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The Scots College
Proposed Refurbishment of the Stevenson Library
29-53 Victoria Road Bellevue Hill, NSW

Stormwater Drainage and Sediment, Erosion and Dust Control Management Report No 2017-T29B-Issue 2
Reference documents - Plan set No 2017-T29B/H01 to H06
Reference documents - Secretary's Environmental Assessment Requirements Section 16. Drainage

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Water & Stormwater Management Plan

Impact Group commits to the preparation of a detailed Water and Stormwater Management Plan that addresses water quality and water monitoring requirements for the duration of construction works associated with the development.

SEAR Section 16 Drainage

1 Detail drainage associated with the proposal, including stormwater and drainage infrastructure to confirm that existing gutters and downpipes are adequate for the conveyance of storm runoff into the buildings stormwater collection system.
Compliance Measure.

Stormwater Drainage Strategy

The drainage strategy for the development provides for capture and conveyance of all flows during storm events up to and including the 100 year ARI storm within the pit and pipe network and controlled overland flows. The current internal drainage strategy is presented on the site drawings, this system collects current roof storm runoff into a pit and pipe primary control stormwater management system.
Rainfall data used as 100yr for roof discharge @ 262mm/hr 20yr for pavement runoff @ 210mm/hr
The stormwater treatment train for the ultimate development will incorporate water sensitive urban design (WSUD) principles to remove gross pollutants, suspended solids and nutrients. The treatment train may consist of a range of measures, including (but not limited to):
- Gross Pollutant Traps (e.g. Stormwater360 Enviropods or equivalent)
The stormwater drainage network within is designed to provide:
a. Low flows directed through water quality measures (nominally up to a 3 month ARI event); and
b. Internal site drainage with a capacity to capture and convey all storm events up to the 100 year ARI event.
The internal stormwater drainage network will be designed generally in accordance with the following
standards and guidelines:
a) *Australian Rainfall and Runoff Volume 1 and 2;*
b) *NSW Floodplain Development Manual 2005;*
c) Woollahra Council DCP 2015
d) Part E General controls for all developments.
e) Chapter E2: Stormwater and flood risk management
f) *AS3500 – Stormwater and Drainage Design codes;*
g) *Water Sensitive Urban Design; Book 1 – Policy* (Landcom, 2009), which is considered current best practice or stormwater management in NSW and suggests the following targets for reduction of pollutant mean annual load:
- 85% for Total Suspended Solids (TSS)
- 65% for Total Phosphorus (TP)
- 45% for Total Nitrogen (TN).
h) *Emi-5 Stormwater Green Stars (2 points)*, which recommends the following targets for stormwater quantity management and reduction of pollutant mean annual load*:*
- 1.5 year ARI post development peak flows not exceeding 1.5 year ARI pre-development peak flows;
- 90% reduction of GP;

- 80% reduction of TSS;
- 60% reduction of TP;
- 45% reduction of TN; and
- 90% reduction of Free Oils.

The target reductions from each of the above design requirements will be met.

Overland Flow

Prominent overland flow paths adjacent to Stevenson library building are described as follows:. Overland flow splits at the intersection of Victoria Road and Ginahgulla Road with the majority of the flow diverting to the entrance of The Scots College courtyard. The collected overland flow is channelled as sheet flow across the existing courtyard with final disposal across the existing grassed oval. Maximum depth of flow across the courtyard is 61mm providing a minimum freeboard to first floor level of the library of 160mm in overland flow zone.

2 Design analysis of existing building collection stormwater pipe system to confirm adequate sizing and location of pipelines currently installed to collect and control storm runoff from roof and pavement areas all the way to the recognised public drainage system.

Compliance Measure.

The existing stormwater network is characterised by a series of in-ground piped stormwater systems (typically 225mm in diameter) draining to Cranbrook Lane. Plan No H01 to 6 confirms that the proposed upgrade/modification of the existing site stormwater system based on analysis of new roof/pavement areas provides compliant control of storm runoff. Note that all analysed design flows are stated on the design plans. Final termination of storm runoff is to the existing site discharge point into Cranbrook Lane road reserve.

3 Identify the location and the capacity of the existing OSD system

Compliance Measure.

The existing landscape O.S.D. basin, approximately 80m3 storage capacity, is to be maintained, refer to plan 2017-T29B H06.

4 Design of any upgrades to the existing stormwater drainage system if necessary

Compliance Measure.

Design plans No H01 to 6 detail proposed upgrade/modification of the existing site stormwater management system to control and discharge storm runoff from Stevenson library building modification.

5 Detail measures to minimise operational water quality impacts on surface waters and groundwater.

Compliance Measure.

Al surface water collection pits are provided with pollution control fitments as stated in the stormwater drainage strategy.

Sediment Erosion and Dust Control

• The assessment includes details of proposed erosion and sediment controls (during construction), the proposed stormwater management system (during operations), and management and mitigation measures for the containment of pollutants (e.g. fuel spill) and prevention of potential water quality impacts during construction and operation. As part of the works, erosion and sedimentation controls shall be installed and maintained throughout the duration of construction works in accordance with Managing Urban Stormwater - Soils & Construction Volume 1 (Landcom, 2004). Prior to any earthworks commencing on site, all erosion and sediment control measures will need to be implemented in accordance with the above specifications. These measures shall generally include, as necessary:

• Installation of A-Class hoarding around the perimeter of the site;

• Installation of truck wash down facilities at each point of exit from the site;

• Installation of sediment fencing around disturbed areas, including any stockpiled topsoil;

• Placement of geotextile bags filled with sand and/or gravel around and along existing and proposed catch drains and stormwater drainage pits;

• Minimising the volume of contaminated water during the works wherever possible by directing surface water away from excavations, depressions, pits and stockpiles by the construction of drainage works such as bunds and diversion drains. Sediment basin(s) may be employed as deemed necessary for the collection of surface water for maintenance of water quality and/or re-use;

• Recycling water, where possible, by reusing on site as dust suppression or for other site operations including wheel washing and truck washing subject to suitable treatment measures.

Surface Water Quality to be checked with the implementation of erosion and sediment control measures will ensure that surface water runoff quality from both external and internal catchments is maintained at acceptable levels during construction.

There are no groundwater interception works proposed during either construction or operation. Construction of the works will have minimal potential to intercept groundwater, as the majority of works will be undertaken above the level of the groundwater table.

Conclusion

This report supports a State Significant Development Application (SSD) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979*. The Development Application (DA) seeks approval for the renovation of the Stevenson Library at Scot College Bellevue Hill.

The proposed stormwater management measures will result in no adverse impact on surrounding neighbours or public spaces.

The internal drainage system will capture and convey storm events up to and including the 100 year ARI event whilst also providing water quality treatment through treatment train.