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ROBERTS PIZZAROTTI PTY  
LTD

**CONSTRUCTION SOIL  
AND WATER  
MANAGEMENT PLAN**

CONCORD HOSPITAL  
HELIPAD, 1H  
HOSPITAL ROAD,  
CONCORD WEST  
NSW

**wsp**

AUGUST 2020

# Question today Imagine tomorrow Create for the future

## Construction Soil and Water Management Plan Concord Hospital Helipad, 1H Hospital Road, Concord West NSW

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# 1 INTRODUCTION

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## 1.1 BACKGROUND

WSP Australia Pty Ltd (WSP) was commissioned by Roberts Pizzarotti Pty Ltd (Roberts Pizzarotti) to prepare a construction soil and water management plan (CSWMP) to manage environmental risks associated with trenching works to be conducted for the installation of underground stormwater infrastructure at the Concord Hospital helipad (the site), located at 1H Hospital Road, Concord West NSW.

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## 1.2 OBJECTIVES

The objectives of the CSWMP are to:

- detail best practice options for erosion and sediment control measures to be implemented during trenching and stormwater infrastructure installation works
  - provide a framework to construct and maintain the erosion and sediment control measures required.
- 

## 1.3 REFERENCE DOCUMENTS

This CSWMP has been prepared with reference to the following:

- City of Canada Bay 2013, *Canada Bay Local Environmental Plan 2013* (Canada Bay LEP)
- City of Canada Bay 2020, *Development Control Plan*
- Landcom 2004, *Managing Urban Stormwater: Soils and Construction Volume 1*, 4<sup>th</sup> Edition (Blue Book)

## 2 SITE DETAILS

### 2.1 GENERAL

The site details are provided in Table 2.1. The site location and proposed trenching layout are presented in Appendix B, Figures 1 and 2, respectively.

Table 2.1 Site details

<b>Site name</b>	Concord Hospital Helipad
<b>Site address</b>	1H Hospital Road, Concord West NSW
<b>Legal description</b>	Not available
<b>Coordinates</b>	33°50'19.53" S, 151°05'39.75" E (approximate centre of site)
<b>Size</b>	Site area – approximately 6,100 m <sup>2</sup> Trenching/excavation area – approximately 250 m <sup>2</sup>
<b>Local government</b>	City of Canada Bay Council
<b>Zoning</b>	SP2 – Infrastructure and E2 – Environmental Conservation (Canada Bay LEP, 2013)
<b>Current &amp; proposed site use</b>	Helipad

A summary of the surrounding land use within a 1 km radius of the site is presented in Table 2.2.

Table 2.2 Summary of surrounding land use

<b>DIRECTION FROM SITE</b>	<b>IMMEDIATE VICINITY (&lt;20 m)</b>	<b>WITHIN 1 km RADIUS</b>
<b>North</b>	Concord Hospital	Rail station car parking, Brays Bay and Rivendell School
<b>East</b>	Yaralla Bay	Health care facilities and associated grounds, with Majors Bay beyond
<b>South</b>	Wetland	Vacant land to the south-east (Dame Eadith Walker Estate) and low density residential properties to the south-west
<b>West</b>	Concord Hospital	Low density residential properties

### 2.2 ADDITIONAL SITE INFORMATION

WSP was provided the following documents pertaining to the site development:

- EI Australia Pty Ltd (EI Australia) 2020a, *Dioxin Sampling and Work, Health, Environment and Safety Implications, for the helipad at Concord hospital, 1H Hospital Road, Concord West, NSW*
- EI Australia 2020b, *Re: Response to Review Letter Helipad at Concord Hospital, 1H Hospital Road, Concord West, NSW*
- JBS&G Australia Pty Ltd (JBS&G) 2020, *Review of Dioxin Like Compound Assessment and Occupational Safety Advice, Helipad Redevelopment, Concord Hospital, 1H Hospital Road, Concord West, NSW*

— Taylor Thomson Witting (TTW), *Soil and Water Report, Concord Hospital Redevelopment – Stage 1*

Based on the information presented in the above documents, WSP understands that fill material is present at the site to depths up to 2 m below ground surface. In addition, previous soil sampling at the site has also identified contaminants in soil at the site including dioxins, asbestos, heavy metals, hydrocarbons and polycyclic aromatic hydrocarbons.

Additional information pertaining to the proposed management of work health and safety (WHS) risks at the site (in particular risks associated with potential exposure to dioxins and asbestos), as prepared by the appointed civil works contractor, was also provided to WSP. Based on this information, it is understood that the trenching works at the site will be conducted within controlled enclosures and in accordance with applicable requirements for the handling of asbestos.

It is noted that this CSWMP has been prepared to address the potential environmental risks associated with the stormwater infrastructure trenching works at the site and is not intended to address any potential WHS risks associated with these works.

# 3 SOIL AND WATER MANAGEMENT ISSUES

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## 3.1 SOURCES OF POLLUTION

The activities and aspects of the works that could potentially lead to erosion, sediment transport, siltation and contamination at the site include:

- work areas and/or stockpiles that have not been stabilised, sealed or covered
  - earthworks undertaken immediately prior to rainfall periods
  - bulk earthworks that expose erosive soils, which may lead to sediment/contaminant runoff or siltation of nearby surface water bodies (e.g. Yaralla Bay)
  - maintenance of plant and equipment
  - transportation of soil in vehicle tracks and tyres
  - inadequate maintenance of environmental controls.
- 

## 3.2 POTENTIAL IMPACTS

The potential impacts from erosion and sediment transport can include:

- decreased visual amenity of the local environment
- pollution of nearby surface water receptors, with increased levels of nutrients, turbidity and dissolved and suspended solids
- sediment impacting on the habitat of threatened species.



# 4 METHODOLOGY

Works proposed to be undertaken at the site, including trenching/excavation, temporary stockpiling of soil material and installation of stormwater infrastructure, should be undertaken in a manner as to minimise erosion and sedimentation. To minimise loss of soil material from excavations, stockpiles and exposed earthen areas through wind or water erosion, appropriate controls must be implemented, in accordance with details outlined in *Managing Urban Stormwater: Soils and Construction – Volume 1*. All earthworks undertaken on site must be completed in accordance with the methodology provided in the following section. The location of the proposed trenching works is presented in Appendix B, Figure 2.

---

## 4.1 SITE ACCESS

Site exit points must be appropriately managed to minimise the risk of soil being tracked onto sealed, public roadways. Based on information provided by Roberts Pizzarotti, WSP understands the following:

- entry and exit of vehicles will be confined to one area of the site
- temporary ground-protection roadways will be established in the work area for the duration of the works
- vehicular movements will be restricted to the temporary ground-protection roadways
- a wheel wash bay will be constructed at the entry/exit point to manage soil cohesion to tyres and vehicle tracks.

Any access track areas not required after installation of stormwater infrastructure at the site should be remediated following completion of construction (as required).

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## 4.2 SOIL HANDLING AND STOCKPILES

### 4.2.1 SOIL HANDLING

Where possible, excavated soil to be removed from site should be loaded immediately into a truck licensed to transport this material and disposed of off-site to a suitable licenced waste management facility. However, where temporary soil stockpiling is required, soil should be placed on impervious material (such as high-density polyethylene (HDPE) plastic sheeting). Additional details regarding stockpiling of soil on-site are provided in the following sections.

Where possible, soil should be handled when it is moist (not wet or dry).

### 4.2.2 LOCATION OF STOCKPILES

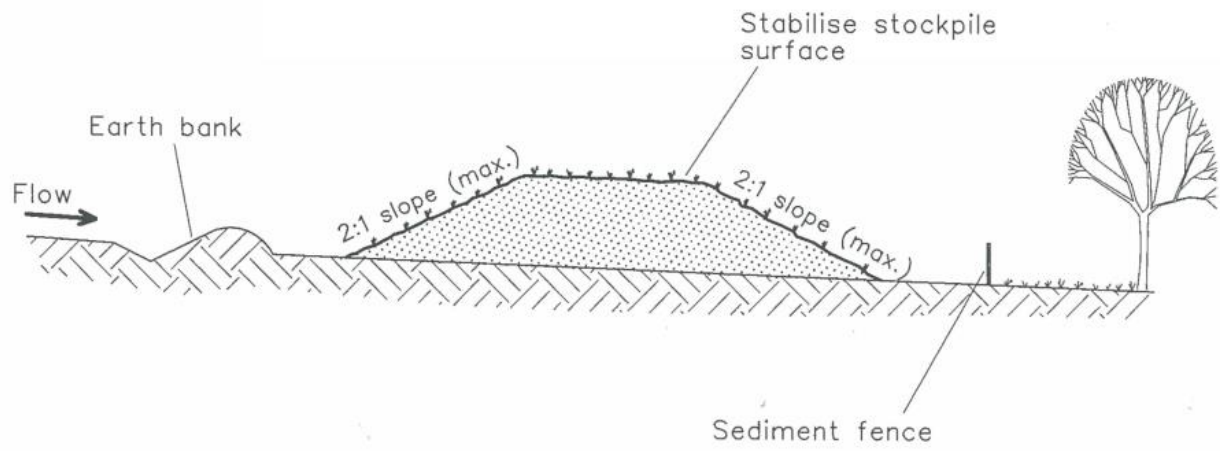
Stockpiles must be constructed a minimum of 2 m from existing vegetation, surface water receptors, steep slopes, roads or other areas where receptors are likely to be affected by sediment. Consideration should be given to likely areas of concentrated water flows including swales, tracks/roads and slopes with greater than 10% gradient. Stockpiles will be located up-slope of an appropriate sediment control system (refer to Section 5 for further details).

### 4.2.3 CONSTRUCTION OF STOCKPILES

Stockpile slopes must be constructed at a maximum gradient of 2 to 1 (refer Figure 4.1). Total stockpile height should be less than 2 m. Stockpiles should be track rolled by heavy machinery to ensure that materials are compacted to a suitable degree. Should material be stockpiled on site for longer than one day, the stockpile(s) must be covered in plastic to minimise potential for erosion (refer to Section 5.5 for further detail).

Upgradient water diversion features should be constructed to prevent surface flows from impacting stockpiles and downgradient sediment fencing should be installed to control runoff. The requirements for these upgradient and downgradient controls are provided in Sections 5.4 and 5.2, respectively.

Figure 4.1 Stockpile construction



Source: Landcom 2004

# 5 EROSION AND SEDIMENT CONTROL

## 5.1 SEQUENCE OF WORKS

The installation of soil and water management features must be completed in the following order:

- 1 Construct sediment filter fences below the site and across all runoff areas.
- 2 Construct sediment retention basin.
- 3 Construct measures to divert upstream flows away from site, where possible.
- 4 Divert all on-site runoff to sediment retention basin via fences, swales and/or bunds.
- 5 Stabilise stockpiles using appropriate measures.

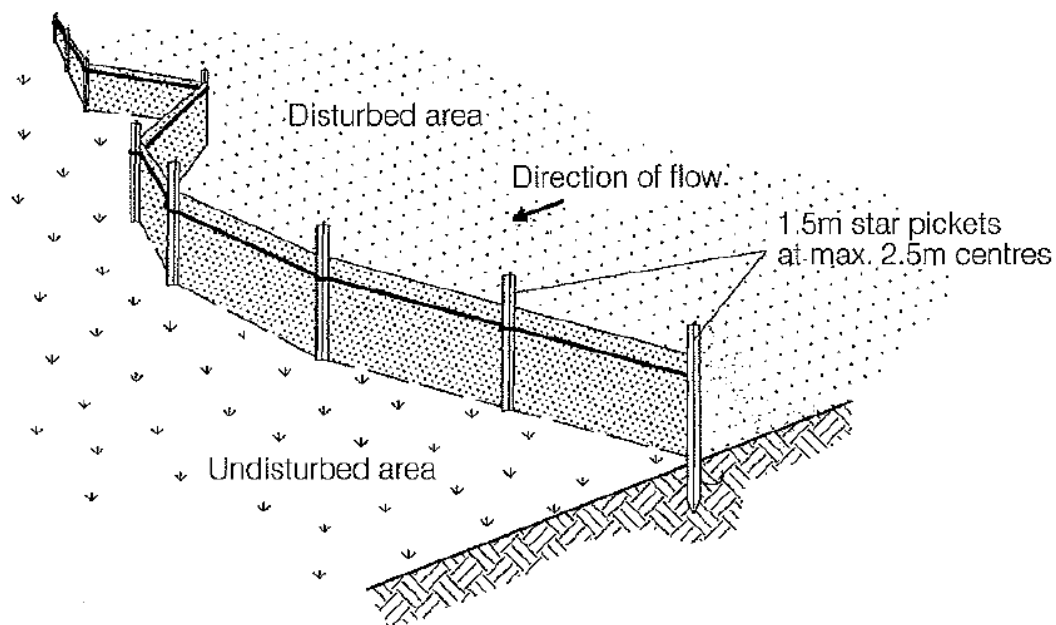
All sediment control devices are to be installed prior to any commencement of clearing or earthworks at the site.

## 5.2 SEDIMENT FILTER FENCES

Sediment filter fences are to be constructed on all downgradient slopes surrounding the site and across any preferential runoff areas (including the proposed area of trenching). Sediment filter fences will minimise transport of sediment downslope towards Yaralla Bay.

Sediment filter fences will be constructed using a geotextile filter fabric, with structural posts. Where practicable fences will be constructed perpendicular to the site slope. 'Returns', peaks in the fence run, should be included at approximately 20 m intervals, to minimise water collecting against any given section of sediment fence. Refer Figure 5.1 below for further detail.

Figure 5.1 Sediment fence placement



Source: Landcom, 2004

Sediment filter fences should be constructed in the following steps (as per Landcom, 2004):

- cut a 150 mm deep trench along the upslope line of the fence, to allow for entrenchment of the bottom edge of the fabric
- drive 1.5 m long star pickets along the downslope edge of the trench, at a maximum interval of 2.5 m
- fix self-supporting geotextile fabric to the upslope side of star pickets in accordance with manufacturer instructions, ensuring that fabric sits on the base of the trench.
- backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

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## 5.3 SEDIMENT RETENTION BASIN

To minimise the potential for mobilisation of sediments to nearby waterways (e.g. Yaralla Bay), a sediment retention basin should be constructed in the downslope portion of the site. Temporary water diversion measures (as outlined in Section 5.4 below) should be constructed to divert on-site runoff to the siltation basin. The sediment retention basin should be constructed in accordance with Landcom, 2004, including incorporation of the following:

- a primary outlet
- an emergency spillway
- internal batter gradients consistent with personal safety requirements and within the limits outlined in Landcom, 2004
- appropriate outlet protection to ensure minimisation of scour.

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## 5.4 TEMPORARY WATER DIVERSION MEASURES

Water diversions, such as berms or trenches, should be constructed upgradient of the site (including the excavation and proposed stockpile areas) to minimise surface water flowing into the excavation and/or stockpiles. The preferred water diversion features to be used are low angle water diversion channels, which can be reseeded, constructed perpendicular to the site slope. Water diversion features should extend across the entire extent of the proposed excavation and stockpile area/s to redirect surface water flows beyond the excavation and/or stockpiles.

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## 5.5 STOCKPILE SURFACE STABILISATION

In order to minimise the potential for wind and water erosion of stockpiles, measures should be undertaken to stabilise the stockpile surfaces, and limit release of wind and water born particles. Based on the likely duration of stockpiling of material on-site and the nature of contaminants previously identified in soil at the site (refer to Section 2.2), HDPE plastic sheeting is the recommended stockpile surface stabilisation option. HDPE sheeting is suitable for temporary, short-term stockpiling of soils and is placed directly across stockpile surfaces. HDPE sheeting requires proper anchoring to ensure the material remains in place over the stockpile. Sheeting would be disposed of as waste at the end of its required use. Addition of material to the stockpile would require removing and replacing the HDPE plastic.

Given the identification of asbestos in soil at the site (refer to Section 2.2), additional WHS measures may also be required during soil handling and stockpiling at the site to manage potential WHS risks associated with this material. Due care should be applied to ensure that site works comply with applicable legislation, regulations and/or Codes of Practice for the handling of asbestos.

# 6 MONITORING AND REVIEW

Ongoing site monitoring and maintenance to ensure that erosion and sediment control measures remain in a serviceable condition should be undertaken by the site manager or nominated representative.

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## 6.1 MONITORING

Site monitoring should be undertaken as follows:

- routine daily visual inspections
- event based inspections undertaken by the site manager or nominated representative following any significant events such as rainfall of sufficient quantity to generate runoff, high winds, receipt of an environmental complaint, etc.

Results of routine daily inspections will be recorded using a routine environmental inspection checklist. Results of event-based inspections should be recorded in a relevant form and all records of inspections and communications retained in electronic format.

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## 6.2 INCIDENTS

The site manager shall be responsible for reporting any complaint which relates to or incident which causes or threatens to cause material environmental harm or breaches approval requirements as soon as possible. Should a complaint or incident in relation to soil and water discharge occur, one or more of the following corrective actions shall be implemented:

- an investigation will be undertaken to determine the cause of the problem or complaint
- the CSWMP or work practices for the activity shall be modified as necessary to prevent reoccurrence of the incident
- if control measures are not operating effectively, they will be repaired or replaced
- dependent upon the severity of the incident, appropriate notifications may be required to the NSW EPA and/or City of Canada Bay Council.

Where an incident results in damage to site infrastructure, including site roadways, fences or gates, immediate rectification works should be undertaken by the contractor to restore the site infrastructure.

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## 6.3 MAINTENANCE SCHEDULE

Regular maintenance schedules are detailed in Table 6.1

Table 6.1 Maintenance schedule

CONTROL MEASURE	INSPECTION SCHEDULE	MAINTENANCE REQUIRED
Sediment filter fences	Daily	Inspection and repair/replacement as required.
Water diversion features	Weekly	Inspection and reconstruction as required.
Stockpile cover/stabilisation	Daily	Inspection and reapplication of covers/stabilisation as required

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## 6.4 CSWMP REVIEW

The site manager shall ensure that controls outlined in this CSWMP are properly implemented and regularly monitored to ensure their effectiveness. Changes to the controls will be instigated if they are not achieving their objectives. The CSWMP shall be revised and refined as required to ensure it remains relevant to the works and consistent with environmental regulatory requirements.

This CSWMP will be reviewed to ensure the system is conforming to the environmental objectives and legal requirements. Reviews will be undertaken as necessary as a result of any of the following:

- when there is a change in the scope of the project that requires a change in environmental controls
- when there is a need to improve performance in an area of environmental impact
- as a result of changes in environmental legislation applicable and relevant to the project
- as required by relevant authoritative bodies (e.g. Council).

# 7 EMERGENCY ACTION PLAN

In the event of an uncontrolled spill or discharge, the following should be implemented:

- immediately notify the site manager
- notify relevant authorities (e.g. Council and/or NSW EPA) if the spill/discharge has moved off-site
- assess the site for dangers and hazards
- if safe to do so, take corrective action to stop the source of spill/discharge
- contain the spill/discharge using a combination of absorbent material and spill kits, where necessary construct additional catch drains and/or dams to contain or divert the spill/discharge.

Following emergency actions and mitigation, the controls detailed in this CSWMP should be re-established and/or modified as needed.

# 8 SITE MANAGEMENT, RESPONSIBILITY AND RESOURCES

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## 8.1 ALLOCATION OF RESPONSIBILITY

The site manager has responsibility for the implementation of the erosion and sediment control measures. Anyone undertaking inspections at the site has a responsibility to record the condition of the control measures and report any necessary repairs to the controls as soon as practicable to the site manager.

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## 8.2 ALLOCATION OF RESOURCES

Resources and materials shall be allocated to enable the timely implementation of the CSWMP, with a focus on protecting and reducing impacts to the environment. Resources and materials shall also be allocated for the routine and emergency maintenance of environmental protection works.

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## 8.3 INDUCTION AND ENVIRONMENTAL AWARENESS TRAINING

Environmental matters shall be highlighted in the site induction for all personnel, including subcontractors. The site induction shall include issues relating to erosion minimisation, sediment control and water quality. Staff shall be made aware of their responsibilities under relevant environmental legislation.

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## 8.4 TOOLBOX MEETINGS

Informal training on erosion, sedimentation and water quality issues shall be undertaken during toolbox meetings with site personnel.



# BIBLIOGRAPHY

- City of Canada Bay 2013, *Canada Bay Local Environmental Plan 2013*.
- City of Canada Bay 2020, *Development Control Plan*.
- EI Australia 2020a, *Dioxin Sampling and Work, Health, Environment and Safety Implications, for the helipad at Concord Hospital, 1H Hospital Road, Concord West, NSW*.
- EI Australia 2020b, *Re: Response to Review Letter Helipad at Concord hospital, 1H Hospital Road, Concord West, NSW*.
- JBS&G 2020, *Review of Dioxin Like Compound Assessment and Occupational Safety Advice, Helipad Redevelopment, Concord Hospital, 1H Hospital Road, Concord West, NSW*.
- Landcom 2004, *Managing Urban Stormwater: Soils and Construction Volume 1, 4<sup>th</sup> Edition (Blue Book)*.
- Taylor Thomson Witting (TTW), *Soil and Water Report, Concord Hospital Redevelopment – Stage 1*.
- WSP 2020, *Third Party Advice – Review of Work Health and Safety Exposure Risk, Helipad Works, Concord Hospital*.

# APPENDIX A

## LIMITATION STATEMENT





# Limitation Statement

This Report is provided by WSP Australia Pty Limited (*WSP*) for Roberts Pizzarotti Pty Ltd in response to specific instructions from the Client and in accordance with WSP's proposal dated 11 August 2020 and agreement with the Client dated 11 August 2020 (*Agreement*).

## PERMITTED PURPOSE

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# APPENDIX B

## SITE FIGURES






 Site Boundary

0 100 300  
Metres

Figure 1 Site location plan



 Site Boundary

 Approximate extent of stormwater trench

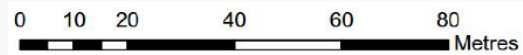


Figure 2 Site layout plan