

CIVIL DA REPORT

**182-198 Victoria Road and 28-
30 Faversham Street,
Marrickville
Mixed Use Development**

Prepared for Toga Wicks Park Developments Pty Ltd

Submission Date: 7/11/2019

181392

Contents

1.0	Introduction	3
1.1	The Site	3
1.2	Relevant Documents	5
2.0	Proposed Development	6
3.0	Stormwater.....	7
3.1	On Site Detention	7
3.2	Water Quality	9
4.0	Flood Management	10
4.1	Flood Modelling	10
4.2	Flood Modelling Results	10
4.3	Flood Controls	14
4.4	Flood Planning Levels	15
5.0	Construction Phase Stormwater Management	16
6.0	Conclusion	17
	Appendix A	18
	Appendix B	20
	Appendix C	21

1.0 Introduction

Taylor Thomson Whitting (TTW) has been appointed by Toga Wicks Park Developments Pty Ltd to prepare a concept Civil Report to support the Development Application for the proposed works at 182-198 Victoria Road and 28-30 Faversham Street, Marrickville.

1.1 The Site

The site has been divided into “Site A” being 182-198 Victoria Road, and “Site B” Being 28-30 Faversham Street. This report is primarily focussed on Site A.



Figure 1 Sites A and B

The Site A is bounded by Victoria Road to the west, Wicks Park to the south and industrial development to the north and east. The Local Government Area (LGA) is Inner West Council and was previously part of Marrickville Council. The existing site has an area of approximately 7,262m² and is approximately 98% impermeable.



Figure 2 Aerial Image (SIX maps)



Figure 3 Property Boundary and Map View (SIX maps)

1.2 Relevant Documents

- Marrickville DCP 2011
- Turner Architects Drawings (7/02/2019)
- NSW MUSIC Modelling Guidelines 2015
- Culvert Drawings from Sydney Water (1942 – 1952)
- True North Survey Drawings (01/09/2016)
- Sydney Water email outlining PSD and OSD (27/11/18)
- Marrickville Valley Floodplain Risk Management Study and Plan, Cardno 6/9/2017

2.0 Proposed Development

The existing structures on site will be demolished to make way for the new development.

The proposed development is a multi-storey mixed development with underground parking, retail, apartments and communal garden areas. Part of this development includes the construction of a new stormwater system that will capture and convey rainfall into a culvert owned by Sydney Water. Figure 4 shows the ground floor plan floor plan of the proposed development.

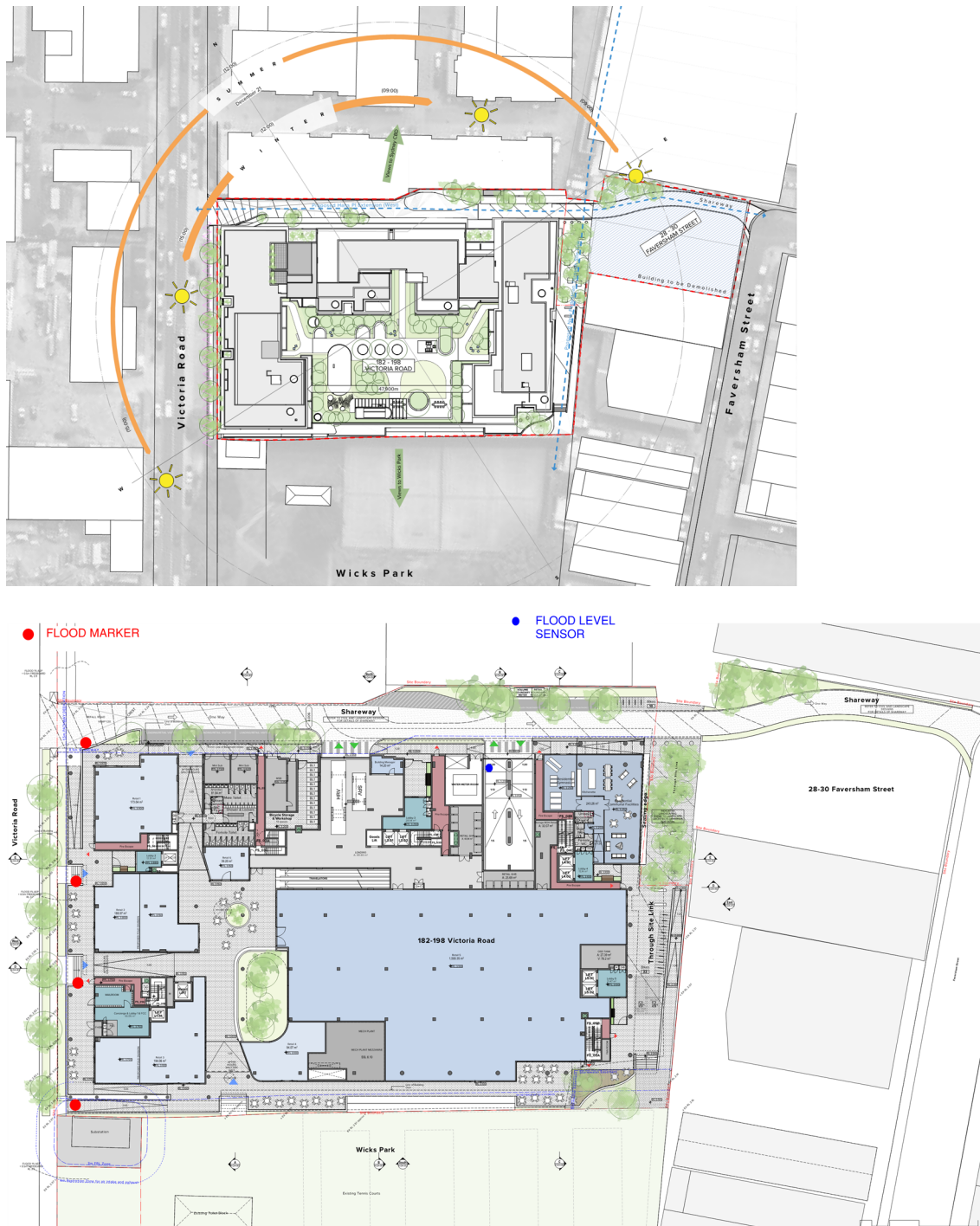


Figure 4 Ground Floor Plan (Turner)

3.0 Stormwater

Stormwater from the ground level will be collected on site and conveyed via a gravity fed underground piped system to discharge to the existing box culvert at the south-west corner of the site. The box culvert is owned by Sydney Water. Sydney Water has indicated they will accept a direct connection to the culvert (refer correspondence in Appendix A). Stormwater will be managed to meet Sydney Waters requirements for permissible site discharge and water quality. The site has been modelled as 100% impervious despite the permeable garden areas. This is a conservative assumption.

3.1 On Site Detention

The DCP (section 2.25.3.2 – C5) stipulates that OSD is exempt for this site if stormwater discharges directly into Sydney Water Corporation trunk drainage.

- C5** OSD will be required for all developments except for:
- i. Extensions where the proposed extended roof or paved area is less than 40m².
 - ii. Sites that discharge directly to the Cooks River or into a major Sydney Water Corporation controlled trunk drainage system.

However, Jeya Jeyadevan of Sydney Water has advised that the site requires On-Site Detention (OSD) with a volume of at least 108m³ and Permissible Site Discharge (PSD) of 259 L/s (refer to appendix A). The volume of the OSD tank and PSD was based on a 100% impervious site area of 7,262m².

The site was modelled in DRAINS to simulate stormwater flow and design the OSD tank. Due to the site's constraints, 2 separate OSD tanks are required. OSD 1 will be 85m³ with an orifice of 240mm and discharge into OSD 2. OSD 2 will be 35m³ with an orifice of 350mm and discharge into the existing box culvert on the south-west corner of the site. Figure 5 shows the stormwater concept design. The combination of OSD tanks will meet the PSD requirement set by Sydney Water and the combined OSD volume is greater than required (more conservative).

OSD1 is the receiving point for rainwater from the building roofs and level 1 courtyard. The rainwater from OSD1 discharges via the rainwater tank on level B1 to OSD2. Stormwater from the driveway, through site link and other areas on the ground level discharge directly to OSD2.

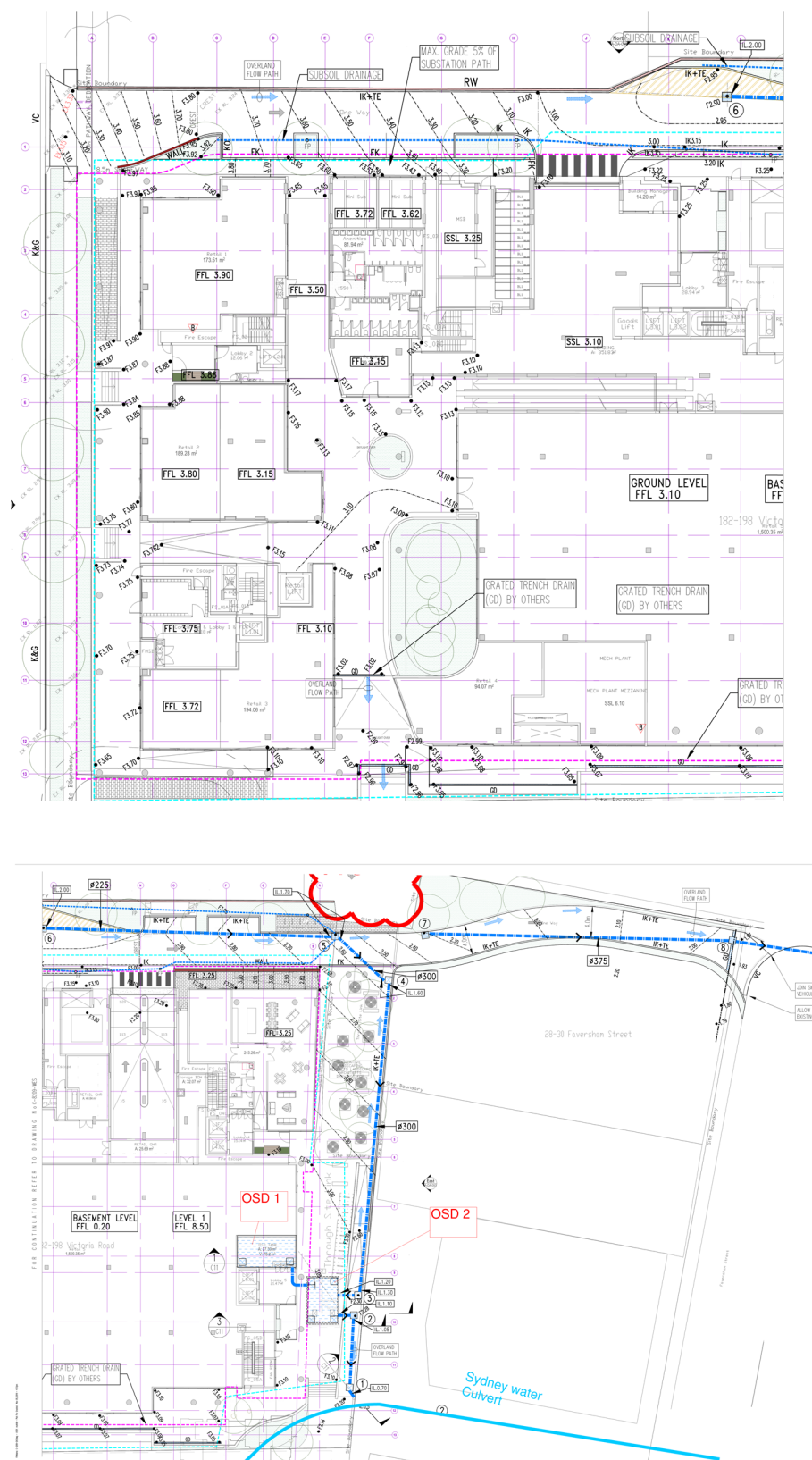


Figure 5 Stormwater arrangement plan

Table 1 below shows the discharge rates of the existing site compared to that of the proposed site for a range of storms. The proposed site meets the discharge requirements

Table 1 Site Discharge Rates

Storm (AEP)	Event	Existing site	Proposed Site	Requirement
1%		465 l/s	251 l/s	259l/s
50%		188 l/s	132 l/s	N/A

The DCP (section 2.25.3.14 – C35) gives a minimum freeboard of 200mm above the OSD operating level to habitable floor areas.

2.25.3.14 Freeboard

C35 Freeboard for floor levels above top water level (TWL) of OSD storages is required for buildings near OSD storages, of at least 0.2 metres above the maximum spillway operating level for habitable areas.

The maximum water level of OSD 2 is at RL2.90m during the 1% AEP storm and the surface level is at RL3.10m. The adjacent area has 200mm freeboard to the OSD. There is an overland flow route from OSD 2 that flows away from buildings and towards Wicks Park. The DRAINS model shows no surcharge from OSD 2 during the 1% AEP storm.

OSD 1 is located within the building envelope and has a maximum water level of RL5.10m during the 1% AEP storm. An overflow pipe is designed to be 0.2m above the maximum water level. The overflow pipe has an invert level of IL5.30m. This pipe discharges to OSD1 which can safely overflow. The DRAINS model shows no surcharge from OSD 1 during the 1% AEP storm

3.2 Water Quality

MUSIC was used to model the pollutant loads within the stormwater leaving the proposed site. The site was split into 2 types of catchments, roof and road, both were considered to be 100% impermeable. The treatment train consists of litter baskets placed in pits and 15 x Stormwater360 StormFilter cartridges (or equivalent) placed in the OSD 2.

The water quality requirements for this site have been given by Sydney Water (refer appendix A) and section 2.17.4 of the Marrickville DCP and are compared to the MUSIC model results in Table 2.

Table 2 MUSIC modelling results

Pollutant	Sydney Water Target (% reduction)	Marrickville DCP Target (% reduction)	Proposed Site (% reduction)
Gross Pollutants	90	90	99
Total Suspended Solids	85	85	86
Total Phosphorous	65	60	69
Total Nitrogen	45	45	46

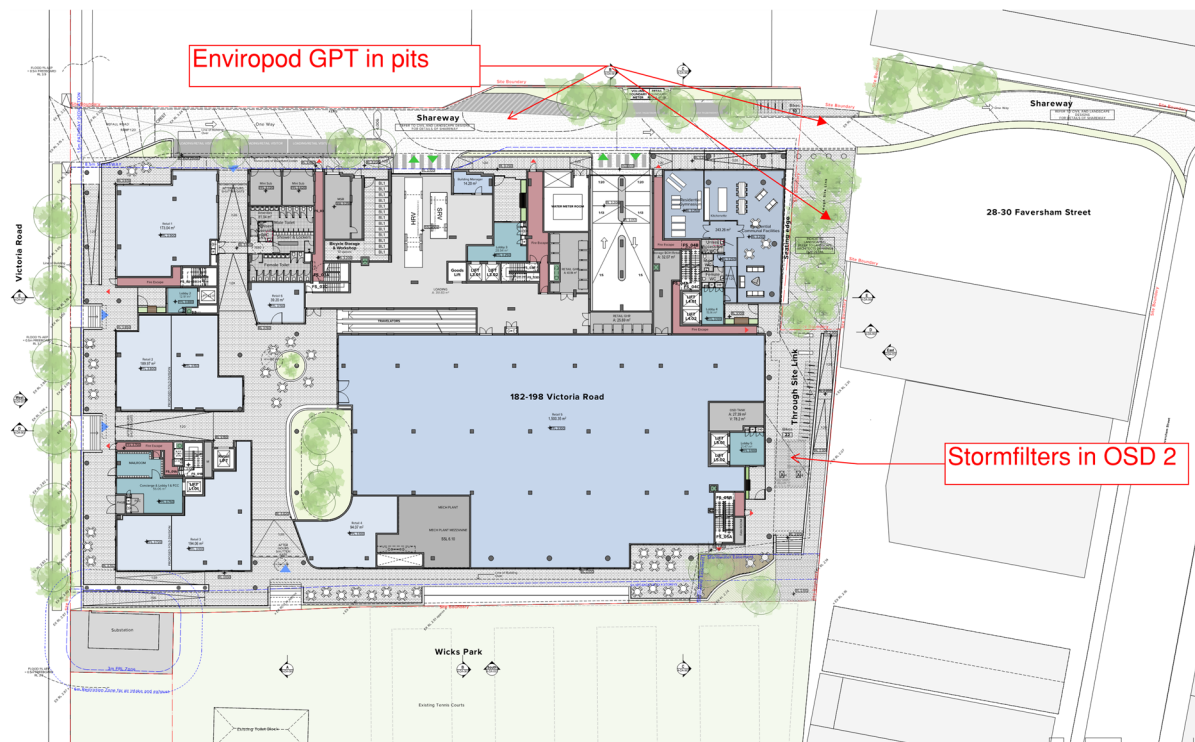


Figure 6 Stormwater treatment train

4.0 Flood Management

The proposed site is located within the Marrickville flood plain as can be seen in Figure 7. The red hatching represents flood liable land. The site is likely to be affected by the 100-year flood associated with local overland flooding. The site is not within the Cooks River Flood Planning Area shown as blue on the MDCP 2011 Flood Planning Area Map.



Figure 7 Extract from Inner West Council MDCP 2011 Flood Planning Area Map

4.1 Flood Modelling

The Marrickville Valley flood model was provided by Council to determine the flood impact of the site. The existing conditions model was modified to better represent the site more accurately. Boundaries representing the buildings were adjusted based on the site survey and aerial photography.

To review the impact of the proposed development on the flood regime, a preliminary site grading was added to the model, along with the proposed building footprints as well as the proposed through site link to Faversham Street.

4.2 Flood Modelling Results

The below figures provide a summary of the flood modelling results



Figure 8 Existing Conditions 1% AEP (100-year ARI) Flood Map



Figure 9 Proposed Developed Conditions 1% AEP (100-year ARI) Flood Map

Flood Hazard mapping for the site under both existing and proposed conditions is shown below. Modelling results indicate that the post-development site is affected by low hazard flooding during the 1% AEP event.

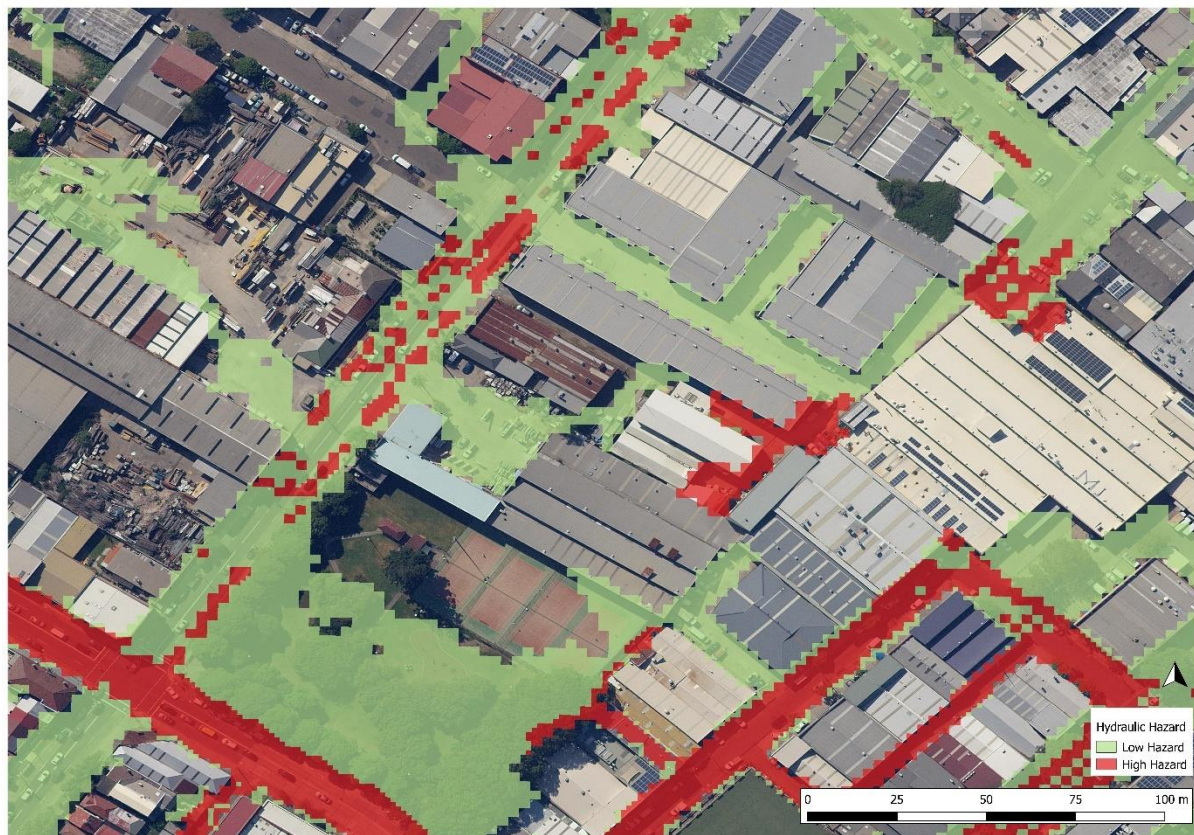


Figure 10

Existing Hazard Conditions 1% AEP (100-year ARI) Flood Map

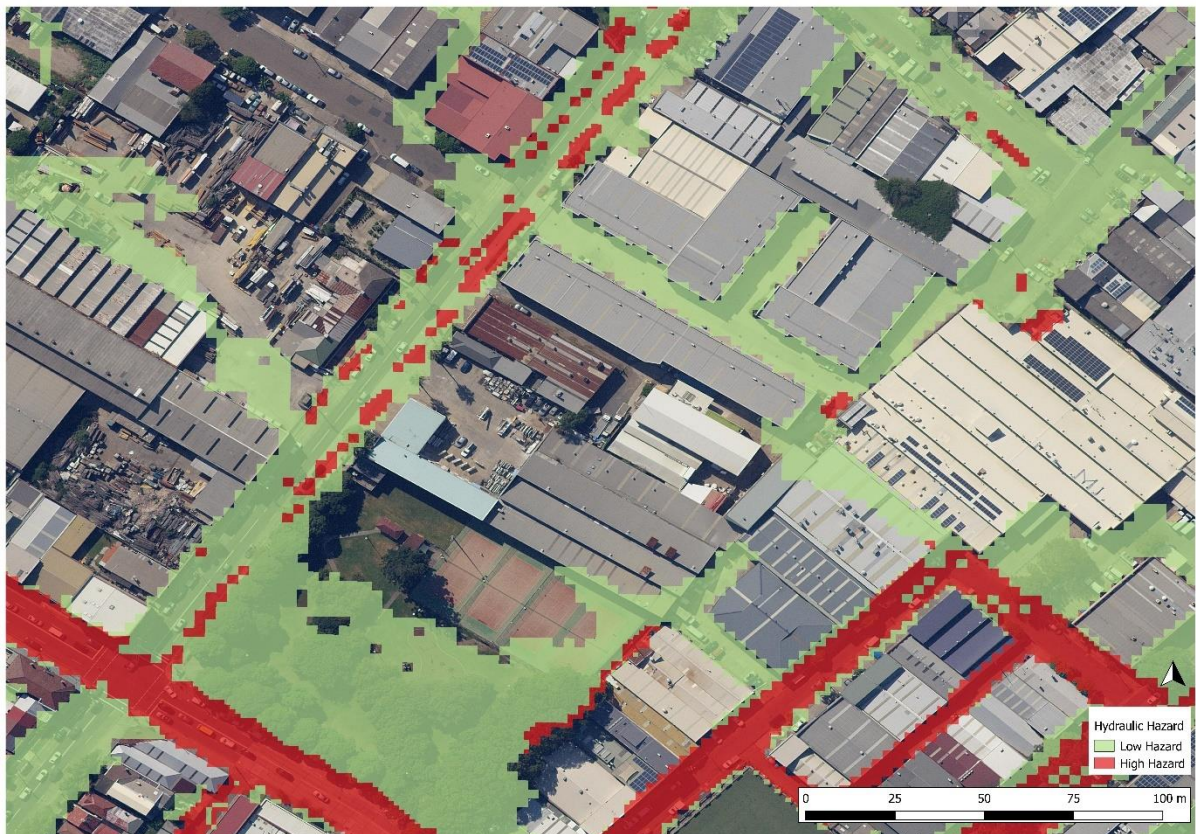


Figure 11 *Proposed Hazard Conditions 1% AEP (100-year ARI) Flood Map*

The impact of the development on flood behaviour was determined based on the results of the flood modelling. This is shown in Figure 12.

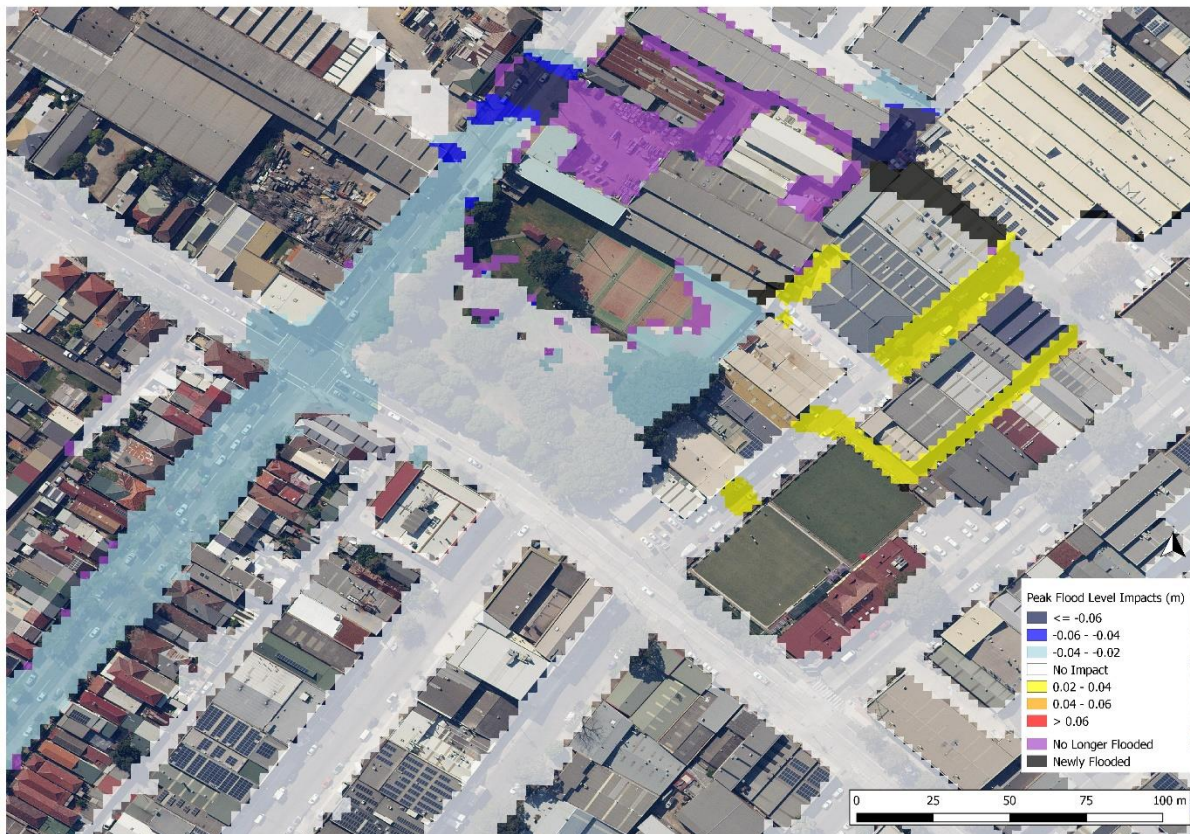


Figure 12 Flood impact map

4.3 Flood Controls

The development involves filling some flood affected land. The DCP (section 2.22.5) outlines the requirements for filling land within the Flood Planning Area:

Controls for filling of land within the Flood Planning Area

- C21** Development consent will not be granted to filling of flood ways or high flood hazard areas. Consideration will only be given to granting development consent to the filling of other flood liable land where:
- i. Flood levels are not increased by more than 100mm by the proposed filling.
 - ii. Downstream velocities are not increased by more than 10% by the proposed filling.
 - iii. Proposed filling does not redistribute flows by more than 15%.
 - iv. The potential for cumulative effects of possible filling proposals in that area is minimal.
 - v. The development potential of surrounding properties is not adversely affected by the filling proposal.
 - vi. The flood liability of buildings on surrounding properties is not increased.
 - vii. The filling creates no local drainage flow/runoff problems.

The development has the following impact on surrounding flood levels:

- Flood levels on Victoria Road are reduced by a small amount (less than 40mm).
- Limited increase in flood levels of less than 40mm on Faversham street immediately downstream of the proposed through site link and in the laneway adjacent the bowling club.
- There is no negative impact on surrounding properties.
- Flood levels in the eastern corner of the site are reduced by up to 850mm. This is a local impact that does not extend far into the property to the north.

Overall, the impact on flooding is minimal.

4.4 Flood Planning Levels

The Marrickville DCP 2011 (section 2.22.5) outlines the requirements for Flood Planning Levels:

Controls for new residential development

- C5** Floor levels (Flood Planning Levels) of habitable rooms must be a minimum of 500mm above the standard flood level at that location. For areas of minor overland flow (a depth of 300mm or less or overland flow of 2cum/sec or less) a lower freeboard of 300mm may be considered on its merits.
- C6** Any portion of buildings below the Flood Planning Level) must be constructed from flood compatible materials (See Schedule 1).
- C7** Flood free access must be provided where practicable.

The flood depth on Victoria Road is greater than 300mm and as such the residential areas fronting Victoria Road have been provided with a 500mm freeboard to the 1% AEP flood level.

The driveway adjoining Victoria Road has been designed with a crest of 3.80mAHD, giving 300mm freeboard to the 1% AEP flood level. In this location the flood depth is limited to 300mm. The driveway crest protects the loading dock and driveway from flooding.

Controls for underground garages

- C25** Freeboard protection of 500mm must be provided above the standard flood within the internal driveway prior to descending into the underground garage.

Entry to the basement has a crest of 3.20m AHD to give 500mm freeboard to the flood level in the north eastern corner of the site (near the through site link) of 2.70mAHD.

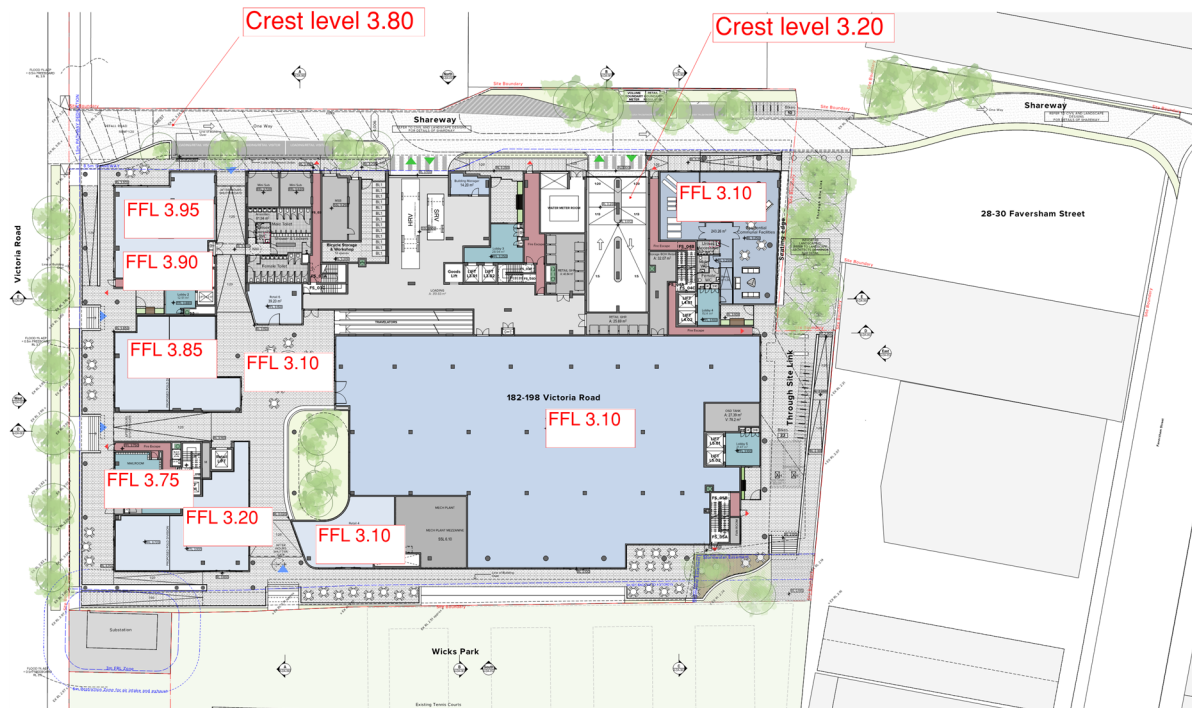


Figure 13 Flood Planning Levels

The DCP notes: “Flood free access must be provided where practicable”. The streets around the site are flood affected, so there is no flood free access available in this sense. The proposed building and portions of Wicks Park are not flood affected. Site users should remain in place in a flood event and wait for flood waters to recede. TTW have prepared a Flood Emergency Management Plan for the site in accordance with Marrickville Council DCP, attached as Appendix C.

5.0 Construction Phase Stormwater Management

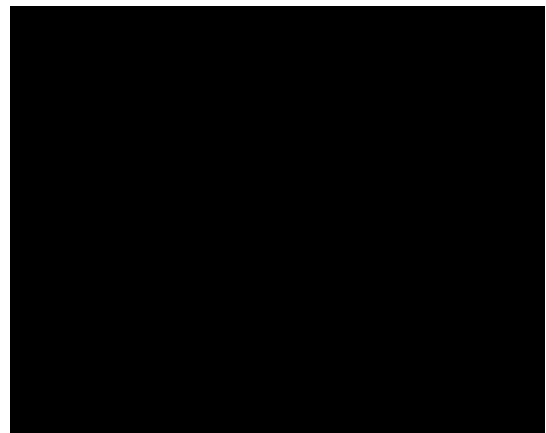
During the construction phase of the project, an erosion and sediment control plan will be implemented to prevent sediment laden stormwater from entering the council drainage network. A conceptual Erosion and Sediment control plan will be included in the civil drawing set and is in accordance with the “Blue Book” - Managing Urban Stormwater: Soils and Construction (Landcom NSW). The controls include

- Sediment fences;
- Vehicle shaker grid and wash down; and
- Sand bags or geotextile filter surrounding pits.

6.0 Conclusion

The proposed Site A development at 182 – 198 Victoria Road and 28-30 Faversham Street, Marrickville consists of a mixed development with underground parking, retail spaces and residential apartments.

- The proposed development is protected from flood by a crest on the driveway and a raised platform along Victoria Road. The Flood Planning level varies from RL3.95m on the northern side of the development to RL3.70m on the southern side of the development. The proposed site is compliant with Flood Planning Levels as per section 2.22 of the Marrickville DCP 2011.
- 2 separate OSD tanks are proposed with an effective volume of 120m³ and an orifice size of 240mm for OSD 1 and 350mm for OSD 2. There will be no increase to current discharge rates for storm events ranging from 50% to 1% AEP and stormwater will discharge to an existing box culvert owned by Sydney Water. Sydney Water have been contacted and will accept this connection on the basis the stormwater detention and quality requirements are met.
- Water quality targets can be met with Stormwater Enviropods placed in pits and 15x Stormwater360 Storm Filters in the OSD tank 2.



P:\2018\1813\181392\Reports\TTW\Civil\191107 Civil Report.docx

Appendix A

OSD and PSD Requirements

From: Stormwater <Stormwater@sydneywater.com.au>
Sent: Tuesday, 27 November 2018 8:29 AM
To: Jimmy Soo <Jimmy.Soo@jhaengineers.com.au>
Cc: Diego Montelverre <Diego.Montelverre@jhaengineers.com.au>
Subject: RE: Wicks Park Mixed Used Development - OSD requirement or Direct Connection

Jimmy,

With reference to your email dated 26 November 2018 regarding the proposed development at 182 – 198 Victoria Road, Marrickville

Following are the general requirements for any development at this location. These are only general requirements and specific requirements can only be provided, once you lodge the Section 73 application to Sydney Water, upon obtaining the DA approval for your development.

Building Over and Adjacent to Stormwater Assets

- No building or permanent structure is to be proposed over the stormwater channel/ pipe or within 1m from the outside wall of the stormwater asset or within Sydney Water easement whichever is larger. Permanent structures include (but are not limited to) basement car park, hanging balcony, roof eaves, hanging stairs, stormwater pits, stormwater pipes, elevated driveway, basement access or similar structures. This clearance requirement would apply for unlimited depth and height.
- The applicant is required to submit the elevation drawings with the stormwater channel/ pipe, to ensure that the proposed buildings and permanent structures are 1m away from the outside face of the stormwater channel and away from any Sydney Water easement.

Locating the Exact Position of the Stormwater Channel

Exact position of the stormwater channel/ pipe is to be identified using the pot holes or any other acceptable survey method. Location of the easement position should not be used as location of the stormwater channel/ Pipe.

On Site Detention Requirements

Sydney Water's On Site Detention requirements are based on its policy and guidelines as published on our website. According to this policy and guidelines, On Site Detention requirements would apply any development at this location, if you choose to make direct stormwater connection to Sydney Water's stormwater system.

On Site Detention requirements for the 7,262 square meters site at this location is as follows and would only apply if you make direct stormwater connection to Sydney Water's stormwater system:

- On Site Detention 108 cubic meter
- Permissible Site Discharge 259 L/s

The approval for the On Site Detention would only be given as part of the Section 73 application for this development and part of the stormwater connection approval. The On Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the stormwater connection details. The following details are to be included in your submission for On Site Detention approval:

- Location of the On Site Detention in relation to the development
- Location of the On Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On Site Detention tank with all dimensions
- Orifice plate calculation

Direct Stormwater Connection to Sydney Water's stormwater system

Sydney Water would not object to any direct stormwater connection to Sydney Water's stormwater system from this development provided it complies with Sydney Water's connection requirements which include On Site Detention requirements and Water Quality requirements.

Discharged Stormwater Quality Targets

Stormwater run-off from the site should be of appropriate quality before discharged into a Sydney Water stormwater asset or system. Developments must demonstrate stormwater quality improvement measures that meet the following specified stormwater pollutant reductions:

Pollutant	Pollutant load reduction objective (%)
Gross Pollutants (>5mm)	90
Total Suspended Solids	85
Total Phosphorus	65
Total Nitrogen	45

You may use our tool, through the website below, to determine whether your development is Deemed to Comply. In some cases though, we may request an eWater MUSIC model before approving your connection.

<https://stormwater.flowmatters.com.au/#/>

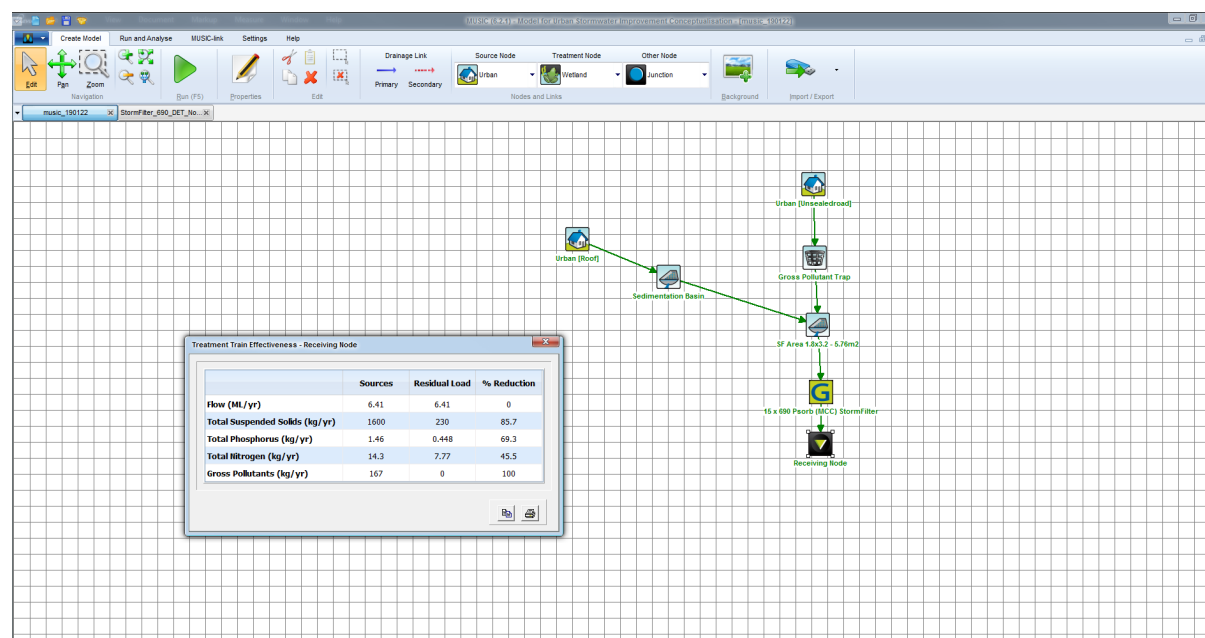
Best Regards



Jeya Jeyadevan | Senior Capability Assessor
Liveable City Solutions | Sydney Water
Level 7, 1 Smith St Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 6118 | Mobile 0409 318 827 | Email
jeya.jeyadevan@sydneywater.com.au
sydneywater.com.au

Appendix B

MUSIC Model



Treatment Train Effectiveness - Receiving Node			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	6.41	6.41	0
Total Suspended Solids (kg/yr)	1600	230	85.7
Total Phosphorus (kg/yr)	1.46	0.448	69.3
Total Nitrogen (kg/yr)	14.3	7.77	45.5
Gross Pollutants (kg/yr)	167	0	100

Appendix C

Flood Response Management Plan

Flood Evacuation Management Plan

**182-198 Victoria Road
Marrickville**

Prepared for Toga Wicks Park Developments Pty Ltd 7/11/2019

181392

Contents

1.0	Introduction	3
2.0	Flood Behaviour	4
3.0	Preparation for Flood Response	7
3.1	Education	7
3.1.1	Staff	7
3.1.2	Residents and the General Community	7
3.2	Evacuation Drills	7
3.3	Flood Emergency Kit	7
4.0	Coordination of Flood Response Warnings and Orders	8

1.0 Introduction

Taylor Thomson Whitting (TTW) have prepared a Flood Evacuation Management Plan (FEMP) for the proposed development at 182-198 Victoria Road Marrickville ("Site"). The Site is located within the Marrickville Valley Catchment and is bounded by Victoria Road to the west, Wicks Park to the south and industrial development to the north and east.

This FEMP has been prepared as part of a Development Application for the Site. As parts of the site lie below the probable maximum flood (PMF) level, TTW has prepared this site-specific FEMP to be developed and implemented as part of the proposal.

The purpose of this FEMP is to summarise the flood risks within the site, identify preparation measures required, and to provide an action plan with steps to be completed during a flood event.

The proposed development is the construction of a multi-storey mixed development with underground parking, retail, apartments and communal garden areas.

Evacuation of retail and carparking areas may be required during extreme flood events such as the PMF. Due to the possible presence of local community members or other visitors not familiar with site flood affectation, it is important to ensure building staff are adequately trained for evacuation and that adequate flood warning systems are in place during these extreme flood events.

2.0 Flood Behaviour

Finished floor levels on the ground floor of the building have been designed to ensure that there is a 500mm freeboard above the 1% AEP event (1 in 100 year flood event) in accordance with Council's and the State Government's flood management policies, which will ensure that flood waters will not enter the site in a 1% AEP event.

Probable Maximum Flood (PMF) affectation for the site has been extracted from the Marrickville Valley Floodplain Risk Management Study and Plan Model produced by Cardno in September 2017. Peak Flood Levels and depths around the site are shown below.

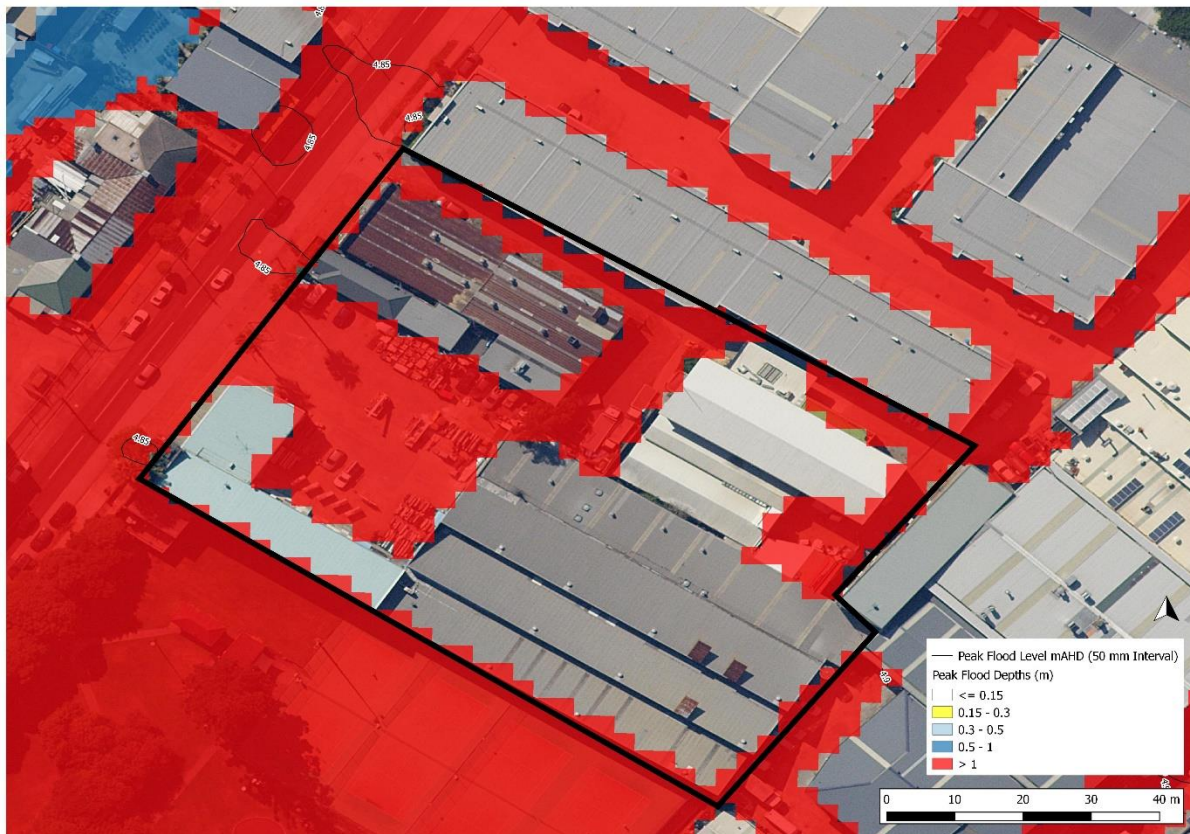


Figure 1: PMF Flood Level/Extent

Source: Marrickville Valley Floodplain Risk Management Study and Plan, Inner West Council 2017

Flood Modelling* indicates that during the PMF event, flood levels will overtop the proposed finished floor levels along Victoria Road and inundated the ground floor to unsafe depths. Accordingly, and consistent with Inner West Council's Marrickville Development Control Plan (DCP) 2011 a site Flood Emergency Response Plan has been prepared for utilisation in the case of a PMF event.

*Note Council has supplied TTW with the Marrickville Valley Flood Model in order to undertake this assessment, but TTW was unable to replicate Council's original PMF Modelling results. Future coordination with Council may be required to assess PMF flood behaviour for the area under post development conditions.



Figure 2: Flood Level Sensor System Western Ground Floor

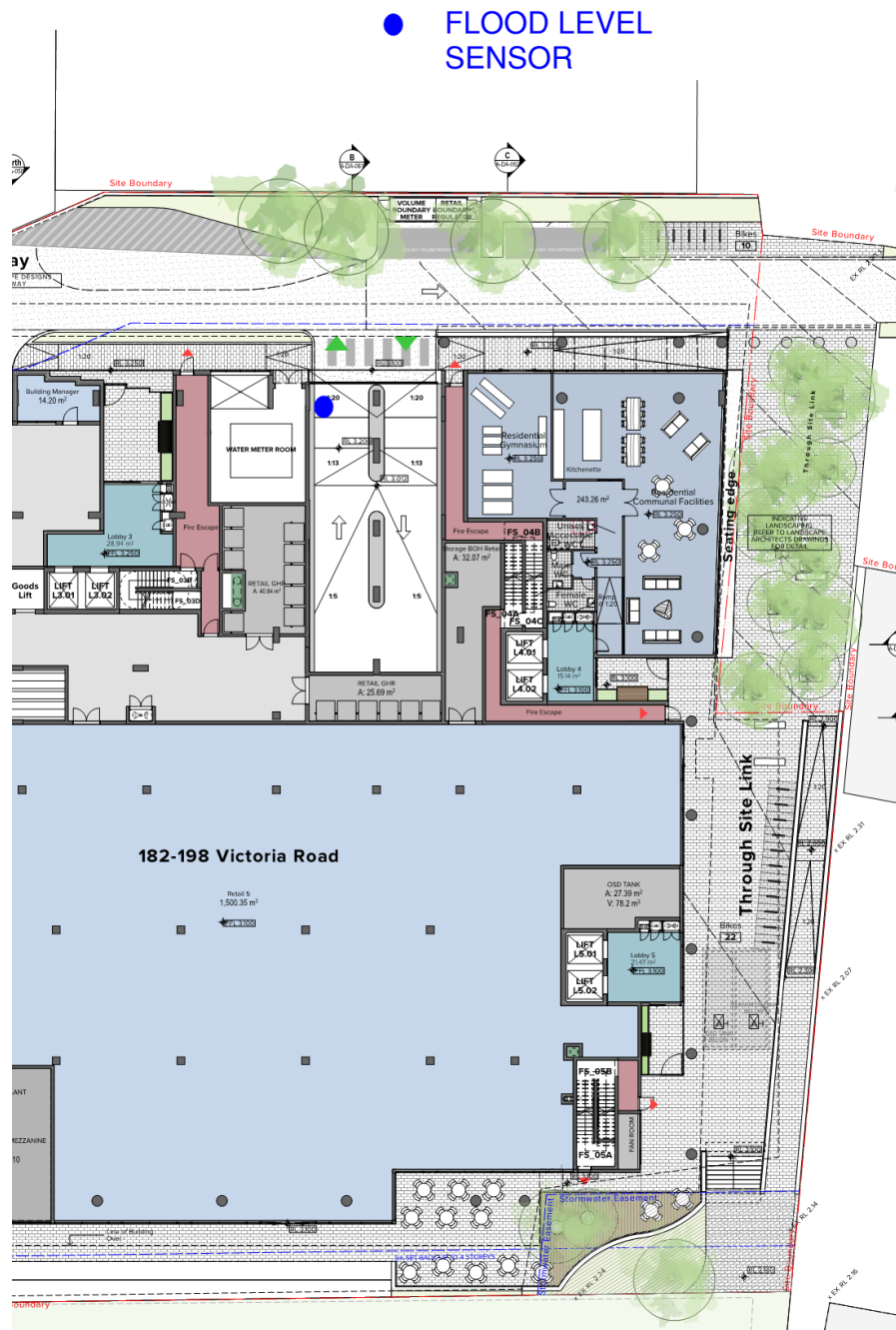


Figure 3: Flood Level Sensor System Eastern Ground Floor

TTW recommends that evacuation in place is appropriate for the site; and that in the event that inundation of the basement carparking and ground floor levels occurs that all persons within those areas be evacuated to Level 01 of the building where the finished floor level of 8.5 mAHD is well in excess of the peak PMF level of 4.8 mAHD.

Inundation of the ground floor and basement carpark levels will occur only during an extreme flood event which produces flow depths greater than 500 mm above the 1 in 100-year flood event. PMF flood modelling indicates that initial inundation of ground floor levels will occur 15-20 minutes before depths of 400 mm (and high hazard flooding) begin to impact on the site.

3.0 Preparation for Flood Response

3.1 Education

Community awareness of flooding is a significant issue within the floodplain due to the infrequency of severe floods and the anticipated depths of these floods in a PMF event.

3.1.1 Staff

As part of the preparation for a flood event, the staff managing the reception and concierge service will be made aware of the flood risk and their obligation to evacuate the basement car park and ground floor levels when inundation begins to occur. Inductions will be held to educate staff on their role during a flood event. Staff to keep record of resident briefings.

3.1.2 Residents and the General Community

Residents are to be made aware of the flood risk and the response requirement during a PMF flood event which creates overland flow depths in excess of the ground finished floor levels. As part of this procedure, evacuation drills should be conducted regularly to ensure residents are aware of the procedures for sheltering on Level 01.

As local community members and other visitors may utilise the retail element of the site it is important for appropriate evacuation signage and emergency warning system to be put in place.

3.2 Evacuation Drills

It is recommended that evacuation drills be held at a minimum of once yearly to ensure all residents and staff are aware of and familiar with their flood response actions, the sound of the alert and occupancy warning system, and the location of the assembly point.

All staff will be trained in the flood response procedures with mandatory drills recommended to be conducted once a year.

3.3 Flood Emergency Kit

A Flood Emergency Kit should be prepared prior to a flood event taking place and regularly checked to ensure that supplies within the kit are sufficient and in working condition. This check could occur after the evacuation drill takes place to provide a regular schedule. The Kit should include:

- Radio with spare batteries;
- Torch with spare batteries;
- First aid kit and other medicines;
- Candles and waterproof matches;
- Waterproof bags;
- A copy of the Site's Emergency Management Plan; and
- Emergency contact numbers.

This Emergency Kit should be stored in a waterproof container and is the responsibility of the First Aid Officer.

4.0 Coordination of Flood Response Warnings and Orders

The Building Manager under the direction of the Incident Controller will decide when to issue Flood Response Warnings and Orders for the site.

It is recommended that:

- Flood markers be provided at entry points into the building on Victoria Road, in order to provide an indication of ponding floodwaters approaching the finished floor level; and
- A water level sensor device be provided at the entry point into the basement carpark, in order to provide early flood warning when flood waters approach the basement crest level.

Proposed locations for both measures are shown in Figures 2 and 3.

During heavy rain it will be the responsibility of the Building Manager and the Incident Controller to monitor ponding floodwaters against the flood markers and to make the decision on when to evacuate the ground floor if necessary. The early warning system installed at the entry point to the carpark will be connected to the reception and concierge service and the Incident Controller will need to distribute these warnings to all persons within the basement carparks.

The Incident Controller will initiate a flood response and occupant warning through a Public Address (PA) system including continuous bell that can alert visitors, residents and staff in the event of an emergency.

Flood Response Plan	
<u>Alarm Condition</u>	<u>Recommended actions</u>
1) Local Councils or Bureau of Meteorology issues an alert, advice or warning.	Building staff to observe ponding levels against markers on Victoria Road.
2) Ponding floodwaters rise to 100 mm below finished floor levels on Victoria Road. Flood Water level sensor sends alert	Incident Controller to confirm the ponding is approaching overtopping level.
High flooding level when depth of ponding begins to encroach on finished floor levels on western building frontage (Victoria Road side), or on carpark entry points.	Send an alert and warning message over the PA system confirming a major flood event. Announce that water will soon inundate the building.
	Immediately commence evacuation of all persons within Basement Carpark Levels 1 and 2 and Ground Floor, evacuating them to Level 01 systematically to available areas (breezeway and covered areas of communal gardens).
	Confirm any remaining people in the basement carparks and ground level have been evacuated.

3) Alert will remain in place for approximately 2 hours or such time that the ponding depth recedes	Confirm that there is no ponding within the building. Once floodwater subsides below finished floor level, ground floor and basement carparks to be inspected by the incident controller. Once it has been confirmed that the water level has reduced to a level that will not produce inundation for a period of at least 2 hours and if determined safe the incident controller may announce that all persons can return to ground floor and basement carpark.
4) Flooded areas are to remain off limits until ponding is cleared. The directions of police and SES are to be followed at all times.	

Reviewed & Authorised By
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



Stephen Brain
Technical Director

P:\2018\1813\181392\Reports\TTW\Civil\191107_Flood Response Management Plan.docx

Civil Engineer

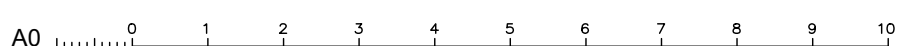
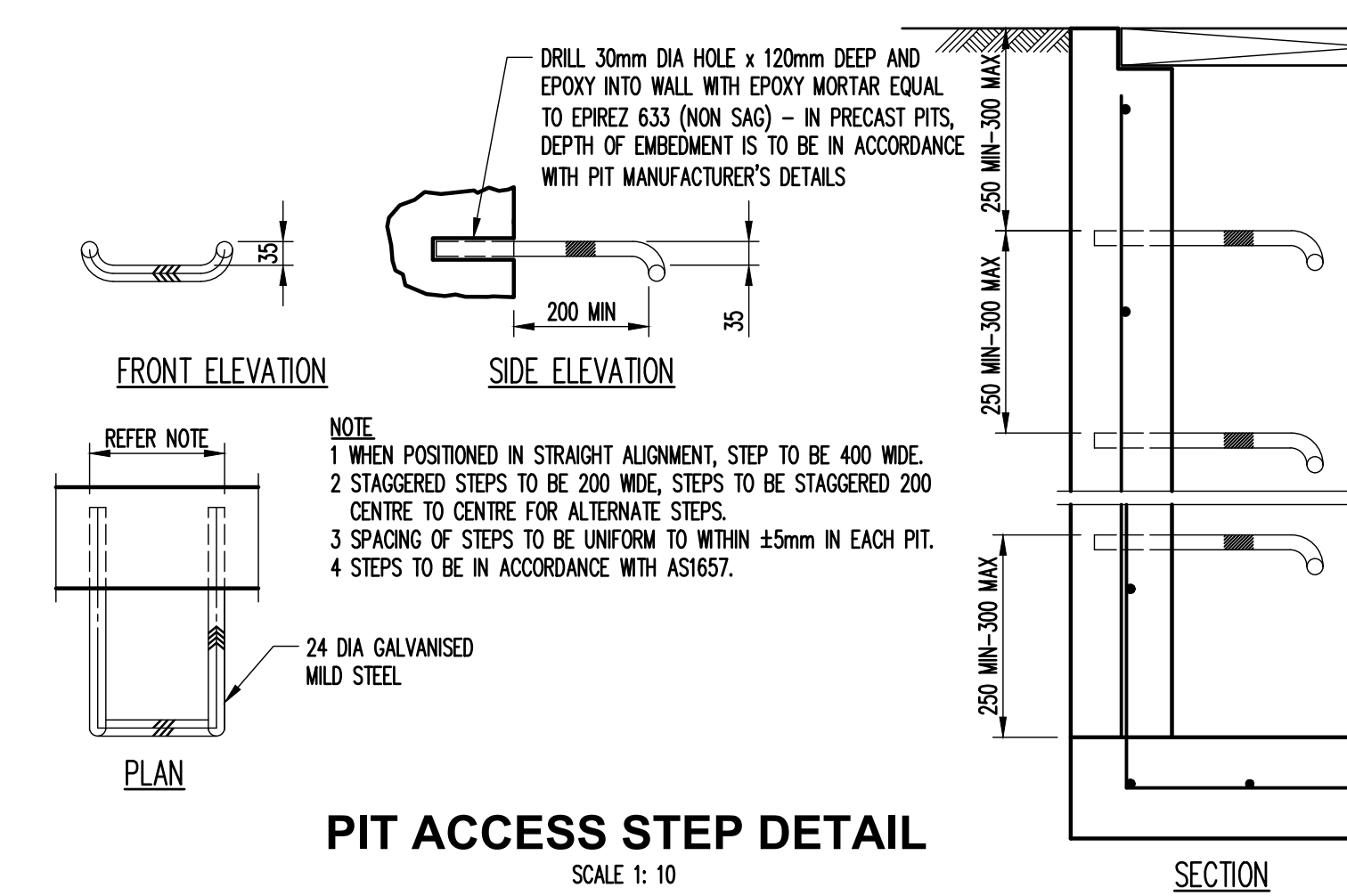
TTW **Taylor
Thomson
Whitting**

612 9439 7288 | 48 Chandos Street St Leonards NSW 2065

Sheet Subject	Scale : A0	Drawn	Authorised
NOTES & LEGEND SHEET	NTS	GG	
Job No		Drawing No	Revision
181392		C-8200-OVR	P2
Plot File Created: Nov 05, 2019 - 4:23pm			

Scale : A0 NTS	Drawn GG	Authorised
Job No 181392	Drawing No C-8200-OVR	Revision P2
Plot File Created: Nov 05, 2019 - 4:23pm		

Scale : A0	Drawn	Authorised
NTS	GG	
Job No	Drawing No	Revision
181392	C-8201-OVR	P2
Plot File Created: Nov 05, 2019 - 4:24pm		



Scale : A0	Drawn	Authorised
NTS	GG	
Job No	Drawing No	Revision
181392	C-8202-OVR	P2
Plot File Created: Nov 05, 2019 - 4:23pm		



Prior to discharge of site stormwater, groundwater and seepage water into Council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environmental consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Council's storm water drainage system. This should include comments from a suitably qualified environmental consultant outlining the suitability of these remedial measures to manage the water discharged from the site into Council's storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from the site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

- 1. All work shall be generally carried out in accordance with:
 - (A) Local authority requirements,
 - (B) EPA / Pollution control manual for urban stormwater,
 - (C) LANCASHIRE – Managing Urban Stormwater: Silt and Pollution Control (Blue Book).
- 2. Erosion and sediment control **drawings and notes** are provided for the contractor to follow. The contractor shall ensure that the design may be required to be modified. Variation to these details may require approval by the relevant authorities.
- 3. The contractor shall implement control measures as implemented and adapted to meet the varying situations as work on site progresses.
- 4. Maintain an erosion and sediment control device to the satisfaction of the local authority and the relevant authorities.
- 5. When stormwater pits are constructed prevent silt runoff entering the pits all wastes all materials are erected around pits.
- 6. Protect all materials at site from erosion and silt.
- 7. Protect all stockpiles of materials from scour and erosion. Do not stockpile materials in roadways, near drainage pits or in watercourses.
- 8. All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit all site conditions.
- 9. Control water from upstream of the site such that it does not enter the site.
- 10. All construction vehicles shall enter and exit the site via the temporary construction haulway.
- 11. Do not transport the site pit to be cleaned and installed before leaving.
- 12. Maintain all stormwater pits and pits clear of debris and sediment. Maintain stormwater system and clean out after each storm event.
- 13. Clean out all erosion and sediment controls before each

Sequence Of Works

1. Prior to commencement of excavation the following soil management devices must be installed.
- 1.1. Construct silt fences below the site and across all potential runoff sites.
- 1.2. Construct temporary construction entry/exit and divert runoff to suitable control systems.
- 1.3. Construct measures to divert upstream flows into existing stormwater system.
- 1.4. Construct sedimentation traps/basins including outlet control and overflow.
- 1.5. Construct top lined swales.
- 1.6. Provide sandbag sediment traps upstream of existing pits.
- 1.7. Construct geotextile filter pit surround around all proposed pits as they are constructed.
- 1.8. On completion of pavement provide sand bag kerb inlet sediment traps to all pits.
- 1.9. Provide and maintain a strip of top soil on both sides of all roads after the construction of kerbs.



SCALE 1:100 0 1 2 3 4 5 m

A0									
	0	1	2	3	4	5	6	7	8
P2 REVISED FOR DESIGN DEVELOPMENT									
P1 FOR DESIGN DEVELOPMENT									
Rev Description	Eng	Draft	Date	Rev Description	Eng	Draft	Date	Rev Description	Eng Draft Date

Architect
TURNER
1 OXFORD STREET,
DARLINGHURST NSW 2010

Civil Engineer

TTW **Taylor
Thomson
Whitting**

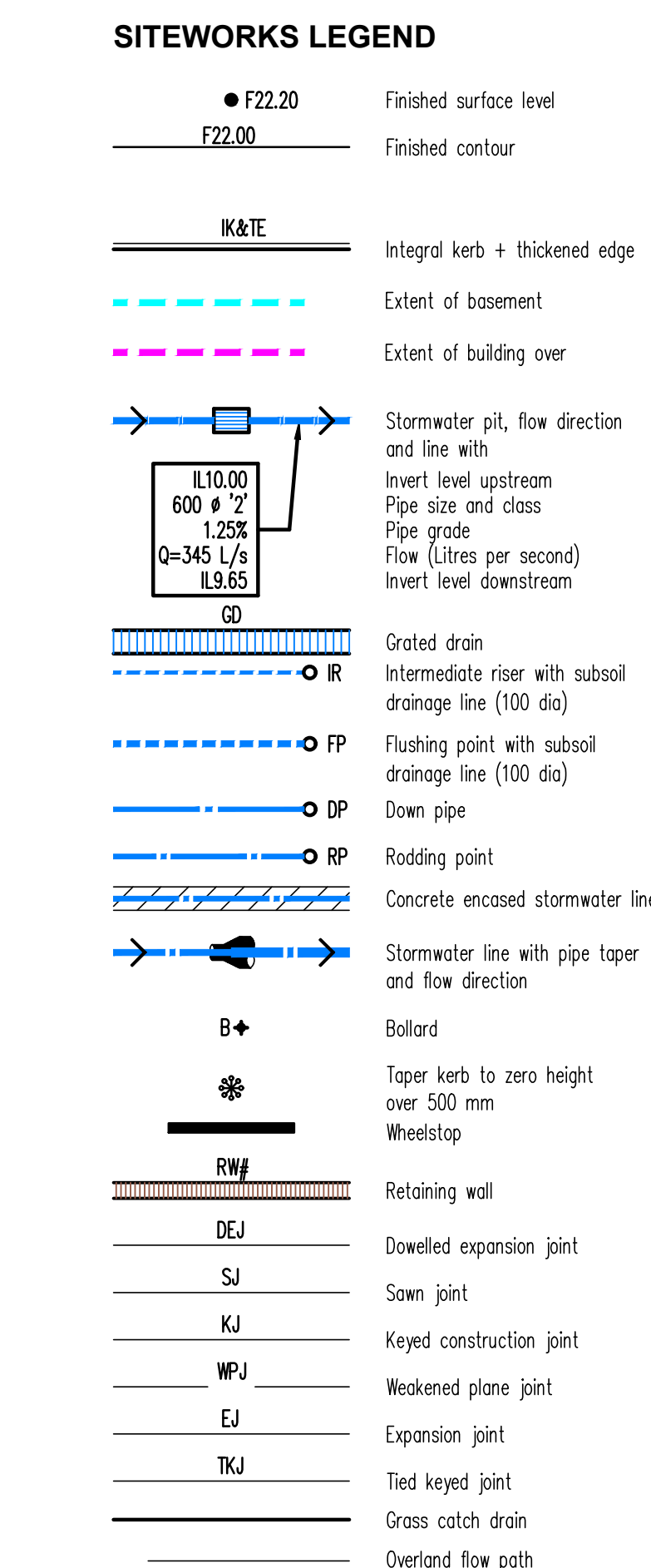
612 9439 7288 | 48 Chandos Street St Leonards NSW 2055

Project
WICKS PARK,
182-198 VICTORIA ROAD,
MARRICKVILLE

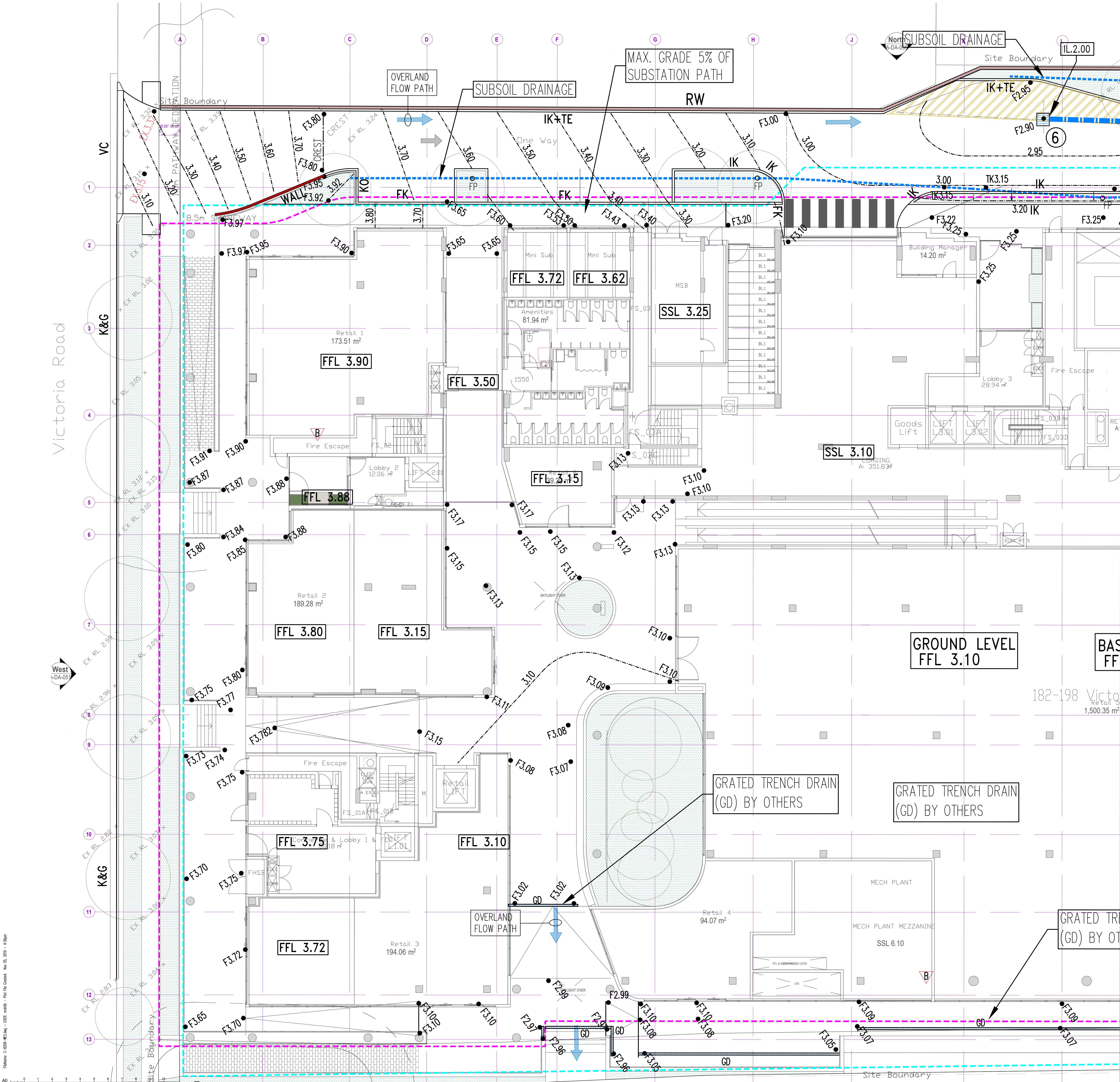
Sheet Subject	EROSION AND SEDIMENT CONTROL PLAN
---------------	--------------------------------------

Scale : A0	Drawn	Authorised
1:200	GG	
Job No	Drawing No	Revision
181392	C-8208-OVR	P2
Plot File Created: Nov 05, 2019 - 4:23pm		

PRELIMINARY



PRELIMINARY



FOR CONTINUATION REFER TO DRAWING N o C-8209-EAS

SITeworks LEGEND

- F22.20 Finished surface level
- F22.00 Finished contour
- K&T Integral kerb + thickened edge
- Extent of basement
- Extent of building over
- Stormwater pit, flow direction and line with: Invert level upstream Pipe size and class Pipe grade Flow (litres per second) Invert level downstream
- Grated drain
- Intermediate riser with subsoil drainage line (100 dia)
- DP Flushing point with subsoil drainage line (100 dia)
- RP Roding point
- Stormwater line with pipe taper and flow direction
- B+ Bollard
- Taper kerb to zero height over 500 mm
- Wheelstop
- Retaining wall
- DEJ Dowelled expansion joint
- SJ Sawn joint
- KJ Keyed construction joint
- EJ Expansion joint
- TKJ Tied keyed joint
- Grass catch drain
- Overland flow path

PRELIMINARY

D	REVISED FOR DESIGN DEVELOPMENT	AL	MB	05.11.19					
C	REVISED FOR DESIGN DEVELOPMENT	AL	JW	06.08.19					
B	REVISED FOR DESIGN DEVELOPMENT	AL	AL	23.07.19					
A	REVISED FOR DESIGN DEVELOPMENT	TH	PM	19.07.19					
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

Architect	TURNER 1 OXFORD STREET, DARLINGHURST NSW 2010
Civil Engineer	Taylor Thomson Whitting
Project	WICKS PARK, 182-198 VICTORIA ROAD, MARRICKVILLE
Sheet Subject	SITeworks AND STORMWATER PLAN
Scale	AD 1:100
Drawn	PM
Authorised	
Job No	181392
Drawing No	C-8209-WES D
Plot File Created	Nov 05, 2019 - 4:56pm

Architect
TURNER
1 OXFORD STREET,
DARLINGHURST NSW 2010

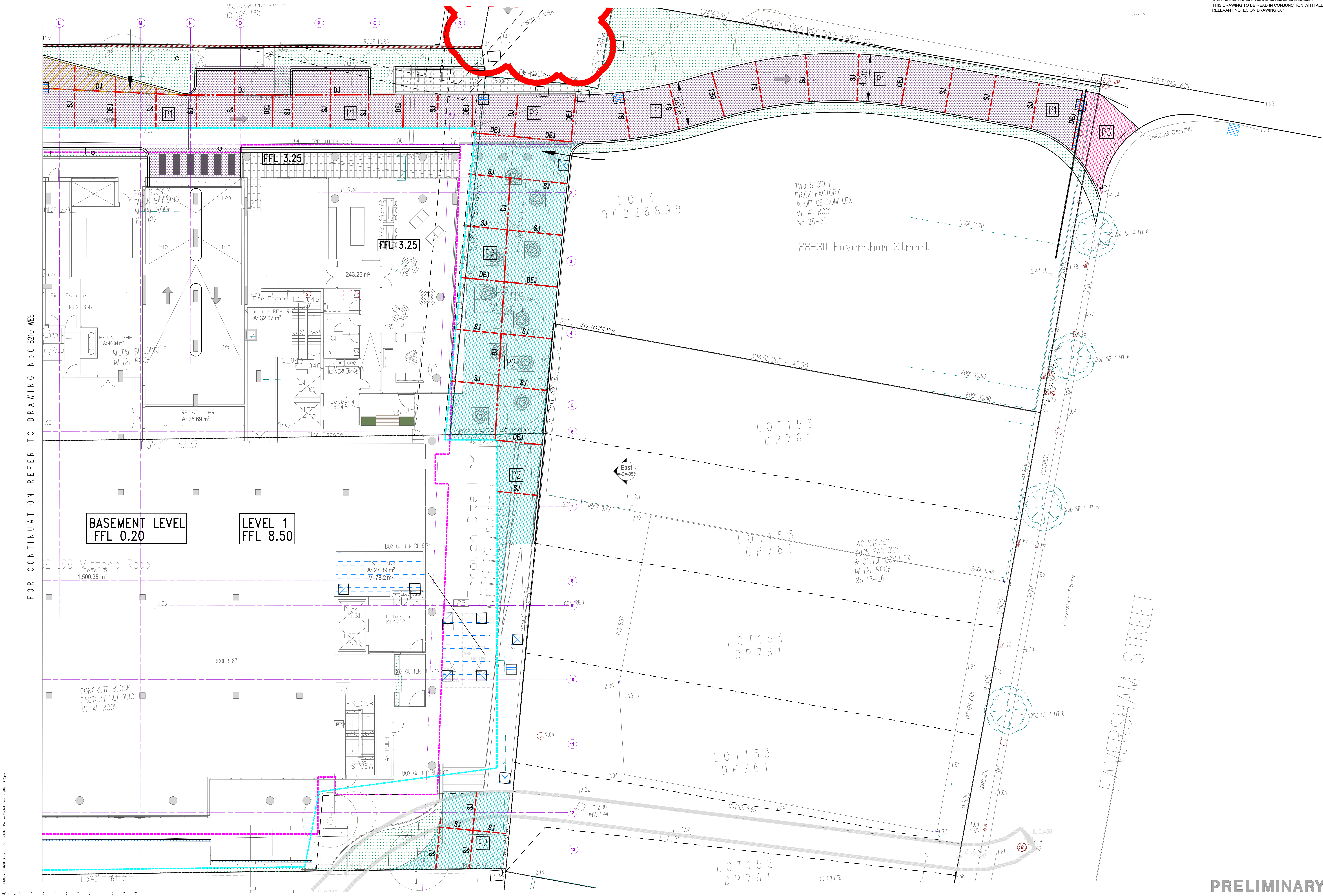
Civil Engineer
TTW Taylor Thomson
Whitting
612 9439 7288 1.48 Chandos Street St Leonards NSW 2055

Project
WICKS PARK,
182-198 VICTORIA ROAD,
MARRICKVILLE

Sheet Subject
SITeworks AND
STORMWATER PLAN

Scale: AD 1:100
Drawn: PM
Authorised:
Job No: 181392
Drawing No: C-8209-WES D
Plot File Created: Nov 05, 2019 - 4:56pm

FOR CONTINUATION REFER TO DRAWING N0C-8210-WES



Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	REVISED FOR DESIGN DEVELOPMENT	AL	MB	05.11.19															
P1	ISSUE FOR REVIEW	AM	MB	05.07.19															

Architect
TURNER
1 OXFORD STREET,
DARLINGHURST NSW 2010

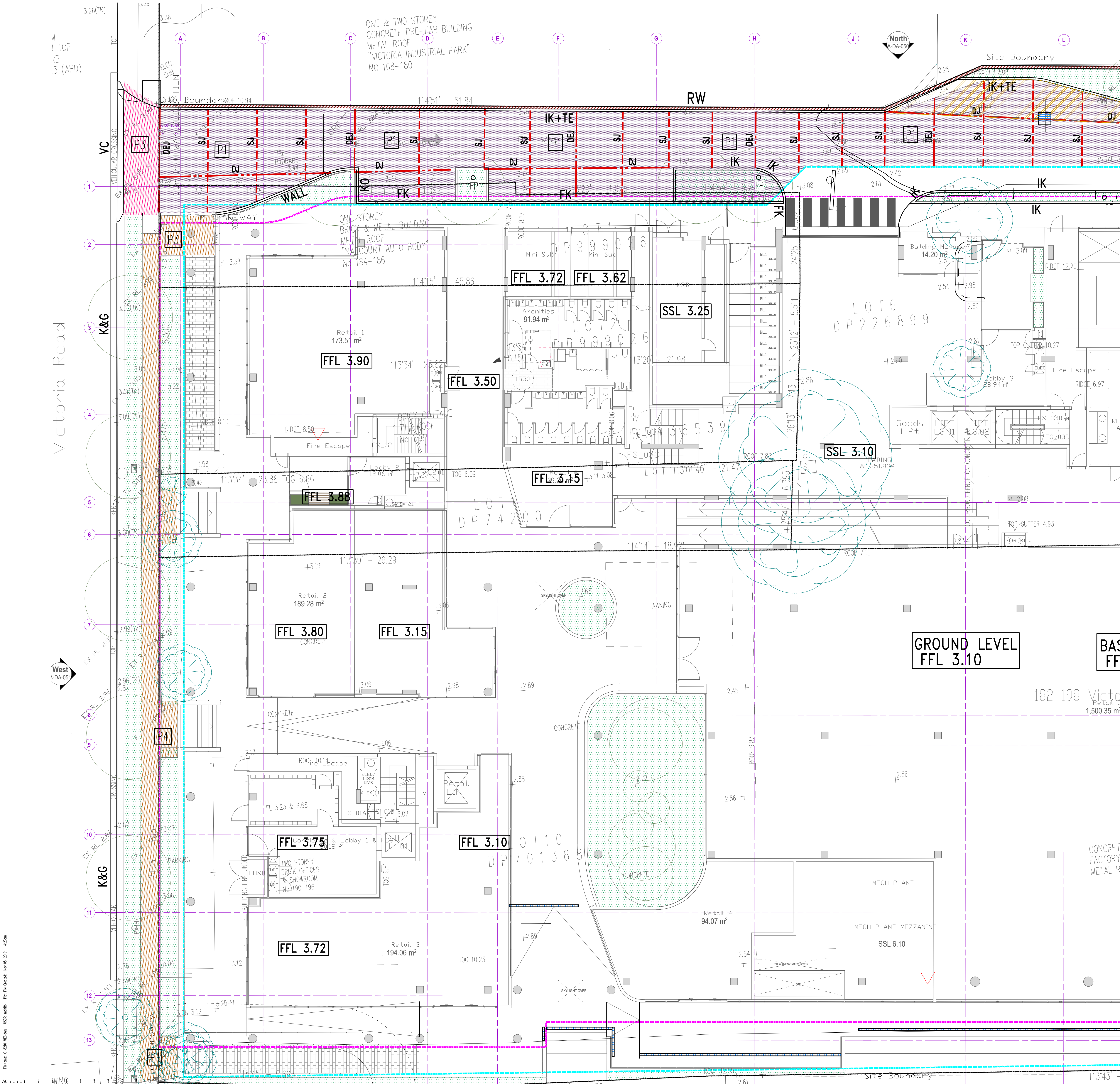
Civil Engineer
TTW Taylor
Thomson
Whitting
612 9439 7288 | 48 Chandos Street St Leonards NSW 2055

Project
**WICKS PARK,
182-198 VICTORIA ROAD,
MARRICKVILLE**

Sheet Subject
**PAVEMENT & JOINTING
PLAN EAST**

Scale: A0
1:100
Drawn
PM
Authorised
Job No
181392
Drawing No
C-8210-EAS
Revision
P2
Plot File Created: Nov 05, 2019 - 4:23pm

PRELIMINARY



PAVEMENT LEGEND

NOTES

- Asphaltic concrete shall conform to AS2150 and the specification
- Pavement based on geotechnical report by

P1 170mm Thickness concrete (f_c=32MPa) with SL72 fabric (40mm top cover) on 150mm Compacted thickness fine crushed rock (D850) on 2% stabilisation

P2 40mm Thickness concrete pavers on 40mm sand bedding on 120 Thickness concrete on 50 sand

P3 200mm Thickness concrete (f_c=32MPa) with SL72 fabric (40mm top cover) on 150mm Compacted thickness fine crushed rock (D850) on 2% stabilisation

P4 100mm Thickness concrete with SL72 fabric (40 top cover) on 50mm sand

JOINTING NOTES

Vehicular Pavement Jointing

- All vehicular pavements to be jointed as shown on drawings
- Keyed construction joints should generally be located at a maximum of 6m centres
- Sawn joints should generally be located at a maximum of 6m centres or 1.5 x the spacing of keyed joints, where key joint spacing is less than 6m, with dowelled expansion joints at maximum of 30m centres
- Provide 10mm wide full depth expansion joints between buildings and all concrete or wall piers
- The timing of the saw cut is to be confirmed by the contractor on site. Site conditions will determine how many hours after the concrete pour before the saw cuts are commenced. Refer to the specification for weather conditions and temperatures required
- Vehicular pavement jointing as follows:

Pedestrian Footpath Jointing

- Expansion joints are to be located where possible at tangent points of curves and at intervals of max 6.0m centres
- Weakened plane joints are to be located at a max 1.5 x width of the pavement
- Where possible joints should be located to match kerbing and / or adjacent pavement joints
- All pedestrian footpath jointings as follows (uno):

SAWN CONTROL JOINT (SJ)

SCALE 1:20

NOTE: REFER TO JOINTING NOTES, POINT 5 FOR TIMING OF SAW CUTS.

DOWELLED EXPANSION JOINT (DEJ)

SCALE 1:20

DOWELLED JOINT (DJ)

SCALE 1:20

FOR CONTINUATION REFER TO DRAWING No C-8210-EAS

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
P2	REVISED FOR DESIGN DEVELOPMENT	AL	WB	05.11.19										
P1	ISSUE FOR REVIEW	AM	AM	05.07.18										

Architect
TURNER
1 OXFORD STREET,
DARLINGHURST NSW 2010

Civil Engineer
TTW Taylor Thomson Whitting
612 9439 7288 | 48 Chandos Street St Leonards NSW 2065

Project
**WICKS PARK,
182-198 VICTORIA ROAD,
MARRICKVILLE**

Sheet Subject
**PAVEMENT & JOINTING
PLAN WEST**

Scale: A0
1:100
Drawn: PM
Authorised:
Job No: 181392
Drawing No: C-8210-WES
Revision: P2
Plot File Created: Nov 05, 2019 - 4:23pm