Demonstrative Investigation for Condition E84

(Delivery by non-rail method for remainder of the work after TSE)

Line-wide Works Contract Sydney Metro City & Southwest

Project number:	C600
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Document Approval

Rev.	Date	Prepared by	Reviewed by	Recommended by	Approved by	Remarks
A	8 April 2020	Mong Sim	Matt Billings	Paul Ryan	Scott Hunter	
B	3 June 2020	Mong Sim	Matt Billings	Paul Ryan	Scott Hunter	Minor revisions.
0	16 June 2020	Mong Sim	Matt Billings	Paul Ryan	Scott Hunter	Approval.
1	4 August 2020	Mong Sim	Matt Billings	Paul Ryan	Scott Hunter	DPIE comments
Signature:						

Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this document is reviewed and up to date. The Project Traffic Manager is responsible for updating this plan to reflect changes to legal and other requirements.

Amendments

Any revisions or amendments must be approved by the Project Director and/or client before being distributed/ implemented.

Revision Details

Revision	Details
A	Issued for information.
B	Revised to include some components are still delivered by rail
0	Comments close out and approval.
1	Addressing DPIE comments. A work program attached, reasoning for M&E delivery plan and CTMPs reference.

Table of Contents

1. LW Project Overview and Scope

Line-wide Works (LW) is delivered by Systems Connect, a CPB Contractors and UGL Engineering Joint Venture. Systems Connect is delivering LW in four distinct portions as follows, and as described in detail in Section 1.3.

- Portion 1 – Sydney Metro Train Facilities (SMTF) North (Tallawong) expansion works
- Portion 2 – Sydney Metro Train Facilities (SMTF) South (Marrickville) stabling yard
- Portion 3 - Chatswood to Sydenham Works
- Portion 4 – Sydenham to Bankstown

The Sydney Metro City & Southwest (SMCSW) project will extend the current Sydney Metro Northwest which stops at Chatswood, to the central business district (CBD) and to Bankstown.

The SMCSW project is being delivered through a series of contracts for the tunnels, stations, line wide infrastructure and systems.

LW is a key component of the SMCSW project, with works taking place over the full length of the project as shown in Figure 2 between Chatswood and Bankstown.

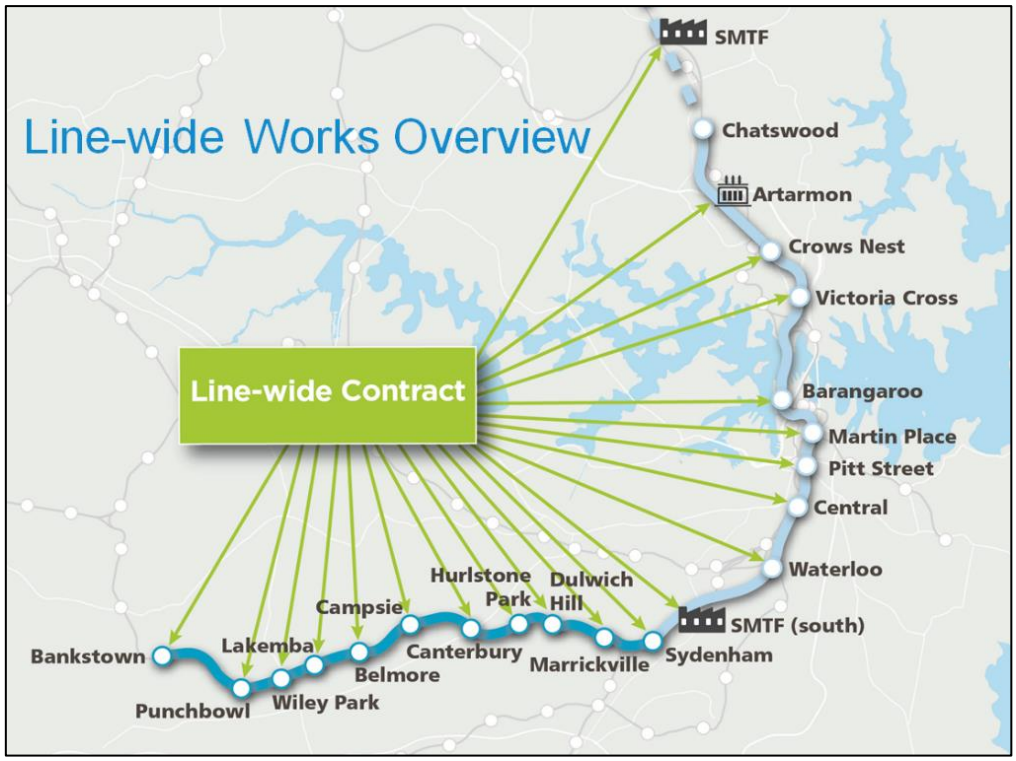


Figure 1. Line-wide Works Line Diagram

2. Demonstrative Investigation for compliance of Condition E84

This document demonstrates the full compliance of condition E84 by Systems Connect and evidence of work done to satisfy condition E84. *Rail* on this document is interpreted as the completed rail track laying within the new Sydney Metro tunnel and also as the existing rail network around states and territory.

Conditions of approval E84 states *the Proponent must investigate opportunities to maximise spoil removal by non-road methods and schedule final track laying as soon as practicable following completion of tunnelling with a view to transporting materials and equipment for station fit-out, systems and commissioning by rail to minimise truck movements in town centres and the Sydney CBD. The findings of the investigation must be reported to the Secretary before commencement and before completion of tunnel spoil generation as relevant. A decision to not adopt spoil haulage or materials delivery by non-road methods must be demonstrated to the satisfaction of the Secretary.*

The end of the spoil removal and all associated work from the current TSE's contract is approaching the completion date. Condition E84 is considered applicable to both TSE's and Systems Connect's scope. Systems Connect in this document demonstates the full compliance of condition E84.

Systems Connect's scope to fit out the tunnels consists of :

1. Track form concrete for the tunnel floor [*material for station fit-out*] (station interpreted as the tunnel in this case not the station itself)
2. Track installation (sleepers, baseplates and rail sections) – [*track laying*]
3. Tunnel electrical and mechanical parts installation – [*systems* and/or *commissioning*]
4. Stations electrical and mechanical parts installation – [*systems* and/or *commissioning*]
5. Other materials (acoustic panels, dampers, cross passages fittings) – [*systems* and/or *commissioning*]

Systems Connect has planned and coordinated early access requests to the tunnels in collaboration with Sydney Metro and the current tunnelling contractor, to allow track laying activities to commence as soon as the tunnel is excavated and lined. The Program dictates the track laying activities from multiple access points via Crows Nest and Waterloo tunnel access and from the tunnel portal entry locations (dive sites) at Chatswood northern dive and Marrickville southern dive to maximise track laying productivity. Other potential additional loading points such as Blues Point, Barangaroo and Martin Place (Bligh Street) are being investigated at this stage depending on accessibility and coordination with Sydney Metro. This planning exercise has demonstrated clause E84 is adhered to by completing *the track laying as soon as* possible by working on multiple ends.

Completion of track laying activities provides an excellent opportunity to utilise the newly constructed rail network, in the tunnels, as the underground rail transportation network to minimise interference & disruption to the external road network in the Sydney CBD. All tunnel mechanical and electrical components; and concrete sleepers are originally transported by road to the distribution points at Barangaroo, northern dive and southern dive and then re-distributed by the newly completed rail network in the tunnels. The logistics planning scenario of using the completed track is *minimising truck movements in town centres and the Sydney CBD.*

Besides expediting the track laying activities and utilising the completed trackform in the tunnels to transport permanent materials, a planned bulk delivery of the steel rail sections for the tunnel, by regional & insterstate rail, instead of by road from Whyalla, SA to Newcastle NSW, has effectively taken hundreds of extendable semi trailer trucks off the major states road network (ie. Hume Highway and M7 in NSW, and major routes through SA and VIC). The rail sections will be delivered to a local rail stabling depot in Newcastle & stockpiled prior to being transported via extendable semi trailers to the northern and southern dive sites. From these 2 loading points, the steel rail sections will be transported via the completed rail network within the new tunnels and distribution along the tunnel, minimising trucks using the local Sydney CBD road road network.

Stations mechanical and electrical (M&E) equipment are planned to be delivered directly by road and and unloaded into the station sites. The stations mechanical equipments are not able to be delivered by the completed rail network in the tunnel due to the constant ongoing tunnel fitout works. There is no possibility in the program to make way for M&E equipment to get through via the track. M&E equipment final installation location is directly within the station box. This equipment is vertically aligned and it is best to lift down from the station sites. Similarly, ready mix concrete will need to be delivered to the closest access point at each of the stations via the local road network and transported on the completed track. Delivery volumes for this equipment and materials by the local roads network will be subject to the stringent limit of additional trucks to the CBD precinct. These trucks movement for the stations material are actively monitored by Traffic Management Centre's video monitoring and permit systems. Set rules and checklists by TMC/Sydney Roads are effectively controlling the trucks movements without compromising the overall traffic flow in the CBD. There are no risks of these additional trucks causing major traffic issues.

Systems Connect is confident these planning details are satisfying the expectation of condition E84.

3. Appendix A – Excerpt of Conditions of Approval E84

NSW GOVERNMENT Planning & Environment

(i) regulatory, advisory and other signage changes and modifications;
(j) parking management, including on and off street and remote parking and access;
(k) heavy vehicle management, the restriction (unless otherwise approved) of heavy vehicles to certain routes and the minimisation of heavy vehicle traffic in peak traffic periods;
(l) special event management;
(m) the retention and reinstatement of emergency and property access;
(n) the retention of user and passenger safety, including pedestrians, cyclists, public transport users, including at stops and related facilities;
(o) incident response planning around construction worksites; and
(p) monitoring of transport and access related impacts attributable to the CSSI.

E82 Construction Traffic Management Plans (CTMPs), consistent with the CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to the RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site.

E83 Where construction results in a worsening of the matters identified in Condition E81(a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to the CTMPs must be submitted to the RMS for approval following Sydney Coordination Office endorsement and implemented.

E84 Notwithstanding the above, the Proponent must investigate opportunities to maximise spoil removal by non-road methods and schedule final track laying as soon as practicable following completion of tunnelling with a view to transporting materials and equipment for station fit-out, systems and commissioning by rail to minimise truck movements in town centres and the Sydney CBD. The findings of the investigation must be reported to the Secretary before commencement and before completion of tunnel spoil generation as relevant. A decision to not adopt spoil haulage or materials delivery by non-road methods must be demonstrated to the satisfaction of the Secretary.

E85 Heavy vehicle haulage must not use local roads unless no feasible alternatives are available.

E86 During construction, measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Alternative pedestrian and vehicular access, and parking arrangements must be developed in consultation with affected businesses. Such arrangements must be outlined in the **Business Management Plan** required in Condition E64 and implemented as required. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.

E87 Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists and public transport users will be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be included within each relevant CTMP and carried out in consultation with the TTLG before the completion and use of the subject infrastructure and must be made available to the Secretary on request.

E88 Details of haulage routes and heavy vehicle sizes to transport material to and from any construction site must be specified in the **Construction Traffic Management Plan(s)** and be approved by the RMS following endorsement by Sydney Coordination Office and the Relevant Roads Authority.

E89 The Proponent must implement traffic and transport management measures with the aid of a truck marshalling and logistics facility located within close proximity to the Sydney and North Sydney CBDs. The facility must be operational in advance of tunnel spoil generation. Details of the facility must be documented in the **Ancillary Facilities Management Plan** required by Condition A16.

4. Appendix B – Reference CTMPs used for deliveries via the local road network

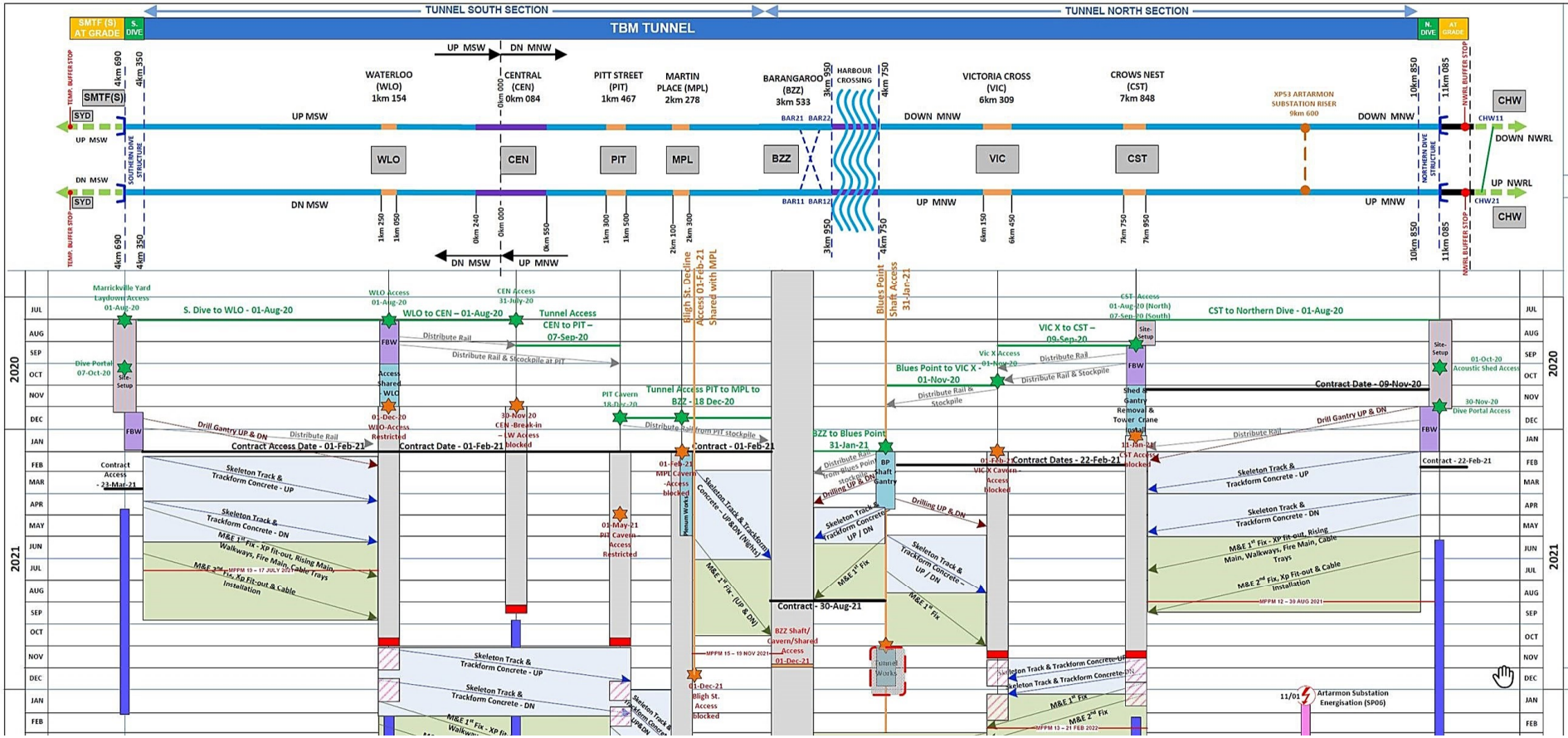
Northern Dive SMCSWLWC-SYC-DCH-TF-PLN-002505

Crows Nest SMCSWLWC-SYC-SCN-TF-PLN-003978

Waterloo SMCSWLWC-SYC-SWL-TF-BRN-004299

Southern Dive SMCSWLWC-SYC-SFC-TF-PLN-003852

5. Appendix C – Work Program



Systems Connect

NOTES / KEY ASSUMPTIONS

- 1. Tunnel Site Access Dates as per the following Sydney Metro Teambinder correspondence regarding Modification Proposal Request (MPR) No. 017:
  - SMCSWLWC-SMD-LWC-SMD-CN-000302 dated 18 February 2020;
  - SMCSWLWC-SYC-LWC-SYC-CN-000313 dated 28 February 2020;
  - SMCSWLWC-SMD-LWC-SMD-CN-000359 dated 16 March 2020.

  Time Chainage Diagram is based on the latest information provided on 16 March 2020 and information provided on 08 May 20 via SC / SM commercial meetings.
- 2.Assumptions on Site Conditions on Access Date as per LW Contractors documented response to MPR017.
- 3. Access date for Hickson Rd (Barangaroo Northern Shaft), Barangaroo Xover and Barangaroo Station Trackway - 01 June 2022 as per MPR#17.
- 4.Access via Blight St. Decline (Martin Place) shared with MPL Contractor from 01 Feb 2021 - for tunnel fit-out works between MPL to BZZ.
- 5. Access date for Blue Point Shaft - 31 Jan 2021 as per MPR#17.
- 6.No Change to any other LW Contract Access dates have been considered.

Legend

- Access Available through Station Box
- Station Access Blocked