpath extensions at Bent Street to improve pedestrian access. That traffic control at Bent and O'Connell Streets be investigated (e.g. to ban the right turn O'Connell Street to Bent Street or provide traffic signal control etc).
4.2.3	9	That Campbell Street has a single lane exit onto George Street. This would reduce the lane width required on George Street south of Campbell Street to a single lane and reduce the pedestrian crossing width in Campbell Street.
4.2.4	10	That the Proponent discuss road realignment and parking removal on Jamison Street with the City prior to finalising plans. That the Proponent consider alternative coach and taxi parking in lieu

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		of Jamison Street.
4.2.5	11	That the Surry Hills connections and closures be reviewed with the City, and tested with traffic modelling and consideration of local access requirements. That the re-opening of Cooper Street only proceed if the Proponent demonstrates that it is essential to traffic flow and local access.
4.3.1	12	That a separated on-road cycleway be allowed for on Chalmers Street linking to either Belmore Park, or along the western side of Elizabeth Street to Castlereagh St via Hay Street.
4.3.1	13	That the City's Liverpool Street proposed separated cycleway needs to be included in the light rail traffic planning, and shown in relevant drawings.
4.3.2	14	That consideration will need to be given to the location of taxi ranks and drop off points on side streets off George St, and taxi ranks and drop off points in general.
4.3.3	15	That the Proponent investigate streets where angle parking can be provided to increase kerbside parking (including in Surry Hills).
4.4.1	16	That the Proponent demonstrates that the inbound peak hour light rail service at Surry Hills will have sufficient long term patronage capacity to serve the local community and passengers transferring from buses on Crown Street. That the Proponent consider an additional stop east of Bourke St.
5.1	17	That the Proponent is to consult the City of Sydney during all phases of the development of detail and final designs for the project. This is to include public domain urban design, in-ground services, traffic management, sustainability and construction methodology.
5.2.1	18	The cut and cover design for the crossing of Moore Park is preferred over any above-ground viaduct design as it ameliorates heritage impacts on Moore Park, Anzac Parade and the setting of Sydney

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		Boys High school. The City considers that: - the design of the portals should minimise intrusion into, and loss of, parkland - the design should minimise changes to existing ground contours in order to minimise disruption to the existing spatial setting between the Korean War Memorial and Sydney Boys' High School; - the design should minimise loss of significant trees and landscapes; - where tree loss is unavoidable, new plantings should respect the nature and scale of historic plantings; - re-instatement of avenue fig trees on either side of Anzac Parade should ensure that any gaps in the avenue can grow back in the long term; - all cuttings, retaining wall and related civil infrastructure must be of a design, material and construction quality commensurate with the historic and civic importance of this major public space, particularly the portals.
5.2.2	19	That the flooding standard set for the design of tunnel portal and all other openings into tunnels/basements is to ensure the Light Rail users and infrastructure will not be at risk or affected during storm events.
5.3.1	20	That the Proponent expedite proposals for access to Devonshire Street properties and provide these to the City of Sydney.
5.3.1	21	That the planning approval support Option 1b as the alignment through Olivia Gardens, and a park created and dedicated to the City.
5.3.2	22	That design levels remove or minimise the differences in levels between the platforms and adjoining footpaths and roads.

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
5.3.2	23	That the Proponent's documentation require that design of the Devonshire Street streetscape facilitates north/south pedestrian flow and is developed without the use of barrier walls.
5.3.2	24	That flooding conditions are not to be worsened by construction of the light rail project, requiring the overland flow paths to be carefully designed without any compromises on private properties.
5.4.1	25	The detailed design resolution of the Rawson Place and Chalmers Street interchanges are a priority, and should be resolved in consultation with the City.
5.4.2	26	That detailed design drawings be produced for review by the City, showing integration of stops into the surrounding streetscapes, and that parameters for the detail of all anticipated elements required for stop architecture be provided in the Proponent's documentation.
5.4.3	27	That the extent and character of the shade and shelter structures at stops and interchanges should be subject to a high level of design and quality review.
5.4.4	28	That the Proponent's documentation remain flexible to allow innovative approaches in the provision of wire-free technology to allow for the City's preference of wire-free operation between Bathurst Street and Hunter Street.
5.5	29	That the parks condition assessments undertaken prior to works commencing meet a level of accuracy and detail as required by the City. Assessments are to capture all park elements including park furniture, soft and hard landscaping elements, heritage elements, turf and tree condition, path and internal road, signage, fencing and park lights. That reinstatement timeframes be agreed by City. All trees within worksites to be retained are to be physically protected using tree guards, with site specific tree protection measures for each tree to be implemented in accordance with AS4970. For all heritage and public art elements affected by these works, that

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		an independent conservator is to develop a plan for handling, storage and reinstatements.
5.6.2	30	That the City of Sydney be given the opportunity to review the new tree locations during the development of detailed designs. Any subsequent alterations or deletions of new tree locations shall be subject to further review by the City of Sydney.
5.6.3	31	That the Proponent's documentation include the provision for detailed geotechnical assessments to ensure that the existing base and sub-base of the existing pavement is not to be considered structurally sound unless proven as such by geotechnical analysis.
5.6.4	32	That investigation is undertaken in accordance with the Acid Sulfate Soils Assessment Guidelines 1998 to assess the presence of Acid Sulfate Soils prior to the works commencing, as part of the CEMP.
5.6.5	33	The City's preference is that all proposed drainage infrastructure shall be adequately sized considering best practice even if the existing downstream network has a lower capacity. Documentation is to be provided to demonstrate that this standard has been achieved as per the City's specifications.
5.6.7	34	That the design and construction of the stormwater drainage infrastructure is to be undertaken following established engineering practices to ensure the result is hydraulically efficient and enables future access for maintenance. Known inefficiencies in the stormwater system, such as inaccessible pits among others, within the extent of works are to be identified and a corrective measure designed and constructed. Sydney Water has remaining sections of the City's stormwater system connected to the sewer. Currently trapped road gully pits are installed along George Street, ensuring odours do not leave the system. Trapped road gully pits are to be designed and constructed along George Street as appropriate.
5.7.1	35	Where possible to rationalise aerial power wiring as part of the project

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		this should be included in the Proponent's scope of work.
5.7.2	36	That switchboards are to be installed for the City's electrical cabling at locations agreed with the City.
5.7.3	37	That the City requires more detail in regard to the CCTV network of the CSLER and its operation on the street and in the carriages. The City of Sydney to be consulted regarding placement of the new cameras in the LGA and how they will impact on the existing City of Sydney network.
5.8	38	That prior to construction, the Proponent liaise with Housing NSW to permanently change the residential waste collection point of the whole Northcott buildings from Devonshire Street to the existing communal collection point inside the property, which is accessible via Belvoir Street.
5.8	39	That the Proponent's documentation ensure the City's collection vehicles can access the proposed service lane connection on the southern side of Devonshire Street, between Bourke Street and Crown Street to access Nickson Street and Nickson Lane properties for waste collection, as this is the only entry point to these properties.
5.9.1	40	The noise assessment criterion for noise from the stabling and maintenance depot sites, stops and electrical substations is to be the Industrial Noise Policy (INP). That late evening uses of the City's and other buildings are considered and that of those buildings, required amelioration for the transformer noise impact considers the older façade construction methodologies and acceptable internal noise amenities based on area usage.
5.9.2	41	That areas of predicted noise exceedances are explored in detail with the aim of resolution during the detailed design stage of the project, otherwise noise mitigation options must be undertaken.
5.9.3	42	That the EPA Rail Infrastructure Noise Guideline, May 2013 (RING) be applicable to the whole of the project, with the residential

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		component of Devonshire Street identified as “Sensitive Land Use”. That the operational trigger limits in the EPA Rail Infrastructure Noise Guideline, May 2013 (RING) should be achieved. Where reasonable and feasible, best practice should be adopted for mitigation of light rail noise, with state of the art technology employed through the detailed design and construction works.
5.9.4	43	That the Proponent be required to assess the Eastern Distributor bridge noise in detail at the detailed design stage and, if necessary, consider noise attenuation in the bridge design.
6.2	44	The scale of the proposed Light Rail/bus interchange canopy at Rawson Place is assessed to have a potentially major heritage impact on the adjacent heritage buildings and character of Rawson Place. The shelter at this location should be re-designed so that its visual impact can be reduced.
7.2	45	That the exact location and structural integrity of all underground structures be investigated in the following way, prior to early works commencing: • Detail (reduced levels) and boundary survey of all underground structures and an initial condition report prepared; and • Structural assessment of underground structures, including a dilapidation report, vibration and noise assessment; and • Amendments (if necessary) to the design, materials used and methodology of the construction and excavation associated with the light rail in the vicinity of the underground structures (i.e. pedestrian tunnels), based on conclusions drawn in the structural assessment of the structures.
7.3.1	46	That the Proponent consult with the City on laydown areas and potential alternatives to ensure there is minimal impact on City operations.
7.3.1	47	That the worksite shall be defined as per the attached plans

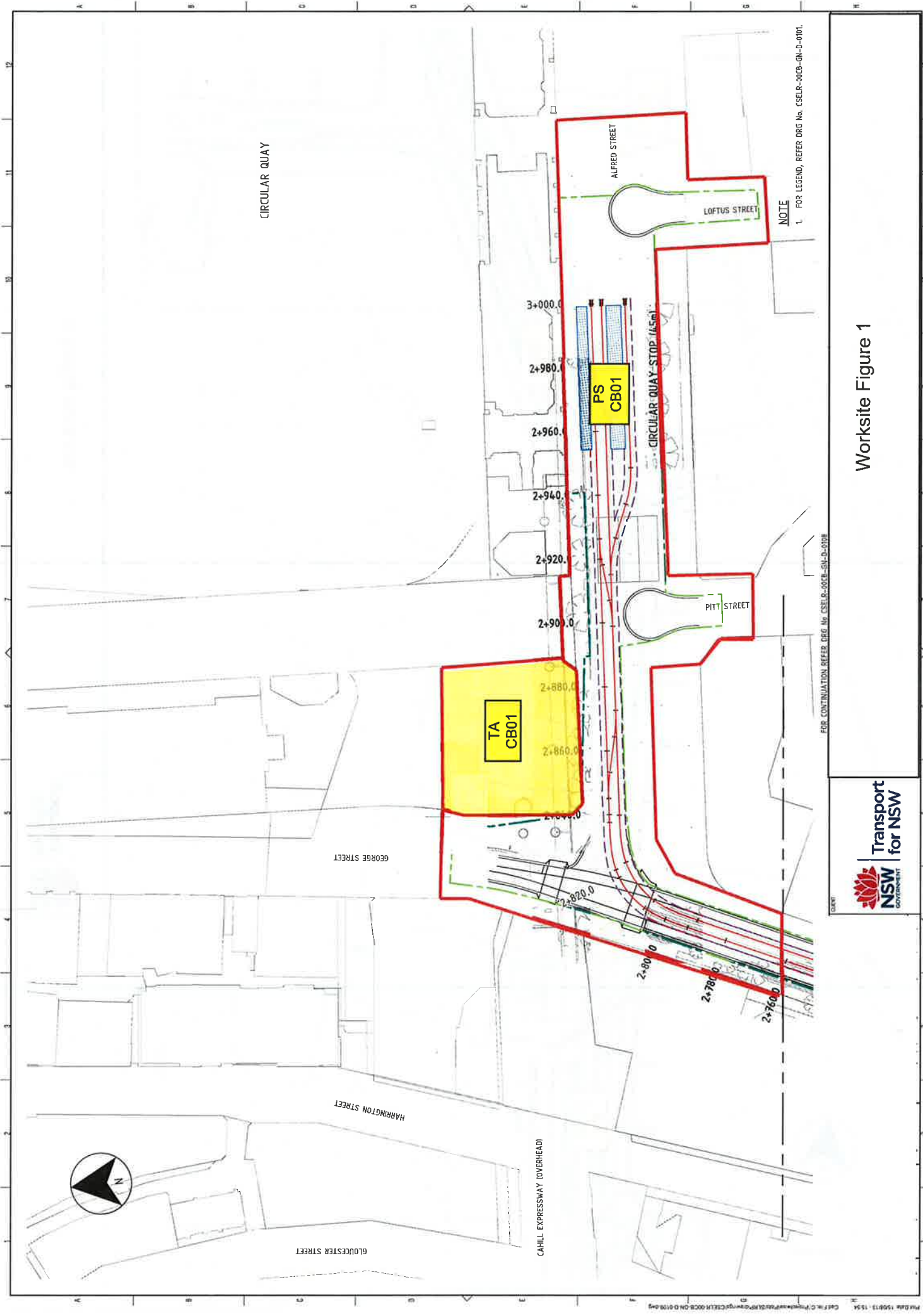
Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		(Appendix B) produced by TfNSW.
7.3.2	48	That community amenity issues be a primary focus of construction management strategies and processes, with particular consideration given to: - Noise - Visual amenity - Pedestrian and vehicular access - Community access to public open spaces in the inner city, particularly with regard to use of open spaces for construction compounds.
7.3.3	49	That the City has the opportunity to review and comment on the CEMP once it is drafted.
7.3.4	50	The EPA Interim Construction Noise Guideline is to be applied to the CSELR.
7.3.5	51	Customs House library to be included in Table 3 – Noise & Vibration Sensitive Receivers in Technical Paper 11.
7.4.1	52	All trees marked to be retained shall be protected in accordance with the Australian Standard 4970 Protection of Trees on Development Sites. Tree Protection Plans In addition to a generic street tree protection plan, site specific tree protection plans shall be prepared for the following sites: - First Fleet Park - Belmore Park - Ward Park - Martin Place

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		Moore Park
7.4.2	53	All necessary tree pruning shall be documented within the relevant tree protection plan and clearly specified by the Project Arborist. All pruning shall be in accordance with the Australian Standard 4373 Pruning of Amenity Trees (2007). Any proposed pruning of trees listed within the City's Register of Significant Trees (2013) shall be subject to the approval of the City. All pruning of trees (including root pruning) shall be performed by arborists with minimum certification of Australian Qualifications Framework Level 3. Any approved pruning of Significant Trees shall be directly supervised by the Project Arborist. The pruning of any root greater than 50mm diameter shall be subject to assessment and approval by the Project Arborist. The pruning of any root within the Structural Root Zone of any tree shall be directly supervised by the Project Arborist.
7.4.3	54	That any proposal to removal mature Moreton Bay Fig trees from the Moore Park Precinct shall be reviewed by the City and all alternative options thoroughly investigated and considered that would allow their retention.
7.4.4	55	That a site specific Tree Protection Plan be developed for Belmore Park and submitted to the City for approval prior to any works in this area. That excavation and trenching within the park shall be prohibited. Site sheds and other facilities shall be installed above existing grades. Raised platforms or walkways shall be installed to prevent soil compaction. Laydown and loading areas shall be located away from trees to avoid the need for tree pruning and minimise the risk of soil compaction. All areas subject to vehicle access shall have a surface treatment installed to prevent or reduce surface compaction as much as

Relevant Clause in EIS Response	Condition No.	Recommended draft Condition
		possible. Vehicle access to the site shall be located away from mature trees as much as possible.
7.4.5	56	A site specific Tree Protection Plan shall be developed for the proposed Martin Place site compound and submitted to the City for review prior to any works in this area.
7.4.6	57	The City to be consulted regarding maintenance of adequate CCTV coverage through all phases of construction and operation of the CSELR.
7.5.1	58	That access to all buildings is maintained during construction of the light rail corridor for the purpose of accessing waste collection points for servicing of waste bins from both commercial and residential properties.
7.5.1	59	The Proponent's documentation should include temporary presentation points in their construction site plans if construction restricts access to normal waste collection areas. These temporary presentation points will need to be accessible by both residents and the collection vehicle. For example, residential properties present bins for collection by the City of Sydney on the north side of Devonshire Street. This will not be possible during construction and temporary presentation points will need to be provided in consultation with City staff.
7.5.1	60	That the Proponent assist the City in providing alternative routes for collection vehicles to access these areas for waste collection during construction and operations.

Appendix B

Works Site Drawings



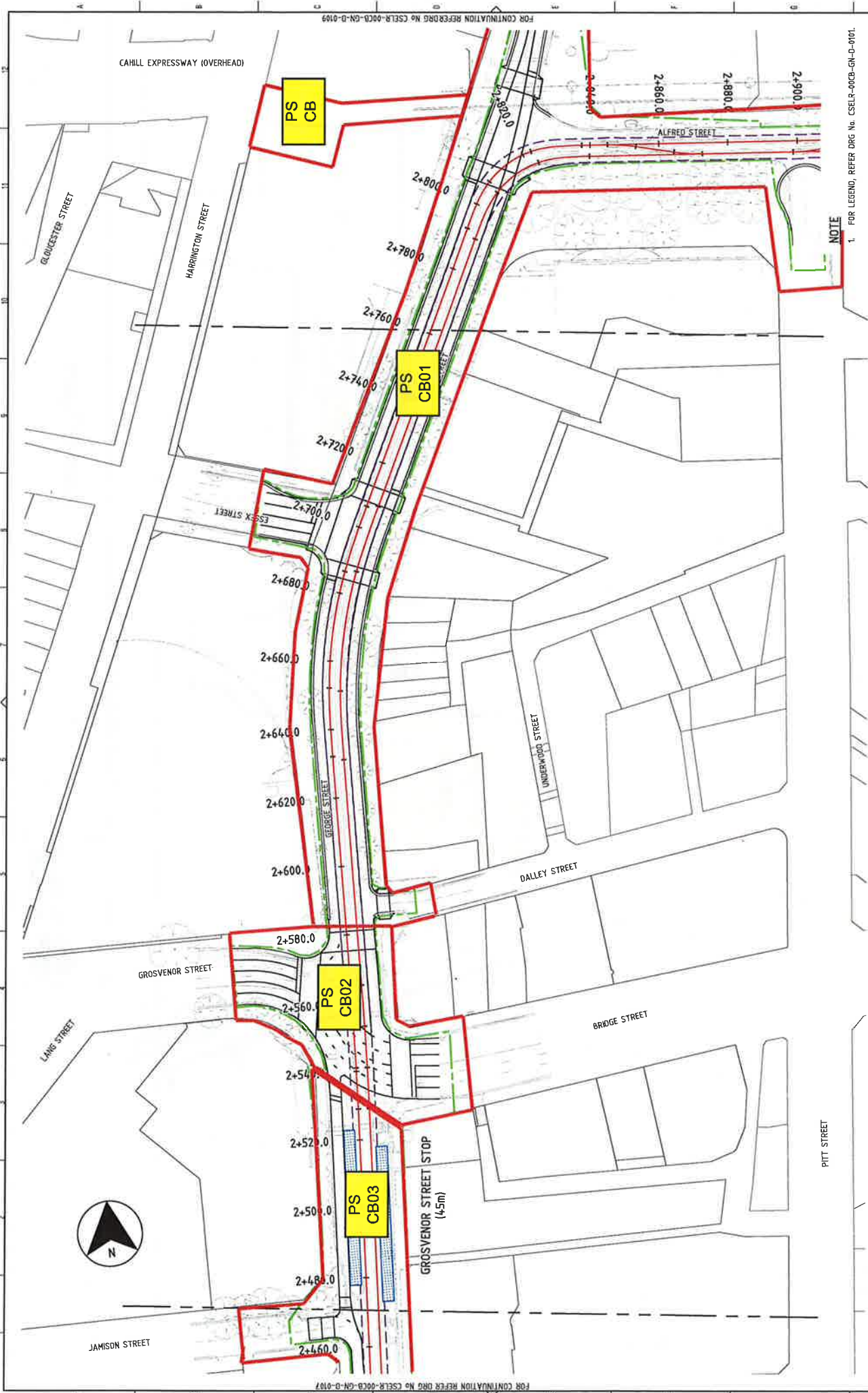
NOTE
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CLIENT

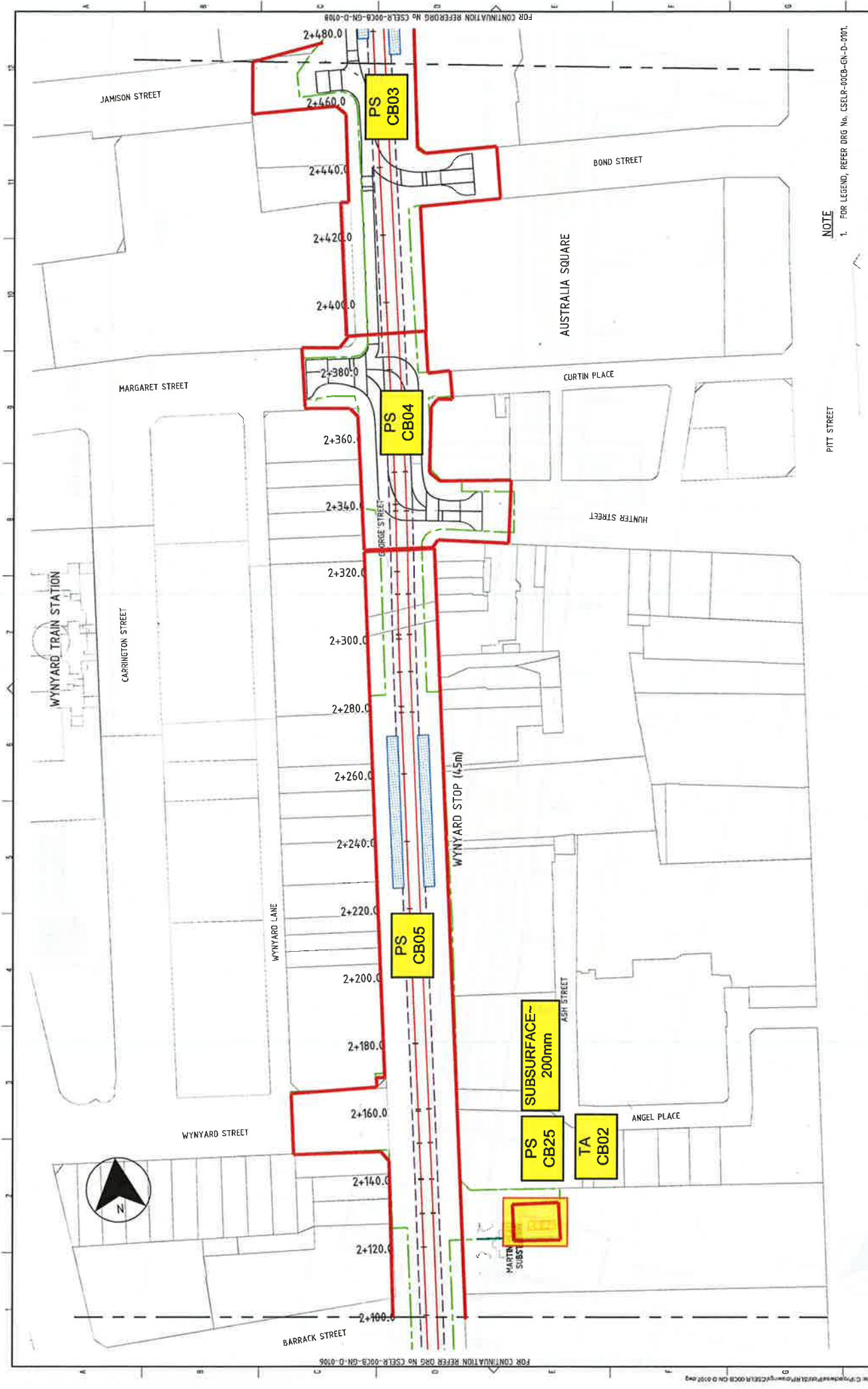


Worksite Figure 1



Worksite Figure 2





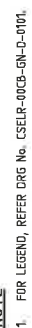
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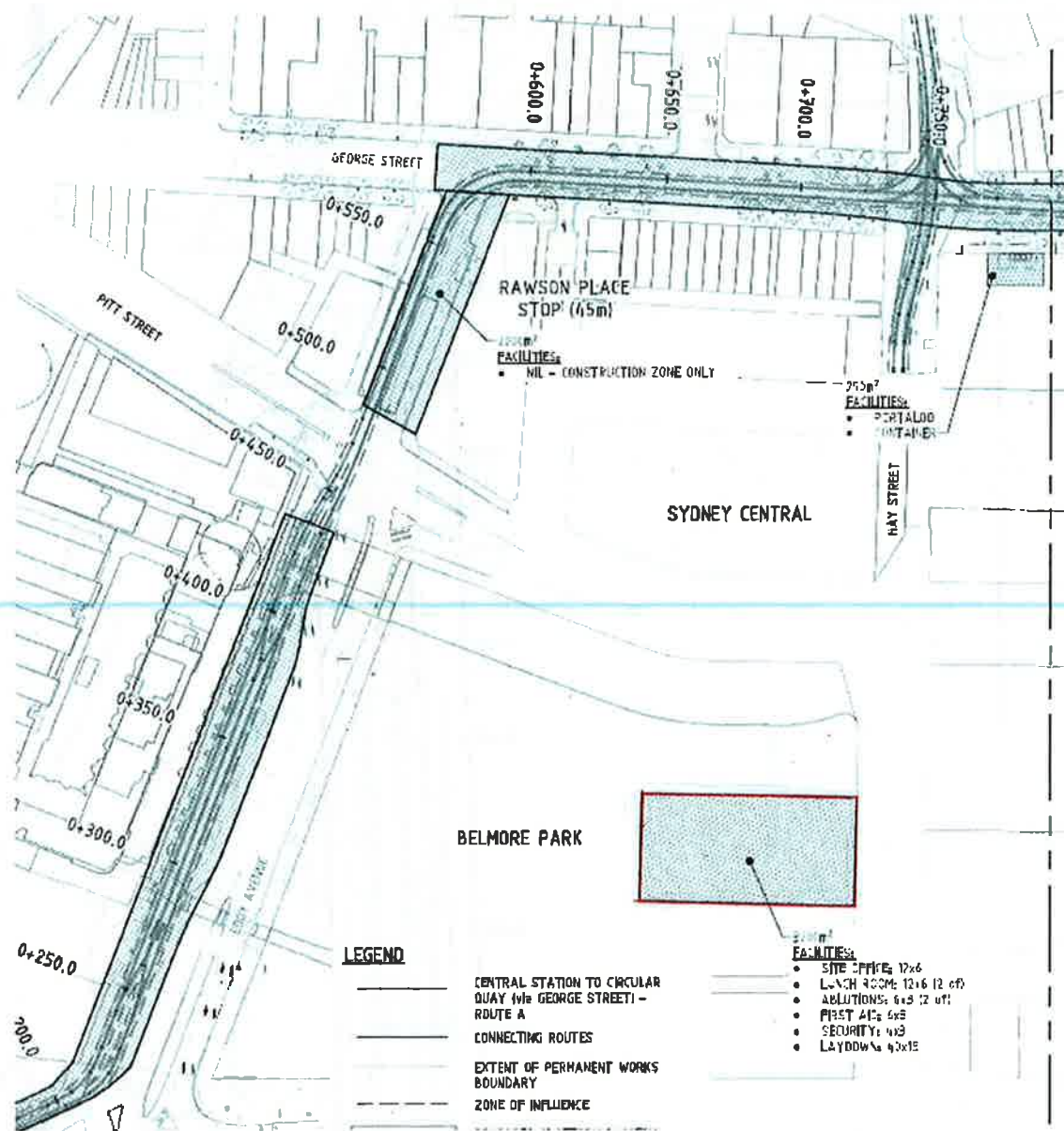
PITT STREET

Worksite Figure 3



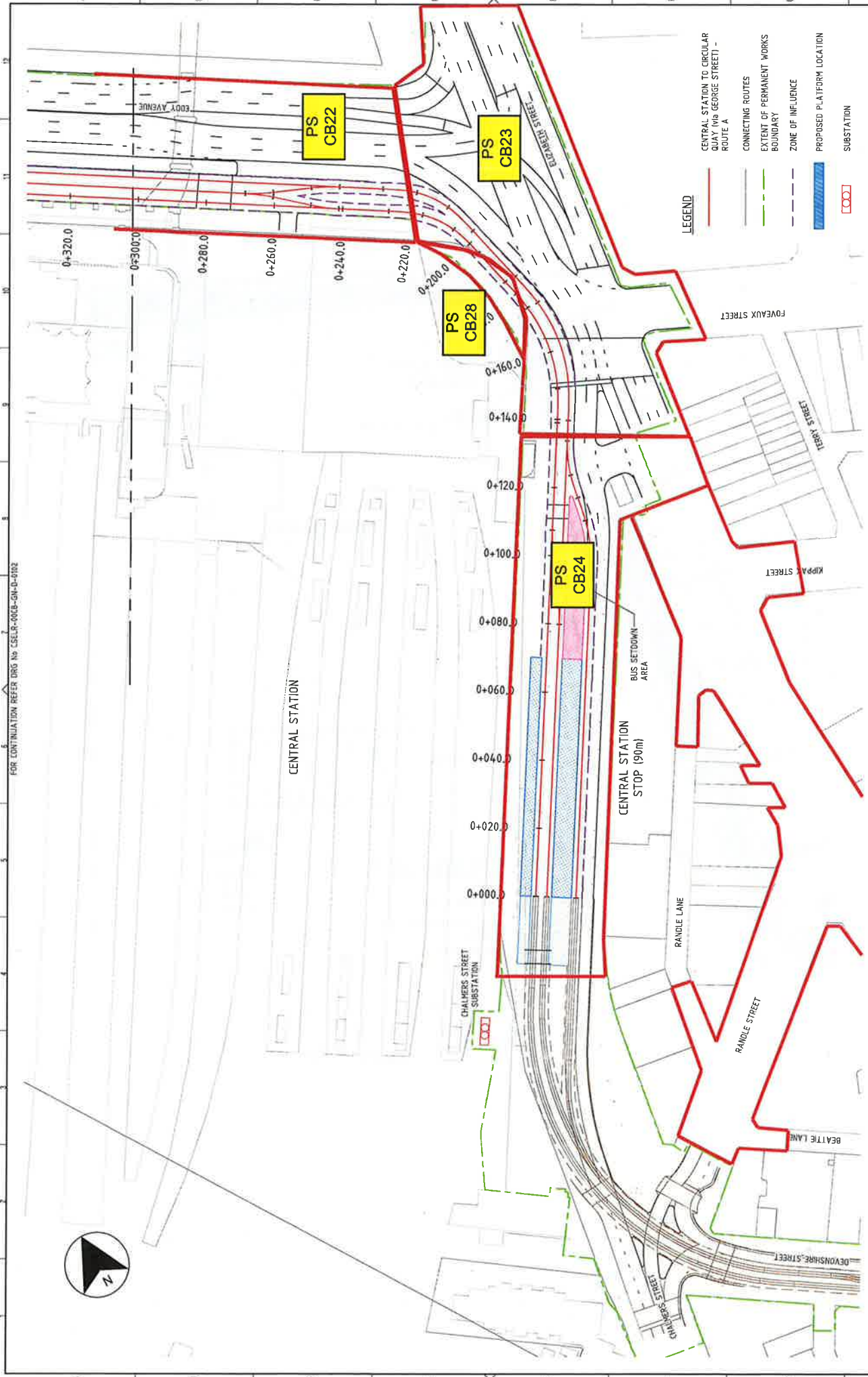


Transport
for NSW



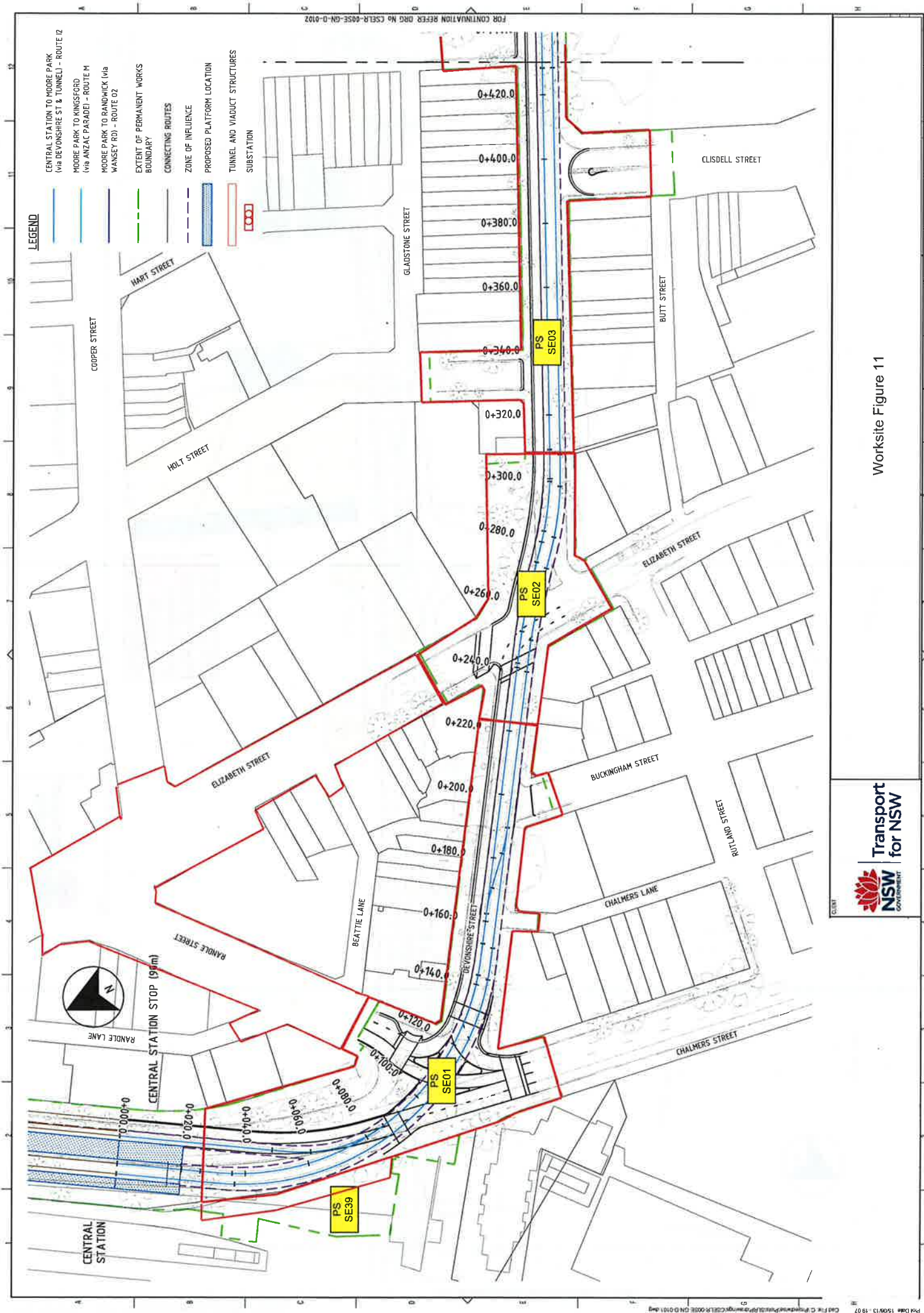
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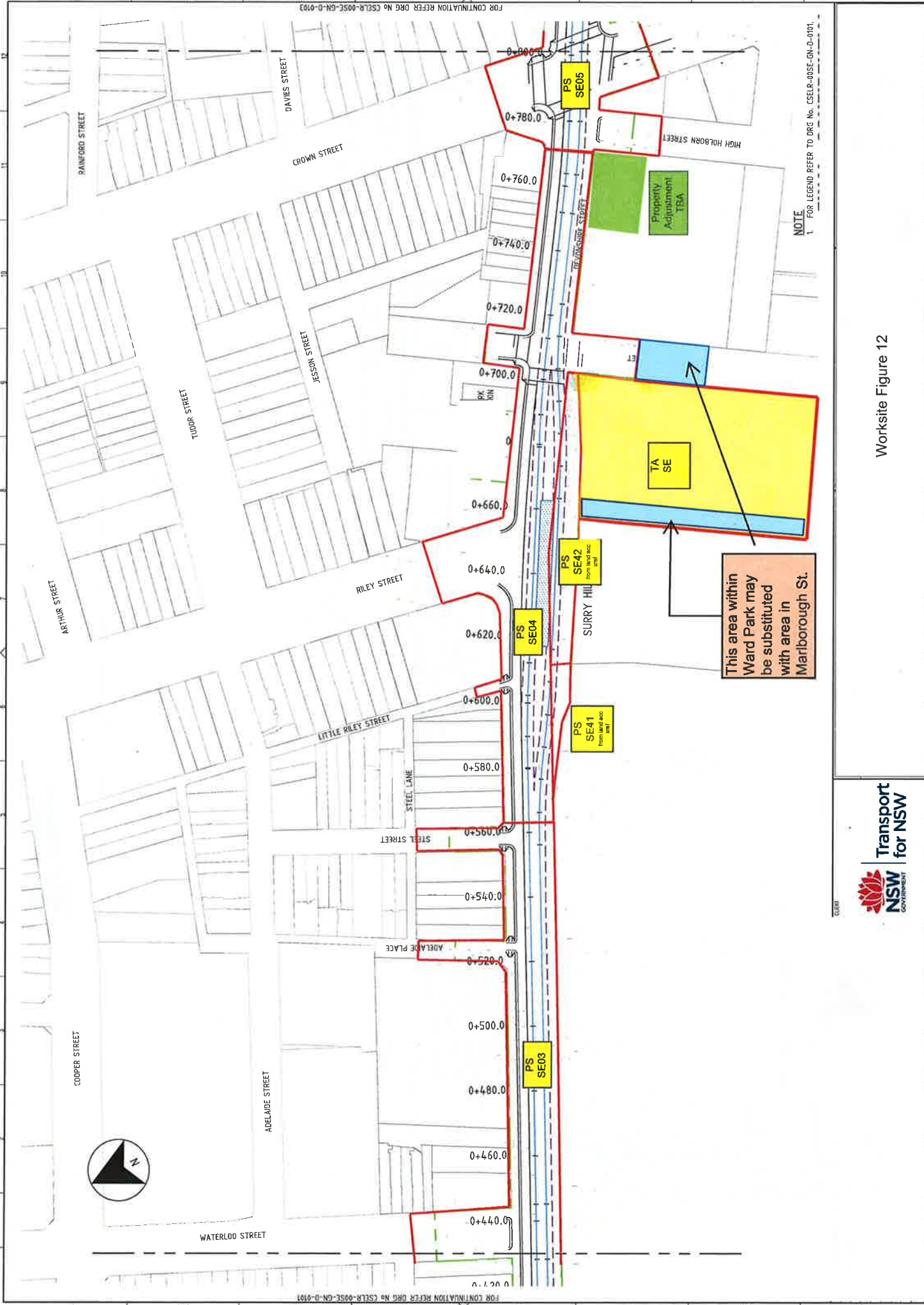


- LEGEND**
- CENTRAL STATION TO CIRCULAR QUAY (via GEORGE STREET) - ROUTE A
 - CONNECTING ROUTES
 - EXTENT OF PERMANENT WORKS
 - BOUNDARY
 - ZONE OF INFLUENCE
 - PROPOSED PLATFORM LOCATION
 - SUBSTATION

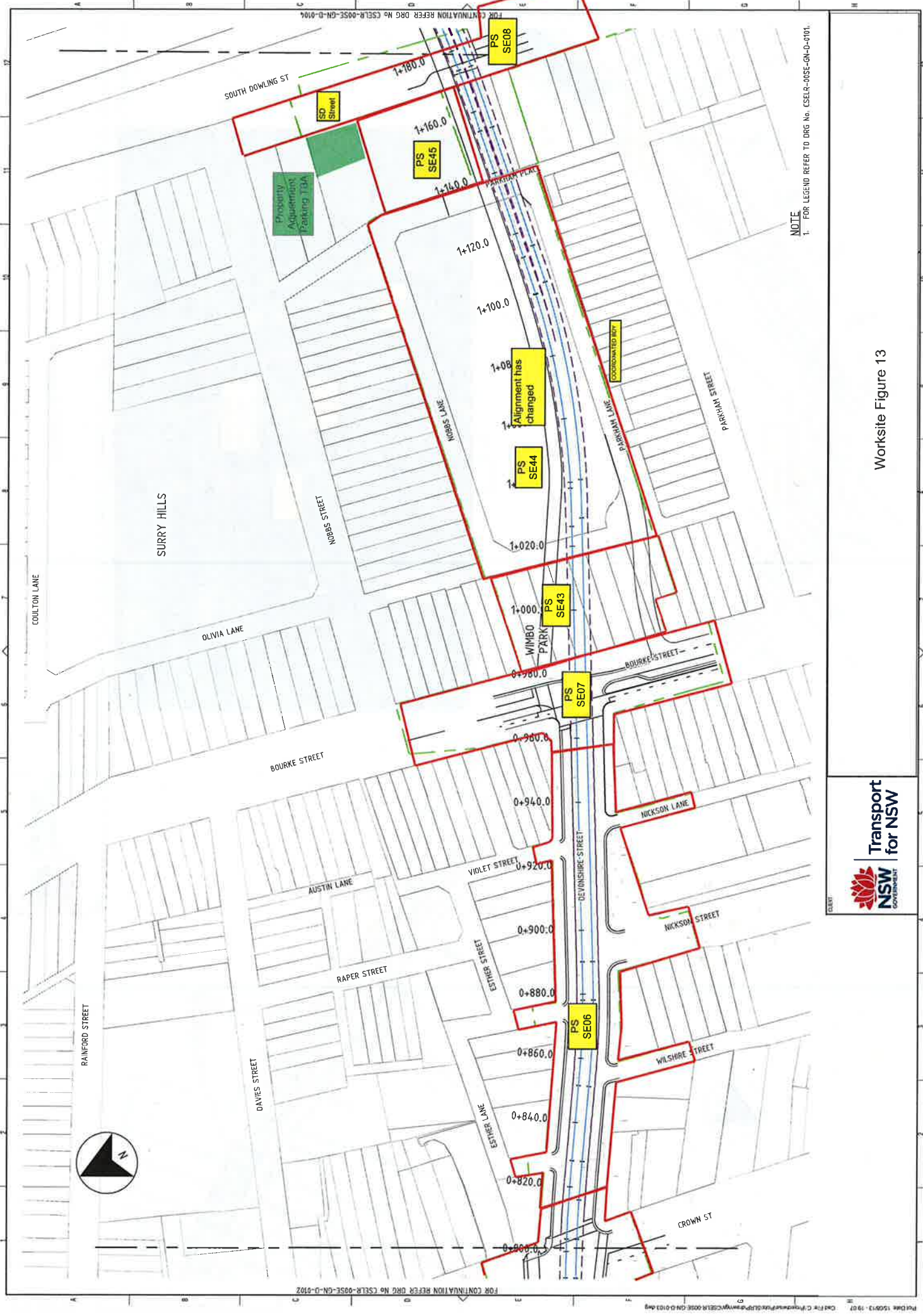
Worksite Figure 10



Worksite Figure 11

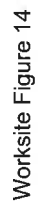


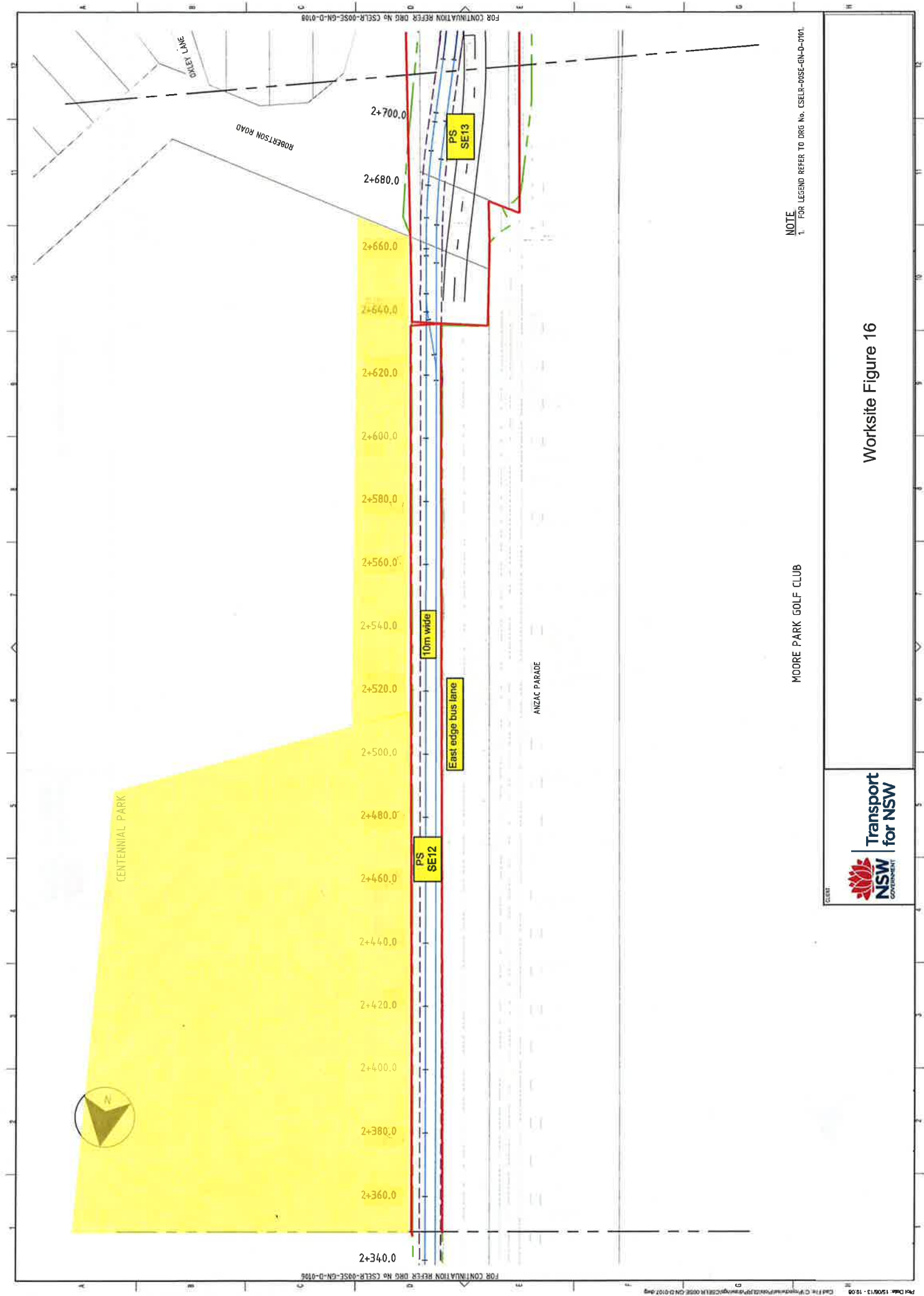
Worksite Figure 12



NOTE
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Worksite Figure 13

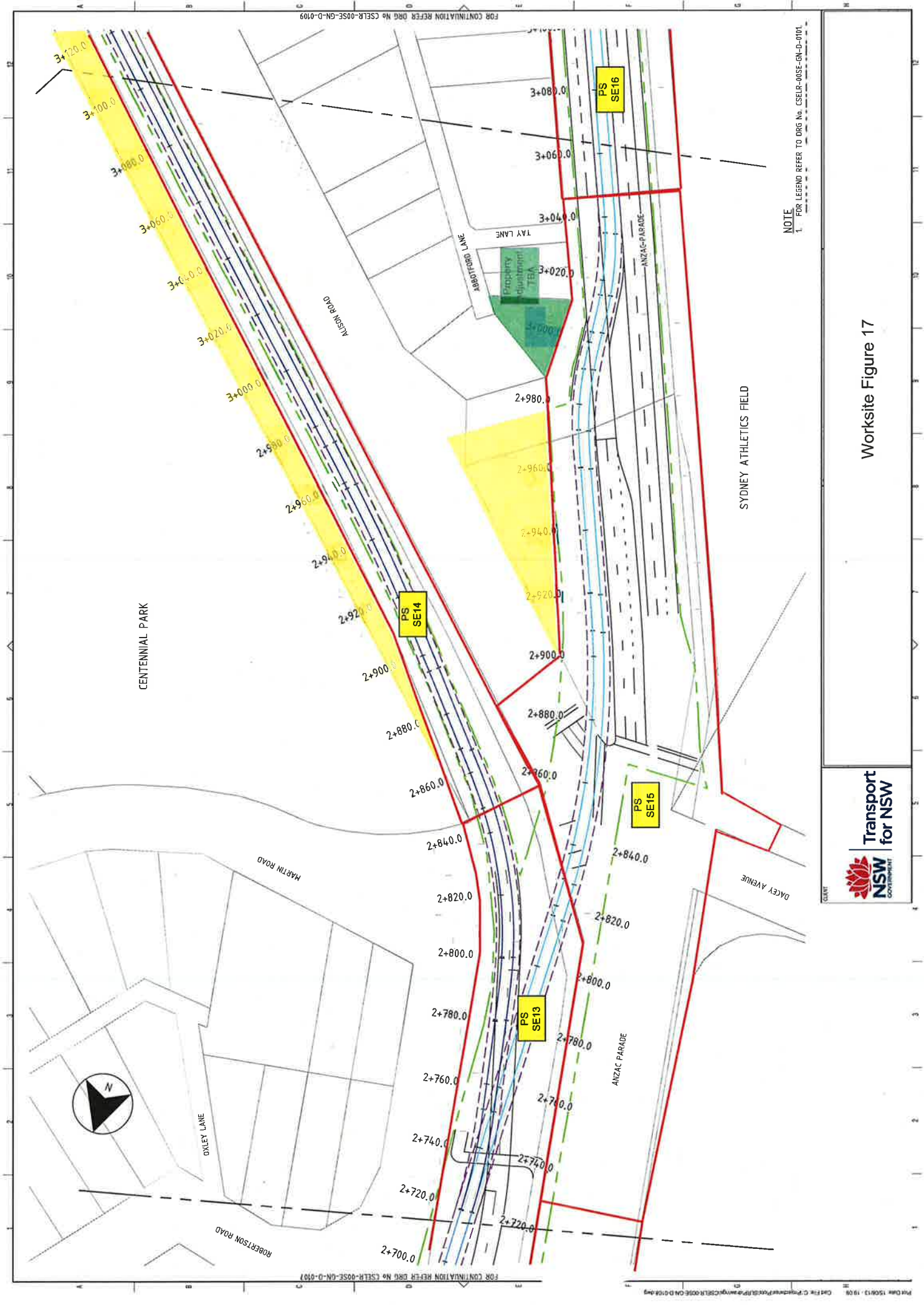




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MOORE PARK GOLF CLUB

Worksite Figure 16



Worksite Figure 17

