

Appendix F

Contamination assessment

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Subject	Clyde Stabling and Maintenance Facility Modification - Contamination Assessment	Project Name	Sydney Metro West
Attention	Ari Stypel, Sydney Metro	Project No.	IA199800
From	Jacobs		
Date	3 November 2021		
Copies to	Ryan Butler, Sydney Metro		

1. Introduction

1.1 Overview

Sydney Metro is Australia's biggest public transport program. The Sydney Metro West project is part of the broader Sydney Metro and includes a new 24-kilometre metro line that will connect Greater Parramatta with the Sydney CBD. Stations include Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street (Sydney CBD). This infrastructure investment will double the rail capacity of the Greater Parramatta to Sydney CBD corridor with a travel time target between the two centres of about 20 minutes.

The planning approval process for Sydney Metro West is being completed as a staged infrastructure application under section 5.20 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 The approved project

Planning approval Sydney Metro West Project Concept, from Westmead to the Sydney CBD, as well as station excavation and tunnelling between Westmead and The Bays (the approved project) was granted by the Minister for Planning and Public Spaces on 11 March 2020 (SSI-10038) and is described in the following documents:

- The Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020a)
- The Sydney Metro West Westmead to The Bays and Sydney CBD Submissions Report (Concept and Stage 1) (Sydney Metro, 2020b)
- The Sydney Metro West Westmead to The Bays and Sydney CBD Amendment Report (Concept and Stage 1) (Sydney Metro, 2020c)
- Conditions of Approval for Sydney Metro West – Concept and Stage 1 Construction (SSI 10038) (Department of Planning and Environment, 2021)

1.3 The proposed modification

The proposed modification relates to the major civil construction work at the Clyde stabling and maintenance facility and would include:

- Rosehill dive structure relocation and extension
- Kay Street and Unwin Street realignment.

These changes to the design for the approved project would require:

- Additional land required for future planning applications brought forward
- Additional impact to heritage not assessed as part of the approved project
- Additional impact to biodiversity not assessed as part of the approved project

There would be no changes proposed to the Concept as described in Chapter 6 (Concept description) of the Environmental Impact Statement.

1.4 Project description

1.4.1 Rosehill dive structure

The Rosehill dive structure is required to provide for a future connection from the Clyde stabling and maintenance facility to the mainline tunnels. The proposed modification includes:

- Relocation east and extension of the Rosehill dive structure further north-east within the former T6 Carlingford Line
- Additional construction area, previously identified in the Environmental Impact Statement as required for future use, to allow for:
 - Enabling works as outlined in Section 9.4.1 of the Environmental Impact Statement
 - Removal of the Rosehill Railway Station Footbridge which is of local heritage significance, listed under the RailCorp Heritage and Conservation Register under Section 170 of the *Heritage Act 1977* (NSW), and provision for an alternative crossing of the former T6 Carlingford Line prior to removal of footbridge
 - Removal of the platforms and station furniture at the former Rosehill Railway Station
- Minor realignment of the tunnel portal connecting the mainline tunnels to the revised Rosehill dive structure location. Further investigation into temporary facilities to support additional access to the tunnels would be considered as part of detailed construction planning.

The revised Rosehill dive structure is presented in **Figure 1**. Further investigation into temporary facilities to support additional access to the tunnels would be considered as part of detailed construction planning.



Figure 1 Clyde stabling and maintenance facility indicative construction site (proposed modification)

1.4.2 Kay Street and Unwin Street realignment

The realignment of Kay Street and Unwin Street is required to provide general traffic and B-double access around the Clyde stabling and maintenance facility construction site. The proposed modification includes the following changes to the Kay Street and Unwin Street realignment:

- A road bridge as opposed to an underpass to cross the future metro rail tracks
- Elevation of the Kay Street and Unwin Street realignment for about 250 metres
- Minor realignment of the Kay Street and Unwin Street route
- A shared path to accommodate pedestrians and cyclists on one side.

The revised Kay Street and Unwin Street realignment is presented in **Figure 2**.



Imagery: Nearmap 2021
Base data: DCS Spatial Services 2021

Figure 2 Key Street and Unwin Street route realignment (proposed modification)

The proposed modification does not include any changes to the culverts located at A'Becketts Creek and Duck Creek assessed as part of the approved project. These structures and the changes to A'Becketts Creek and Duck Creek as part of the approved project are subjective to ongoing design development to ensure project outcomes are met.

1.5 Purpose of this memo

This memo provides a contamination assessment of the proposed modification. It provides an assessment of the potential impacts as a result of the proposed modification as a comparison with the approved project.

2. Contamination screening and assessment

2.1 Overview

An assessment of potential changes to contamination impacts to human health and environmental receptors (to those detailed in Technical Paper 8 of the Environmental Impact Statement for the approved project) associated with the proposed modification at the Clyde stabling and maintenance facility construction site was conducted. The assessment followed the methodology outlined in Technical Paper 8 – Contamination of the Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020).

A review of the information in Technical Paper 8 of the approved project and other information sources (as detailed below) was completed to identify the relevant areas of environmental interest and receptors for the proposed modification. The following sources were also reviewed to confirm the currency of the information included in the Environmental Impact Statement for the approved project and identify any new areas of environmental interest associated with the proposed modification:

- NSW Environment Protection Authority Contaminated Sites and Environmental Protection Licences Registers
- Reports from recent intrusive site investigations conducted by Sydney Metro, including:
 - Golder & Douglas Partners, 2020a, Factual Contamination Assessment Report, 00013/11180 Sydney Metro West Geotechnical Investigation, 1791865-002-R-CAR-Rev0, 6 May 2020
 - Golder & Douglas Partners, 2020b, Groundwater Monitoring Report – Stage 2 Locations, 00013/11180 Sydney Metro West Geotechnical Investigation, 1791865-002-R-CAR-Rev0, 7 October 2020
- Photographs from a site inspection conducted in August 2021.

The review of the above information and comparison against Technical Paper 8 of the approved project identified:

- No new sites listed on NSW EPA registers relevant to the proposed modification
- The results from recent intrusive site investigations conducted by Sydney Metro (Golder & Douglas Partners, 2020a and 2020b) within the area of the proposed modification are generally consistent with the information summarised in Technical Paper 8 – Contamination of the Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020). This includes:
 - Soil investigations identified asbestos, heavy metals and benzo(a)pyrene in shallow soil (to two metres depth) above National Environmental Protection Measure (Assessment of Site Contamination) 2013 (ASC NEPM) guideline levels for protection of human health and/or ecosystems in a commercial land use setting, in samples collected adjacent to the northern end of the dive portal extension area (Golder-Douglas Partners, 2020a)
 - Concentrations of heavy metals and nutrients have been reported in shallow and deeper groundwater samples collected adjacent to the northern end of the dive portal extension area above guidelines for protection of ecosystems. Concentrations of analytes were not reported in groundwater in the vicinity of the proposed modification above ASC NEPM guidelines for protection of human health relevant for construction workers or for analytes that may represent a vapour risk (Golder-Douglas Partners, 2020b). Per- and poly-fluoroalkyl substances (PFAS) were detected in shallow groundwater below guideline values for protection of ecosystems and human health. Paired deeper groundwater wells did not report detectable concentrations of PFAS
- Photos from the site inspection did not identify any additional sources of potential contamination. Soil earthworks (importation of soil) in the northern portion of the dive portal extension area were evident, associated with construction of the Paramatta Light Rail.

The areas of environmental interest and receptors for the proposed modification are considered to be consistent with those outlined in Technical Paper 8 (Contamination) of the Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020).

2.2 Impact Assessment

Technical Paper 8 (Contamination) of the approved project identified a number of potential contamination risks including where receptors may be impacted by contaminated soil, groundwater and vapour/gas during construction activities at the Clyde stabling and maintenance facility.

The proposed modification would involve extension of civil construction works at the Clyde stabling and maintenance facility further north to accommodate the relocation of the dive structure. Minor

changes to the location of other construction activities are proposed within the previously assessed footprint.

No changes to the potential impacts to human health or the environment to those detailed in Technical Paper 8 of the approved project Environmental Impact Statement have been identified as a result of this modification given:

- The areas of environmental interest identified in the Environmental Impact Statement for the approved project remain relevant for the proposed modification
- Construction activities for the modification would be generally consistent with the types of activities for the approved project
- The revised dive structure relocation and extension is not considered to change the potential exposure pathways for contamination to reach human health or environmental receptors
- The proposed changes to the revised dive structure as well as Kay Street and Unwin Street realignment are not considered to materially change the previous impact assessment given these reflect minor changes to the location. However, the proposed modification would reduce the need to expose potentially contaminated soil.

Overall, the potential contamination impacts of the proposed modification would be consistent with those detailed in the Technical Paper 8 of the Environmental Impact Statement for the approved project.

2.3 Mitigation Measures

The mitigation measures identified for the approved project would be applied to the proposed modification as summarised in **Table 2.1**. No changes or additional mitigation measures are required as a result of the proposed modification.

Table 2.1: Mitigation measures relevant to the Clyde stabling and maintenance facility modification (no changes from approved project)

Reference	Impact / issue	Mitigation measure	Application location(s) ¹
C1	Management of low risk contamination	Management of low risk contamination For sites where potential contamination risk is moderate, high or very high, a further review of data would be performed. Where the additional data review provides sufficient information to confirm that contamination is likely to have a very low or low risk, the site would then be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal.	All
C2	Detailed Site Investigation	Detailed Site Investigation Where data from the additional data review (mitigation measure C1) is insufficient to understand the risk of contamination, a Detailed Site Investigation would be carried out in accordance with the National Environment Protection Measure (2013) and other guidelines made or endorsed by the NSW EPA. The sites requiring a Detailed Site Investigation would be confirmed following the additional data review (mitigation measure C1), however on the basis of the Stage 1 assessment, it is anticipated that Detailed Site Investigations would be required at the applicable locations.	CSMF, SSF, SOPMS, TBS

Reference	Impact / issue	Mitigation measure	Application location(s) ¹
C3	Remediation	Remediation Where data from the additional data review (mitigation measure C1) or the Detailed Site Investigation (mitigation measure C2) confirms that contamination would have a moderate, high or very high risk, a Remediation Action Plan would be developed for the area of the construction footprint. Each Remediation Action Plan would detail the remediation works required to mitigate risks from contamination throughout and following completion of construction. The Remediation Action Plan would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail remediation methodologies in accordance with Australian Standards and other relevant government guidelines and codes of practice. Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land. The sites requiring Remediation Action Plans and remediation would be confirmed following the additional data review (mitigation measure C1) and Detailed Site Investigation (mitigation measure C2), however on the basis of the Stage 1 assessment, it is anticipated that Remediation Action Plans and remediation could be required at the specified application locations.	CSMF, SSF, SOPMS, TBS
C4	Site Audit Statement	Site Audit Statement Where contamination is highly complex, such as significant groundwater contamination; contamination associated with vapour; contamination that requires specialised remediation techniques; or contamination that requires ongoing active management during and beyond construction; an accredited Site Auditor would review and approve the Remediation Action Plan and would develop a Site Audit Statement and Site Audit Report upon completion of remediation. The sites requiring Site Audit Statements would be confirmed following the preparation of Remediation Action Plans (mitigation measure C3), however on the basis of the Stage 1 assessment, it is anticipated that site auditing would be required at the specified applicable locations.	CSMF, SSF, SOPMS, TBS and as applicable
C5	Residual contamination following construction	Residual contamination following construction Ongoing management and monitoring measures would be documented in an appropriate form and implemented for any areas where minor, residual contamination remains following construction.	As applicable

Note 1: CSMF: Clyde stabling and maintenance facility; SSF: Silverwater services facility; SOPMS: Sydney Olympic Park metro station; TBS: The Bays Station

References

Golder & Douglas Partners, 2020a, Factual Contamination Assessment Report, 00013/11180 Sydney Metro West Geotechnical Investigation, 1791865-002-R-CAR-Rev0, 6 May 2020

Golder & Douglas Partners, 2020b, Groundwater Monitoring Report – Stage 2 Locations, 00013/11180 Sydney Metro West Geotechnical Investigation, 1791865-002-R-CAR-Rev0, 7 October 2020

National Environment Protection Council (NEPC) (1999) National Environment Protection (Assessment of Site Contamination) Measure 1999 (as revised 2013) (ASC NEPM).

NSW Environment Protection Authority Contaminated Sites Register and Record of Notices.