

# Stormwater Report

Iglu Pty Limited / 30th November 2018

181975 CAAA

Structural Civil Traffic Facade

**Consulting Engineers** 

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#### 1.0 Introduction

Taylor Thomson Whitting Pty. Ltd (TTW) was commissioned to provide stormwater disposal and soil and erosion control measures to support the proposed development application for Iglu Summer Hill development. This report details the concept design for development application (DA) stage only.

This report outlines the proposed stormwater disposal requirements and the impact these constraints will have on the proposed development.

#### 1.1 The Existing Site

The site is bounded by Carlton Crescent to the north, Darrell Jackson Gardens and Skate Park to the west, Shopping mall to the south and shops to the east. Refer to Figure 1 for site location.

The existing site is a two-storey brick and metal clad building with on-grade carpark to the rear of the property which is 100% impervious. The existing overflow path (shown in green arrows) is through the rear of the property flowing towards Hardie Ave as shown in Figure 1.



Figure 1 Site Location (Source: SIX Maps)

The inground drainage is currently directed to the stormwater pit 'C' on the southwest corner of the site as shown in Figure 2. Outlet direction from pit 'C' is unknown and requires further investigation.

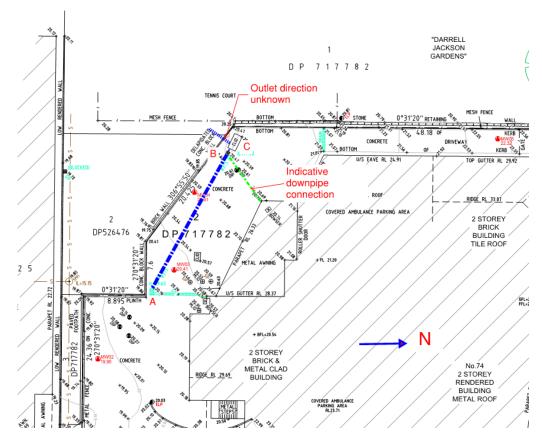


Figure 2 markup on Survey by LTS dated 17/09/2018

#### 1.2 Relevant Documents

The following documents have been reviewed in preparing this document:

- Comprehensive Inner West DCP 2016
- Ashfield Local Environment Plan (LEP) 2013
- Ashfield Interim Development Assessment Policy 2013
- Urban Erosion and Sediment Control Handbook (2006)

## 2.0 Proposed Development

The proposed development involves the followings:

- Demolition of the existing 2 storey building.
- Construction of a new 4 storey apartment building.

Lower ground floor layout is shown in Figure 3, refer to Architectural drawings for proposed floor layouts for different levels.



Figure 3 Lower Ground Floor Plan by Bates Smart dated 22.11.2018

#### 3.0 Stormwater Disposal Design

#### 3.1 On-site Detention (OSD)

Inner West Council's OSD requirement is to ensure that the post-development peak flows do not exceed the peak flow rate generated under the existing site condition for all stormwater events over the range 5 to 100 year annual recurrence interval (ARI).

Existing site is 100% impervious while the proposed development decreases the site imperviousness by proposing 620 m² landscape area (21% of the site area), the stormwater runoff volume and peak flow rates for all stormwater events over the range 5 to 100 year ARI from proposed development is less than from pre-development. A hydrological model has been created using DRAINS modelling software to compare the pre-development and post-development peak flows, results are outlined in Table 3.1.

Table 3.1: Comparison of Pre and Post Development Flows

Storm Event (ARI)	Pre Development Flow (m³/s)	Post Development Flow (m³/s)
1 in 5 Year	0.133	0.125
1 in 10 Year	0.150	0.142
1 in 20 Year	0.174	0.166
1 in 50 Year	0.187	0.176
1 in 100 Year	0.207	0.197

As outlined in table 3.1, post-development flow rates are less than the pre-development flow rates for all range of stormwater events from 5 to 100 year ARI without OSD system.

The stormwater runoff is to be conveyed by the proposed inground drainage system and connected to the existing inground infrastructure 45 meters south from the site on Hardie Ave. Refer to Appendix A for stormwater drainage layout.

#### 3.2 Stormwater Quality

#### 3.2.1 Water Quality Control Measures

The development will implement water quality treatment measures such as Stormwater360 Envirpods in multiple surface inlet pits and Gross Pollutant Trap (GPT) to remove gross pollutants, total suspended solids and phosphorus/nutrients effectively to maintain stormwater quality discharging from the site. Refer to Appendix A for proposed stormwater management plan incorporating water quality treatment measure.

Notwithstanding the pollution removal rates, the principals of the proposed stormwater quality treatment measure are in accordance with Inner West Council stormwater treatment reequipments.

#### 3.2.2 Sediment and Erosion Control Plan

Sediment and erosion control measures are to be installed and maintained until construction is completed. The proposed sedimentation and erosion control measures is to temporarily manage runoff and ensure no detriment to the receiving environments.

Temporary strategies generally refer to the control of sediment erosion and water pollution during the construction phase. The primary risks occur when soil is excavated and exposed to the elements during construction works. It is at this stage that suspended solids and other construction activity associated pollutants can be washed into the receiving stormwater network and subsequently the downstream waterways.

The strategies that are implemented to prevent potential soil degradation and pollution of waterways include the adequate provision of sedimentation and erosion control measures.

The temporary controls that are proposed in the concept plans by TTW will limit the displacement of sediment caused by runoff from disturbed areas and are designed to remove sediment prior to discharging from site. Refer to Appendix A for sediment and erosion control plan.

#### 4.0 Recommendation

We recommend that the stormwater concept plan as shown in Appendix A to comply with the intent of Inner West Council's relevant stormwater requirements.

Prepared by

TAYLOR THOMSON WHITTING (NSW) PTY LTD

**Nemesio Biason** 

Associate

#### Appendix A

# **Stormwater Management Plan**

# 74 CARLTON CRESCENT, SUMMER HILL Stormwater Management Plan

#### **GENERAL NOTES**

- 1. Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the
- 2. Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
- 3. Make smooth connection with all existing works. 4. Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building
- 5. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority; the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site.
- 6. All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. The Contractor shall obtain these requirements from the Authority. Where the requirements of the Authority are different to the drawings and specifications, the
- requirements of the Authority shall be applicable. 7. For all temporary batters refer to geotechnical recommendations.

#### REFERENCE DRAWINGS

1. These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No Rev Date
LTS	SURVEY	50006_003DT 117/09/2018
DATECOMART	LOWER CROUND PLAN	Δ03 100 = 13 /11 /2018

## **SURVEY AND SERVICES INFORMATION** hazardous materials. Refer to geotechnical/environmental report by

Origin of levels : A.H.D. AUSTRALIAN HEIGHT DATUM Datum of levels Coordinate system : MGA Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause

## **UNDERGROUND SERVICES - WARNING**

subsequent to installation.

The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate. The position of services as recorded by the authority at the time of

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies

installation may not reflect changes in the physical environment

#### in the services information shown from any cause whatsoever. The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.

Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

#### SAFETY IN DESIGN

Contractor to refer to Appendix B of the Civil Specification for the Civil

#### **EXISTING SERVICES**

Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.

Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practicably possible from existing

#### **EXISTING TREES**

Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel, site works to be carried out as far as practicably possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.

Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.

Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and batters adequately supported to approval of Geotechnical Engineer.

Contractor to be aware of the site geotechnical conditions. Refer to geotechnical report by (insert report details) for

#### **HAZARDOUS MATERIALS**

site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practices as per relevant authority to be adopted and appropriate PPE to be used when handling all (insert report details) for details.

Existing asbestos products & contaminated material may be present on

## CONFINED SPACES

Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.

#### MANUAL HANDLING Contractor to be aware manual handling may be required during

construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing WATER POLLUTION

#### Contractor to ensure appropriate measures are taken to

prevent pollutants from construction works contaminating the surrounding environment.

#### SITE ACCESS/EGRESS

Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.

Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshall to supervise vehicle movements where necessary.

## BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from: No boundary information received.

easement information shown is correct. Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.

Taylor Thomson Whitting makes no guarantees that the boundary or

Refer architect for boundary information and locations

#### **KERBING NOTES**

Includes all kerbs, gutters, dish drains, crossings and edges.

- 1. All kerbs, gutters, dish drains and crossings to be constructed on minimum 75mm granular basecourse compacted to minimum 98% modified maximum dry density in accordance with AS 1289 5.2.1. 2. Expansion joints (EJ) to be formed from 10mm compressible cork filler board for the full depth of the section and cut to profile. Expansion joints to be located at drainage pits, on tangent points of curves and elsewhere at 12m centres except for integral kerbs where the expansion joints are to match the joint locations in slabs. . Weakened plane joints to be min 3mm wide and located at 3m centres except for integral kerbs where weakened plane joints are to match the joint locations in slabs.
- 4. Broomed finished to all ramped and vehicular crossings, all other kerbing or dish drains to be steel float finished. 5. In the replacement of kerbs -
- Existing road pavement is to be sawcut 900mm from lip of autter. Upon completion of new kerbs, new basecourse and surface is to be laid 900mm wide to match existing materials and thicknesses. Existing allotment drainage pipes are to be built into the new
- kerb with a 100mm dia hole Existing kerbs are to be completely removed where new kerbs

STORMWATER DRAINAGE NOTES

1% AEP for roof drainage to first external pit

Impervious areas: IL = 1.5 mm, CL = 0 mm/hr

Pervious areas: IL = 26.6 mm, CL = 2 mm/hr

. Pipes 300 dia and larger to be reinforced concrete Class "2"

approved spigot and socket with rubber ring joints U.N.O.

3. Pipes up to 300 dia may be sewer grade uPVC with solvent

welded joints, subject to approval by the engineer 4. Equivalent strength VCP or FRP pipes may be used subject

5. Precast pits may be used external to the building subject

6. Enlargers, connections and junctions to be manufactured

. Where subsoil drains pass under floor slabs and vehicular

9. Pipes are to be installed in accordance with AS 3725. All

10. Care is to be taken with invert levels of stormwater lines.

Grades shown are not to be reduced without approval.

12. Subsoil drains to be slotted flexible uPVC U.N.O.

11. All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.

13. Adopt invert levels for pipe installation (grades shown are

1. Drainage shall be provided as shown on the drainage drawings.

reached a minimum strength of 0.85 f'c. Backfilling shall be

approved granular material compacted in layers not exceeding

200mm to 95% Standard compaction unless noted otherwise.

is adequately propped or the elements have been constructed

3. Provide waterproofing to back of walls as specified or noted.

4. Where retaining walls rely on connecting structural elements

for stability, do not backfill against the wall unless it

and have sufficient strength to withstand the loads.

5. For all temporary batters obtain geotechnical engineers

2. Backfilling shall be carried out after grout or concrete has

pavements, unslotted uPVC sewer grade pipe is to be used. 8. Grates and covers shall conform with AS 3996-2006, and

fittings where pipes are less than 300 dia.

AS 1428.1 for access requirements.

bedding to be type H2 U.N.O.

**RETAINING WALLS** 

only nominal).

recommendations.

5% AEP for paved and landscaped areas

1 Stormwater Design Criteria

(B) Rainfall intensities -

to approval by Engineer

(A) Average exceedance probability

Time of concentration: 5 minutes

1% AEP = 21.7 mm

5% AEP = 16.1 mm

## **SURVEY LEGEND**

Surface level Retaining wall Stormwater drainage line Telecommunications line Water main Electrical line

EASEMENT FOR \_\_\_\_\_( \_\_m WIDE)

Tree to be removed/be retained

Manhole Stop Valve Water **Telecomunications** Trap Sewer Manhole

TRAP

□ W

Electricity Electric Light Pole Traffic Light Traffic Light Lid Traffic Light Box Telephone Box Parking Meter

O PKM ☐ PM 1234

Permanent Mark Bench Mark Borehole

# Test Pit

**EXISTING SERVICES LEGEND** -S - - S - - Existing sewer ---- W --- Existing water ——— — EU ——— Existing underground electrical ——— — EA ——— Existing aerial electrical - - -  $\top$  - -  $\top$  Existing communications - - - G - - G - Existing gas Existing stormwater



## **DRAWING SCHEDULE**

C0000 NOTES AND LEGENDS SHEET

C0001 **EROSION & SEDIMENT PLAN AND DETAILS** C0010 STORMWATER CONCEPT DESIGN

Drawing No

**Drawing Title** 

Bates Smart Architects Pty Ltd 43 BRISBANE STREET SYDNEY SURRY HILLS NSW 2010 TEL: +61 2 8354 5100 FAX: +61 2 8254 5199 A FOR APPROVAL NB LS 30.11.18 SYD@BATESSMART.COM.AU Eng Draft Date Rev Description Eng Draft Date Rev Description Eng Draft Date Rev Description



74 CARLTON CRESCENT Thomson SUMMER HILL

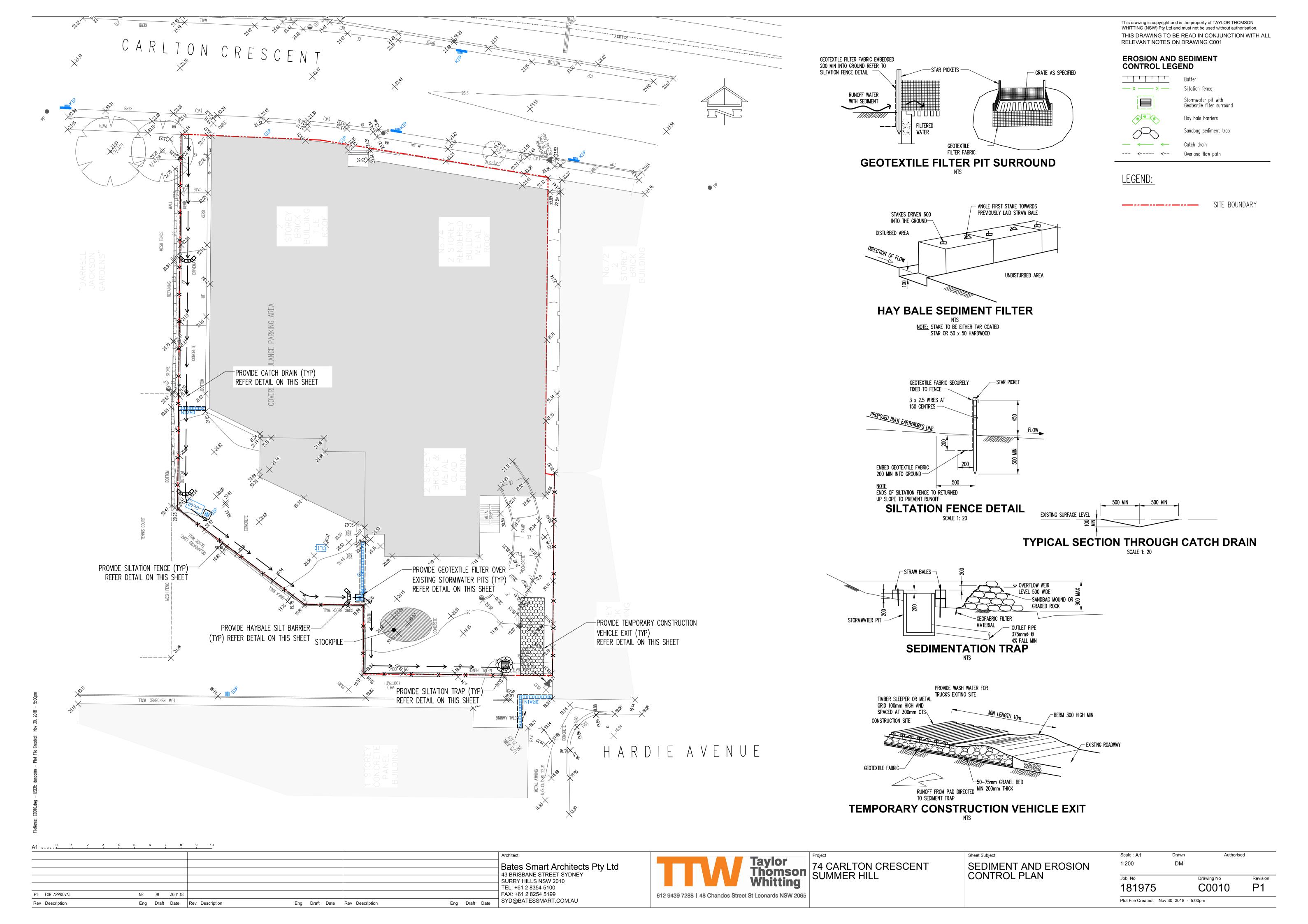
**COVER SHEET AND DRAWING** 

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LS C0000

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Authorised

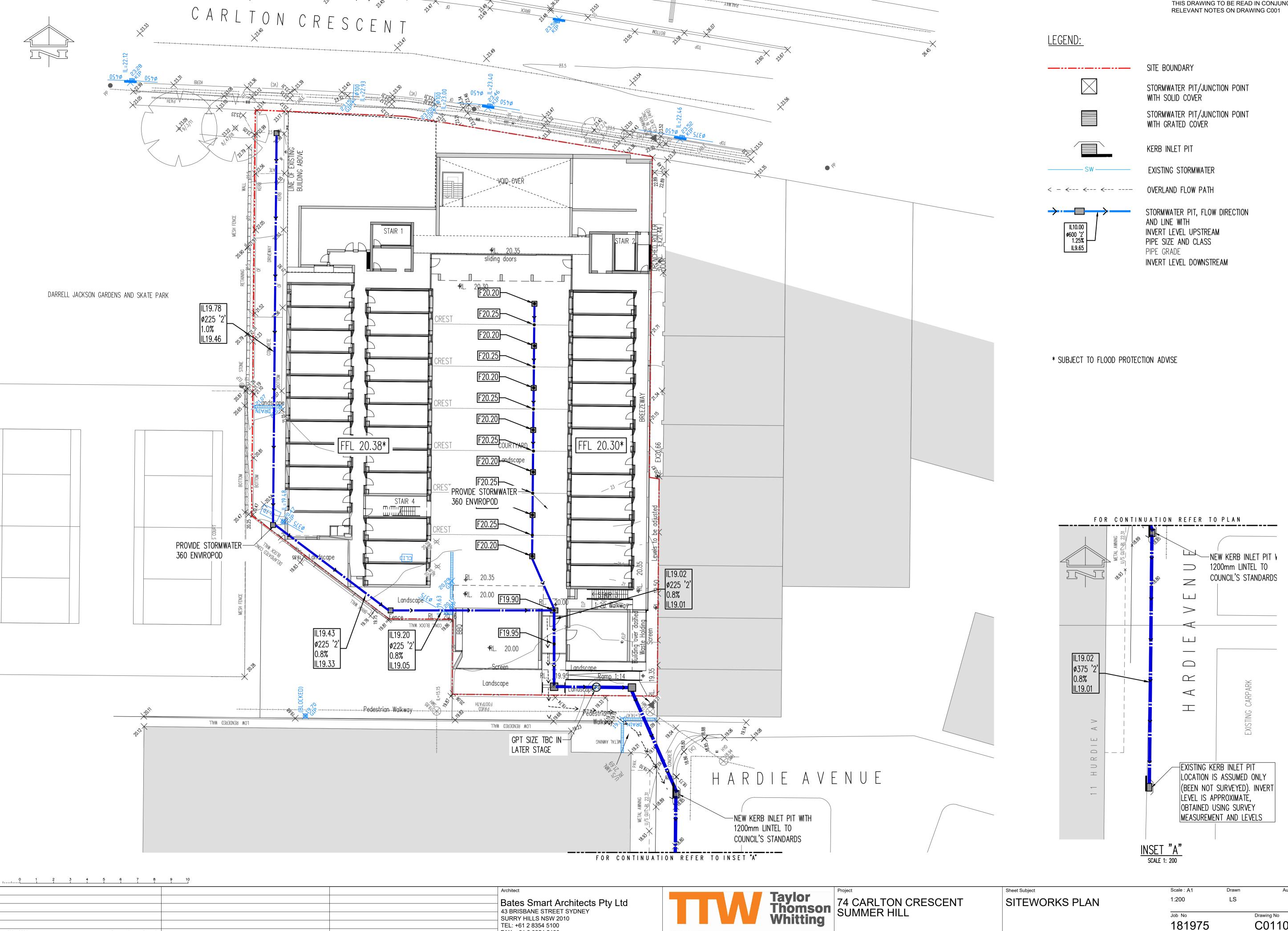


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P1 FOR APPROVAL

Rev Description

NB LS 30.11.18

Eng Draft Date Rev Description

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