

Issue

AGNSW

**Art Gallery of NSW Expansion  
Project - Sydney Modern**

**Development Application -  
Sediment, Erosion and Dust Control**

Sediment, Erosion and Dust Control Report

Issue | 31 October 2017

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 247039

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## Executive summary

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This report has been produced in response to the Secretary's Environmental Assessment Requirements (SEARS) issued for State Significant Development (SSD) Application Number SSD 6471 on behalf of The Art Gallery of NSW for the Art Gallery of NSW Expansion – Sydney Modern Project.

This report addresses issues required for a SSD and specifically responds to the SSD SEARS Key Issue number 13, which reads:

*(13) Sediment, Erosion and Dust Control*

- *Identify measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and particles.*

→ *Relevant Policies and Guidelines*

- *Managing Urban Stormwater – Soils & Construction 4<sup>th</sup> Edition (Landcom)*
- *Approved methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*

## Conclusion

This report has addressed the SEARS Key Issue 13.

A concept erosion and sediment control arrangement for the site has been developed in accordance with Managing Urban Stormwater – Soils & Construction 4<sup>th</sup> Edition (Landcom). Implementation of these controls will minimise the risk of adverse impacts on receiving waters during the construction phase. The erosion and sediment control measures that have been suggested will need to be reviewed during the construction process and adjusted for various staging developments.

# 1 Project Description

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The Art Gallery of NSW proposes to undertake a major expansion of the existing art gallery adjacent to the Phillip Precinct of the Domain. The expansion, proposed as a separate, stand-alone building, is located north of the existing gallery, partly extending over the Eastern Distributor land bridge and includes a disused Navy fuel bunker located to the north east of this land bridge.

The new building comprises a new entry plaza, new exhibition spaces, shop, food and beverage facilities, visitor amenities, art research and education spaces, new roof terraces and landscaping and associated site works and infrastructure, including loading and service areas, services infrastructure and an ancillary seawater heat exchange system.

Development consent is sought for:

- Site preparation works, including:
  - Site clearing, including demolition of former substation, part of road surfaces, kerbs and traffic islands, pedestrian crossings, foot paths, retaining walls, stairs, and part of disused underground former Navy fuel bunkers;
  - Tree removal;
- Excavation and site earthworks;
- Remediation works;
- Construction of the new building comprising:
  - Covered public entry plaza;
  - Five building levels, including entry pavilion following the site topography down to Lincoln Crescent;
  - Retention of part of existing former underground Navy fuel bunker for use as gallery space and support spaces;
  - Art exhibition spaces;
  - Outdoor publicly accessible terraces;
  - Shop and cafe;
  - Multipurpose space;
  - Education spaces;
  - Ground level loading dock (accessed via Lincoln Crescent) with associated art handling facilities, workshops, service parking, plant, and storage areas.
- Landscaping and public domain improvements including:

- Continuation of the east-west pedestrian link over the land bridge between the Domain and Woolloomooloo Bay, including dedicated lift structure for universal access;
- Improved public access of the north south pedestrian link
- Enhancement of the public open space on the land bridge to create a landscape and art connection between the two buildings
- Hard and soft landscaping to roofs and terraces;
- Plantings and new pathways;
- Increased landscaped area to forecourt of existing Art Gallery building and removal of car parking
- Relocation of selected trees to the south-eastern corner of the site;
- Sound barrier to edge of land bridge;
- Upgrade works to part of Art Gallery Road, Cowper Wharf Road, Mrs Macquaries Road, and Lincoln Crescent, including new pedestrian crossings;
- Provision of vehicle drop off points including a taxi stand, private vehicle drop off and bus/coach drop off, at Art Gallery Road;
- Installation of an ancillary seawater heat exchange system to act as the new building's cooling system, adjacent to and within Woolloomooloo Bay;
- Diversion, extension and augmentation of physical infrastructure and utilities as required.

## 2 SEARs Issues Addressed

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This report addresses the following issues identified within the SEARS for Application Number SSD 6471:

### *(13) Sediment, Erosion and Dust Control*

- *Identify measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and particles.*

#### **➔ Relevant Policies and Guidelines**

- *Managing Urban Stormwater - Soils & Construction 4th Edition (Landcom)*
- *Approved methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*

## 3 Sediment and Erosion Control

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The key issue during the construction phase for water quality management is the potential erosion of exposed earthwork areas in a rainfall event which may adversely impact downstream waterways if they are not intercepted. Care should be taken during construction to ensure that sediments and other wastes are not washed into the drainage system and carried to downstream water bodies.

Standard construction practices can be adopted to mitigate any sediment runoff. These localised treatments include sediment fences, earth bunds to separate on-site and off-site water and sediment sumps. Additionally, any existing stormwater pits are to be protected using drop inlet pits, sand bags, geotextile covers or sediment fences prior to construction.

A concept erosion and sediment control arrangement for the site has been developed in accordance with Managing Urban Stormwater – Soils & Construction 4<sup>th</sup> Edition (Landcom). Implementation of these controls will minimise the risk of adverse impacts to receiving waters during the construction phase. Refer to civil plans and details in Appendix A.

During the clearing of the grass over the land bridge, the contractor should take care to stage the excavation in order to minimise the area of disturbed soil. Due to the depth constraints, installation of a sedimentation basin is unlikely to be feasible and hence the staging of the works should be used to minimise the disturbance.

The erosion and sediment control measures that have been suggested will need to be reviewed during the construction process and adjusted for various staging developments.

## 4 Dust Control

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During dry windy weather, dust from unsealed roads and other exposed surfaces, such as unprotected earth or stockpiles, can become airborne. This can cause air pollution and be a potential nuisance to adjacent occupants and in some instances also poses a potential health risk. Consequently, during the construction process, dust control measures must be implemented.

Dust control measures include, but are not limited to:

- Application of dust suppression measures such as promptly watering exposed areas when dust is observed. Surfaces must be kept moist rather than wet
- Pave and water haul roads
- Installation of wind fences where feasible and appropriate
- Covering temporary stockpiles and locate away from stormwater pits/waterways

- Washing vehicles' wheels before they leave the construction site.

During the construction process the inspection and monitoring of the dust control measures should be included in the site monitoring process.

Modelling and assessing the air pollution generated from the site where required will be undertaken in accordance with the 'Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales' (EPA, 2005).

## **Appendix A**

### **Concept Erosion and Sediment Control Plans and Details**



Legend:

- LOWER LEVEL 4 EXCAVATION
- LOWER LEVEL 3 EXCAVATION
- LOWER LEVEL 2 EXCAVATION



- PERIMETER BANK
- SEDIMENT FENCE

Notes:

1. Refer to SKETCH002 for notes
2. Refer to SKETCH003 for erosion and sediment control details

LEGEND

- TEMPORARY EXHIBITION WALLS
- \*  PROPOSED TREE
- \*  EXISTING TREE TO REMAIN
- \*  EXISTING TREE TO BE TRANSPLANTED
- \*  PROPOSED LOCATION OF NEW & TRANSPLANTED TREE
- SITE AREA
- NEW BUILDING AREA

SKETCH001 – EROSION AND SEDIMENT CONTROL PLAN

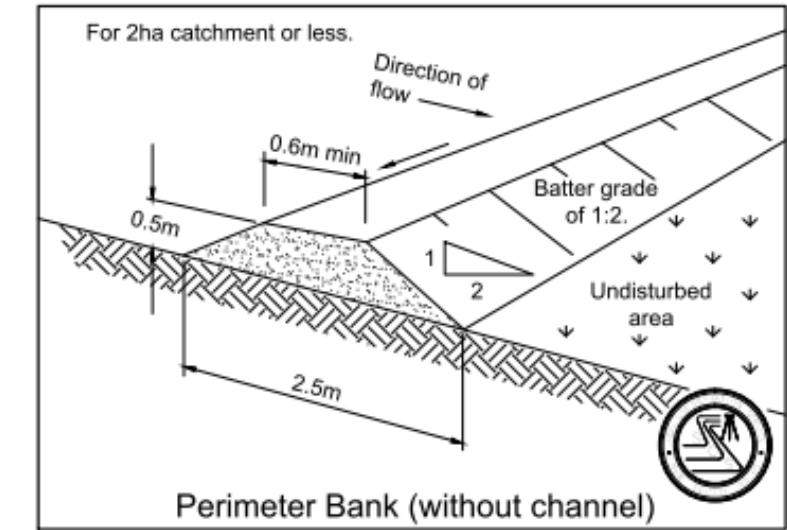
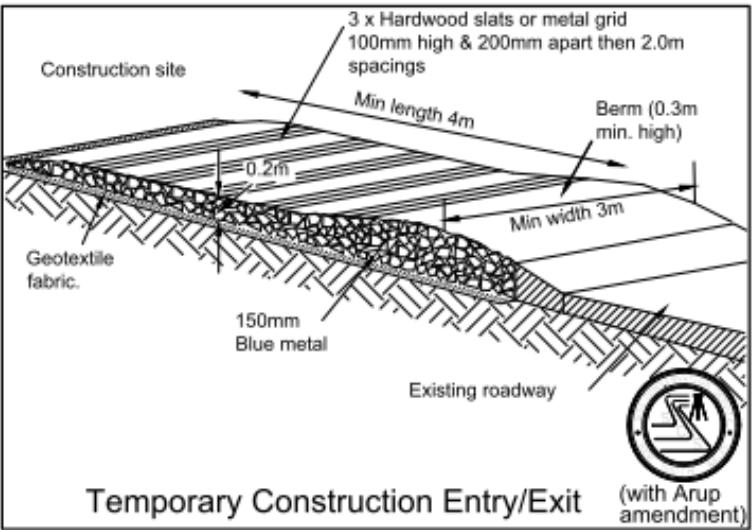
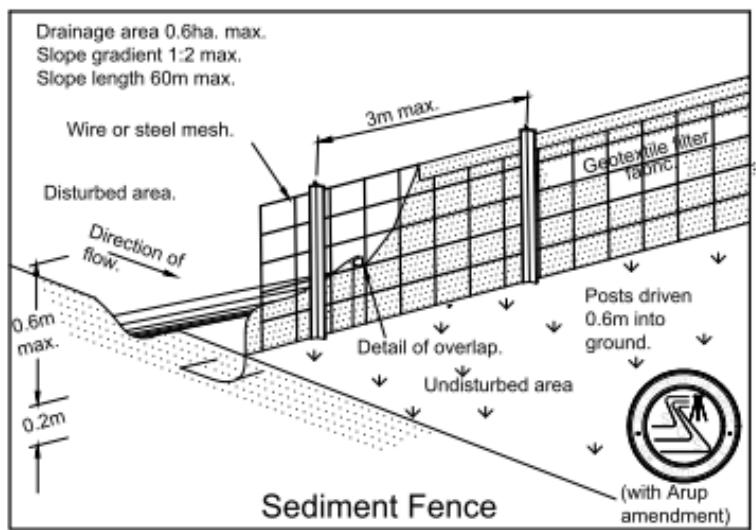
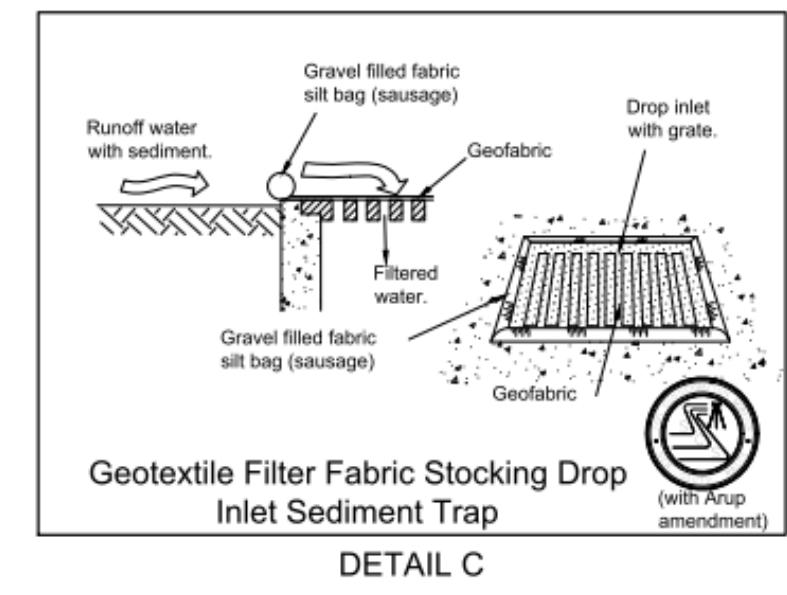
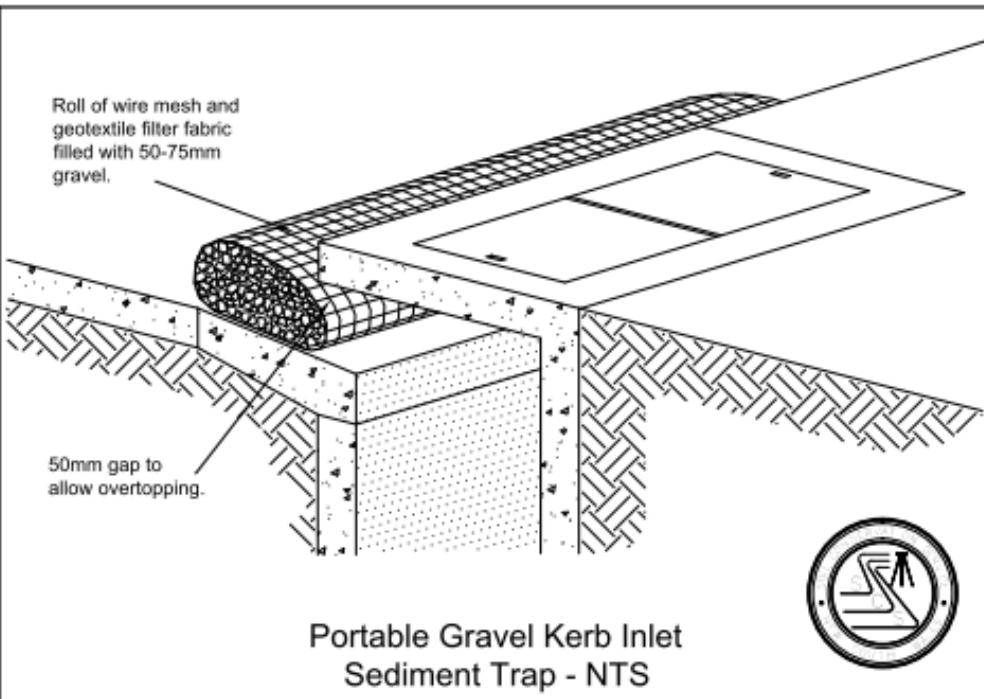
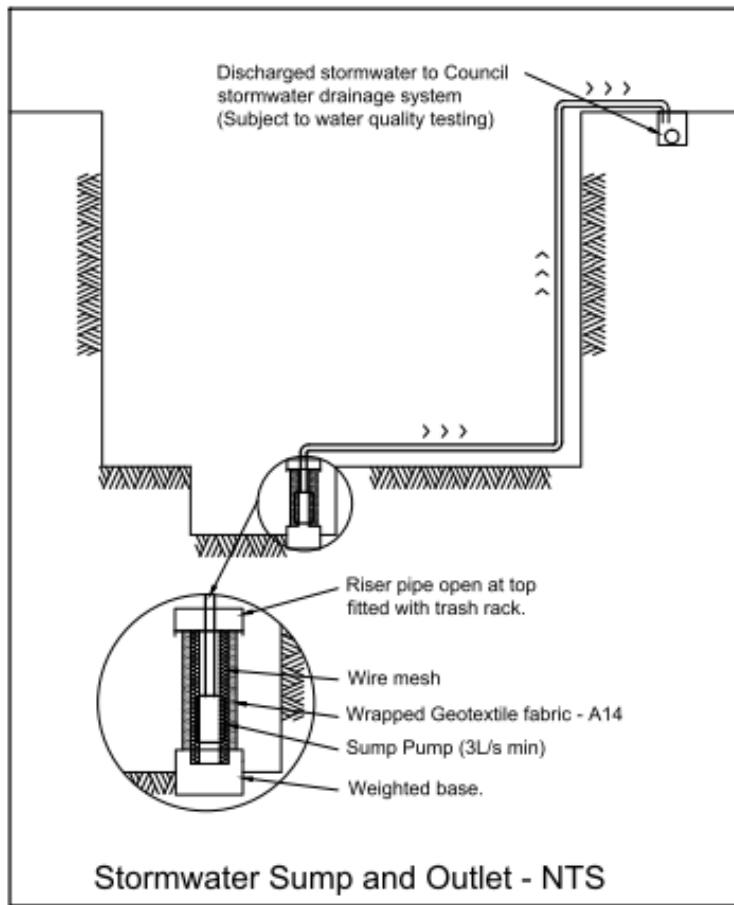
## EROSION AND SEDIMENT CONTROL NOTES

1. THE EROSION AND SEDIMENT CONTROL PLAN ADDRESSES THE MANAGEMENT OF ON SITE STORMWATER RUNOFF DURING CONSTRUCTION.
2. THE PLAN IS CONCEPT ONLY. SITE CONDITIONS AND PHASING OF WORKS ARE LIKELY TO INFLUENCE CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AMENDING THE SCHEME TO SUIT CONDITIONS AT THE TIME OF WORKS AND CONSTRUCTION PROGRAM.
3. THE CONTRACTOR IS TO INFORM ALL BUILDERS AND SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO ROADWAYS AND WATERWAYS.
4. THE CONTRACTOR IS TO IMPLEMENT AN APPROPRIATE ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SPILL/ POLLUTION CONTAINMENT AND TREATMENT PROCEDURES. THE CONTRACTOR IS TO ENSURE THAT ANY SPILL/POLLUTION COLLECTED IN THE STORMWATER SUMP IS IMMEDIATELY TREATED.
5. WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, i.e. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
6. ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PROVIDED IN ACCORDANCE WITH THE GUIDELINES FOR EROSION AND SEDIMENT CONTROL ON BUILDING SITES (COS, 2004), LANDCOM SOIL AND CONSTRUCTION MANUAL VOLUME 1, MARCH 2004. ('BLUE BOOK') AND THE NSW PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997.
7. STOCKPILE LOCATIONS TO BE DEPENDENT ON THE LOAD OUT LOCATION AND THE POINT OF EXCAVATION. STOCKPILE LOCATIONS TO BE MARKED ON THE SITE PLAN AT THE SITE OFFICE AS THE PROJECT PROGRESSES.
8. SHOULD ANY MATERIAL BE WASHED FROM EQUIPMENT, SUCH AS CONCRETE SLURRIES FROM CONCRETE TRUCKS, A WASHING/CLEANING AREA WITH APPROPRIATE SEDIMENT CONTROL MEASURES IS TO BE SET UP ON A FLAT AREA OF THE SITE.
9. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
  - (i) RECORDS OF ALL RAINFALL (I.E. DAILY RAINFALL)
  - (ii) CONDITION OF SOIL AND WATER MANAGEMENT CONTROL MEASURES
  - (iii) ANY ADDITIONAL REMEDIAL WORKS REQUIREDTHE LOG BOOK SHALL BE MAINTAINED ON A WEEKLY BASIS AND BE MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. THE ORIGINAL LOG BOOK SHALL BE ISSUED TO THE PROJECT MANAGER AT THE COMPLETION OF THE WORKS.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS TO THE SATISFACTION OF THE SUPERINTENDENT.
19. ROADS AND FOOTPATHS Affected BY THE WORKS MUST BE SWEPT CLEAN DAILY. SOILS MUST BE RETAINED BEHIND CONTROL DEVICES.
20. CONTRACTOR MUST ENSURE THAT ALL VEHICLES LEAVING SITE ARE HOSED DOWN (OR SIMILAR) TO REMOVE SEDIMENT.
11. CONTROL MEASURES Affected BY WORKS ARE TO BE RE-ESTABLISHED PRIOR TO THE COMPLETION OF EACH DAYS WORK.
12. ALL CONTROL MEASURES ARE TO BE CLEANED AND MAINTAINED AT LEAST WEEKLY OR AFTER EVERY RAINFALL EVENT.
13. FOLLOWING THE COMPLETION AND RESTORATION OF SITE, THE CONTRACTOR IS TO REMOVE ALL CONTROL MEASURES.

## **SKETCH002 – EROSION AND SEDIMENT CONTROL NOTES**

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14. PERMANENT DRAINAGE STRUCTURES INCLUDING PIPES AND PITS ARE TO BE HANDED OVER IN A CLEAN CONDITION AT THE COMPLETION OF THE CONTRACT MAINTENANCE PERIOD.
15. TEMPORARY STORMWATER SUMPS (LOCATIONS TO SUIT SITE PHASING).
  - (i) MIN SIZE A = 29m<sup>3</sup>
  - (ii) MIN SIZE B = 25m<sup>3</sup>
  - (iii) MIN SIZE C = 37m<sup>3</sup>
  - (iv) DISCHARGE PUMP NOM. FLOW RATE 3l/s
  - (i) RUNOFF COEFFICIENT = 1.00
  - (ii) SIZING OF SUMPS BASED ON STORAGE REQUIRED FOR A 3 MONTH ARI STORM EVENT UP TO 12 HOURS IN DURATION INTENSITIES FROM AUSTRALIAN BUREAU OF METEOROLOGY IFD DATA SYSTEM.
16. PRIOR TO DISCHARGING COLLECTED WATER TO STORMWATER DRAINAGE, IT IS TO BE TESTED TO ENSURE COMPLIANCE WITH WATER QUALITY REQUIREMENTS. SHOULD TESTING GIVE RESULTS THAT DO NOT COMPLY WITH THE ABOVE, TREATMENT MEASURES (SUCH AS THE APPLICATION OF A pH NEUTRAL FLOCCULANT) AND SUBSEQUENT RETESTING ARE REQUIRED. DOCUMENTARY RESULTS OF WATER QUALITY TESTING PRIOR TO DEWATERING ARE TO BE KEPT. A FILE IS TO BE KEPT ONSITE OF ALL WATER TESTING/DEWATERING EVENTS. FOLLOWING DEWATERING THE SUMP IS TO BE CLEARED OF SEDIMENT AND THE GEOTEXTILE ON THE PUMP WELL IS TO BE REPLACED.
17. ALL STORMWATER PITS TO BE COVERED OR DROP INLET SEDIMENT TRAPS SHALL BE PROVIDED. KERB INLET TRAPS ARE TO BE INSTALLED AFTER COMPLETION OF PAVING.
18. ALL SERVICE TRENCHES MUST BE FILLED IN AND COMPACTED IMMEDIATELY AFTER SERVICES HAVE BEEN LAID.



Notes:

1. Refer to SKETCH001 for erosion and sediment control plan
2. Refer to SKETCH002 for erosion and sediment control notes