26 June 2024

85-97 Waterloo Road, Macquarie Park - BTR

SSD 52604208

STORMWATER MANAGEMENT REPORT

CLIENT/ GOODMAN

DATE/ 26/06/2024

CODE/ 23-1081

Commercial in Confidence

Document Registration

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Issue	Description	Date	Author	Checked	Approved
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Contents

1. Introduction

This civil report is submitted to the Department of Planning and Environment (DPE) in support of a State Significant Development Application (SSDA) (SSD-52604208) for a new build-to-rent housing (BTR) development at 85-97 Waterloo Road, Macquarie Park (the site).

The proposed development will specifically comprise the following:

- Site preparation and excavation;
- Construction of a new build-to-rent development comprising six new BTR buildings ranging between 11 to 22 storeys and a new 4 storey amenities building, known as the 'Club House'. Specifically, the following is proposed:
  - 3,079m^2 of non-residential floor area at ground level, including commercial and retail uses,
  - 57.473m^2 of build-to-rent housing
  - 736 no. dwellings/apartments
  - 4.581m^2 of communal residential amenity facilities located throughout the building.
  - 670 no. car parking spaces
  - 84 no. bicycle spaces
  - 0 no. motorcycle spaces (not required under DCP)
- Provision of a new public park at the centre of the site as well as several through site links to facilitate activation and pedestrian movement throughout the site.
- Shared basement carparking, comprising a total of 670 car parking spaces, 84 bicycle spaces, and 0 motorcycle spaces.
- Vehicular access for residential and retail uses is provided from both Banda Road and Khartoum Road, while loading services can only be accessed via Banda Road.
- Associated landscaping and public domain works; and
- Augmentation of, and connection to, existing utilities as required.

AT&L have been engaged by Goodman to prepare a State Significant Development Application (SSDA) Stormwater Management Report on the civil and stormwater management requirements for the proposed development.

2. Relevant SEARS

This civil report addresses the following relevant Secretary's Environmental Assessment Requirements (SEARs) set out in the Table 1 below.

Table 1 Secretary's Environmental Assessment Requirements relevant to this Report

SEARS	Location in Report
14. Water Management *• Provide an Integrated Water Management Plan for the development that:* • *is prepared in consultation with the local council and any other relevant drainage or water authority.* • *outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provision).* • *o details the proposed drainage design (stormwater and wastewater) for the site including any on-site treatment, reuse and detention facilities, water quality management measures and nominated discharge points.* • *demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.* *Where drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards of, the local council or other drainage or water authority.*	Section 5 Refer to AT&L drawing series 2000 for SSDA stormwater drawings. Proposed stormwater system inside the site will connect into the existing road stormwater surrounding the site. Stormwater generated within the proposed site has been designed to be treated to CoR water treatment rates through the use of proprietary treatment devices and discharged at rates acceptable to CoR. The proposed development will also incorporate the use of an On Site Detention Tank to assist with the CoR discharge rates. A rainwater tank will also be utilised to reduce the sites potable water demand.
15. Flooding Risk • *Identify any flood risk on-site having regard to adopted flood studies, the potential effects of climate change, and any relevant provisions of the NSW Floodplain Development Manual.* • *Assess the impacts of the development, including any changes to flood risk on-site or off-site, and detail design solutions and operational procedures to mitigate flood risk where required.*	Section 6 1% AEP and the PMF appears to be contained within Waterloo Road as per the Macquarie Park Catchment Study for the City of Ryde Council. All Finished Floor Levels and building entrances are set or above the relevant Flood planning Level

3. Site Location and Context

The site is located at 85-97 Waterloo Road, Macquarie Park and is within the City of Ryde Local Government Area. The site is legally described as Lot 1 in DP 1259121 and Lot 2 in DP 1249920 and has a total area of approximately 21,730sqm. It is owned by Goodman and currently comprises the Macquarie Corporation Centre.

The site is situated within the Waterloo Park Precinct under the Macquarie Park Place Precinct Strategy. It is located approximately 350m south of the Macquarie University Station and 750m north-west of the Macquarie Park Metro Station. A summary of the surrounding development is provided below:

- North-east: The site is bounded by Banfield Road to the immediate north-east. Generally, the development to the north-east comprises commercial, light industrial and business park uses.
- South-east: The site is bounded by Khartoum Road to the south-east. Beyond that is a range of commercial and light industrial uses for a range of tenants. Further and approximately 750m south-east is the Macquarie Park Metro Station.
- North-west: The site is bounded by Banda Road to the north-west. Immediately across from the site is a high-density residential development. Further north-west is the Macquarie Centre, and Macquarie University Metro Station and Campus (350m).
- South-west: The site is bounded by Waterloo Road to the south-west. Directly adjacent to the road and opposite the site are a range of development uses, including residential, commercial, retail, and light industrial.

Figure 1 below provides an aerial context map of the site.

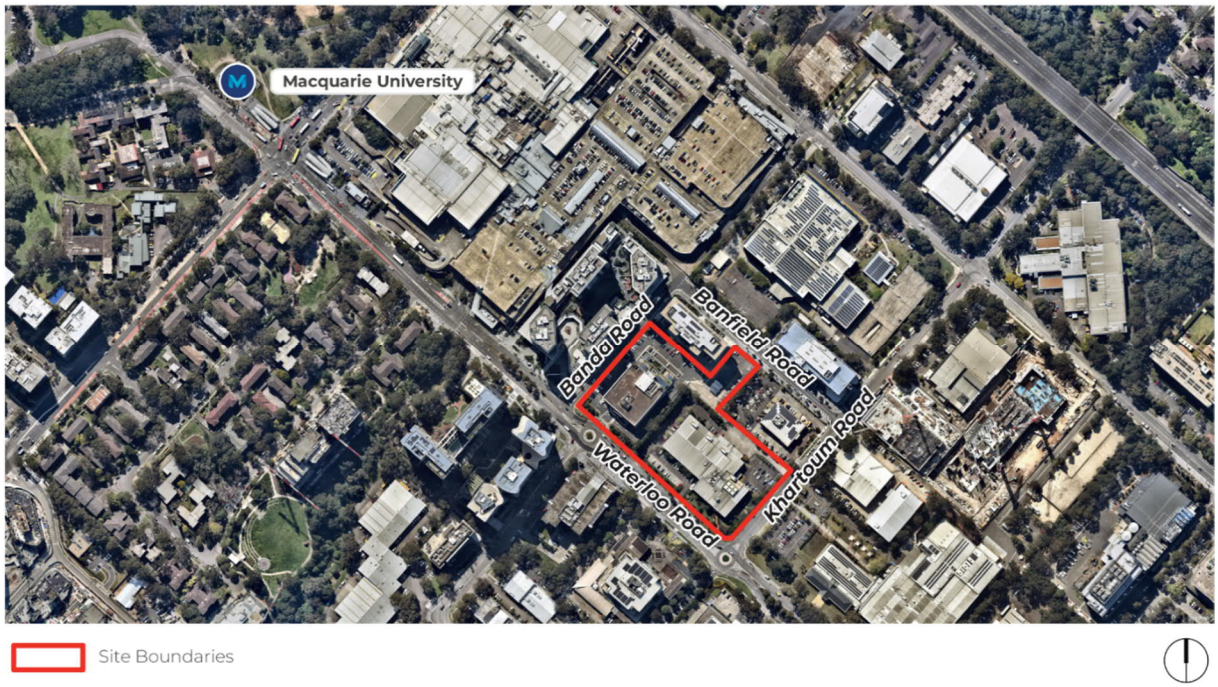


Figure 1 Aerial Context Map

Source: Nearmap / Ethos Urban

4. Stormwater Management (Quantity)

I. Council Requirements & Recommendations

OSD will be provided to ensure the discharge from the site is at a rate which surrounding stormwater system is capable of accommodating.

The proposed development falls within the City of Ryde with the following criteria to be applied:

- Design Storms – 5 and 100-year ARI; and
- Permitted Site Discharge (PSD) – 100-year ARI peak flow is to not exceed the pre-developed site discharge for the 5-year ARI.

As per City of Ryde DCP:

- Part 8.2 Stormwater Management Technical Manual
- Part 8.2 Stormwater and Floodplain Management

The site straddles two catchments and is divided by a high point running southeast to northwest.

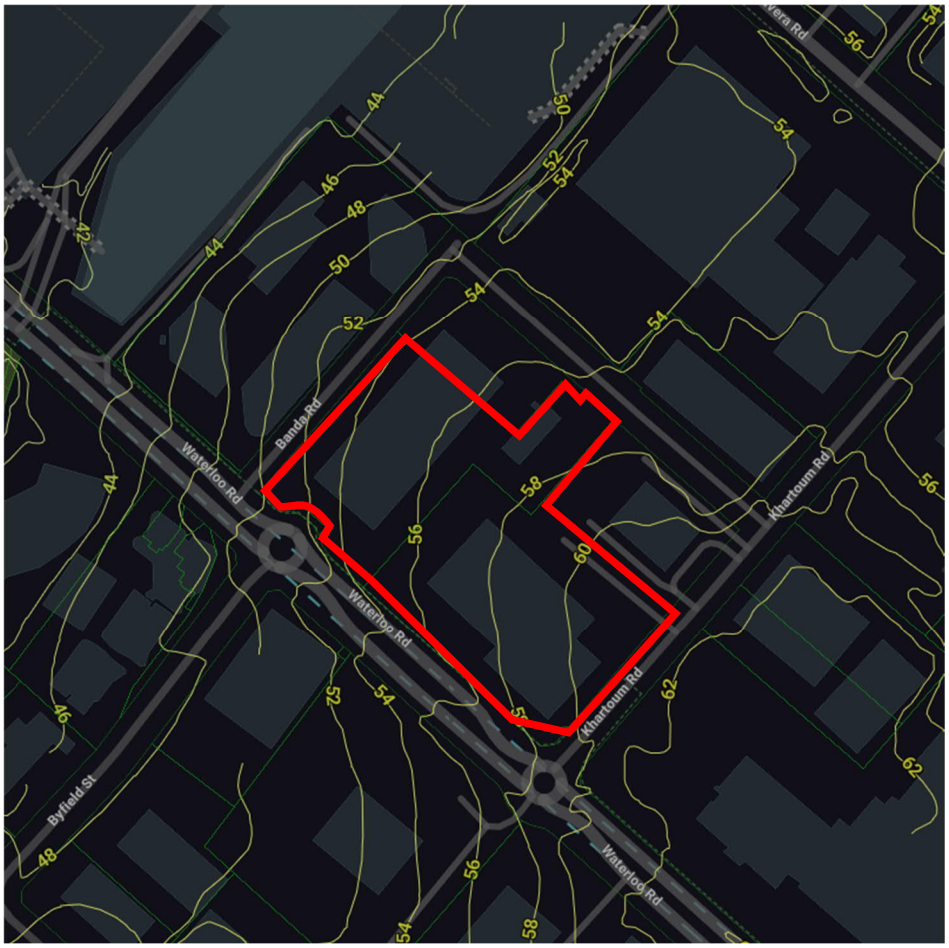


Figure 2 Contour Map (Mecone)

The site is bounded by:

- Banda Road on the northwest; Civil and drainage works have been designed by Northrop (ref: 161294) and works have been completed.
- Banfield Road on the northeast;
    - Civil and drainage works (from Khartoum Road to 4 Khartoum Road frontage) haven been designed by Northrop (ref: 151073) and works have been completed.
    - Civil and drainage works (from 97 Waterloo Road to Banda Road frontage) haven been designed by AT&L (ref: 16-420) and works have been completed.

A drains analysis has been conducted, incorporating all upstream catchment and drainage works completed above. Key findings are summarised below:

- Banda Road has been graded to fall towards northeast where it meets Banfield Road and terminates at a turning head which acts as a low point capturing all upstream catchment. A series of DN375mm stormwater pipes have been provided along Banda Road, which were then upsized to DN900mm after merging with Banfield road drainage. Therefore, the Banda Road drainage system is not sufficiently sized for the subject 85-97 Waterloo Road at the intended point of connection.
- Banfield Road has been graded to follow existing topography and fall towards northwest where it meets Banda Road. A series of DN375mm stormwater pipes have been provided along Banfield Road, which were then gradually upsized to DN900mm prior merging with Banda Road drainage.
- To better utilise the existing drainage infrastructure that is available, two OSD tanks are proposed, and the main goal is to drain as much catchment to Banfield Road as possible and to not overload the Banda Road system:
    - OSD 1 is located on the northeast under the landscape area adjacent Banfield Road pedestrian entry, capturing majority of the site and discharging into the Banfield Road drainage system.
    - OSD 2 is located on the northwest under the driveway from Banda Road, capturing remaining catchment and discharging into the Banda Road drainage system.
- All inlet pits haven been modelled with blockage factors as per City of Ryde DCP Part 8.2 Stormwater Management Technical Manual.
- Tail water levels from Northrop's Banda Road design have been adopted.
- Drains model demonstrates that
    - At the downstream catchment outlet (turning head with DN900mm drainage pipe), all the upstream catchments, including the subject site, have been conveyed to the pipe system, even in the 1% AEP storm.
    - The overland flow path past the turning head towards northwest to Macquarie shopping centre is not practically in use even in the 1% AEP storm.

Refer Appendix C for Drains Model.

II. OSD Requirement

The Drains model has also been used to design the OSD and to mitigate peak flows from the 5-year ARI storm event up to and including 100-year ARI storm event.

ARI (Year)	Pre-Development Flow (m^3/s)	OSD 1 Post-Development Flow (m^3/s)	OSD 2 Post-Development Flow (m^3/s)	Combined Site Post-Development Flow (m^3/s)
5	0.565	0.293	0.075	0.368
100	1.080	0.42	0.117	0.544

Table 2 – Proposed Site Discharges

III. Proposed OSD Tank Details

OSD 1 is located on the northeast under the landscape area adjacent Banfield Road pedestrian entry, capturing majority of the site and discharging into the Banfield Road drainage system.

OSD 2 is located on the northwest under the driveway from Banda Road, capturing remaining catchment and discharging into the Banda Road drainage system.

The outlet pipes from the tank will connect into the existing/proposed stormwater system surrounding the development.

Catchment to Tank (ha)	OSD Volume (Min.) (m^3)	Primary Outlet	Secondary Outlet
1.871	418.9m^3	440mm orifice plate	Emergency overflow via grate
0.302	37.1	250mm orifice plate	Emergency overflow via grate

Table 3 – OSD Volumes

Refer Appendix A for Civil Drawings and Appendix C for Drains Model.

5. Stormwater Management (Quality)

I. Water Sensitive Urban Design (WSUD)

Water Sensitive Urban Design (WSUD) encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and to achieve more sustainable forms of urban development.

All stormwater runoff from the buildings, internal landscape and hardstand areas will be directed into water quality treatment devices.

Proprietary treatment devices will treat the water to satisfy City of Ryde Council's (CoR) water quality requirements, as per City of Ryde DCP 8.2: Water Sensitive Urban Design Guidelines. These devices have been modelled as Ocean Protect Stormfilters and Ocean Protect Oceanguards.

By utilising these treatment devices, stormwater draining from the development will meet the required CoR water quality treatment rates before discharging into the existing surrounding street stormwater network.

II. WSUD Modelling - Music Model

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC X) was used to evaluate pollutants loads from the site.

1.1.1. Catchment Areas and Music Parameters

MUSIC model input parameters for this site included rainfall-runoff, base-flow concentration and storm-flow concentration parameters. The parameters used for the catchment area(s) can be seen in Table 4.

		Urban Mixed	Urban Sealed Road	Urban Roof
Parameter	Unit	Figure	Figure	Figure
Rainfall Threshold	mm/day	1.40	1.00	1.00
Soil Storage Capacity	mm	170.00	120.00	120.00
Initial Storage	% of Capacity	30.00	25.00	25.00
Field Capacity	mm	70.00	80.00	80.00
Infiltration Capacity Coefficient	a	210.00	200.00	200.00
Infiltration Capacity Coefficient	b	4.70	1.00	1.00
Initial Depth (Ground Water)	mm	10.00	10.00	10.00
Daily Recharge Rate	%	50.00	25.00	25.00
Daily Baseflow Rate	%	4.00	5.00	5.00
Daily Seepage Rate	%	0.00	0.00	0.00

Table 4 - Rainfall-Runoff Parameters –Catchment Areas

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.150	0.320
Phosphorus	-0.850	0.190	-0.600	0.250
Nitrogen	0.110	0.120	0.300	0.190

Table 5: Base Flow/Stormflow Concentration Parameters – Urban Mixed Areas

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.430	0.320
Phosphorus	-0.850	0.190	-0.300	0.250
Nitrogen	0.110	0.120	0.340	0.190

Table 6: Base Flow/Stormflow Concentration Parameters – Urban Sealed Road Areas

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.430	0.320
Phosphorus	-0.850	0.190	-0.300	0.250
Nitrogen	0.110	0.120	0.340	0.190

Table 7: Base Flow/Stormflow Concentration Parameters – Urban - Roof

1.1.2. MUSIC model properties

MUSIC model input parameters for the SF Chamber and StormFilter are shows in below.

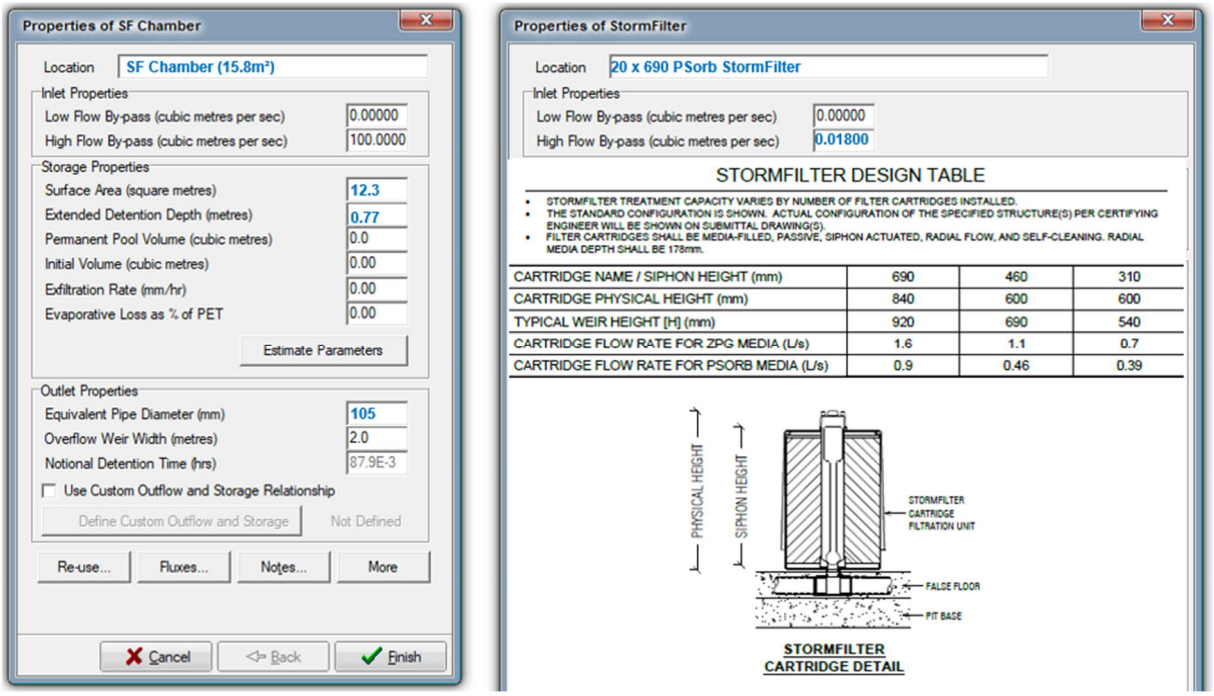


Figure 3 OSD 1 Stormfilter parameters

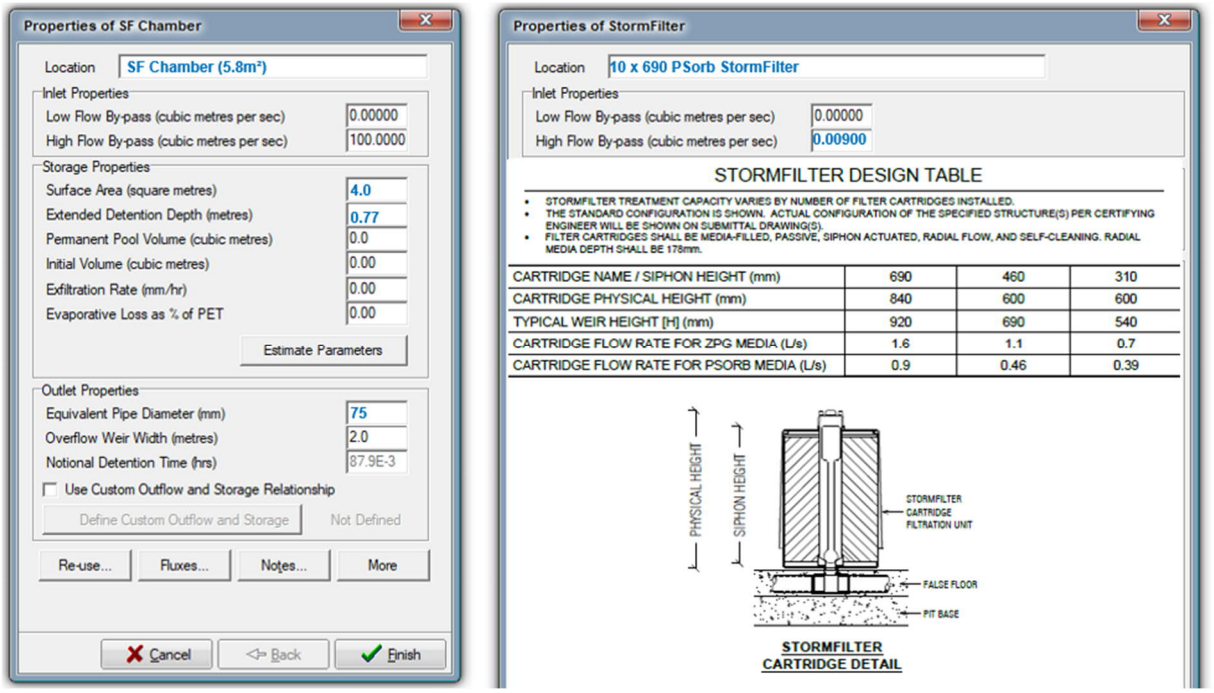


Figure 4 OSD 2 Stormfilter parameters

III. Results

MUSIC modelling results are presented as mean annual loads at the receiving node indicate that adopted target reductions (as per the CoR Technical Specification Section 8.2 Water Sensitive Urban Design Guidelines) are achieved, as shown in below.

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	2028	294.4	85.48	85
Total Phosphorus	4.358	1.294	70.3	60
Total Nitrogen	43.08	20.64	52.09	45
Gross Pollutants	506.8	0	100	90

Table 8 – Overall Site Pollutant Loads

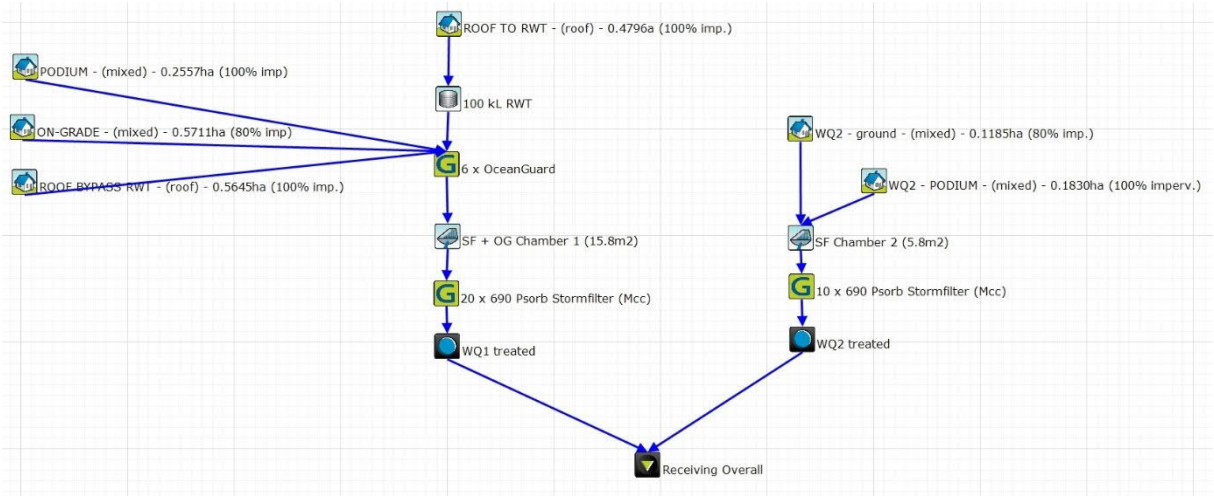


Figure 5 WSUD layout

In order to achieve these reductions, a treatment train approach will be implemented into the proposed development where the stormwater treatment flow path for runoff would be:

Runoff from all areas will be collected within a piped system and discharge into proprietary treatment devices to ensure the pollutants are filtered and treated). Stormwater devices include:

- Ocean Protect Oceanguard;
- Ocean Protect Stormfilters;

Refer Appendix A for Civil Drawings and Appendix B for Music Model.

IV. Rainwater Tank

A rainwater tank of 100kL has been modelled to collect clean-roof area which will be utilised to irrigate common landscape areas. The catchment area servicing this proposed rainwater tank and location of tank are shown on drawing DAC2501 located within Appendix B.

Water re-use has been modelled as 0.4 kL/year/m2 and at 80% capacity as PET-rain within the MUSIC model. In accordance with Section 8.8.2b of the City of Ryde Water Sensitive Urban Design music Modelling Guidelines, this demand has been based on the requirements of other Councils irrigation requirements within the Sydney basin (Blacktown and Penrith City Council.

V. Ocean Protect Maintenance

The maintenance frequency of the Ocean Protect Oceanguard/Stormfilters is dependent upon several factors:

- Catchment area;
- Surrounding land use;
- Vegetation type;
- Traffic loading; and
- Rainfall patterns.

It is recommenced that during the first year of operation the units should be monitored monthly, with maintenance as required.

To ensure that the unit performs optimally, the material collected via the filter bag should be emptied when the level of material is no more than approximately half to two thirds of the total bag depth or when there is evidence of material overflow.

Additional monitoring should be conducted following moderate to extreme rainfall events when preceding months have had little to no rainfall. This monitoring is considered necessary to accommodate for higher volumes of runoff generated during major rainfall events. It is anticipated greater accumulation of surface contamination during low rainfall periods and to ensure that the units have been damage due to high pipe velocities.

Upon completion of Oceanguard maintenance the monitoring/maintenance checklist is to be completed and kept for records, as per Ocean Protect manufacturers guidelines.

Unit	Inspection/Minor Maintenance (Months)	Major Maintenance (Times/Year)
Oceanguard	1 (and after major storms)	2-6 (expect in case of a spill)

Table 9 – Oceanguard Maintenance

Unit	Inspection/Minor Maintenance (Months)	Major Maintenance (Times/Year)
Stormfilter	6/12 (and after major storms)	As required

Table 10 – Stormfilter Maintenance

VI. Hydrology

- Pipe drainage shall be designed to accommodate the 5% AEP storm event in accordance with City of Ryde Council requirements (where possible);

- The combined piped and overland flow paths shall be designed to accommodate the 1% AEP storm event.
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 1% AEP storm event shall be provided. Alternatively, the pipe and inlet system may be upgraded to accommodate the 1% AEP storm event;
- Rainfall intensities are as per the Bureau of Meteorology Website (sourced 24th June 2024) ARR2016 IFD for
    - 33.7793 South; and
    - 151.1223 East.
- Times of concentration for each sub catchment shall be determined using the kinematic wave equation. Minimum time of concentration is 5 mins and the maximum is 20 mins. Runoff coefficients shall be calculated in accordance with AR&R 2019. The fraction impervious shall be determined from analysis of the sub catchments;
- Runoff coefficients shall be calculated in accordance with the AR&R 2019. The fraction impervious shall be determined from analysis of the sub-catchments;
- Flow width in gutter shall not exceed 2.0m for the minor design storm event.
- Velocity depth ratios shall not exceed 0.4 for all storms up to and including the 1% AEP event.
- Bypass from any pit on grade shall not exceed 15% of the total flow at the pit;
- Blockage factors of 10% and 30% shall be adopted for kerb inlet and grated pits respectively, and 50% for sag pits.

VII. Hydraulics

- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design. The HGL shall be shown on all drainage long sections;
- The minimum pipe size shall be 375mm diameter RCP (external) and 150mm uPVC (internal);
- Maximum spacing between pits shall not exceed 75m;
- The minimum pipe grade shall be 1% (external) and 0.5% (internal);
- All pipes shall be Rubber Ring Jointed unless noted otherwise;
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways;
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased;
- All trafficable pipes shall be a minimum Class 4 Reinforced Concrete Pipes or Fibre Reinforced Cement equivalent;
- All pipes classes shall be designed for the ultimate service loads and where applicable, construction loads will be designed for;
- Pipes discharging to the overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level or flooding level provided by others;
- Pit Loss coefficients shall be calculated in accordance with Missouri Charts;
- A minimum 150mm freeboard shall be maintained between pit HGL and pit surface levels;
- Overland flowpaths shall maintain a minimum of 300mm freeboard to all habitable floor levels; and
- Pits deeper than 1.2m shall contain step irons at 300 mm centers.

VIII. Modelling Software

MUSIC modelling software has been used to evaluate pollutant loads from generated by the stormwater runoff for the proposed development. MUSIC data files and output results are attached in Appendix B.

DRAINS modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the proposed stormwater pipes and OSD.

DRAINS is a computer program used for designing and analysing urban stormwater drainage systems and catchments. It is widely accepted by Council's across NSW as the basis for stormwater design and has been confirmed by the CoR as the preferred stormwater software analysis package.

6. Overland Flows and Flooding

All property drainage will be designed to the 5% AEP (where possible) with all overland flow paths designed to the 1% AEP.

Overland flow paths have been designed in conjunction with the existing/proposed road network/public domain levels to protect all buildings and ensure freeboards are achieved for habitable ground floor levels to CoR flooding requirements.

AT&L was engaged by Goodman to provide an assessment of the compliance of the proposed development with the flood related development controls applicable under the CoR standards and guidelines.

Based upon council' flood letter D24/87929 dated 25.06.2024, the proposed development is:

- Generally located outside both the 1% AEP and PMF storm event, with flows restricted to the existing road reserve within Waterloo Road. Noting there is very localised ponding of site generated flood water within the existing pavement hardstand along the frontage of Waterloo Road, which will be removed as part of the development works

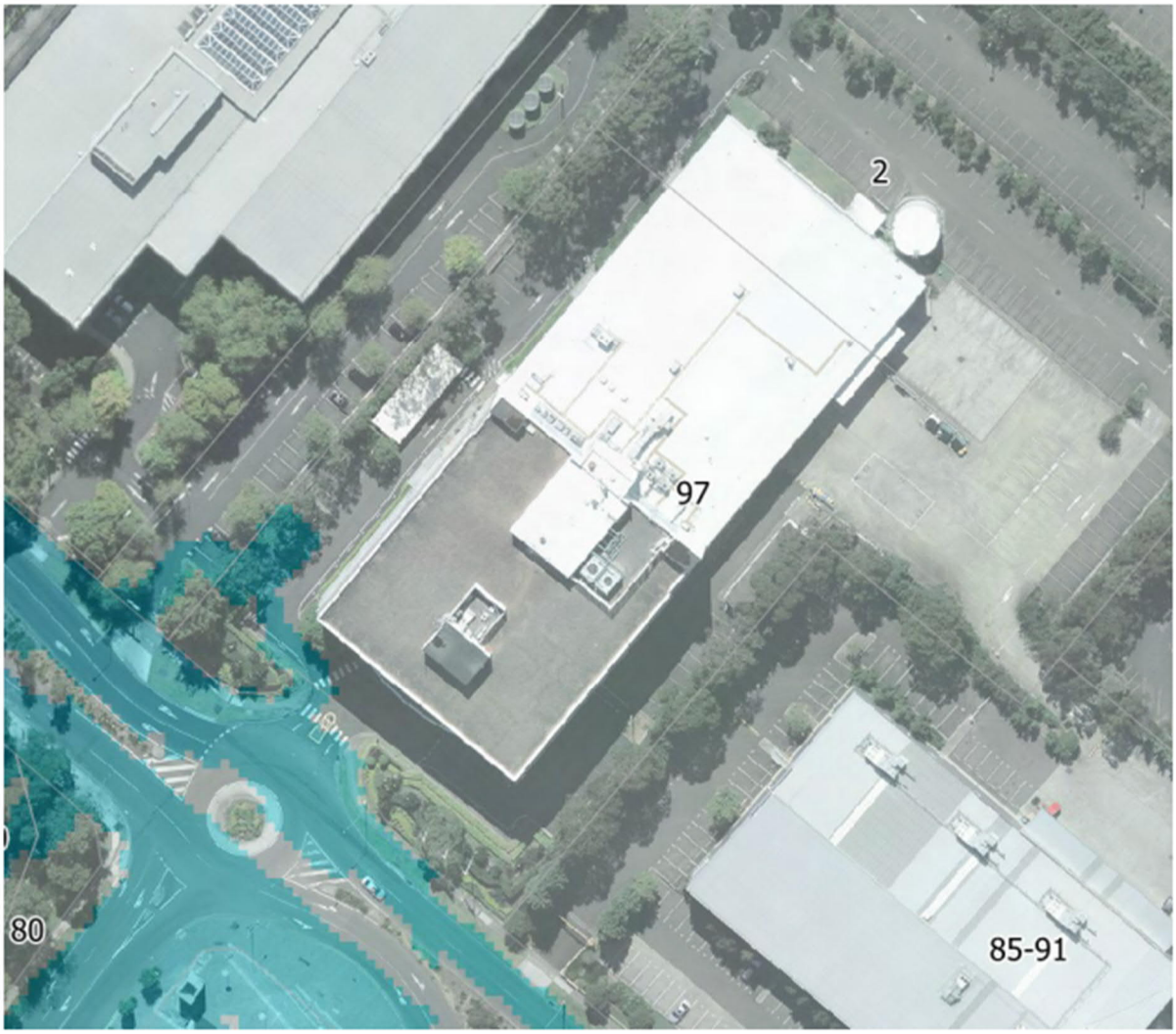


Figure 2 1% AEP Flood Event (City of Ryde)

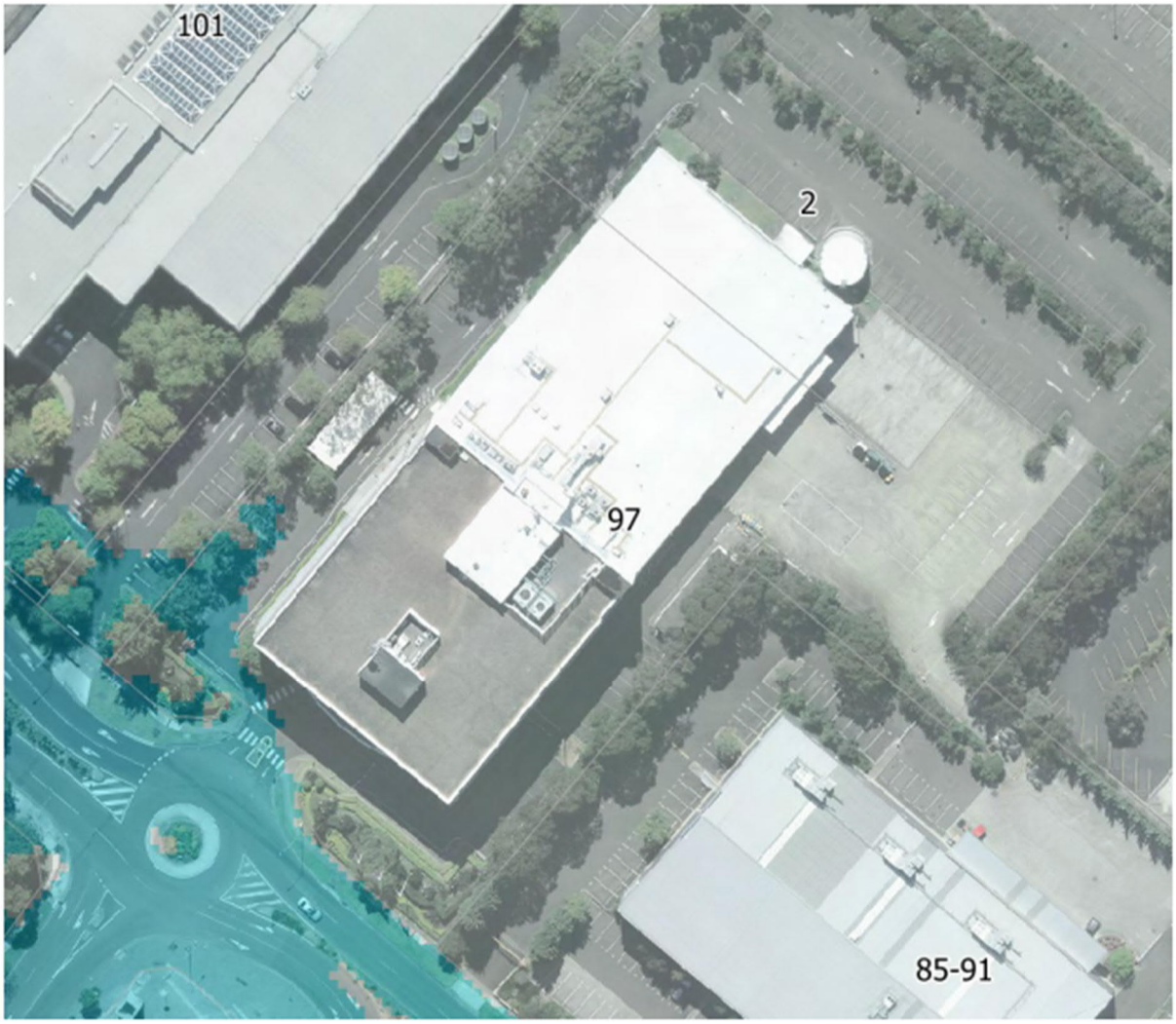


Figure 3 PMF Flood Event (City of Ryde)

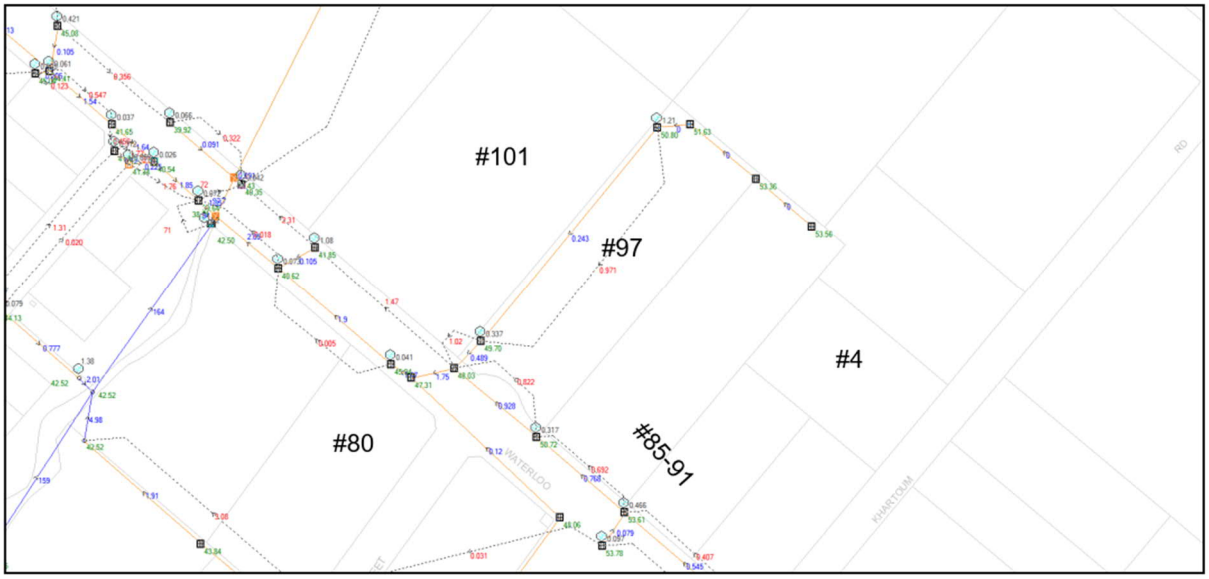


Figure 3 Drains model (City of Ryde)

Based upon council's drains model and flood maps above, council's flood study has not been updated to cover the newly completed civil and drainage works within Banda Road and Banfield Road.

An updated flood assessment considering current conditions is required at detailed stage to provide advice on flood planning levels. Habitable and non-habitable building floors shall be designed in accordance with the following Council DCP requirements:

- Habitable floors (Overland flow and low risk) = 1% AEP flood level + 300mm
- Habitable floors (Medium to high risk) = 1% AEP flood level + 500mm
- Non-habitable floors (Overland flow and low risk) = 1% AEP flood level + 150mm
- Non-habitable floors (Medium to high risk) = 1% AEP flood level + 300mm

7. Sedimentation and Erosion Control

I. Sedimentation and Erosion Control (Construction)

Soil and Water Management Plans (SWMP) has been prepared in accordance with the NSW Department of Housing Publication titled: Managing Urban Stormwater- Soils and Construction (2004) and the relevant CoR guidelines for the whole site.

II. Sources of Pollution

The activities and aspects of the works that have potential to lead to erosion, sediment transport, siltation and contamination of natural waters include:

- Earthworks undertaken immediately prior to rainfall periods;
- Work areas that have not been stabilised;
- Extraction of construction water from waterways during low rainfall periods;
- Clearing of vegetation and the methods adopted, particularly in advance of construction works;
- Stripping of topsoil, particularly in advance of construction works;
- Bulk earthworks and construction of pavements;
- Works within drainage paths, including depressions and waterways;
- Stockpiling of excavated materials;
- Storage and transfer of oils, fuels, fertilisers and chemicals;
- Maintenance of plant and equipment;
- Ineffective implementation of erosion and sediment control measures;
- Inadequate maintenance of environmental control measures; and
- Time taken for the rehabilitation / revegetation of disturbed areas.

III. Potential Impacts

The major potential impacts on the riparian environment relate to erosion of distributed areas or stockpiles and sediment transportation. Potential adverse impacts from erosion and sediment transportation can include:

- Loss of topsoil;
- Increased water turbidity;
- Decreased levels of dissolved oxygen;
- Changed salinity levels;
- Changed pH levels;
- Smothering of stream beds and aquatic vegetation;
- Reduction in aquatic habitat diversity;
- Increased maintenance costs; and
- Decrease in waterway capacity leading to increased flood levels and durations.

IV. Construction Methodology

The following construction methodology will be followed to minimise the impact of sedimentation due to construction works:

- Diversion of “clean” water away from the disturbed areas and discharge via suitable scour protection;
- Diversion of sediment-laden water into temporary sediment control basins to capture the design storm volume and undertake flocculation (if required);
- Provision of construction traffic shaker grids and wash-down to prevent vehicles carrying soils beyond the site;
- Provision of catch drains to carry sediment-laden water to sediment basins;
- Provision of silt fences to filter and retain sediments at source; and

- Where future construction and building works are not proposed, the rapid stabilisation of disturbed and exposed ground surfaces with hydro-seeding.

V. Site Inspection and Maintenance

The inspection and maintenance requirements outlined in this section must be carried out while either earthworks or quarrying is being conducted, and all areas re-established.

The Contractor will be required to inspect the site after every rainfall event and at least weekly, and will:

- Inspect and assess the effectiveness of the SWMP and identify any inadequacies that may arise during normal work activities or from a revised construction methodology. Construct additional erosion and sediment control works as necessary to ensure the desired protection is given to downstream lands and waterways;
- Ensure that drains operate properly and to effect any repairs;
- Remove spilled sand or other materials from hazard areas, including lands closer than 5 metres from areas of likely concentrated or high velocity flows especially waterways and paved areas;
- Remove trapped sediment whenever less than design capacity remains within the structure;
- Ensure rehabilitated lands have affectively reduced the erosion hazard and to initiate upgrading or repair as appropriate;
- Maintain erosion and sediment control measures in a fully functioning condition until all construction activity is completed and the site has been rehabilitated; and
- Remove temporary soil conservation structures as the last activity in the rehabilitation.

VI. Conclusion

The erosion control measures proposed for the site will comply with the requirements of City of Ryde (DCP 8.1 Construction Activities) and The Department of Environment, Climate Change and Water (DECC) Blue Book.

The proposed SWMP will ensure that the best management practice is applied to the development site in controlling and minimising the negative impacts of soil erosion.

Proposed Mitigation measures include but not limited to:

- Perimeter sediment fences
- Shaker grid at construction vehicular access
- Stormwater Pit Socks

Appendix A – Civil Drawings

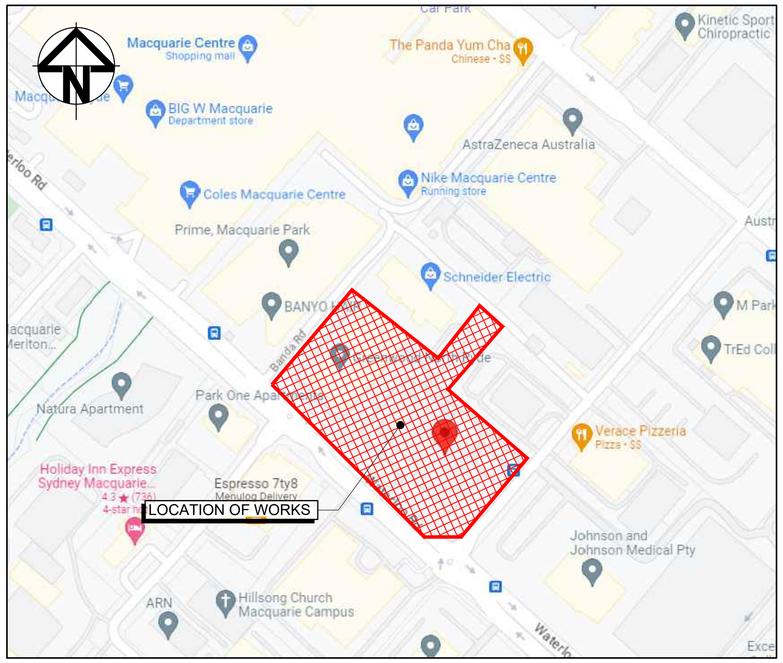
85-97 WATERLOO ROAD MACQUARIE PARK

BTR

SSD 52604208 CIVIL WORKS PACKAGE

DRAWING LIST

GENERAL	
23-1081-DAC2001	COVER SHEET AND LOCALITY PLAN
23-1081-DAC2002	GENERAL NOTES AND LEGENDS
23-1081-DAC2005	GENERAL ARRANGEMENT PLAN
SITEWORKS	
23-1081-DAC2010	SITEWORKS PLAN SHEET 1
23-1081-DAC2011	SITEWORKS PLAN SHEET 2
23-1081-DAC2012	SITEWORKS PLAN SHEET 3
23-1081-DAC2013	SITEWORKS PLAN SHEET 4
23-1081-DAC2050	SITEWORKS DETAILS SHEET 1
23-1081-DAC2051	SITEWORKS DETAILS SHEET 2
23-1081-DAC2052	SITEWORKS DETAILS SHEET 3
ROADWORKS LONGSECTION	
23-1081-DAC2061	ROADWORKS LONGITUDINAL SECTION
STORMWATER DRAINAGE	
23-1081-DAC2501	STORMWATER DRAINAGE MUSIC CATCHMENT PLAN
23-1081-DAC2503	STORMWATER DRAINAGE LOCAL AREA CATCHMENT PLAN
23-1081-DAC2510	STORMWATER DRAINAGE DETAILS SHEET 1
23-1081-DAC2511	STORMWATER DRAINAGE DETAILS SHEET 2
23-1081-DAC2512	STORMWATER DRAINAGE DETAILS SHEET 3
23-1081-DAC2520	STORMWATER DRAINAGE OSD 1 ROOF PLAN
23-1081-DAC2521	STORMWATER DRAINAGE OSD 1 BASE PLAN
23-1081-DAC2522	STORMWATER DRAINAGE OSD 1 SECTIONS & DETAILS
23-1081-DAC2525	STORMWATER DRAINAGE OSD 2 ROOF PLAN
23-1081-DAC2526	STORMWATER DRAINAGE OSD 2 BASE PLAN
23-1081-DAC2527	STORMWATER DRAINAGE OSD 2 SECTIONS & DETAILS
EROSION AND SEDIMENT CONTROL	
23-1081-DAC2601	SEDIMENT AND EROSION CONTROL EXCAVATION PLAN
23-1081-DAC2602	SEDIMENT AND EROSION CONTROL DETAILS
VEHICLE TURN PATHS	
23-1081-DAC2801	VEHICLE TURN PATH PLAN WATERLOO RD - BYFIELD ST 5.2m CAR
23-1081-DAC2802	VEHICLE TURN PATH PLAN WATERLOO RD - BYFIELD ST 12.5m HRV DESIGN VEHICLE
23-1081-DAC2803	VEHICLE TURN PATH PLAN WATERLOO RD - BYFIELD ST 20.0m AV CHECK VEHICLE



Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

100mm on Original

Client: Goodman

Scales	NTS	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: COVER SHEET AND LOCALITY PLAN

Civil Engineers and Project Managers
at&l
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Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2001

Issue: C

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2001.dwg

CONCRETE NOTES

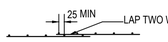
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
2. CONCRETE QUALITY
   ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

ELEMENT	AS 3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
VEHICULAR BASE	32	60	20
KERBS, PATHS, AND PITS	32	80	20

   - CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL
   - PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.
3. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY AT & L.
4. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED OTHERWISE.
5. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
6. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.T.A. SPECIFICATION R83.
7. REINFORCEMENT SYMBOLS:
   N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N
   R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302
   SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304

   NUMBER OF BARS IN GROUP — BAR GRADE AND TYPE
   17 N 20 250
   NOMINAL BAR SIZE IN mm — SPACING IN mm

   THE FIGURE FOLLOWING THE FABRIC SYMBOL SL IS THE REFERANCE NUMBER FOR FABRIC TO AS 1304.
8. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY LANDAIR SURVEYS, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. AT & L DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

EXISTING SURFACE LEVELS SHOWN ON ALL SECTIONS HAVE BEEN GENERATED FROM SURVEY SPOT HEIGHT LEVELS AND ARE INDICATIVE ONLY.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT AT & L.

THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM THE ORIGINAL SURVEY DOCUMENTS PREPARED BY LANDAIR SURVEYS.

NOTES:

THIS PLAN IS PREPARED FOR GOODMAN PROPERTY SERVICES FROM A FIELD SURVEY FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND TO SHOW THE RELATIONSHIP BETWEEN THE BOUNDARIES AND OCCUPATION, AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
FOR CLARITY, SOME OCCUPATION MAY NOT BE SHOWN TO SCALE.
POSSESSORY RIGHTS MAY HAVE ACCRUED TO OCCUPATION LOCATION.
THE TITLE BOUNDARIES HAVE NOT BEEN SURVEYED.
ABOVE GROUND SERVICES AS SEEN BY THE SURVEYOR AT THE TIME OF SURVEY HAVE BEEN SHOWN ON THIS PLAN. PITS MAY BE LARGER UNDERGROUND THAN THE SIZE SHOWN ON THE PLAN. FOOTING LOCATIONS AND SUBSURFACE STRUCTURES HAVE NOT BEEN LOCATED. **PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION, CURRENT DIAL BEFORE YOU DIG PLANS MUST BE ORDERED AND EXAMINED.**
ANY DIGITAL DATA FORWARDED BY LANDAIR SURVEYS MUST NOT BE ALTERED IN ANY WAY WITHOUT PRIOR APPROVAL OF LANDAIR SURVEYS. THE DATA MAY BE COPIED AND THEN MANIPULATED AS REQUIRED.
THIS NOTE IS AN INTEGRAL PART OF THE PLAN.
AERIAL IMAGE FROM NEARMAP DATED 20/06/2023
SOME LAYERS ARE TURNED OFF FOR CLARITY OF PRINTED PLAN
SEE AUTOCAD DRAWING FOR COMPLETE INFORMATION

DATE OF SURVEY: 18/08/2023

SITEWORKS NOTES

1. ORIGIN OF LEVELS:- REFER SURVEY NOTES.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO AT & L.
3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
5. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
   (OR A DENSITY INDEX OF NOT LESS THAN 75)
6. PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVEMENTS.
7. ASPHALTIC CONCRETE SHALL CONFORM TO RMS. SPECIFICATION R116.
8. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH RMS. FORM 3051 (UNBOUND), RMS. FORM 3052 (BOUND) COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1
   FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m OF BASECOURSE MATERIAL PLACED.
9. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH RMS. FORM 3051, 3051.1 AND COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m OF SUB-BASE COURSE MATERIAL PLACED.
10. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (9) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH RMS. FORM 3051 AND 3051.1 WILL BE CONSIDERED, SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF AT & L.
11. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
12. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

KERBING NOTES

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa U.N.O IN REINFORCED CONCRETE NOTES.
2. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 100mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 98% MODIFIED DRY DENSITY (AS 1289 5.2.1).
3. EXPANSION JOINTS (E.J) 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 MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
4. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.
5. BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
6. IN THE REPLACEMENT OF KERB AND GUTTER :-
   EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.

   EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.

   EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE NEW KERB AND GUTTER IS SHOWN.

STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:
   (A) AVERAGE RECURRENCE INTERVAL:
   1:100 YEARS ROOFED AREAS TO SURCHARGE PIT
   1:20 YEARS EXTERNAL PAVEMENTS
   (B) RAINFALL INTENSITIES:
   TIME OF CONCENTRATION:5 MINUTES
   1:100 YEARS= 247.4 mm/hr
   1:20 YEARS= 194.9 mm/hr
   (C) RUNOFF COEFFICIENTS:
   EXTERNAL PAVEMENTS: C_{100} =1.0
2. PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '4' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
3. PIPES UP TO 375 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS
4. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED, SUBJECT TO THE APPROVAL OF CITY OF RYDE COUNCIL BY SUPERINTENDENT.
5. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
6. PIPES TO BE INSTALLED IN ACCORDANCE WITH CITY OF RYDE COUNCIL STANDARD REQUIREMENTS
7. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
8. GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.
9. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
10. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
11. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
12. GRATES AND COVERS SHALL CONFORM TO AS 3996.
13. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
14. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT FOR FURTHER DIRECTIONS.
15. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.
16. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT FOR FURTHER DIRECTIONS.
17. CONCRETE TO HAVE A MIN. COMPRESSIVE STRENGTH (F'c) OF 25 MPa AT 28 DAYS.
18. REINFORCEMENT NOT REQUIRED IF DEPTH OF PIT IS LESS THAN 1000mm. PITS GREATER THAN 3000mm DEEP TO HAVE WALL AND BASE 200mm THICK REINFORCED WITH N12-250 EACH WAY EACH FACE WITH CONCRETE STRENGTH F'c = 40 MPa.
19. IF REINFORCING FABRIC IS TO BE USED REFER TO WALL AND CORNER DETAILS
20. PRECAST PITS ARE TO GENERALLY COMPLY WITH THESE DETAILS SHOWN WITHIN THIS DRAWING SET.
21. ALL STORMWATER PITS ARE TO BE CAST IN-SITU IN ACCORDANCE WITH THE STORMWATER DETAILS, UNLESS APPROVED BY THE COUNCIL/PCA. IF APPROVED, PRE-CAST STORMWATER PITS ARE TO BE CUSTOM MADE WITH OPENINGS WITHIN +50MM OD OF PIPE, HEIGHTS AND PIPE PENETRATIONS FORMED DURING MANUFACTURE. ALL PRE CAST PITS TO BE FOUNDED ON CONCRETE BLINDING LAYER WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 100KPA UP TO 3.0M DEPTH TO INVERT OR 150KPA FROM 3.0M TO 6.0M DEPTH TO INVERT. (MIN 100MM DEEP 25MPA OR DEEPER TO ENSURE MINIMUM SPECIFIED BEARING CAPACITY IS ACHIEVED). SINGLE UNITS PREFERRED BUT IF REQUIRED MINIMUM RISER DEPTH 600MM;
    PIT INSTALLATION AND JOINTING PIPES TO PITS SHALL BE UNDERTAKEN IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
    ANY ADDITIONAL PENETRATIONS SHALL BE CORE DRILLED. DEMOLITION SAWS ARE NOT TO BE USED IN ANY CIRCUMSTANCES.
22. ALL PITS TO BE BOLT LOCKABLE.
23. FINAL INTERNAL PIT DIMENSIONS ARE TO COMPLY WITH AS 3500.

EXISTING UNDERGROUND SERVICES NOTES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
AT & L CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.

CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.

CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

1. THE SITE SUPERINTENDENT/ENGINEER WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED.
2. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
   a. LOCAL AUTHORITY REQUIREMENTS
   b. EPA REQUIREMENTS
   c. LANDCOM "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
   (A) INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
   (B) CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
   (C) INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
   (D) UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

7. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
8. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

SEDIMENT CONTROL

9. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
11. WATER WILL 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.
12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

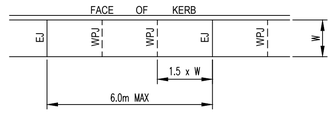
OTHER MATTERS

13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
   (A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
   (B) ENSURING THAT NOTHING IS NAILED TO THEM
   (C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
      (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
      (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
      (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

JOINTING NOTES

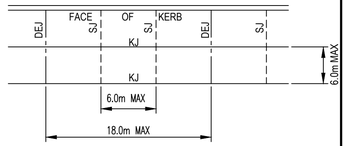
PEDESTRIAN PAVEMENT JOINTS

1. ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS. (U.N.O)
2. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m CENTRES.
3. WEAKENED PLANE JOINTS ARE TO BE LOCATED AT A MAX. SPACING OF 1.5 x WIDTH OF THE PAVEMENT.
4. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND OR ADJACENT PAVEMENT JOINTS.
5. PEDESTRIAN PAVEMENT JOINT DETAIL.



VEHICULAR PAVEMENT JOINTS

6. ALL VEHICULAR PAVEMENTS TO BE JOINTED AS FOLLOWS. (U.N.O)
7. KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED AT A MAX OF 6.0m CENTRES
8. SAWN JOINTS SHOULD GENERALLY BE LOCATED AT A MAX OF 6.0m CENTRES WITH DOWELED EXPANSION JOINTS AT MAX 18.0m CENTRES
9. VEHICULAR PAVEMENT JOINT DETAIL.



LEGEND

PAVEMENT

PAVEMENT TYPE 1 GRANITE FOOTPATH
60mm THICK GRANITE PAVER ON
30mm THICK WET SAND ON
125mm THICK 25 MPa CONCRETE WITH SL72 MESH (MIN. 40 TOP) ON
50mm THICK DGB20 TO 98% STANDARD DRY COMPACTION ON COMPACTED SUBGRADE MIN. CBR 4
REFER CoR STD DWG PV.SPEC & PV1.2 FOR DETAILS

PAVEMENT TYPE 2 GRANITE PRAM RAMP
60mm THICK GRANITE PAVER ON
30mm THICK WET SAND ON
125mm THICK 25 MPa CONCRETE WITH SL72 MESH (MIN. 40 TOP) ON
50mm THICK DGB20 TO 98% STANDARD DRY COMPACTION ON COMPACTED SUBGRADE MIN. CBR 4
REFER CoR STD DWG PV4.6.2 - PV4.6.3, PV4.7.1 FOR DETAILS

PAVEMENT TYPE 3 GRANITE VEHICULAR CROSSING
60mm THICK GRANITE PAVER ON
30mm THICK WET SAND ON
175mm THICK 25 MPa CONCRETE WITH SL82 MESH CENTRAL ON
50mm THICK COMPACTED BASE COURSE ON
COMPACTED SUBGRADE MIN. CBR 4
REFER CoR STD DWG CIV.3.3, PV4.9.1 & PV4.9.3 FOR DETAILS

PAVEMENT TYPE 4 ROAD PAVEMENT (KERB AND GUTTER WORKS)
50mm THICK AC14 ON
MIN. 150mm THICK DGB20 BASE COURSE ON
MIN. 150mm THICK DGB40 SUB BASE COURSE ON
COMPACTED SUBGRADE MIN. CBR 4
REFER CoR STD DWG CIV.1.2.1 FOR DETAILS

PAVEMENT TYPE 4 ROAD PAVEMENT (UTILITY TRENCH RESTORATION)
50mm THICK AC14 WEARING COURSE ON
150mm THICK AC28 INTERMEDIATE COURSE ON
200mm THICK DGS40 BASE COURSE ON
200mm THICK SUBGRADE MIN. CBR 10 ON
BEDDING ZONE AS PER UTILITY AUTHORITY'S SPECIFICATIONS
REFER CoR STD DWG CIV.14.3 FOR DETAILS

LEGEND

EXISTING

EXISTING BOUNDARY
EXISTING BOUNDARY TO BE REMOVED
EXISTING EASEMENT
EXISTING EASEMENT TO BE REMOVED
10.00 EXISTING CONTOUR (MAJOR)
EXISTING CONTOUR (MINOR)
e(...) EXISTING FEATURE
e ??.?? EXISTING SURFACE LEVEL

PROPOSED

PROPOSED BOUNDARY
10.00 PROPOSED CONTOUR (MAJOR)
PROPOSED CONTOUR (MINOR)
SC SAWCUT
F 44.45 FINISHED SURFACE LEVEL
FOOTPATH
K&G KERB AND GUTTER
CK CASTELLATED KERB
FK FLUSH KERB
KO KERB ONLY
VC VEHICULAR CROSSING
PR PRAM RAMP
PEDESTRIAN FENCE
RETAINING WALL
TD TRENCH DRAIN
SEALED PIT
SURFACE INLET PIT
KERB INLET PIT
Ø300 STORMWATER PIPE (SIZE)
MINOR STORMWATER PIPE
A-1 STORMWATER PIT REFERENCE NUMBER
RWO PD RAINWATER OUTLET / POINT DRAIN

EXISTING SERVICES

e ELECTRICITY
t TELSTRA CONDUITS
s SEWER SERVICE
w WATER SERVICE
g GAS SERVICE
? UNKNOWN SERVICE
sw STORMWATER

BEFORE YOU DIG www.byda.com.au

CONTRACTOR SHALL OBTAIN ALL CURRENT SERVICE AUTHORITY PLANS PRIOR TO COMMENCEMENT OF WORK

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

100mm on Original

Client: Goodman

Scales	NTS
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

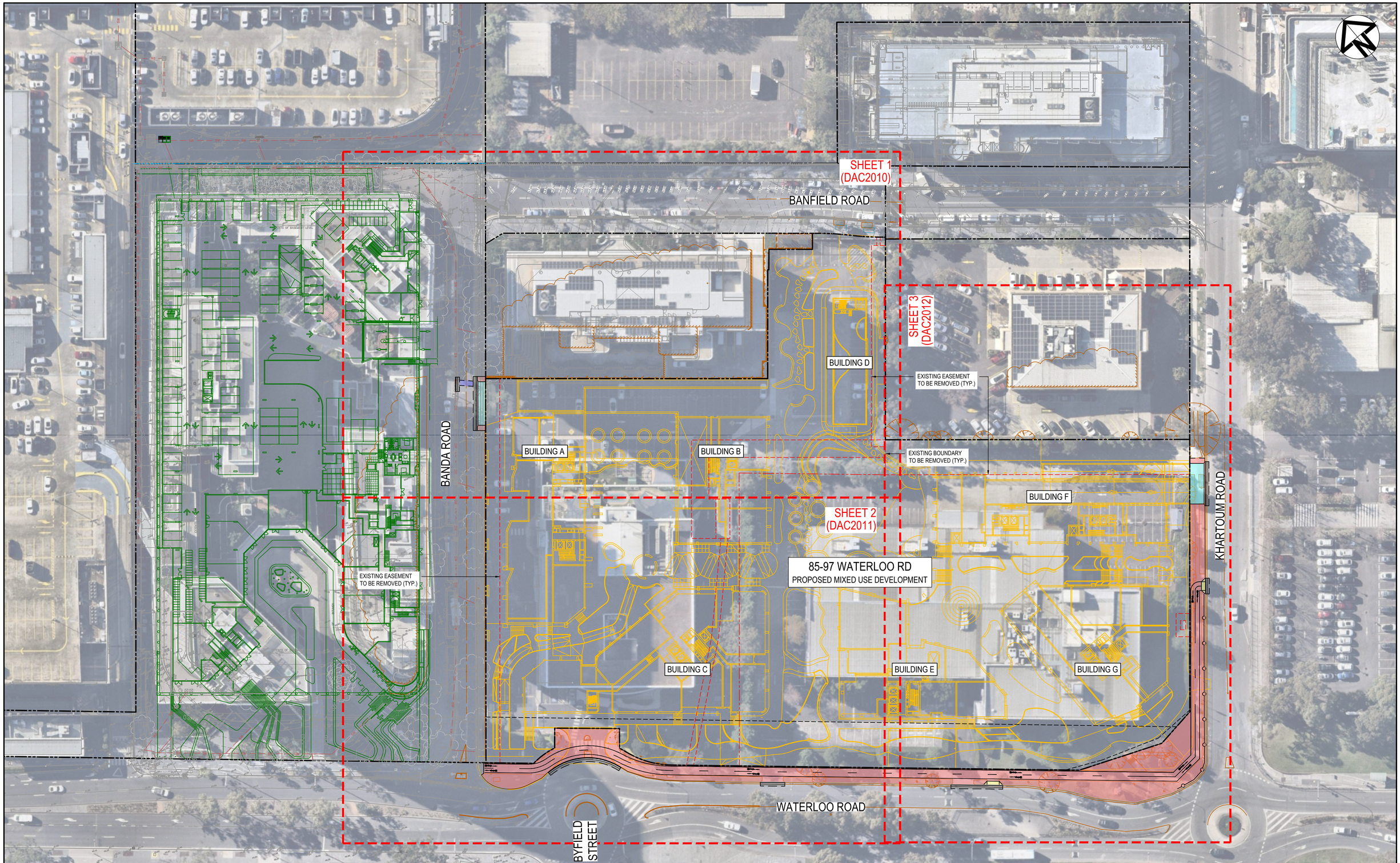
Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: GENERAL NOTES AND LEGENDS

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION
A1
Project No. - Drawing No.: 23-1081-DAC2002
Issue: C

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2002.dwg



Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Client

Goodman

Scales	1:500
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project

85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title

GENERAL ARRANGEMENT PLAN

Civil Engineers and Project Managers

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Status

FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.

23-1081-DAC2005

Issue

C

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2005.dwg

BANFIELD ROAD

BANDA ROAD

NO WORKS PROPOSED ON BANFIELD ROAD

NO WORKS PROPOSED ON BANFIELD ROAD

EXISTING SUBSTATION

F 54.50

OSD/01

OSD 1
MIN. 417.3m³
PROVIDED 437.3m³

FALL

2.0m

3.5m

F 54.62

EXISTING EASEMENT TO DRAIN WATER TO BE REMOVED

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

LOT 2 DP1259231

MULTI STOREY GLASS & METAL BUILDING

TIE IN SMOOTHLY WITH EXISTING FOOTPATH

TIE IN SMOOTHLY WITH EXISTING KERB

CONSTRUCT 900x900 BUTTERFLY GRATE SURFACE INLET PIT W/ CLASS 'D' GRATE

CONSTRUCT 1.8m LINTEL (ON-GRADE) KERB INLET PIT TO CoR STD DWG SWD.1.1.1 OVER EXISTING STORMWATER PIPE AND MAKE GOOD

CONSTRUCT VEHICULAR CROSSING TO CoR STD DWG CIV.3.3, PV4.9.1 & PV4.9.3 (TYP.)

EXISTING EASEMENT TO DRAIN WATER TO BE REMOVED

REINSTATE ROAD PAVEMENT AFTER KERB AND GUTTER WORKS TO CoR STD 1.2.1 (TYP.)

CONSTRUCT GRANITE FOOTPATH TO CoR STD DWG PV.SPEC, PV1.2, PV3.1 - PV3.4, PV4.1 & PV4.2, PV6.1 & PV6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING FOOTPATH

REINSTATE ROAD PAVEMENT AFTER STORMWATER WORKS TO CoR STD DWG CIV.14.3

EXISTING EASEMENT TO DRAIN WATER TO BE REMOVED

OSD/02

OSD 2
MIN. 38.1m³
PROVIDED 41.4m³

SUBSTATION FFL 48.30

BUILDING A FFL 52.25

OPEN SPACE FFL 52.00

REMOVE EXISTING EASEMENT FOR RIGHT OF WAY

BUILDING B FFL 52.25

BUILDING B FFL 55.10

RWT
VOL. 100kL

BUILDING D FFL 54.75

OPEN SPACE FFL 54.75

OPEN SPACE FFL 54.85

BASEMENT OUTLINE

BASEMENT 1

GROUND

LEVEL 1

RWO

PD

METAL PICKETS

RET.WALL
FENCE INSIDE

ADJOINS SHEET 3

ADJOINS SHEET 2

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 5 10 15 20m

1 : 200 @ A1 1 : 400 @ A3

Key Plan

1 2 3

Client

Goodman

Scales		Drawn	CK
	1: 200	Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
SITEWORKS
PLAN
SHEET 1

Civil Engineers and Project Managers
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Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2010

Issue
C

100mm on Original

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ADJOINS SHEET 1

ADJOINS SHEET 3

BANDA ROAD

WATERLOO ROAD

EXISTING EASEMENT TO DRAIN WATER TO BE REMOVED

BUILDING A
FFL 48.80

CAR PORTE COCHERE
FFL 48.80

OPEN SPACE
FFL 52.00

BUILDING B
FFL 52.25

BUILDING B
FFL 55.10

OPEN SPACE
FFL 54.85

BUILDING C
FFL 52.25

BUILDING C
FFL 55.20

BUILDING E
FFL 57.25

OPEN SPACE
FFL 54.95

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

REMOVE EXISTING EASEMENT FOR ELECTRICITY PURPOSES

REDUNDANT KERB INLET PIT TREATMENT TBC AT DETAILED DESIGN STAGE WHEN SURVEY OF EXISTING STORMWATER NETWORK IS AVAILABLE

TIE IN SMOOTHLY WITH EXISTING PRAM RAMP

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

CONSTRUCT GRANITE FOOTPATH TO CoR STD DWG PV.SPEC, PV1.2, PV3.1 - PV3.4, PV4.1 & PV4.2, PV6.1 & PV6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

CLOSE OFF REDUNDANT ROUNDABOUT LEG

REINSTATE ROAD PAVEMENT AFTER KERB AND GUTTER WORKS TO CoR STD 1.2.1 (TYP.)

REDUNDANT KERB INLET PIT TREATMENT TBC AT DETAILED DESIGN STAGE WHEN SURVEY OF EXISTING STORMWATER NETWORK IS AVAILABLE

TIE IN SMOOTHLY WITH EXISTING KERB

RELOCATE EXISTING LIGHT POLE TO BE OUTSIDE OF SHARD PATH

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

REINSTATE REDUNDANT VEHICULAR CROSSING TO COUNCIL STANDARD KERB AND GUTTER

TIE IN SMOOTHLY WITH EXISTING KERB

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

PROVIDE 1.5m WIDE CATCH DRAIN @ MIN. 1.0% FALL (TYP.)

BASEMENT OUTLINE

GROUND

LEVEL 1

LEVEL 2

FALL

RWO

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

100mm on Original

Bar Scales

0 5 10 15 20m

1 : 200 @ A1 1 : 400 @ A3

Key Plan

1 2 3

Client

Goodman

Scales		Drawn	CK
	1: 200	Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project

85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title

SITEWORKS
PLAN
SHEET 2

Civil Engineers and Project Managers

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Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2011

Issue
C

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ADJOINS SHEET 1&2

CONSTRUCT GRANITE FOOTPATH TO CoR STD DWG PV SPEC, PV1.2, PV3.1 - PV3.4, PV4.1 & PV4.2, PV6.1 & PV6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

REINSTATE REDUNDANT VEHICULAR CROSSING TO COUNCIL STANDARD KERB AND GUTTER.

REINSTATE ROAD PAVEMENT AFTER KERB AND GUTTER WORKS TO CoR STD 1.2.1 (TYP.)

CONSTRUCT GRANITE KERB RAMP TO CoR STD DWG PV4.6.2 - PV4.6.3, PV4.7.1 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

WATERLOO ROAD

PROVIDE 1.5m WIDE CATCH DRAIN @ MIN. 1.0% FALL (TYP.)

BUILDING E
FFL 57.25

OPEN SPACE
FFL 57.00

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

BUILDING G
FFL 57.25

BUILDING G
FFL 60.30

SUBSTATION
FFL 60.40

BUILDING F
FFL 60.20

BUILDING F
FFL 57.25

BUILDING F
FFL 60.50

BASEMENT OUTLINE

REMOVE EXISTING EASEMENT FOR CARRIAGEWAY & INSTALLATION OF SERVICES

LEVELS WITHIN LANDSCAPE CORRIDOR TBD DURING DETAILED DESIGN

CONSTRUCT VEHICULAR CROSSING TO CoR STD DWG CIV.3.3, PV4.9.1 & PV4.9.3 (TYP.)

REINSTATE ROAD PAVEMENT AFTER KERB AND GUTTER WORKS TO CoR STD 1.2.1 (TYP.)

TIE IN SMOOTHLY WITH EXISTING FOOTPATH.

CONSTRUCT GRANITE FOOTPATH TO CoR STD DWG PV.SPEC, PV1.2, PV3.1 - PV3.4, PV4.1 & PV4.2, PV6.1 & PV6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB.

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

REMOVE EXISTING EASEMENT FOR RIGHT OF WAY & ELECTRICITY PURPOSES

TIE IN SMOOTHLY WITH EXISTING KERB.

CONSTRUCT GRANITE KERB RAMP TO CoR STD DWG PV4.6.2 - PV4.6.3, PV4.7.1 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB.

TIE IN SMOOTHLY WITH EXISTING KERB.

KHARTOUM ROAD

KHARTOUM ROAD

CHAIN WIRE MESH FENCE

MULTI STOREY CONCRETE & GLASS BUILDING

LOT 100 DP836495

LOT 100 DP836495

FENCE ON BNDY

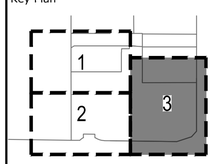
Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 5 10 15 20m

1 : 200 @ A1 1 : 400 @ A3

Key Plan



Client

Goodman

Scales		Drawn	CK
	1: 200	Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
SITEWORKS
PLAN
SHEET 3

Civil Engineers and Project Managers

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Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2012

Issue
C

100mm on Original

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OPEN SPACE
FFL 54.85

BUILDING F
FFL 60.20

BUILDING F
FFL 57.25

BUILDING F
FFL 60.50

BUILDING E
FFL 57.25

ADJOINS SHEET 3
ADJOINS SHEET 1&2

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

OPEN SPACE
FFL 57.00

BUILDING G
FFL 57.25

SUBSTATION
FFL 60.40

BUILDING G
FFL 60.30

BUILDING E
FFL 57.25

EN SPACE
FL 54.95

BASEMENT OUTLINE

LEVEL 1
LEVEL 2
LEVEL 3

FALL

RWO

PD

Ø225
IL 54.09
IL 54.12
IL 54.17

e 60.50
e 59.70

eK&G

E7
S5
S4
SS

0.3m
2.5m
10.0m
3.5m

K&G
SC
PR

TIE IN SMOOTHLY WITH EXISTING KERB.

CONSTRUCT GRANITE KERB RAMP TO CoR STD DWG PV4.6.2 - PV4.6.3, PV4.7.1 (TYP.)

REMOVE EXISTING EASEMENT FOR RIGHT OF WAY & ELECTRICITY PURPOSES

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

REINSTATE 2.5m WIDE SHARED PATH LINEMARKING TO CoR STD DWG CIV.6.2 (TYP.)

PROVIDE 1.5m WIDE CATCH DRAIN @ MIN. 1.0% FALL (TYP.)

CONSTRUCT GRANITE FOOTPATH TO CoR STD DWG PV SPEC. PV1.2, PV3.1 - PV3.4, PV4.1 & PV4.2. PV6.1 & PV6.2 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

REINSTATE REDUNDANT VEHICULAR CROSSING TO COUNCIL STANDARD KERB AND GUTTER

REINSTATE ROAD PAVEMENT AFTER KERB AND GUTTER WORKS TO CoR STD 1.2.1 (TYP.)

CONSTRUCT GRANITE KERB RAMP TO CoR STD DWG PV4.6.2 - PV4.6.3, PV4.7.1 (TYP.)

TIE IN SMOOTHLY WITH EXISTING KERB

PROVIDE 1.5m WIDE CATCH DRAIN @ MIN. 1.0% FALL (TYP.)

KHARTOUM ROAD

WATERLOO ROAD

BITUMEN

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 5 10 15 20m

1 : 200 @ A1 1 : 400 @ A3

100mm on Original

Key Plan

1 2 3

Client

Goodman

Scales		Drawn	CK
1: 200		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
SITEWORKS
PLAN
SHEET 4

Civil Engineers and Project Managers
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North Sydney NSW 2060
ABN 96 130 882 405
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www.atl.net.au
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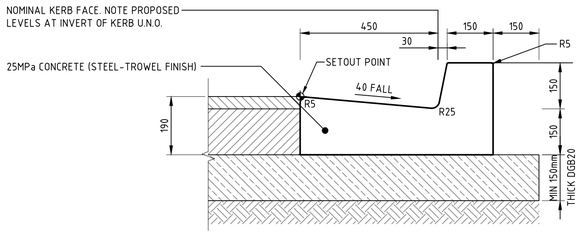
Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2013

Issue
C

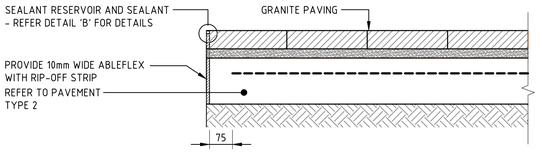
F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2013.dwg



KERB AND GUTTER (K&G)

SCALE 1:10

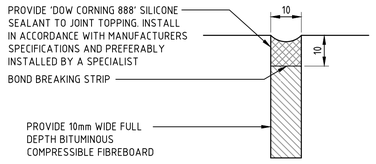
EXPANSION JOINTS @ MAX 6m ALONG STRAIGHT ALIGNMENT, AND 3m ALONG CURVED ALIGNMENT
CTRS,TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 5mm U.N.O.
REFER TO CoR STD DRG CIV.1.1.1 FOR DETAILS



ISOLATION JOINT 'IJ'

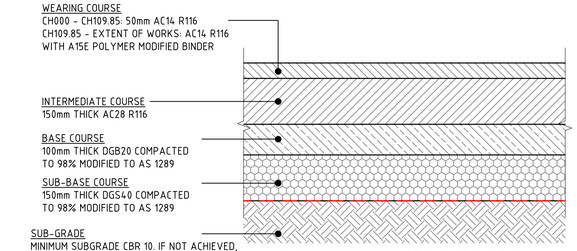
SCALE 1:10

- PROVIDE JOINT BETWEEN ALL NEW CONCRETE AND EXISTING STRUCTURES
- JOINT TO BE USED AGAINST ALL WALLS, FOOTINGS, COLUMNS, BACK OF KERB, SERVICE PITS, DRAINAGE PITS AND ALL SLAB PENETRATIONS



DETAIL 'B'

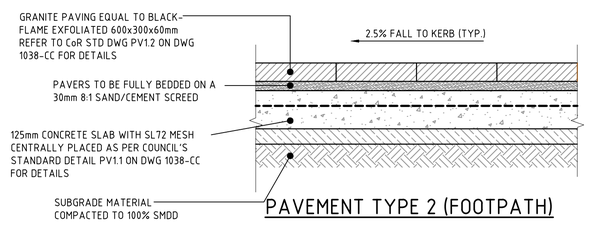
NOTES:
1. THE MINIMUM GRADE OF THE LINE TO BE 1 IN 200. THE GRADE SHALL FALL CONTINUOUSLY TO PREVENT SILTING UP AND BLOCKAGES.
2. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS. (REFER TO AS 3725-2007).
3. A MAXIMUM FILTER AGGREGATE SIZE OF 10mm TO BE USED TO AVOID PUNCTURING THE PIPE.
4. ALL WORKS AND MATERIALS ACCORDING TO A.S. 3500.3-2003 SECTION 6.
5. A MINIMUM 50mm LAYER OF FILER MATERIAL TO BE PLACED IN THE TRENCH TO PROVIDE A DRAINAGE PATH UNDERNEATH THE PLASTIC PIPE.



PAVEMENT TYPE 1 (ROAD)

SCALE 1:10
DESIGN LOADING = $1x10^7$ ESA's
REFER TO CoR STD DWF CIV.14.2 FOR DETAILS

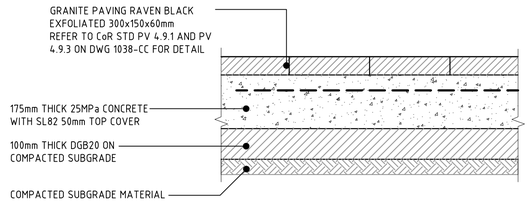
PAVEMENT TYPE 1 NOTES:
1. BASE AND SUB-BASE MATERIAL SHALL COMPLY WITH RMS QA SPECIFICATION 3051 GRANULAR BASE AND SUBBASE MATERIALS FOR SURFACED ROAD PAVEMENTS.
2. BASE AND SUB-BASE MATERIAL SHALL BE MANUFACTURED FROM HARD, DURABLE STONE FREE OF CLAY SUMPS, ORGANIC MATTER AND DELETERIOUS SUBSTANCES. MATERIALS OF DIFFERENT TYPE OR FROM DIFFERENT SOURCES SHALL BE PLACED AND STORED SEPARATELY.
3. PLACE A19 BIDIM GEOFABRIC UNDERNEATH THE SUB-BASE COURSE, TO SEPARATE SUB-GRADE AND GRANULAR MATERIALS.
4. DESIGN TRAFFIC (DESA) FOR THE PAVEMENT SHALL BE $1x10^7$, DESIGN LIFE OF THE PAVEMENT SHALL BE A MINIMUM OF 40 YEARS WITH A GROWTH FACTOR OF 1.2
5. DURING CONSTRUCTION EACH PAVEMENT LAYER IS TO BE TESTED FOR COMPLIANCE AND CERTIFIED BY THE ACCREDITED PROVIDER (NATA REGISTERED)



PAVEMENT TYPE 2 (FOOTPATH)

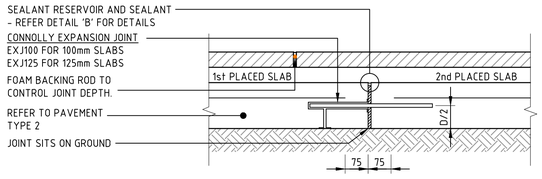
SCALE 1:10

CONTRACTOR TO ALLOW FOR JOINTS - REFER JOINT DETAILS
FINISH SURFACE WITH BROOM OR WOODEN FLOAT



PAVEMENT TYPE 3 (HEAVY DUTY VEHICLE CROSSING)

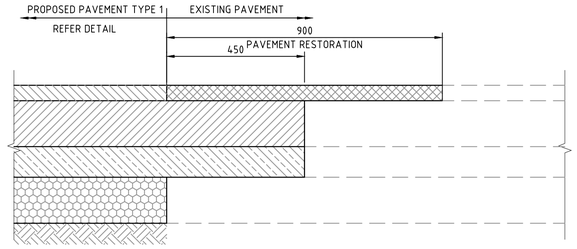
SCALE 1:10



FOOTPATH EXPANSION JOINT 'EJ'

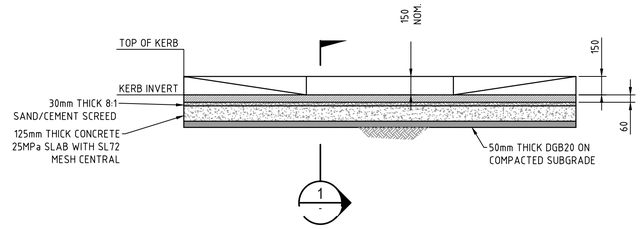
SCALE 1:10

- TO ALSO BE USED AS A 'STOPWORK JOINT'
- MAXIMUM CONTINUOUS POUR NOT TO EXCEED 36m
- JOINT TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS
- REFER SPECIFICATION NOTES FOR JOINT SPACINGS (6m UNO)



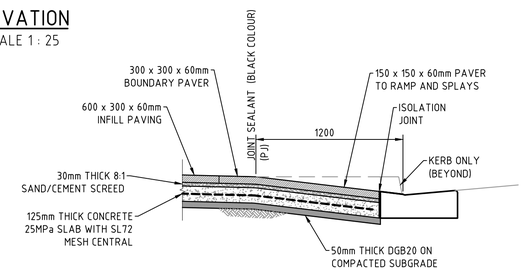
PAVEMENT RESTORATION* TYPE 4

*SUBJECT TO COUNCIL REVIEW AND APPROVAL
SCALE 1:10



ELEVATION

SCCALE 1 : 25



NOTES:
1. THE GUTTER SHALL BE STEEL FLOAT FINISHED.
2. REFER TO PV3.1-3.4 FOR JOINT DETAILS.
3. KERB RAMPS SHALL BE ALIGNED WITH THE DIRECTION OF PEDESTRIAN TRAVEL.
4. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 25MPa MINIMUMM.
5. CONCRETE SHALL BE PLACED WITH A MAXIMUM SLUMP OF 80mm
6. MINIMUM CONCRETE COVER TO BE 40mm UNLESS NOTED OTHERWISE.

SECTION 1

SCALE 1 : 25

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

100mm on Original

Bar Scales

0 100 200 400 600 800 1000mm
1 : 10 @ A1 1 : 20 @ A3

0 500 1000 1500 2000mm
1 : 20 @ A1 1 : 40 @ A3

0 0.5 1 1.5 2 2.5m
1 : 25 @ A1 1 : 50 @ A3

Client: Goodman

Scales		Drawn	CK
AS SHOWN		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
SITEWORKS DETAILS SHEET 1

Civil Engineers and Project Managers
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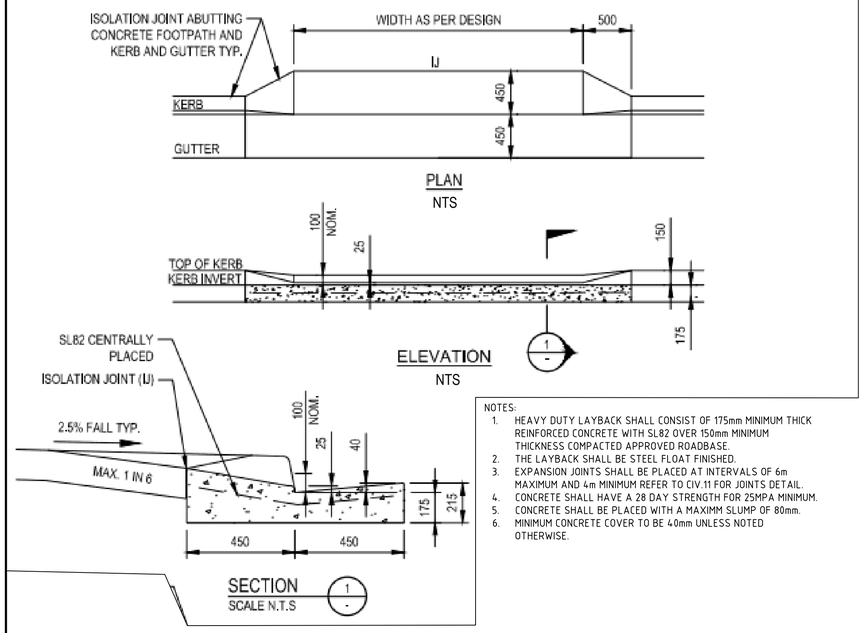
Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2050

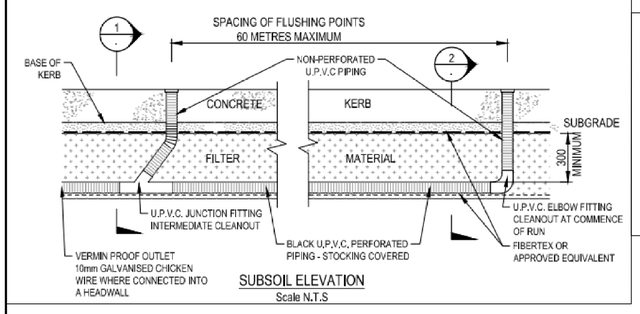
Issue
C

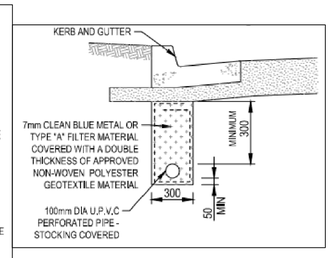
Date Plotted: 26 Jun 2024 - 05:07PM File Name: F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2050.dwg

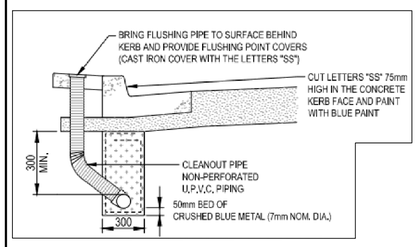


NOTES:
1. HEAVY DUTY LAYBACK SHALL CONSIST OF 175mm MINIMUM THICK REINFORCED CONCRETE WITH SL82 OVER 150mm MINIMUM THICKNESS COMPACTED APPROVED ROADBASE.
2. THE LAYBACK SHALL BE STEEL FLOAT FINISHED.
3. EXPANSION JOINTS SHALL BE PLACED AT INTERVALS OF 6m MAXIMUM AND 4m MINIMUM REFER TO CIV.11 FOR JOINTS DETAIL.
4. CONCRETE SHALL HAVE A 28 DAY STRENGTH FOR 25MPA MINIMUM.
5. CONCRETE SHALL BE PLACED WITH A MAXIMM SLUMP OF 80mm.
6. MINIMUM CONCRETE COVER TO BE 40mm UNLESS NOTED OTHERWISE.

HEAVY DUTY DRIVEWAY LAYBACK
COURTESY OF COUNCIL ST DWG CIV 3.3
NTS







NOTES:
1. EXACT LOCATION OF NEW SUBSOIL DRAIN TO CONNECT AND / OR ALIGN WITH EXISTING SYSTEM TO BE DETERMINED ON SITE.
2. THE MINIMUM GRADE OF THE LINE TO BE 1 IN 200. THE GRADE SHALL FALL CONTINUOUSLY TO PREVENT SILTING AND BLOCKAGES.
3. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS. (REFER TO AS 3725-2007)
4. A MAXIMUM FILTER AGGREGATE SIZE OF 10mm TO BE USED TO AVOID PUNCTURING THE PIPE.
5. ALL WORKS AND MATERIALS ACCORDING TO AS 3500.3-2003 SECTION 6.
6. A MINIMUM 50mm LAYER OF FILTER MATERIAL TO BE PLACED IN THE TRENCH TO PROVIDE A DRAINAGE PATH UNDERNEATH THE PLASTIC PIPE.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

SUBSOIL DRAINAGE
COURTESY OF COUNCIL ST DWG SWD.2
NTS

PARKING METER
TX PAY & DISPLAY AMCHINE
NTS

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales
0 100 200 400 600 800 1000mm
1 : 10 @ A1 1 : 20 @ A3
0 500 1000 1500 2000mm
1 : 20 @ A1 1 : 40 @ A3
0 0.5 1 1.5 2 2.5m
1 : 25 @ A1 1 : 50 @ A3

Client: Goodman

Scales		Drawn	CK
	AS SHOWN	Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: SITEWORKS DETAILS SHEET 2

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Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2051

Issue: C

100mm on Original

Date Plotted: 26 Jun 2024 - 05:07PM File Name: F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2051.dwg

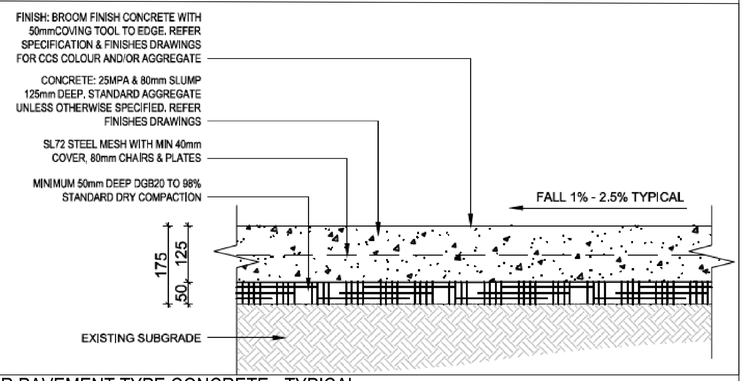
PAVEMENT TYPE: CONCRETE

CONCRETE SLAB:
PLACE 125mm THICK CONCRETE (25MPA) WITH SL72 MESH MINIMUM COVER 40mm. PLACE CONCRETE BLINDING LAYER ON MINIMUM 50mm DEEP DGB20 TO 98% STANDARD DRY COMPACTION IN ACCORDANCE WITH AS1289.5.1.1. REFER TO DETAIL PV1.1 & PV1.2 ANY SOFT SPOTS IN SUB-GRADE TO BE REMOVED AND IDENTIFIED WITH CITY OF RYDE (CoR) PROJECT MANAGER.

SURFACE FINISH:
BROOM FINISH:
BROOM FINISHED STROKES TO BE IN ONE DIRECTION PERPENDICULAR TO LINE OF TRAVEL. ALL EDGES TO BE FINISHED WITH 20-40mm EDGING TOOL.
EXPOSED AGGREGATE:
AGGREGATE TO BE EXPOSED IN A UNIFORM MANNER TO PREVENT IRREGULAR OR SPLOTCHY FINISH. SURFACE RETARDANTS MAY BE USED TO INCREASE WORKABILITY. PREFERRED TECHNIQUE FOR EXPOSING IS ACID WASH OR ABRASIVE BLASTING.
PIGMENTED FINISH (CCS):
COLOURED PIGMENT AT THE SPECIFIED RATES TO BE MIXED THROUGHOUT CONCRETE BATCH TO MATCH CCS COLOURS. REFER LANDSCAPE PLANS FOR CCS COLOUR
COVING FINISH:
STROKES TO BE UNIFORM MANNER IN DIRECTION AS INDICATED BY LANDSCAPE PLANS.

SLAB JOINTS:
ISOLATION JOINTS:
10mm WIDE FULL DEPTH FLEXIBLE FOAM ISOLATION JOINT (CONNOLLY JOINT OR APPROVED EQUIVALENT) TO BE APPROVED BY SUPERINTENDENT PRIOR TO CONSTRUCTION. PLACE BETWEEN CONCRETE SLAB AND BACK OF KERB; AND BUILDING LINE; AND EXISTING ITEMS IDENTIFIED IN JOINTING PLAN. ISOLATION JOINT FOAM TO FINISH 20mm BELOW FINISHED SURFACE TO ACCOMMODATE BACKING ROD AND APPROVED SEALANT. REFER TO DETAILS PV3.3, PV3.3.1 & PV3.6
EXPANSION JOINTS:
10mm WIDE FULL DEPTH FLEXIBLE FOAM EXPANSION JOINT (CONNOLLY JOINT OR APPROVED EQUIVALENT) TO BE APPROVED BY SUPERINTENDENT PRIOR TO CONSTRUCTION. PLACE PERPENDICULAR TO KERB AND BUILDING LINE AT MAXIMUM 6.0mINTERVALS. WHERE WIDTH OF PAVEMENT (BETWEEN KERB AND BUILDING LINE) IS GREATER THAN 3m, PLACE EXPANSION JOINT CENTRALLY IN CONCRETE SLAB. REFER TO DETAILS PV3.1, PV3.1.1 & PV3.6
CONTROL JOINTS:
PLACE 3-5mm WIDE x 40mm DEEP SAW CUT CONTROL JOINT PERPENDICULAR TO KERB AND BUILDING LINE AS SHOWN ON JOINTING PLAN. ENSURE ALL CUTS ARE CONTINUOUS AND STRAIGHT. SAW CUT TO STOP 50mm SHORT OF ADJACENT JOINT OR OBJECT. REFER TO DETAIL PV3.4 & PV3.6
KEY JOINTS:
PLACE KEY JOINT PERPENDICULAR TO KERB AND BUILDING LINE AS REQUIRED IN ACCORDANCE WITH JOINTING SETOUT PLAN. REFER TO DETAILS PV3.2 & PV3.6

EDGING:
GENERAL EDGING TO CONCRETE SURFACE TO BE CARRIED OUT IN ACCORDANCE WITH SURFACE FINISH TREATMENT
BROOM FINISH - EDGING TOOL 20-40mm
EXPOSED AGGREGATE - EXPOSED FULLY TO EDGE
PIGMENT CCS - EDGING TOOL 20-40mm



TOWN CENTER PAVEMENT TYPE CONCRETE - TYPICAL
COURTESY OF COUNCIL ST DWG PV 1.1
NTS

INSTALLATION OF GRANITE

CONCRETE BLINDING LAYER:
PLACE 125mm THICK CONCRETE (25MPA) WITH SL72 MESH MINIMUM COVER 40mm. PLACE CONCRETE BLINDING LAYER ON MINIMUM 50mm DEEP DGB20 TO 98% STANDARD DRY COMPACTION IN ACCORDANCE WITH AS1289.5.1.1. REFER TO DETAIL PV1.1 & PV1.2 ANY SOFT SPOTS IN SUB-GRADE TO BE REMOVED AND IDENTIFIED WITH SUPERINTENDENT.

PAVER JOINTING:
BETWEEN INDIVIDUAL PAVERS - JOIN FLUSH TOGETHER LEAVING A 2mm GAP, FORM CONTINUOUS EVEN SURFACE TO AVOID TRIP HAZARDS. THE JOINTS BETWEEN PAVERS ARE TO BE FILLED WITH ULTRA FINE SILICA SAND CEMENT MIX AS SUPPLIED BY BENEDICTS SAND AND SOIL (PH,9986 3500) OR AN APPROVED EQUIVALENT.
AT ISOLATION AND EXPANSION JOINTS - FILL 5-10mm GAP WITH FOAM BACKING ROD AND APPROVED ONE COMPONENT, THIXOTROPIC, POLYURETHANE BASED JOINT SEALANT, SEALANT COLOUR TO BE BLACK UNLESS SPECIFIED OTHERWISE. REFER TO DETAILS PV3.1.1 - PV3.6

BLINDING SLAB JOINTS:
AS PER CONCRETE JOINTS WITH ADDITION OF ISOLATION JOINTS FOAM TO FINISH 20mm BELOW FINISHED PAVER LEVEL TO ACCOMMODATE BACKING ROD AND APPROVED JOINT SEALANT. REFER DETAILS PV3.1.1 - PV3.6

SETOUT – PAVERS:
PAVERS SHALL BE SETOUT AS PER DIMENSIONS AND LOCATIONS AS SHOWN IN TYPICAL DETAILS PV4.1 - PV4.9

LAYING – PAVERS:
LAYING OF PAVERS IS TO COMMENCE FROM PROPERTY BOUNDARY TOWARDS BACK OF KERB. REFER TO DETAIL PV4.1 - PV4.9 UNLESS OTHERWISE SPECIFIED.
ENSURE ALL PAVERS ARE FULLY BEDDED ON A 30mm THICK 8:1 SAND/CEMENT SCREED. SAND USED SHALL BE WHITE WELL GRADED WASHED SAND, PASSING A 4.75mm SIEVE. PAVERS ARE TO BE MANUALLY TAMPERED WITH A RUBBER MALLET INTO THE WET MORTAR. THE USE OF VIBRATING COMPACTION EQUIPMENT EG. WAKA PLATE, IS STRICTLY PROHIBITED, WHERE PAVERS ARE TO BE LAID IN A RADIAL OR CURVE ALIGNMENT, PAVERS TO BE CUT RADIAL TO CENTRE. REFER TO DETAILS PV4.1 - PV4.9
ALL PAVERS TO BE LAID LEVEL TO THOSE ADJACENT TO AVOID TRIP HAZARDS.
MINIMUM CUT PAVER WIDTH SHOULD BE NO LESS THAN 100mm UNLESS APPROVED BY SUPERINTENDENT.

KERB RAMP:
GENERALLY KERB RAMPS ARE TO BE SETOUT AS SHOWN IN DETAILS PV4.6, PV4.7 & PV4.8 WHERE ANY CHANGES ARE REQUIRED, CONFIRM WITH SUPERINTENDENT. MINIMUM CUT PAVER WIDTH IS TO BE 100mm UNLESS APPROVED BY SUPERINTENDENT.

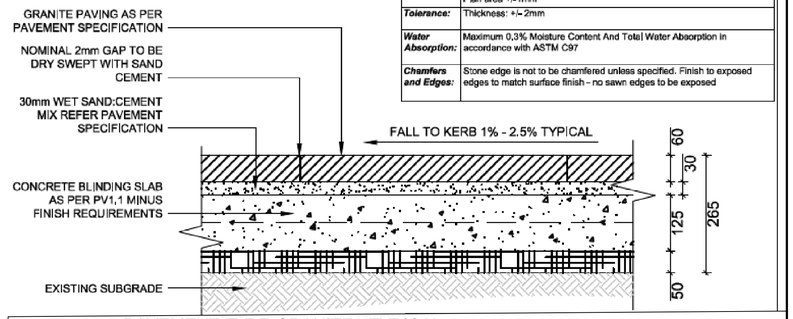
GRADE >1:8:
ALL PAVERS LAID ON A GRADE STEEPER THAN 1:8 (12.5%) ARE REQUIRED TO BE A 'V' RATED PAVER WITH A BUSH HAMMERED FINISH.

ROOF OUTLETS:
WHERE ROOF OUTLET CONNECTIONS ARE TO BE PROVIDED USE 150mm x 90mm GALVANISED STEEL RECTANGULAR HOLLOW SECTION. WHERE MORTAR COVER CANNOT BE ACHIEVED PAVERS ARE TO BE GLUED TO STEEL SECTION AS REQUIRED WITH HIGH STRENGTH EPOXY ADHESIVE.

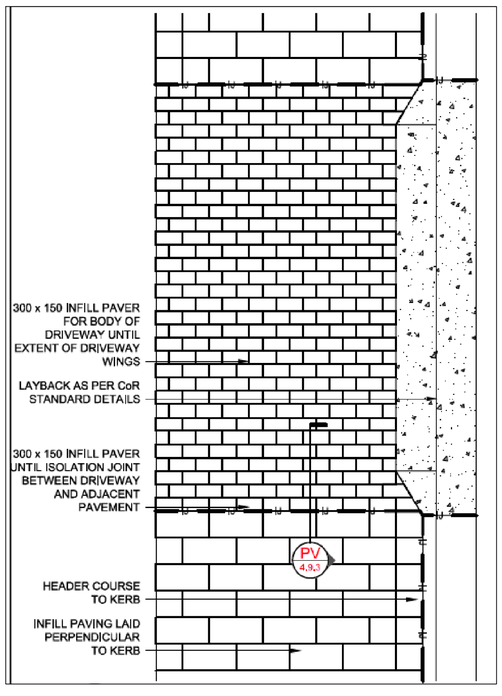
SERVICE LID TREATMENT:
REPLACE ALL EXISTING SERVICE LIDS WITH STAINLESS STEEL OR GALVANISED STEEL INFILL COVERS AND FRAMES.
NEW SERVICE LIDS ARE TO BE PRE APPROVED BY THE APPROPRIATE AUTHORITY.
ADJUST HEIGHT OF PIT FRAME/LID AS REQUIRED TO SUIT FINISH LEVEL OF NEW WORK.
PROVIDE 10mm WIDE SEALANT (COLOUR: BLACK) AROUND PERIMETER OF SERVICE PIT LID/FRAME.

CLEANING OF PAVERS:
ALL PAVERS LAID DURING THE COURSE OF ONE WORKING DAY MUST HAVE JOINTING SAND BROOMED IN AND BE CLEANED AT THE END OF THAT DAY BEFORE PROCEEDING WITH LAYING OF SUBSEQUENT PAVERS. THIS IS TO PREVENT RESIDUE BUILD UP ON PAVERS WHICH MAY BECOME DIFFICULT TO CLEAN IF LEFT OVERNIGHT OR FOR PROLONGED PERIODS.

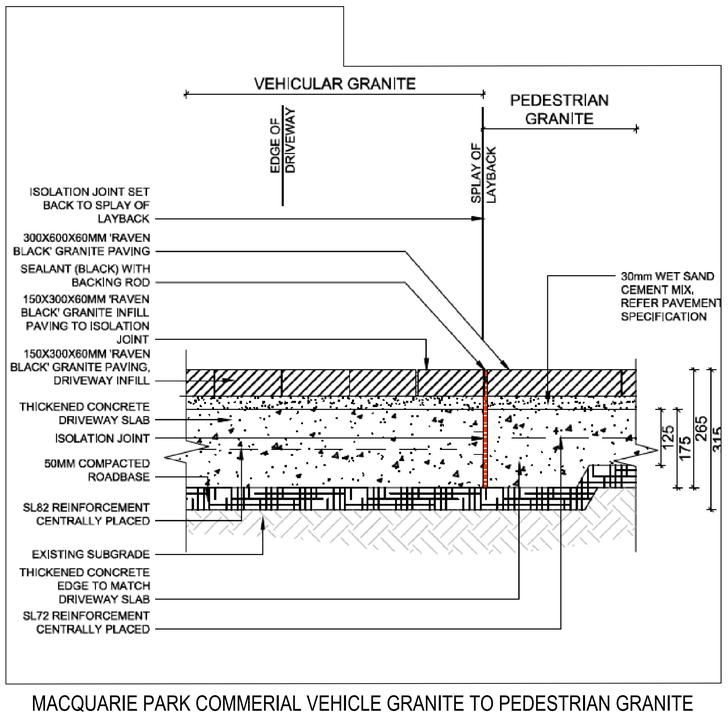
GRANITE PAVER SPECIFICATION	
Type:	General Paver - Select flame exfoliated granite Grade >1:8 Paver - Select bush hammered granite
Description:	Natural stone which is of uniform quality, sound, free from defects (such as vents, cracks, fissures, seams, porous inclusions, foreign material, loose surface material striations, stains, and discolouration) liable to affect its strength, appearance, durability, or proper functioning under the intended conditions of use.
Matching:	Select stone for the optimum matching of visual properties such as colour and pattern.
Finish:	General Paver, W rated - Sawn edges with exfoliated surface to provide a finish in accordance with AS/NZS 4586:2004. Grade >1:8 Paver, V rated - Sawn edges with bush hammered surface to provide a finish in accordance with AS/NZS 4586:2004,
Colour:	Raven Black or colour code G684
	Header paving and banding as per landscape drawings.
	For Top Ryde CBD, Rosa (matching existing material laid in Blaxland Rd, Ryde)
Size:	Footpaths 600 x 300 x 60 mm (Infill pavers); 300 x 300 x 60 mm (Header pavers)
	Driveways 600 x 300 x 60 mm (Infill pavers); 300 x 300 x 60 mm (Header pavers)
	Commercial Driveways: Transition pavers 600 x 150 x 60 mm; Infill pavers: 300 x 150 x 60 mm
	Special pavers: 150 x 150 x 60 mm
Breaking Load:	Minimum 5Kn
	Plan area +/-1mm
Tolerance:	Thickness: +/- 2mm
Water Absorption:	Maximum 0,3% Moisture Content And Total Water Absorption in accordance with ASTM C97
Chamfers and Edges:	Stone edge is not to be chamfered unless specified. Finish to exposed edges to match surface finish - no sawn edges to be exposed



PAVEMENT TYPE GRANITE - TYPICAL
COURTESY OF COUNCIL ST DWG PV 1.2
NTS

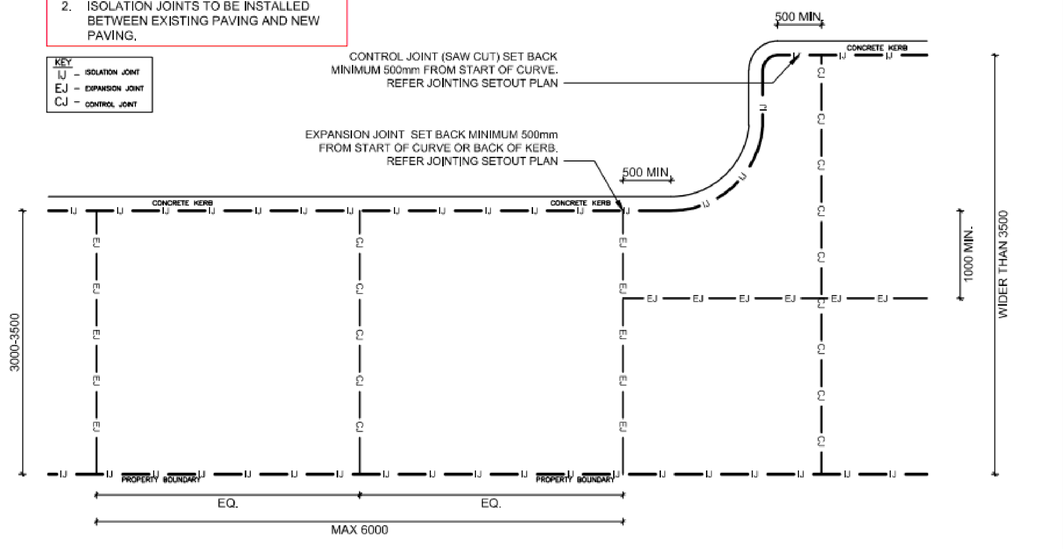


MACQUARIE PARK COMMERCIAL VEHICLE CROSSING SETOUT
COURTESY OF COUNCIL ST DWG PV 4.9.1
NTS



MACQUARIE PARK COMMERIAL VEHICLE GRANITE TO PEDESTRIAN GRANITE
COURTESY OF COUNCIL ST DWG PV 4.9.3
NTS

NOTE:
1. ALL JOINTS TO BE LAID OUT PERPENDICULAR TO KERB, ALL SAWCUTS TO BE CONTINUOUS & STRAIGHT.
2. ISOLATION JOINTS TO BE INSTALLED BETWEEN EXISTING PAVING AND NEW PAVING.



CONCRETE SLAB JOINT SETOUT - TYPICAL
COURTESY OF COUNCIL ST DWG PV 3.6
NTS

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

100mm on Original

Bar Scales

Client: Goodman

Scales: AS SHOWN
Grid: GDA20 MGA56
Height Datum: AHD
Drawn: CK
Designed: CK
Checked: GJ
Approved:

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: SITEWORKS DETAILS SHEET 3

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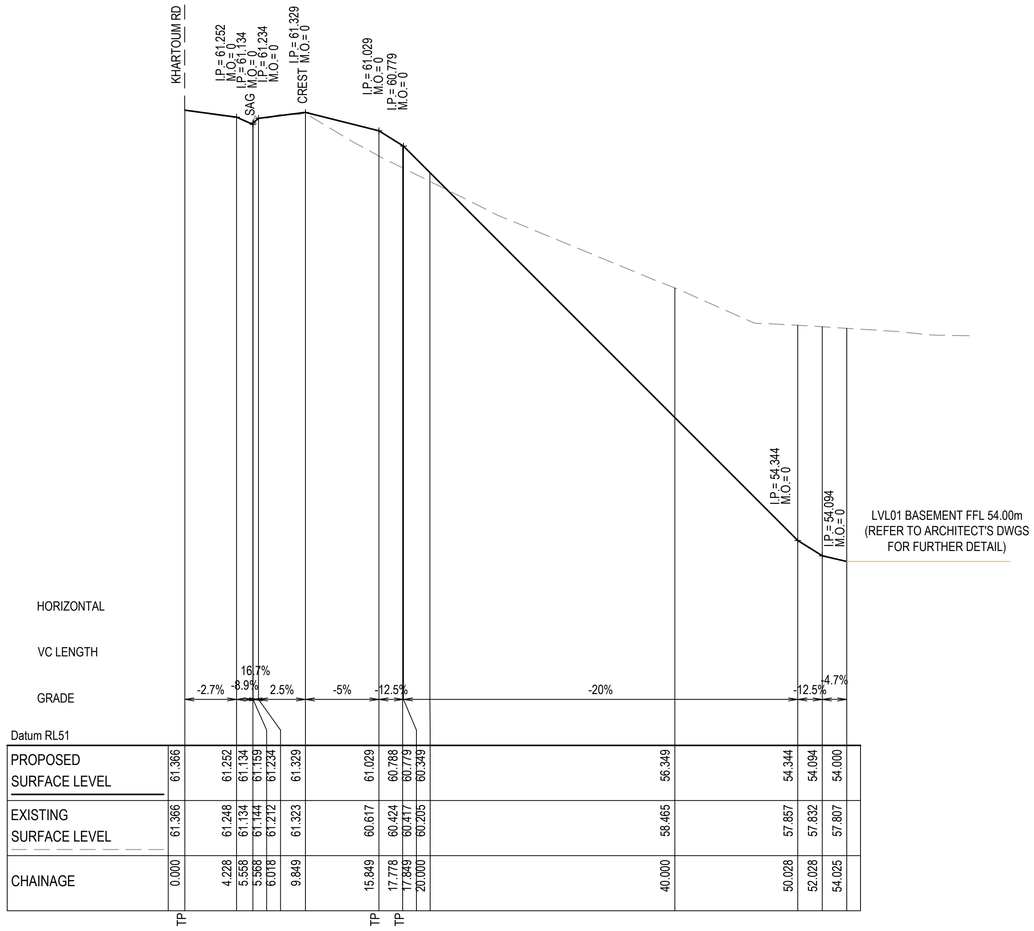
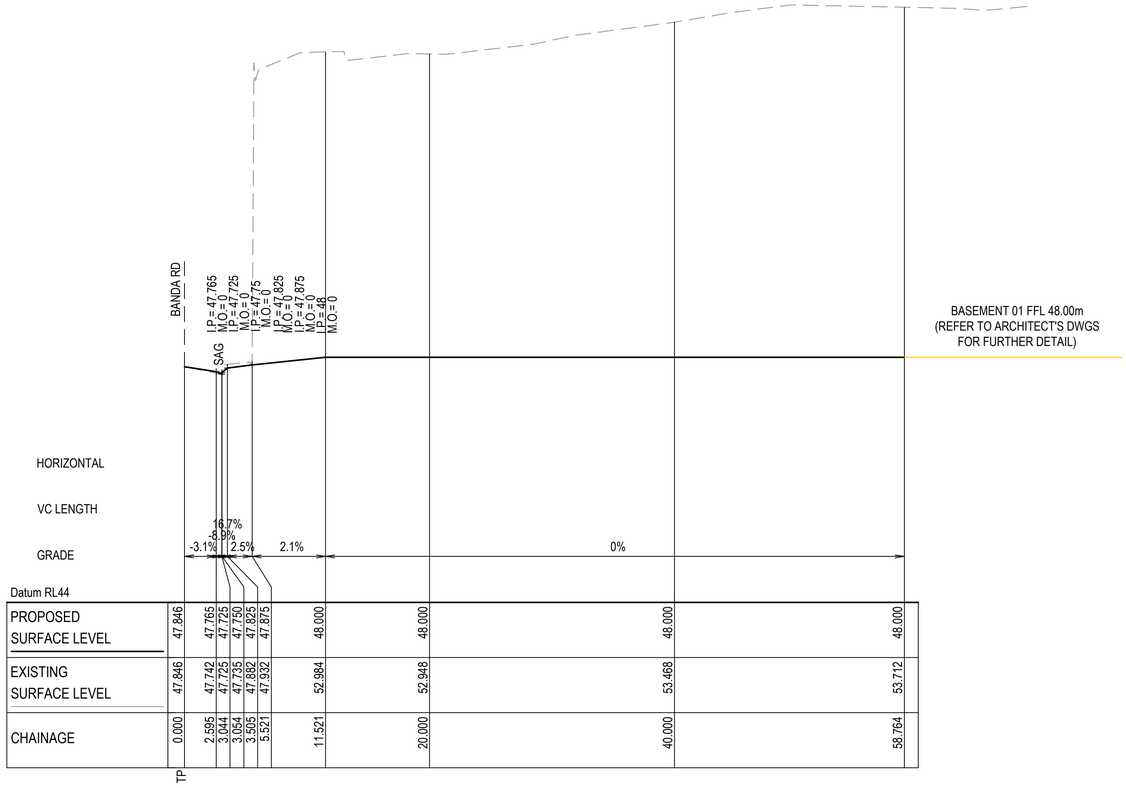
Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION
A1
Project No. - Drawing No.: 23-1081-DAC2052
Issue: C

Date Plotted: 26 Jun 2024 - 05:07PM File Name: F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2052.dwg



SECTION 1
1:250 HORI.
1:50 VERT.
DAC2010



SECTION 2
1:250 HORI.
1:50 VERT.
DAC2012

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

100mm on Original

Bar Scales

0 5 10 15 20 25m
1 : 250 @ A1 1 : 500 @ A3

0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales		Drawn	CK
AS SHOWN		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
ROADWORKS
LONGITUDINAL
SECTION

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Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2061

Issue
A

Date Plotted: 26 Jun 2024 - 05:07PM File Name: F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2061.dwg

LEGEND

- ROOF IMPERVIOUS TO RWT
  OSD 1 - 0.4796ha
- ROOF IMPERVIOUS BYPASS RWT
  OSD 1 - 0.5645ha
- GROUND (PODIUM)
  OSD 1 - 0.2557ha
- GROUND (ON-GRADE)
  OSD 1 - 0.5711ha
- GROUND (PODIUM)
  OSD 2 - 0.1830ha
- GROUND (ON-GRADE)
  OSD 2 - 0.1185ha
- BYPASS
  N/A

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Client: Goodman

Scales	1:500
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title: STORMWATER DRAINAGE MUSIC CATCHMENT PLAN

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Status: FOR INFORMATION
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A1

Project No. - Drawing No.: 23-1081-DAC2501

Issue: C

100mm on Original

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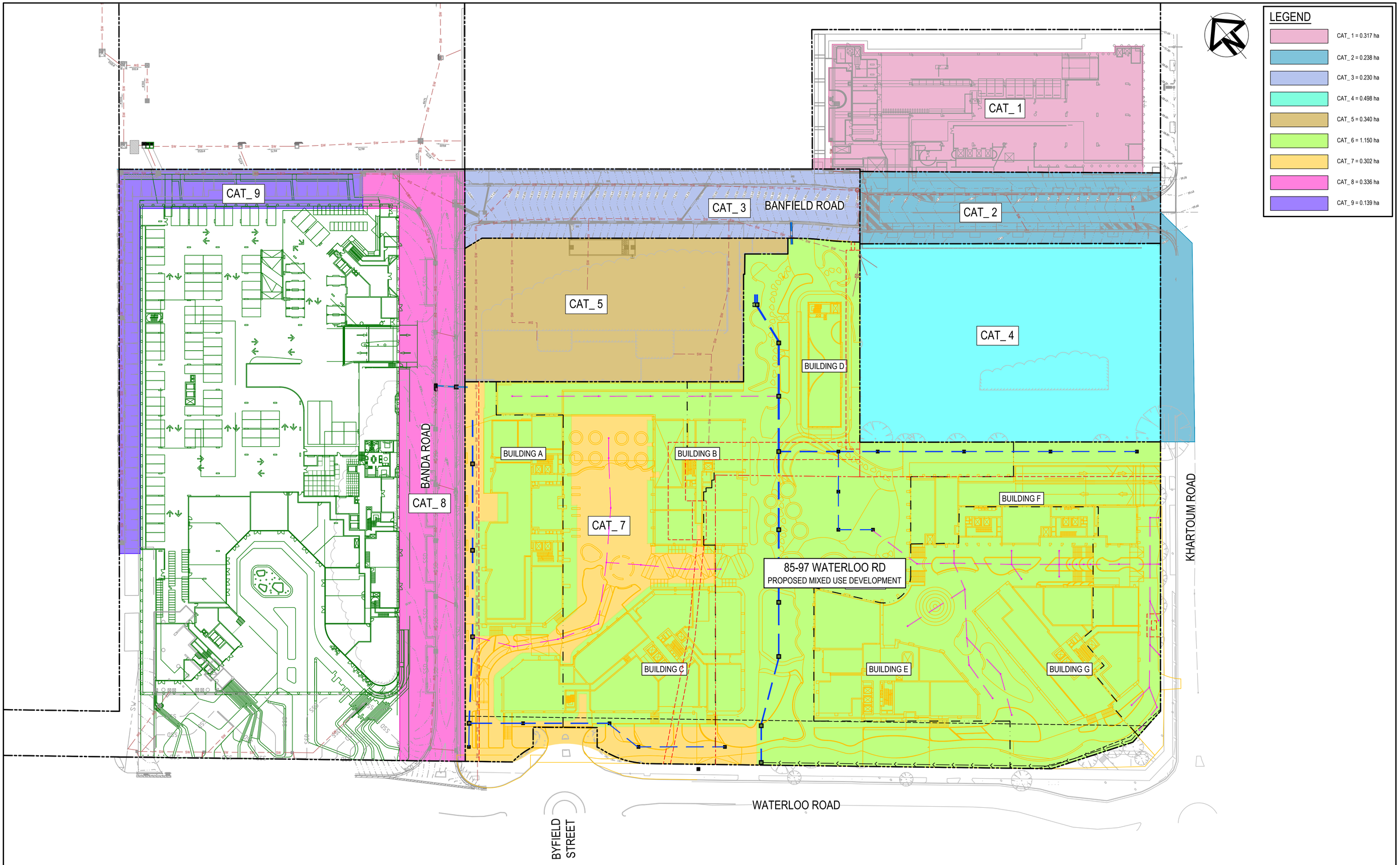

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Client: Goodman

Scales	1:500
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title: STORMWATER DRAINAGE LOCAL AREA CATCHMENT PLAN

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Status: FOR INFORMATION
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A1

Project No. - Drawing No.: 23-1081-DAC2503

Issue: A

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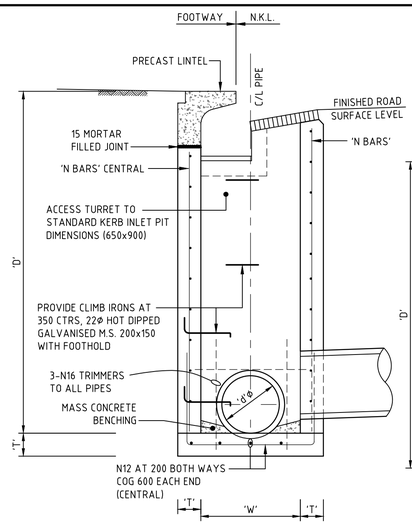

PIT TYPE '1' DETAIL
STANDARD GRATED KERB INLET PIT
FOR PIPES UPTO 525ø

SCALE: 1:20

PIPE DIA. 'øØ'	WIDTH 'W'	DEPTH 'D'	WALL 'T'	BARS 'N'
375	AS3500.3	800	150	N12-200
	AS3500.3	1200	150	N12-200
	AS3500.3	1600	150	N12-200
	AS3500.3	2000	150	N12-200
	AS3500.3	2400	150	N12-200
	AS3500.3	3000	150	N12-200
450	AS3500.3	800	150	N12-200
	AS3500.3	1200	150	N12-200
	AS3500.3	1600	150	N12-200
	AS3500.3	2000	150	N12-200
	AS3500.3	2400	150	N12-200
	AS3500.3	3000	150	N12-200
525	AS3500.3	800	150	N12-200
	AS3500.3	1200	150	N12-200
	AS3500.3	1600	150	N12-200
	AS3500.3	2000	150	N12-200
	AS3500.3	2400	150	N12-200
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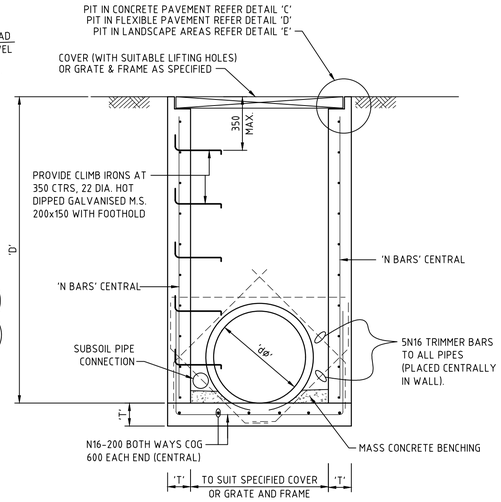
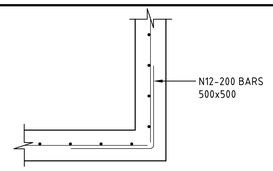


PIT TYPE '2' DETAIL
SURFACE INLET PIT
FOR PIPES UP TO 525ø

SCALE: 1:20

PIPE DIA. 'øØ'	WIDTH 'W'	DEPTH 'D'	WALL 'T'	BARS 'N'
375	AS3500,3	800	150	N12-200
	AS3500,3	1200	150	N12-200
	AS3500,3	1600	150	N12-200
	AS3500,3	2000	150	N12-200
	AS3500,3	2400	150	N12-200
	AS3500,3	3000	150	N12-200
450	AS3500,3	800	150	N12-200
	AS3500,3	1200	150	N12-200
	AS3500,3	1600	150	N12-200
	AS3500,3	2000	150	N12-200
	AS3500,3	2400	150	N12-200
	AS3500,3	3000	150	N12-200
525	AS3500,3	800	150	N12-200
	AS3500,3	1200	150	N12-200
	AS3500,3	1600	150	N12-200
	AS3500,3	2000	150	N12-200
	AS3500,3	2400	150	N12-200
	AS3500,3	3000	150	N12-200



TYPICAL CORNER DETAIL

SCALE 1:20

11. CONCRETE STRENGTH – UNLESS NOTED OTHERWISE

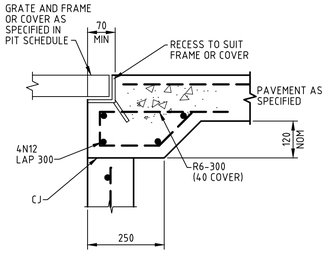
ELEMENT	f'c MPa (28 DAYS)	SLUMP	MAX AGG SIZE	CEMENT TYPE
PITS	32	80mm	20mm	GP

12. COVER – UNLESS NOTED OTHERWISE

ELEMENT	INTERIOR	EXTERIOR
PITS		45mm
SLAB TOP	45mm	45mm
SLAB BOTTOM	45mm	45mm
BEAM TOP		
BEAM BOTTOM		
BEAM SIDE		
COLUMNS		

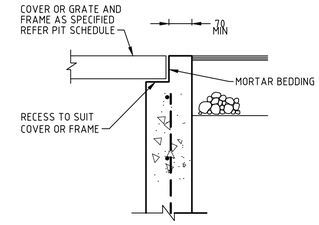
NOTE

1. FOR PIT SIZE REFER TO TABLE (900 MIN LONG).
2. REINFORCING MESH IS TO BE BENT TO LAP 300 AROUND ALL CORNERS. VERTICAL BARS ARE NOT TO BE CUT. ALTERNATLY PROVIDE N12 "L" BARS (500x500) AT 400 VERTICAL CTS.
3. COMPRESSIVE STRENGTH (F'c) FOR CAST IN SITU CONCRETE SHALL BE A MINIMUM 32 MPa AT 28 DAYS.
4. TOP OF BENCHING SHALL BE ½ OF OUTLET PIPE DIAMETER.
5. 100mm SUBSOIL DRAINAGE PIPE 3000 LONG WRAPPED IN FABRIC SOCK TO BE PROVIDE ADJACENT TO INLET PIPES.
6. ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP.
7. PIT GRATE TO BE 'WELDLOK' GULLY GRATE GG 78-50 OR APPROVED EQUIVALENT.
8. DURING INSTALLATION OF GRATE AND FRAME CONTRACTOR IS TO ENSURE CLEARANCE BETWEEN LINTEL AND OPENED GRATE (REFER TO INSTALLATION TOLERANCE).
9. PROVIDE STEP IRONS AS INDICATED FOR PITS DEEPER THAN 1200.
10. N12 AT 200 CENTRAL MAY BE USED IN LEIU OF MESH. LAP 500 AT CORNERS



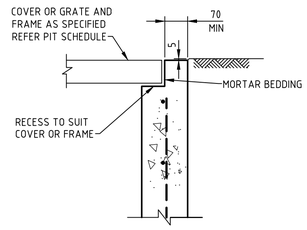
DETAIL "C"

SCALE 1:10



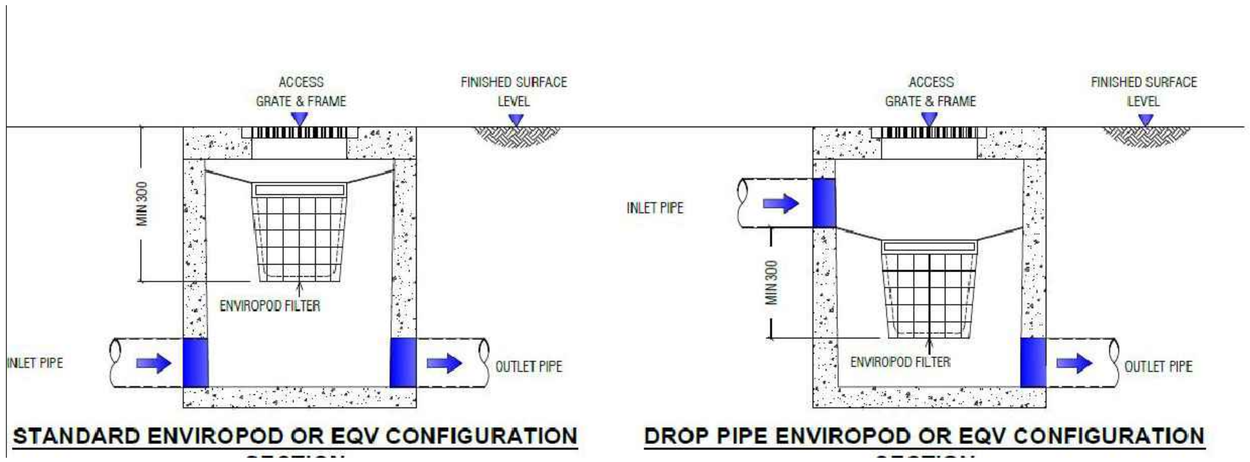
DETAIL "D"

SCALE 1:10



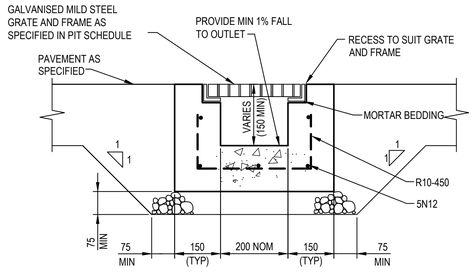
DETAIL "E"

SCALE 1:10



STANDARD ENVIROPOD OR EQV CONFIGURATION

DROP PIPE ENVIROPOD OR EQV CONFIGURATION



GRATED DRAIN (TD)

SCALE 1:10

KERB INLET PIT SCALE 1:100 | SURFACE INLET PIT SCALE 1:100 | JUNCTION PIT SCALE 1:100

STORMWATER PIT SETOUT POINTS

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 100 200 400 600 800 1000mm

1 : 10 @ A1 1 : 20 @ A3

0 500 1000 1500 2000mm

1 : 20 @ A1 1 : 40 @ A3

Client: Goodman

Scales	AS SHOWN
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE DETAILS SHEET 1

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
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info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2510

Issue: C

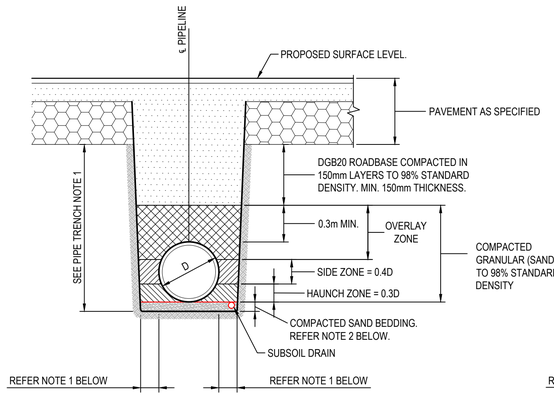
100mm on Original

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2510.dwg

PIPE TRENCH NOTES

1. IN UNDERTAKING TRENCH EXCAVATION, THE CONTRACTOR SHALL PROVIDE ANY SHORING, SHEET PILING OR OTHER STABILISATION OF THE TRENCH NECESSARY TO COMPLY WITH OH&S REGULATION REQUIREMENTS. THE SIDES ARE NOT TO BE LOADED & SHALL BE KEPT CLEAR OF LOOSE MATERIAL ETC. SAFE ACCESS & EGRESS SHALL BE PROVIDED AT ALL TIMES.

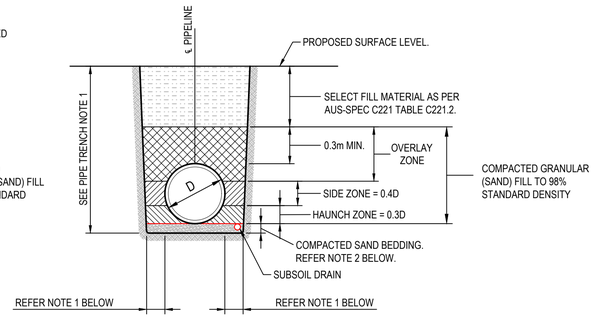
2. THE TRENCH SHALL BE EXCAVATED TO A WIDTH 1.4 TIMES THE EXTERNAL DIAMETER OF THE PIPE, OR TO THE EXTERNAL DIAMETER OF THE PIPE PLUS 300mm ON EACH SIDE, WHICHEVER IS THE GREATER.



RCP PIPE TRENCH BELOW PAVEMENT

N.T.S.

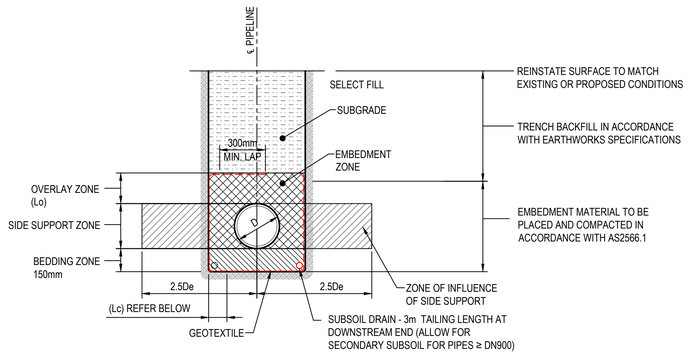
NOTE
1. ≥0.2D OR 0.3m (WHICHEVER IS GREATER)
2. 100mm FOR PIPE DIA. ≤1500



RCP PIPE TRENCH BELOW LANDSCAPING (HS3)

N.T.S.

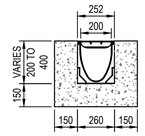
NOTE
1. ≥0.2D OR 0.3m (WHICHEVER IS GREATER)
2. 100mm FOR PIPE DIA. ≤1500



TRENCH DETAIL FLEXIBLE PIPE

N.T.S.

De	Lc	Lo
≤ 300	150	150
> 300 ≤ 450	200	150
> 450 ≤ 900	300	150
> 900 ≤ 1500	350	200
> 1500	400 OR 0.25De WHICHEVER IS THE LARGER	300



ACO POWERDRAIN S200K

SCALE 1:20

SPECIFICATION CLAUSE
POWERDRAIN S200K - LOAD CLASS D

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE ACO'S POWERDRAIN S300K POLYMER CONCRETE V-PROFILE CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO.

MATERIALS
S300K CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS WITH SUPPORTING DOCUMENTATION:

COMPRESSIVE STRENGTH:	98 MPa
FLEXURAL STRENGTH:	26 MPa
TENSILE STRENGTH:	14 MPa
WATER ABSORPTION:	0.07%
FROST PROOF:	YES
COEFFICIENT OF EXPANSION/CONTRACTION:	2.02x10-5/°C
WATER VAPOUR TRANSMISSION:	0.0364g/m^2
NON FLAMMABLE:	YES
COEFFICIENT OF ROUGHNESS (MANNINGS):	n=0.011
RESISTANT TO WEATHERING:	YES
DILUTE ACID AND ALKALI RESISTANT:	YES
SF SEALANT GROOVE	YES

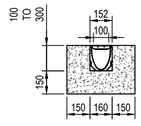
CHANNELS
S200K CHANNEL SHALL BE 200mm NOMINAL INTERNAL WIDTH WITH AN OVERALL WIDTH OF 260mm. CHANNEL INVERT SHALL HAVE A V-PROFILE TO ALLOW EFFICIENT DRAINAGE. S200K SLOPED CHANNELS SHALL HAVE A BUILT-IN SLOPE OF 0.5%. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

GRATES
THE GRATE SHALL BE ACO S200K/H200SK× IRON SLOTTED GRATE WITH POWERLOK BOLTLESS LOCKING SYSTEM AS MANUFACTURED BY ACO. THIS GRATE HAS AN OVERALL WIDTH OF 252MM AND OVERALL LENGTH OF 1000MM. SLOT WIDTHS MEASURE AT A MAXIMUM OF 18MM.

THE GRATE SHALL BE MANUFACTURED FROM DUCTILE IRON AND HAVE MINIMUM PROPERTIES AND CHARACTERISTICS AS FOLLOWS:
- RECESSES IN GRATE FIT AROUND 'ANTI-SHUNT' LUGS ON THE EDGE RAIL TO PREVENT LONGITUDINAL MOVEMENT
- MANUFACTURED FROM DUCTILE IRON TO ASTM A536-84 GRADE 65-45-12 WHICH IS SIMILAR TO AS 1831 GRADE 400-15
- CERTIFIED TO AS 3996 LOAD CLASS D (210KN)1
- MEETS AS 3996 (CLAUSE 3.3.6)
- INTAKE AREA OF 75,500MM2 PER HALF METRE OF GRATE

INSTALLATION
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO AND TO BE INSTALLED FOR ITS INTENDED PURPOSE. ANY DEVIATION OR PARTIAL USE OF THE SPECIFIED SYSTEM AND/OR IMPROPER INSTALLATION WILL VOID ALL WARRANTIES PROVIDED BY ACO.

NOTES:
1. SPECIFIC SITE CONDITIONS MAY REQUIRE AN INCREASE IN CONCRETE ENCASEMENT DIMENSIONS AND/OR REINFORCEMENT. IT IS THE CUSTOMER'S RESPONSIBILITY TO ENSURE THE CONCRETE ENCASEMENT IS DESIGNED FOR THE APPLICATION. A MINIMUM CONCRETE STRENGTH OF 25MPA IS RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
2. THE FINISHED LEVEL OF THE CONCRETE ENCASEMENT MUST BE APPROXIMATELY 3MM ABOVE THE TOP OF THE CHANNEL EDGE.
3. FOR FURTHER DETAILS, REFER TO ACO'S DESIGN & SITE INSTALLATION FILES AT WWW.ACODRAIN.COM/RESOURCES.



ACO POWERDRAIN S100K

SCALE 1:20

SPECIFICATION CLAUSE
POWERDRAIN S100K - LOAD CLASS B

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE ACO'S POWERDRAIN S300K POLYMER CONCRETE V-PROFILE CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO.

MATERIALS
S300K CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS WITH SUPPORTING DOCUMENTATION:

COMPRESSIVE STRENGTH:	98 MPa
FLEXURAL STRENGTH:	26 MPa
TENSILE STRENGTH:	14 MPa
WATER ABSORPTION:	0.07%
FROST PROOF:	YES
COEFFICIENT OF EXPANSION/CONTRACTION:	2.02x10-5/°C
WATER VAPOUR TRANSMISSION:	0.0364g/m^2
NON FLAMMABLE:	YES
COEFFICIENT OF ROUGHNESS (MANNINGS):	n=0.011
RESISTANT TO WEATHERING:	YES
DILUTE ACID AND ALKALI RESISTANT:	YES
SF SEALANT GROOVE	YES

CHANNELS
S200K CHANNEL SHALL BE 200mm NOMINAL INTERNAL WIDTH WITH AN OVERALL WIDTH OF 260mm. CHANNEL INVERT SHALL HAVE A V-PROFILE TO ALLOW EFFICIENT DRAINAGE. S200K SLOPED CHANNELS SHALL HAVE A BUILT-IN SLOPE OF 0.5%. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

GRATES
THE GRATE SHALL BE ACO S200K/H200SK× IRON SLOTTED GRATE WITH POWERLOK BOLTLESS LOCKING SYSTEM AS MANUFACTURED BY ACO. THIS GRATE HAS AN OVERALL WIDTH OF 252MM AND OVERALL LENGTH OF 1000MM. SLOT WIDTHS MEASURE AT A MAXIMUM OF 18MM.

THE GRATE SHALL BE MANUFACTURED FROM DUCTILE IRON AND HAVE MINIMUM PROPERTIES AND CHARACTERISTICS AS FOLLOWS:
- RECESSES IN GRATE FIT AROUND 'ANTI-SHUNT' LUGS ON THE EDGE RAIL TO PREVENT LONGITUDINAL MOVEMENT
- MANUFACTURED FROM DUCTILE IRON TO ASTM A536-84 GRADE 65-45-12 WHICH IS SIMILAR TO AS 1831 GRADE 400-15
- CERTIFIED TO AS 3996 LOAD CLASS B (80KN)1
- MEETS AS 3996 (CLAUSE 3.3.6)
- INTAKE AREA OF 75,500MM2 PER HALF METRE OF GRATE

INSTALLATION
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO AND TO BE INSTALLED FOR ITS INTENDED PURPOSE. ANY DEVIATION OR PARTIAL USE OF THE SPECIFIED SYSTEM AND/OR IMPROPER INSTALLATION WILL VOID ALL WARRANTIES PROVIDED BY ACO.

NOTES:
1. SPECIFIC SITE CONDITIONS MAY REQUIRE AN INCREASE IN CONCRETE ENCASEMENT DIMENSIONS AND/OR REINFORCEMENT. IT IS THE CUSTOMER'S RESPONSIBILITY TO ENSURE THE CONCRETE ENCASEMENT IS DESIGNED FOR THE APPLICATION. A MINIMUM CONCRETE STRENGTH OF 25MPA IS RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
2. THE FINISHED LEVEL OF THE CONCRETE ENCASEMENT MUST BE APPROXIMATELY 3MM ABOVE THE TOP OF THE CHANNEL EDGE.
3. FOR FURTHER DETAILS, REFER TO ACO'S DESIGN & SITE INSTALLATION FILES AT WWW.ACODRAIN.COM/RESOURCES.

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 500 1000 1500 2000mm

1 : 20 @ A1 1 : 40 @ A3

Client: Goodman

Scales	AS SHOWN
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE DETAILS SHEET 2

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
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www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2511

Issue: C

100mm on Original

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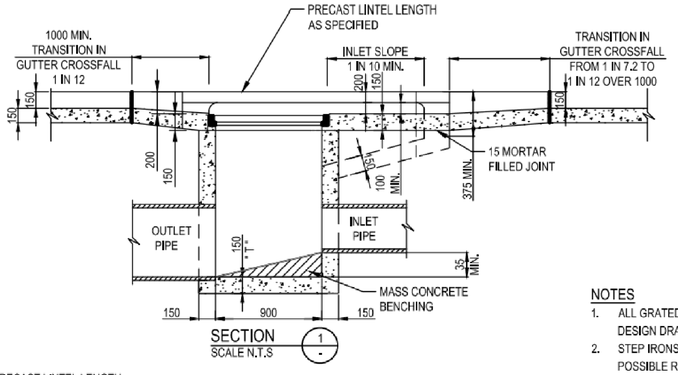
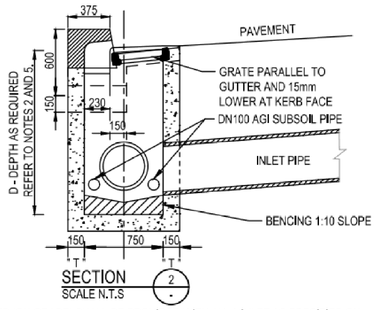
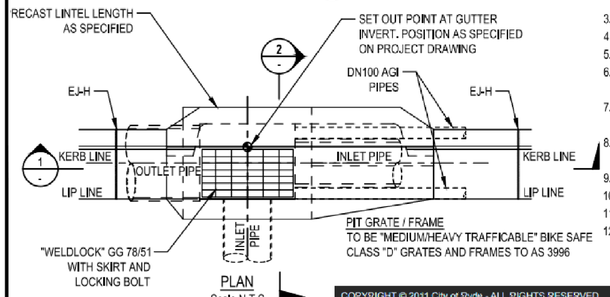






NOTES

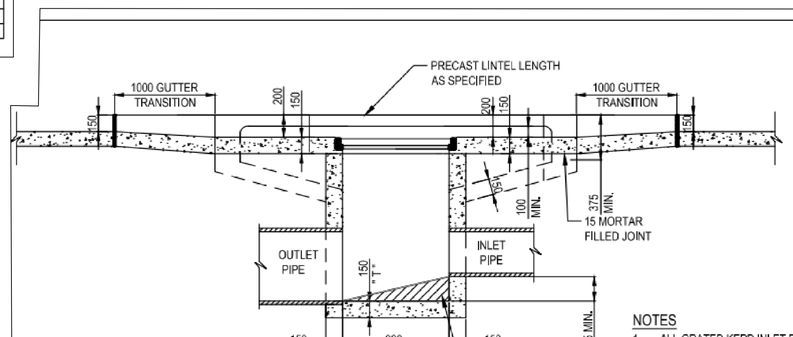
1. ALL GRATED KERB INLET PITS (ON GRADE) SHALL BE PROVIDED WITH AN A INLET AS SPECIFIED ON DESIGN DRAWINGS ON THE HIGHER SIDE OF THE PIT.
2. STEP IRONS TO BE PROVIDED FOR PITS DEEPER THAN 1000mm AND PLACED ON A WALL CLEAR OF FLOW WHERE POSSIBLE REFER TO SWD.5.1.1 FOR DETAIL.
3. THE COMPRESSIVE STRENGTH OF ALL CONCRETE USED SHALL BE 25MPa AT 28 DAYS.
4. REFER TO SWD.9.1.1 FOR MINIMUM PIPE COVER.
5. ALL INTERNAL PIT CORNERS TO BE PROVIDED WITH BENCHING OR 30 RADIUS TO IMPROVE FLOW.
6. WHERE DEPTH EXCEEDS 1200mm, WALLS TO BE REINFORCED IN ACCORDANCE WITH THE TABLE SHOWN BELOW.
7. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS. (REFER TO AS 3725-2007)
8. DN100 AGI DRAINAGE PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PLACED ADJACENT TO INLET PIPES ON BOTH SIDES AND 100mm MINIMUM ABOVE PIT FLOOR.
9. SURROUND SUBSOIL DRAINAGE PIPE/AGLINE WITH 7mm CLEAN BLUE METAL.
10. REFER TO CIV.11 FOR JOINT DETAILS
11. 50mm MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE.
12. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

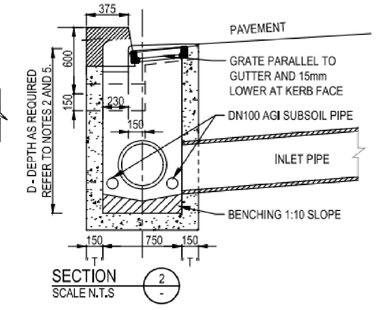
DEPTH TO INVERT "D"	WALL & BASE THICKNESS "T"	SPACING OF "N12" WALL & BASE REINFORCEMENT MAXIMUM INTERNAL PLAN DIMENSION WIDTH				
		0 - 1190	1200 - 1790	1800 - 2390	2400 - 2690	2700 - 3000
0 - 1990	150	NIL.REINF.	200 CP	200 CP	200 CP	200 CP
2000 - 2490	200	200 CP	200 CP	200 CP	200 CP	200 CP

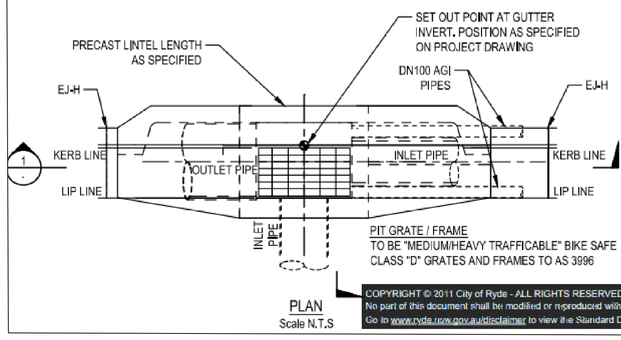
CP DENOTES CENTRALLY PLACED

STARNDARD KERB INLET ON GRADE PIT DETAIL

N.T.S







NOTES

1. ALL GRATED KERB INLET PITS SHALL BE PROVIDED WITH AN A INLET AS SPECIFIED ON DESIGN DRAWINGS ON THE HIGHER SIDE OF THE PIT.
2. STEP IRONS TO BE PROVIDED FOR PITS DEEPER THAN 1000mm AND PLACED ON A WALL CLEAR OF FLOW WHERE POSSIBLE REFER TO SWD.5.1.1 FOR DETAIL.
3. THE COMPRESSIVE STRENGTH OF ALL CONCRETE USED SHALL BE 25MPa AT 28 DAYS.
4. REFER TO SWD.9.1.1 FOR MINIMUM PIPE COVER.
5. ALL INTERNAL PIT CORNERS TO BE PROVIDED WITH BENCHING OR 30 RADIUS TO IMPROVE FLOW.
6. WHERE DEPTH EXCEEDS 1200mm WALLS TO BE REINFORCED IN ACCORDANCE WITH THE TABLE SHOWN BELOW.
7. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS. (REFER TO AS 3725-2007)
8. DN100 AGI DRAINAGE PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PLACED ADJACENT TO INLET PIPES ON BOTH SIDES AND 100mm MINIMUM ABOVE PIT FLOOR.
9. SURROUND SUBSOIL DRAINAGE PIPE/AGLINE WITH 7mm CLEAN BLUE METAL.
10. REFER TO CIV.11 FOR JOINT DETAILS
11. 50mm MINIMUM CONCRETE COVER UNLESS NOTED OTHERWISE.
12. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

DEPTH TO INVERT "D"	WALL & BASE THICKNESS "T"	SPACING OF "N12" WALL & BASE REINFORCEMENT MAXIMUM INTERNAL PLAN DIMENSION "W"				
		0 - 1190	1200 - 1790	1800 - 2390	2400 - 2690	2700 - 3000
0 - 1990	150	NIL.REINF.	200 CP	200 CP	200 CP	200 CP
2000 - 2490	200	200 CP	200 CP	200 CP	200 CP	200 CP

CP DENOTES CENTRALLY PLACED

STARNDARD KERB INLET SAG PIT DETAIL

N.T.S

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

100mm on Original

Bar Scales

0 500 1000 1500 2000mm
1 : 20 @ A1 1 : 40 @ A3

0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales: AS SHOWN
Grid: GDA20 MGA56
Height Datum: AHD

Drawn: CK
Designed: CK
Checked: GJ
Approved:

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE DETAILS SHEET 3

Civil Engineers and Project Managers
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info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION
A1

Project No. - Drawing No.: 23-1081-DAC2512
Issue: C

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NOTE

DESIGN AS PER CITY OF RYDE DEVELOPMENT CONGROL PLAN 2014
PART 8.2 STROMWATER MANAGEMENT TECHNICAL MANUAL
REFER TO CIVIL REPORT AND DRAINS MODEL BY AT&L FOR DETAILS.

OSD DESIGN SUMMARY

SITE AREA	= 21,730m^2
CATCHMENT AREA (OSD 1)	= 18,710m^2 (86.1% OF SITE AREA)
SURFACE RL	= 54.50 (MIN.)
SOFFIT RL	= 53.95 (INDICATIVE)
TANK IL	= 52.60 ~ 52.80
TANK AVERAGE IL	= 52.70

100YR

TWL	= 53.95
TANK AVG. WATER DEPTH	= 1.25m
REQUIRED VOLUME	= 418.9m^3 (REFER DRAINS MODEL)
PROVIDED VOLUME	= 421.1m^3 (DETENTION CHAMBER) + 8.1m^3 (STORMFILTER CHAMBER) + 8.1m^3 (OCEANGUARD CHAMBER) = 437.3m^3
ORIFICE CL	= 52.60
ORIFICE Ø	= 440mm

BANFIELD ROAD

eØ600 WAE IL: 52.20

eØ600 WAE IL: 52.92

CONNECT INTO EXISTING KERB INLET PIT AND MAKE GOOD

IL: 52.23

Ø525 IL: 52.34

EMERGENCY OVERFLOW

15.04m

3.50m

12.46m

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

900 x 900 CLASS 'B' GRATED LID FOR VENTILATION

OSD 1
MIN. 417.3m^3
PROVIDED 437.3m^3

DETENTION CHAMBER
336.9m^2

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

14.50m

5.80m

11.00m

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

STORMFILTER CHAMBER
7.9m^2

2.40m

(6x) 900 x 900 CLASS 'B' SEALED LID FOR MAINTENANCE

OCEANGUARD CHAMBER
7.9m^2

2.40m

Ø300 IL: 53.50

3.30m

2 x Ø450 IL: 53.50

2 DAC2522

RAINWATER TANK OVERFLOW CONNECTION

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

1 DAC2522

27.50m

24.00m

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

900 x 900 CLASS 'B' GRATED LID FOR ACCESS AND VENTILATION

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

Bar Scales

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales	1:50	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE OSD 1 ROOF PLAN

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2520

Issue: A

100mm on Original

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2520.dwg

NOTE

DESIGN AS PER CITY OF RYDE DEVELOPMENT CONGROL PLAN 2014
PART 8.2 STROMWATER MANAGEMENT TECHNICAL MANUAL
REFER TO CIVIL REPORT AND DRAINS MODEL BY AT&L FOR DETAILS.

OSD DESIGN SUMMARY

SITE AREA	= 21,730m^2
CATCHMENT AREA (OSD 1)	= 18,710m^2 (86.1% OF SITE AREA)
SURFACE RL	= 54.50 (MIN.)
SOFFIT RL	= 53.95 (INDICATIVE)
TANK IL	= 52.60 ~ 52.80
TANK AVERAGE IL	= 52.70

100YR

TWL	= 53.95
TANK AVG. WATER DEPTH	= 1.25m
REQUIRED VOLUME	= 418.9m^3 (REFER DRAINS MODEL)
PROVIDED VOLUME	= 421.1m^3 (DETENTION CHAMBER) + 8.1m^3 (STORMFILTER CHAMBER) + 8.1m^3 (OCEANGUARD CHAMBER) = 437.3m^3
ORIFICE CL	= 52.60
ORIFICE Ø	= 440mm

BANFIELD ROAD

eØ600 WAE IL: 52.20
eØ600 WAE IL: 52.92
CONNECT INTO EXISTING KERB INLET PIT AND MAKE GOOD
IL: 52.23
IL: 52.34
Ø525
15.04m
F 52.60
F 52.30
F 52.60
F 52.60
F 52.75
ORIFICE PLATE (REFER DETAIL)
TRASH SCREEN (REFER DETAIL)
900(L) x 900(W) x 300(D) SUMP
3.50m
12.46m
F 52.63
F 52.76
1.0%
STEP IRON @ 300 CTRS (REFER DETAIL)
5.80m
OSD 1
MIN. 417.3m^3
PROVIDED 437.3m^3
DETENTION CHAMBER
336.9m^2
14.50m
11.00m
F 52.77
F 52.77
FF 52.92
FF 52.92
TOW 53.69
STORMFILTER CHAMBER
7.9m^2
2.40m
DENOTES WEIR WALL (TYP.)
20 x 690 PSorb STORMFILTER CARTRIDGES WITH MIN. 150mm FALSE FLOOR TO BE INSTALLED BY OCEAN PROTECT
DENOTES 300mm HIGH SLOT ABOVE FLASE FLOOR
6 x OCEANGUARD TO OCEAN PROTECT'S DETAILS
OCEANGUARD CHAMBER
7.9m^2
2.40m
DISTRIBUTION CHANNEL WITH SIDE OPENING ADJACENT OCEANGUARD TO OCEAN PROTECT'S DETAILS
DENOTES FULL HEIGHT WALL (TYP.)
F 52.80
F 52.80
Ø300
IL: 53.50
3.30m
2 x Ø450
IL: 53.50
24.00m
27.50m
2 DAC2522
1 DAC2522
RAINWATER TANK OVERFLOW CONNECTION

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

Bar Scales
0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales	1:50	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE OSD 1 BASE PLAN

Civil Engineers and Project Managers
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info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION
A1
Project No. - Drawing No.: 23-1081-DAC2521
Issue: A

100mm on Original

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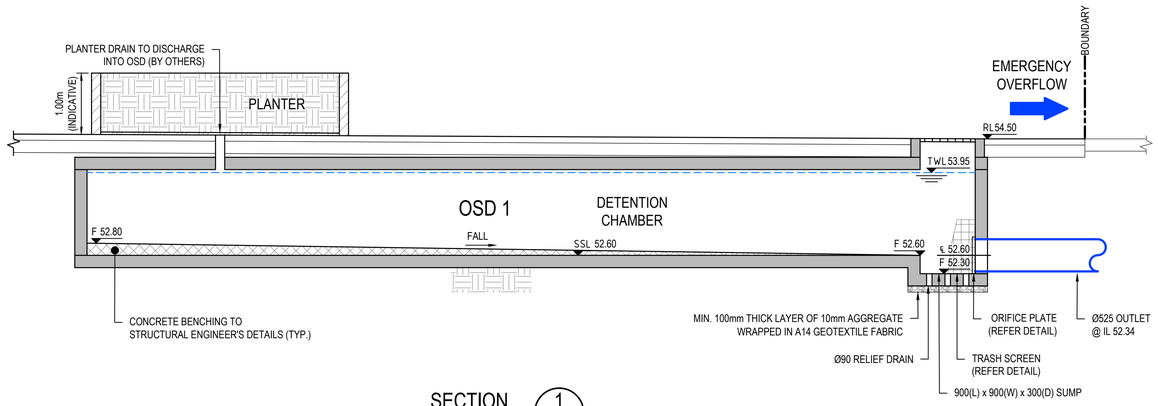
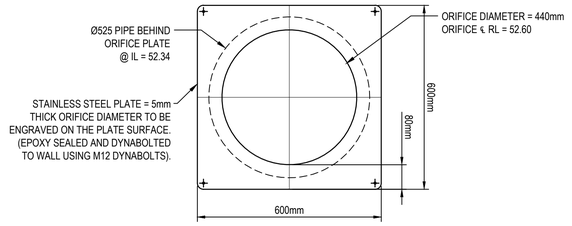
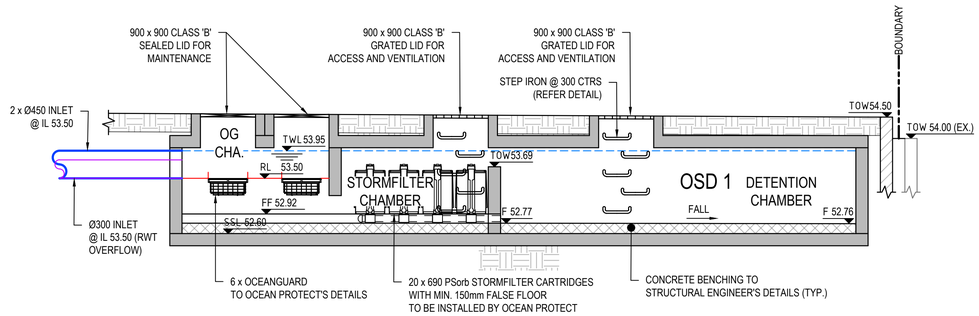


SECTION 1 — DAC2520-DAC2521
1 : 50



OSD 1 ORIFICE PLATE DETAIL 100YR
1:10



SECTION 2 — DAC2520-DAC2521
1 : 50

THIS IS AN
ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY CITY OF RYDE COUNCIL

IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED

OSD SIGN

SIGN : 110mm x 80mm
CORNERS : SQUARE
COLOUR : ETCHED AND FILLED BLACK LEGEND ON NATURAL SILVER BACKGROUND
MATERIAL : ALUMINIUM 0.9mm MILL
LOCATION : FIXED TO THE TOP OF THE OUTLET CONTROL PIT

CONFINED SPACE DANGER SIGN

A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/S CONFINED SPACE.

COLOURS: 'DANGER' AND BACKGROUND - WHITE
ELLIPTICAL AREA - RED
RECTANGLE CONTAINING ELLIPSE - BLACK
OTHER LETTERING AND BORDER - BLACK

MINIMUM DIMENSIONS: - 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
- 250mm x 180mm (SMALL ENTRIES SUCH AS GRATES & MANHOLES)

MATERIAL: COLOUR BONDED ALUMINUM OR POLYPROPYLENE.

FIXING: USE SCREWS AT EACH CORNER AND/OR SUITABLE EPOXY GLUE/CEMENT.

ON SITE DETENTION WARNING SIGN

SIGN SHALL BE PLACED IN A CLEAR AND VISIBLE LOCATION OF EACH DETENTION BASIN.

COLOURS: TRIANGLE AND "WARNING" - RED
WATER - BLUE
FIGURE OTHER LETTERING - BLACK

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

Bar Scales
0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3
0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

Client: Goodman

Scales	AS SHOWN
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE OSD 1 SECTIONS & DETAILS

Civil Engineers and Project Managers
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info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION
A1
Project No. - Drawing No.: 23-1081-DAC2522
Issue: A

100mm on Original

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NOTE

DESIGN AS PER CITY OF RYDE DEVELOPMENT CONGROL PLAN 2014
PART 8.2 STROMWATER MANAGEMENT TECHNICAL MANUAL
REFER TO CIVIL REPORT AND DRAINS MODEL BY AT&L FOR DETAILS.

OSD DESIGN SUMMARY

SITE AREA	= 21,730m^2
CATCHMENT AREA (OSD 2)	= 3,020m^2 (13.9% OF SITE AREA)
SURFACE RL	= 47.90 (MIN.)
SOFFIT RL	= 47.60 (INDICATIVE)
TANK IL	= 46.20 ~ 46.29
TANK AVERAGE IL	= 46.15

100YR

TWL	= 47.25
TANK AVG. WATER DEPTH	= 1.1m
REQUIRED VOLUME	= 37.1m^3 (REFER DRAINS MODEL)
PROVIDED VOLUME	= 36.7m^3 (DETENTION CHAMBER) + 4.7m^3 (STORMFILTER CHAMBER) = 41.4m^3
ORIFICE CL	= 46.20
ORIFICE Ø	= 250mm

CONSTRUCT 900x900 BUTTERFLY GRATE SURFACE INLET PIT W/ CLASS 'D' GRATE

CONSTRUCT 1.8m LINTEL (ON-GRADE) KERB INLET PIT TO CoR STD DWG SWD.1.1.1 OVER EXISTING STORMWATER PIPE AND MAKE GOOD

BANDA ROAD

EMERGENCY OVERFLOW

900 x 900 CLASS 'D' GRATED LID FOR ACCESS AND VENTILATION

OSD 2
MIN. 38.1m^3
PROVIDED 41.4m^3

DETENTION CHAMBER
33.4m^2

STORMFILTER CHAMBER
5.8m^2

RWO

1 DAC2527

Ø375 IL: 45.80 IL: 45.90 IL: 45.95 IL: 46.01 IL: 47.00

eIL: 45.777

4.00m 8.35m 10.00m 1.45m

48.00 52.49 52.55 52.46

SC

A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
Issue	Description	Date

Bar Scales

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales	1:50	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: STORMWATER DRAINAGE OSD 2 ROOF PLAN

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2525

Issue: A

100mm on Original

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2525.dwg

NOTE

DESIGN AS PER CITY OF RYDE DEVELOPMENT CONGROL PLAN 2014
PART 8.2 STROMWATER MANAGEMENT TECHNICAL MANUAL
REFER TO CIVIL REPORT AND DRAINS MODEL BY AT&L FOR DETAILS.

OSD DESIGN SUMMARY

SITE AREA	= 21,730m^2
CATCHMENT AREA (OSD 2)	= 3,020m^2 (13.9% OF SITE AREA)
SURFACE RL	= 47.90 (MIN.)
SOFFIT RL	= 47.60 (INDICATIVE)
TANK IL	= 46.20 ~ 46.29
TANK AVERAGE IL	= 46.15

100YR

TWL	= 47.25
TANK AVG. WATER DEPTH	= 1.1m
REQUIRED VOLUME	= 37.1m^3 (REFER DRAINS MODEL)
PROVIDED VOLUME	= 36.7m^3 (DETENTION CHAMBER) + 4.7m^3 (STORMFILTER CHAMBER) = 41.4m^3
ORIFICE CL	= 46.20
ORIFICE Ø	= 250mm

CONSTRUCT 900x900 BUTTERFLY GRATE SURFACE INLET PIT W/ CLASS 'D' GRATE

CONSTRUCT 1.8m LINTEL (ON-GRADE) KERB INLET PIT TO CoR STD DWG SWD.1.1.1 OVER EXISTING STORMWATER PIPE AND MAKE GOOD

BANDA ROAD

DENOTES FULL HEIGHT WALL (TYP.)

ORIFICE PLATE (REFER DETAIL)

TRASH SCREEN (REFER DETAIL)

900(L) x 900(W) x 300(D) SUMP

OSD 2
MIN. 38.1m^3
PROVIDED 41.4m^3

DETENTION CHAMBER
33.4m^2

DENOTES WEIR WALL (TYP.)

STEP IRON @ 300 CTRS (REFER DETAIL)

STORMFILTER CHAMBER
5.8m^2

10 x 690 PSorb STORMFILTER CARTRIDGES WITH MIN. 150mm FALSE FLOOR TO BE INSTALLED BY OCEAN PROTECT

A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
Issue	Description	Date

Bar Scales

0 1 2 3 4 5m

1 : 50 @ A1 1 : 100 @ A3

Client: Goodman

Scales	1:50	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title: STORMWATER DRAINAGE OSD 2 BASE PLAN

Civil Engineers and Project Managers
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North Sydney NSW 2060
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Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2526

Issue: A

100mm on Original

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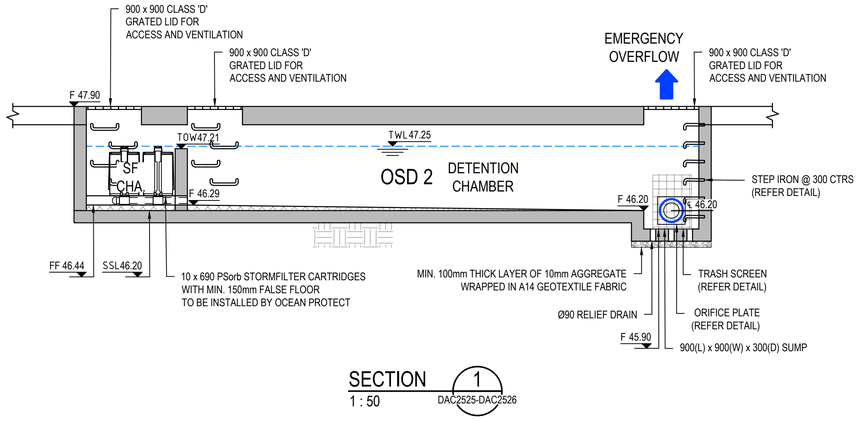
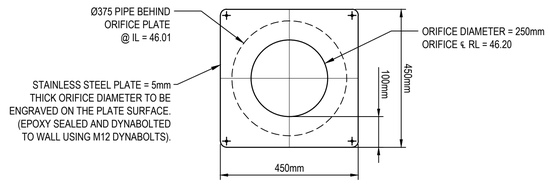


SECTION 1 — DAC2525-DAC2526

1 : 50



OSD 2 ORIFICE PLATE DETAIL 100YR

1:10

THIS IS AN
ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY CITY OF RYDE COUNCIL

IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED

OSD SIGN

SIGN : 110mm x 80mm
CORNERS : SQUARE
COLOUR : ETCHED AND FILLED BLACK LEGEND ON NATURAL SILVER BACKGROUND
MATERIAL : ALUMINIUM 0.9mm MILL
LOCATION : FIXED TO THE TOP OF THE OUTLET CONTROL PIT

CONFINED SPACE DANGER SIGN

A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANKS/S CONFINED SPACE.

COLOURS: 'DANGER' AND BACKGROUND - WHITE
ELLIPTICAL AREA - RED
RECTANGLE CONTAINING ELLIPSE - BLACK
OTHER LETTERING AND BORDER - BLACK

MINIMUM DIMENSIONS: - 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
- 250mm x 180mm (SMALL ENTRIES SUCH AS GRATES & MANHOLES)

MATERIAL: COLOUR BONDED ALUMINUM OR POLYPROPYLENE.

FIXING: USE SCREWS AT EACH CORNER AND/OR SUITABLE EPOXY GLUE/CEMENT.

ON SITE DETENTION WARNING SIGN

SIGN SHALL BE PLACED IN A CLEAR AND VISIBLE LOCATION OF EACH DETENTION BASIN.

COLOURS: TRIANGLE AND "WARNING" - RED
WATER - BLUE
FIGURE OTHER LETTERING - BLACK

Issue	Description	Date
A	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24

Bar Scales

0 1 2 3 4 5m
1 : 50 @ A1 1 : 100 @ A3
0 2 4 6 8 10m
1 : 100 @ A1 1 : 200 @ A3

Client: Goodman

Scales	AS SHOWN
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title: STORMWATER
DRAINAGE
OSD 2
SECTIONS & DETAILS

Civil Engineers and Project Managers
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Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
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www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2527

Issue: A

100mm on Original

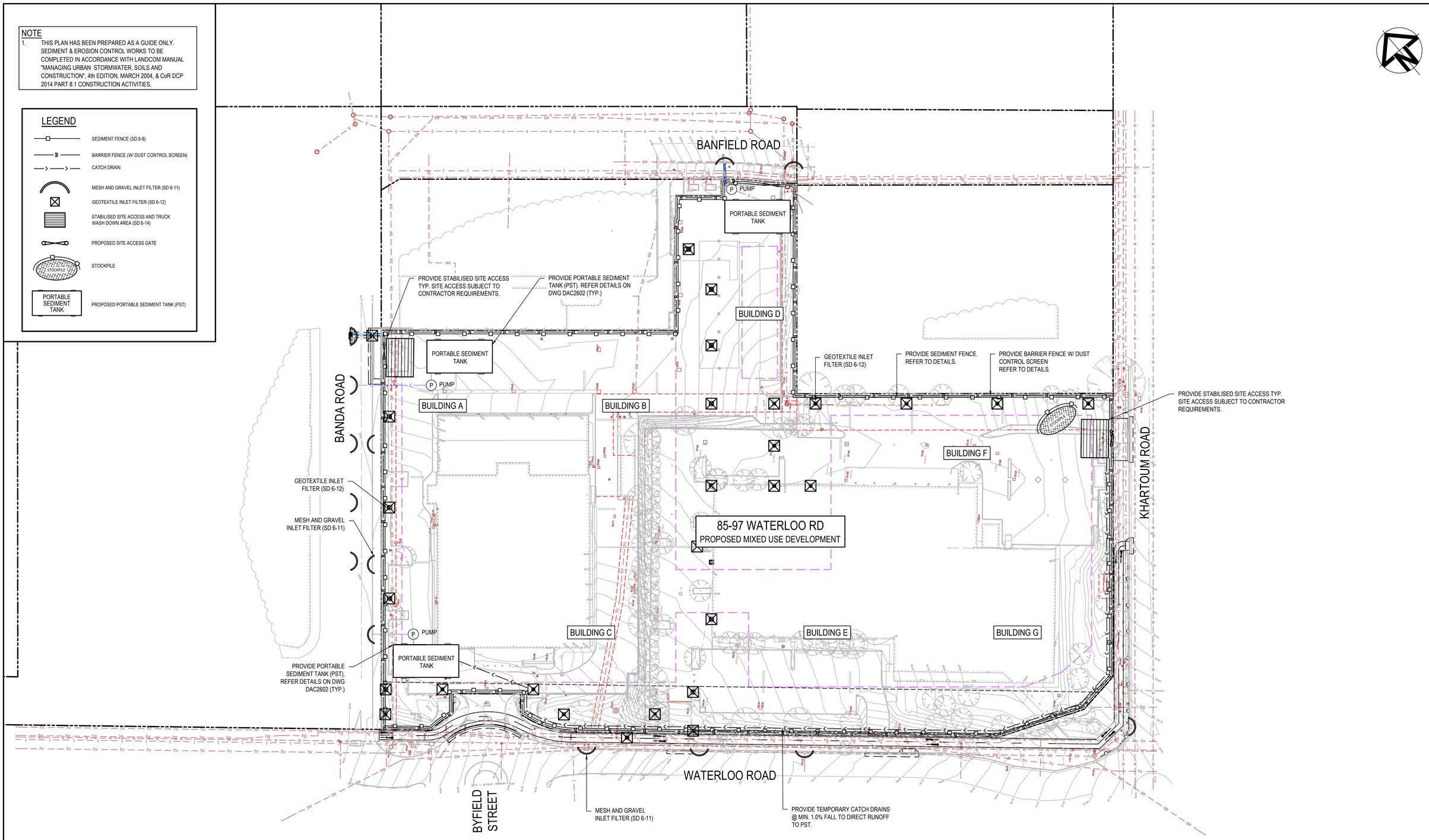
F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2527.dwg

NOTE

1. THIS PLAN HAS BEEN PREPARED AS A GUIDE ONLY. SEDIMENT & EROSION CONTROL WORKS TO BE COMPLETED IN ACCORDANCE WITH LANDCOM MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004, & CoR DCP 2014 PART 8.1 CONSTRUCTION ACTIVITIES.

LEGEND

- SEDIMENT FENCE (SD 6-8)
- B — BARRIER FENCE (W/ DUST CONTROL SCREEN)
- CATCH DRAIN
- MESH AND GRAVEL INLET FILTER (SD 6-11)
- GEOTEXTILE INLET FILTER (SD 6-12)
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA (SD 6-14)
- PROPOSED SITE ACCESS GATE
- STOCKPILE
- PORTABLE SEDIMENT TANK — PROPOSED PORTABLE SEDIMENT TANK (PST)



Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Client: Goodman

Scales	1:500
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: SEDIMENT AND EROSION CONTROL EXCAVATION PLAN

Civil Engineers and Project Managers
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North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
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info@atl.net.au

Status: FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION

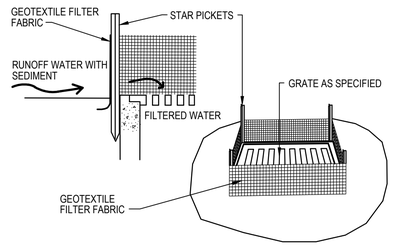
A1

Project No. - Drawing No.: 23-1081-DAC2601

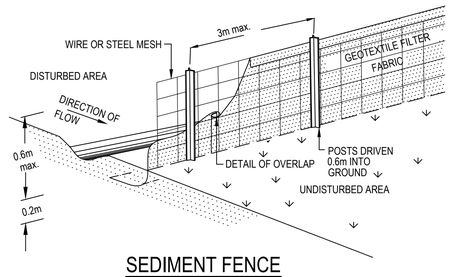
Issue: C

100mm on Original

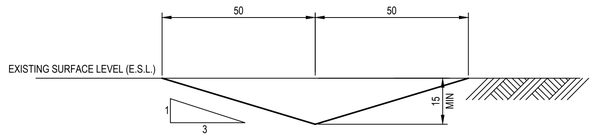
F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2601.dwg



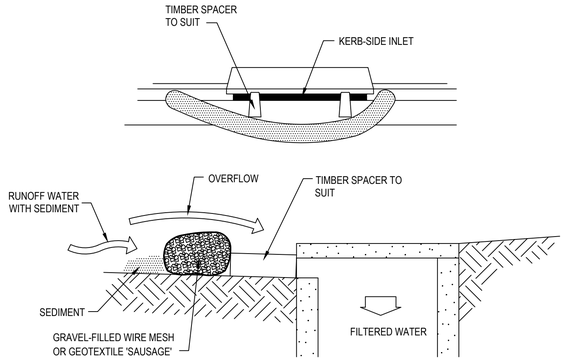
GEOTEXTILE FILTER PIT SURROUND
NTS



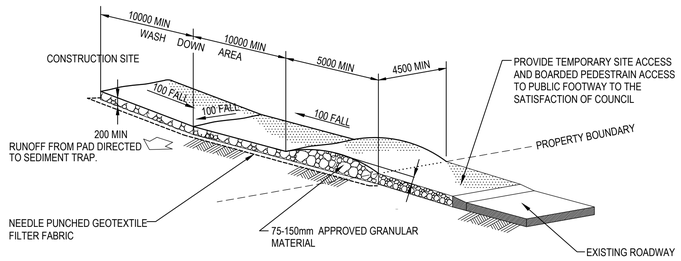
SEDIMENT FENCE
NTS



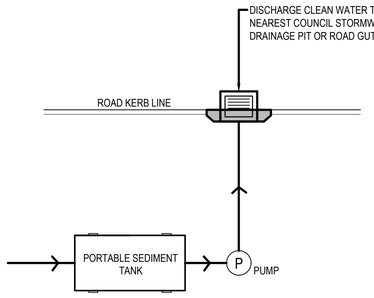
TEMPORARY CATCH DRAIN
(MIN FALL 1%)
SCALE 1:10



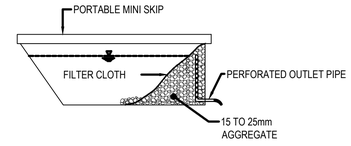
MESH AND GRAVEL INLET FILTER
NTS



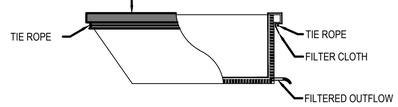
STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
NTS



PORTABLE SEDIMENT TANK (PST)
NTS



LOW FLOW FILTRATION SYSTEM
NTS



HIGH FLOW FILTRATION SYSTEM
NTS

GENERAL OPERATION:
1. REFER TO APPROVED PLANS AND ASSOCIATED ENVIRONMENTAL MANAGEMENT PLANS FOR OPERATIONAL DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE METHOD OF INSTALLATION OR OPERATION, CONTACT THE PRODUCT SUPPLIER AND/OR RESPONSIBLE ON-SITE OFFICERS FOR ASSISTANCE.
2. PRIOR TO USE, CONDUCT FLOCCULATION TESTS TO DEMONSTRATE SUITABILITY OF TREATMENT ADDITIVE AND APPROXIMATE DOSAGE RATE.
3. USE OF CHEMICAL ADDITIVES MUST BE WITHIN LIMITS SPECIFIED BY RELEVANT AUTHORITIES, INCLUDING STATE AGENCIES.
4. CHEMICAL FLOCCULENT/COAGULANTS MUST BE ALLOWED TO MIX RAPIDLY WITH THE WATERS TO INSURE PROPER DISPERSION.
5. ENSURE THE TANK OPERATES IN A MANNER THAT PREVENTS THE RE-SUSPENSION AND DISCHARGE OF THE SETTLED SEDIMENT.
6. MAINTAIN A DAILY LOG OF BATCH RATES (VOLUME AND TIME), TYPE AND AMOUNT OF CHEMICAL USAGE (INCLUDING PH ADJUSTMENTS IF ANY), AND WATER QUALITY MONITORING.

MAINTENANCE:
1. INSPECT THE SEDIMENT TANK REGULARLY AND AT LEAST DAILY DURINGDE-WATERING OPERATIONS.
2. MAKE REPARIS/ADJUSTMENTS AS NEEDED TO MAINTAIN THE REQUIRED TREATMENT STANDARD.
3. DE-SILT THE TANK AND MAINTAIN ALL REPLACEABLE COMPONENTS (SUCH AS FILTERS) IN ACCORDANCE WITH SUPPLIED OPERATIONAL INSTRUCTIONS. UNIQUE SITE-MODIFIED UNITS SHOULD BE DE-SILTED ONCE SETTLED SEDIMENT EXCEEDS ONE THIRD OF STORAGE VOLUME.
4. DISPOSE OF ALL SEDIMENT IN A MANNER THAT WILL NOT CREATE AS EROSION OR POLLUTION HAZARD.

REMOVAL:
1. DISASSEMBLE AND REMOVE ALL COMPONENTS OF THE SEDIMENT TANK AND REMOVE FROM SITE.
2. DISPOSE OF THE CONSUMABLES AND SEDIMENT IN A MANNER THAT WILL NOT CREATE FURTHER EROSION, SEDIMENTATION OR ENVIRONMENTAL PROBLEMS.
3. REHABILITATE ALL DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Issue	Description	Date
C	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
B	ISSUE FOR INFORMATION	05-10-23
A	ISSUE FOR INFORMATION	08-09-23

Bar Scales

Client: Goodman

Scales	NTS
Grid	GDA20 MGA56
Height Datum	AHD
Drawn	CK
Designed	CK
Checked	GJ
Approved	AT

Project: 85-97 WATERLOO ROAD MACQUARIE PARK CIVIL WORKS DA PACKAGE

Title: SEDIMENT AND EROSION CONTROL DETAILS

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2602

Issue: C

100mm on Original

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BANDA ROAD

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

ENTRY SPEED = 15km/h

PASSENGER-CAR
AUSTROADS 2013 (AU)

PASSENGER-CAR
AUSTROADS 2013 (AU)

ENTRY SPEED = 15km/h

PASSENGER-CAR
AUSTROADS 2013 (AU)

PASSENGER-CAR
AUSTROADS 2013 (AU)

WATERLOO ROAD

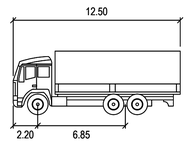
BYFIELD STREET

LEGEND

VEHICLE BODY ENVELOPE

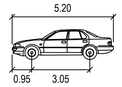
0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILES



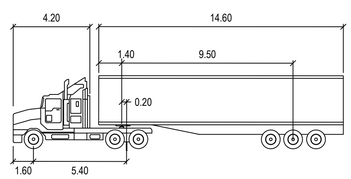
12.5m TRUCK

METERS	
WIDTH	: 2.50
TRACK	: 2.50
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 36.6



PASSENGER-CAR

meters	
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.6



AV

meters			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

Issue	Description	Date
B	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
A	ISSUE FOR INFORMATION	05-10-23

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

Client: Goodman

Scales	1:100	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project: 85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title: VEHICLE TURN PATH PLAN
WATERLOO RD - BYFIELD ST
5.2m CAR

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status: FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.: 23-1081-DAC2801

Issue: B

100mm on Original

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BANDA ROAD

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

ENTRY SPEED = 15km/h

HRV
STANDARDS 2018 (AU)

SU TRUCK
AUSTROADS 2013 (AU)

ENTRY SPEED = 15km/h

INNER LANE HRV
USES MOUNTABLE ANNULUS

HRV
STANDARDS 2018 (AU)

SU TRUCK
AUSTROADS 2013 (AU)

WATERLOO ROAD

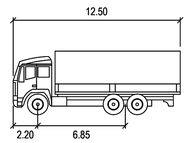
BYFIELD STREET

LEGEND

VEHICLE BODY ENVELOPE

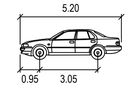
0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILES



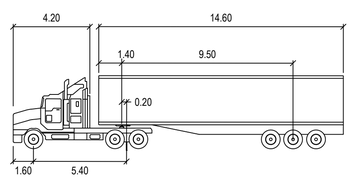
12.5m TRUCK

	METERS
WIDTH	: 2.50
TRACK	: 2.50
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 36.6



PASSENGER-CAR

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.6



AV

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

Issue	Description	Date
B	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
A	ISSUE FOR INFORMATION	05-10-23

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

Client

Goodman

Scales	1:100	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
VEHICLE TURN PATH PLAN
WATERLOO RD - BYFIELD ST
12.5m HRV DESIGN VEHICLE

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2802

Issue
B

100mm on Original

F:\23-1081 Goodman Macquarie\6.0 Drgs\Civil\85-97 Waterloo Rd\Final\23-1081-DAC2802.dwg

BANDA ROAD

85-97 WATERLOO RD
PROPOSED MIXED USE DEVELOPMENT

AV
STANDARDS 2018 (AU)

AV
STANDARDS 2018 (AU)

ENTRY SPEED = 15km/h

WATERLOO ROAD

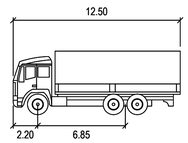
BYFIELD STREET

LEGEND

VEHICLE BODY ENVELOPE

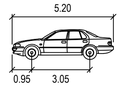
0.5m VEHICLE BODY CLEARANCE ENVELOPE

DESIGN VEHICLE PROFILES



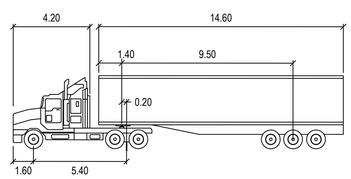
12.5m TRUCK

METERS	
WIDTH	: 2.50
TRACK	: 2.50
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 36.6



PASSENGER-CAR

meters	
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.6



AV

meters			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.3
Tractor Track	: 2.50	Articulating Angle	: 72.0
Trailer Track	: 2.50		

Issue	Description	Date
B	ISSUE FOR DEVELOPMENT APPROVAL	26-06-24
A	ISSUE FOR INFORMATION	05-10-23

Bar Scales

0 2 4 6 8 10m

1 : 100 @ A1 1 : 200 @ A3

Client

Goodman

Scales	1:100	Drawn	CK
		Designed	CK
Grid	GDA20 MGA56	Checked	GJ
Height Datum	AHD	Approved	AT

Project
85-97 WATERLOO ROAD
MACQUARIE PARK
CIVIL WORKS
DA PACKAGE

Title
VEHICLE TURN PATH PLAN
WATERLOO RD - BYFIELD ST
20.0m AV CHECK VEHICLE

Civil Engineers and Project Managers
at&l
Level 7, 153 Walker Street
North Sydney NSW 2060
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9923 1055
www.atl.net.au
info@atl.net.au

Status
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

A1

Project No. - Drawing No.
23-1081-DAC2803

Issue
B

100mm on Original

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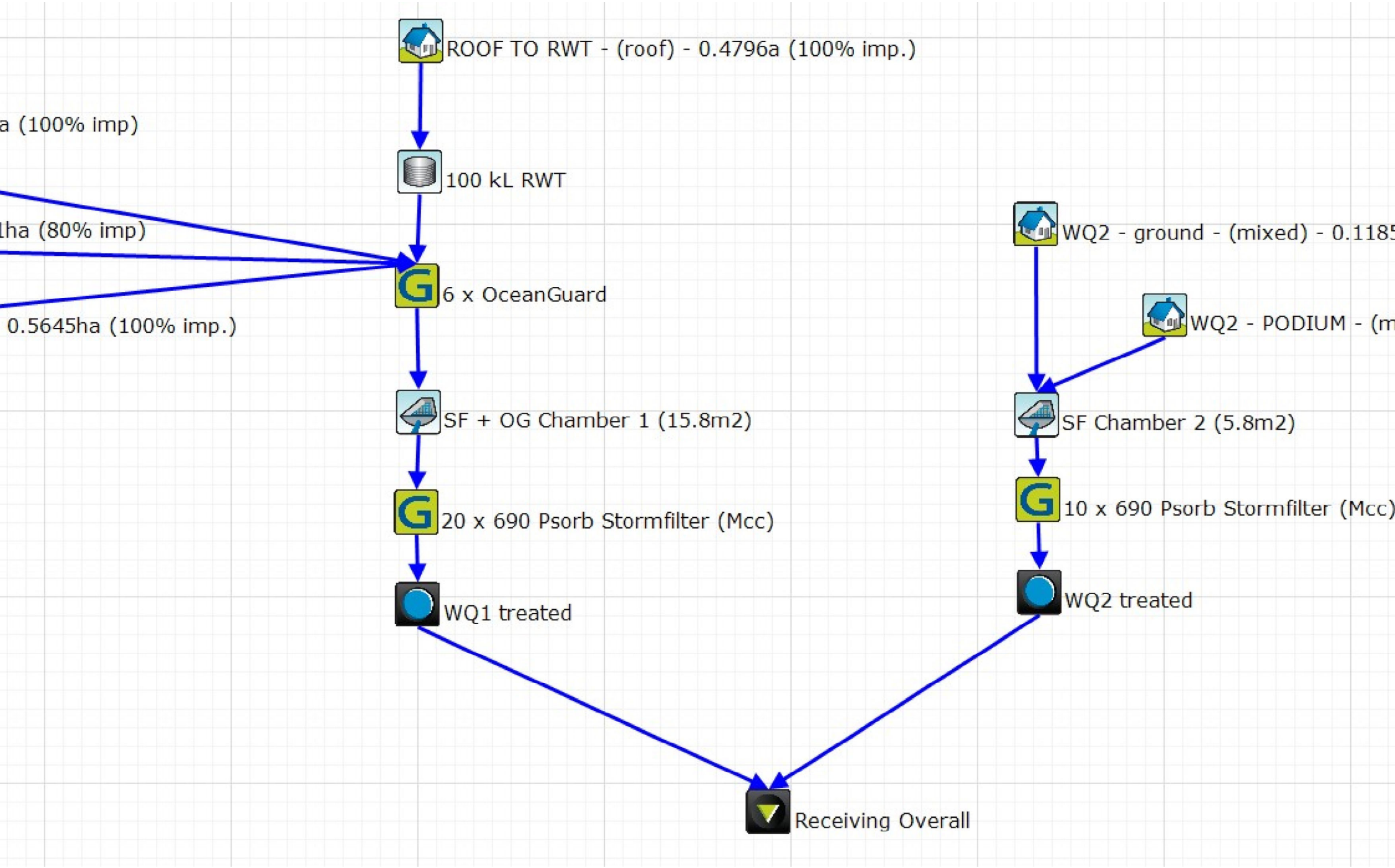
Appendix B – Music Model


ROOF TO RWT - (roof) - 0.4796a (100% imp.)
a (100% imp)
100 kL RWT
1ha (80% imp)
6 x OceanGuard
0.5645ha (100% imp.)
WQ2 - ground - (mixed) - 0.1185
WQ2 - PODIUM - (m
SF + OG Chamber 1 (15.8m2)
SF Chamber 2 (5.8m2)
20 x 690 Psorb Stormfilter (Mcc)
10 x 690 Psorb Stormfilter (Mcc)
WQ1 treated
WQ2 treated
Receiving Overall

eWater Results Manager

Options Help

Scenario Results
- Latest Run
  - Analysis
  - Climate Data
  - Generic Treatment
  - Junction
  - Music Routing
  - Rainwater Tank
  - Receiving
    - Receiving Overall
      - Mean Annual Load
      - Treatment Train Effectiveness
  - Sedimentation Basin
  - Source

Custom Chart
- Saved
- Temporary

Statistics

Treatment Train Effec

Latest Run : Treatment Train Effectiveness : Receiving Overall

	Sources	Residual Load	% Reduction
Flow (ML/yr)	19.7	18.42	6.465
Total Suspended Solids (kg/yr)	2028	294.4	85.48
Total Phosphorus (kg/yr)	4.358	1.294	70.3
Total Nitrogen (kg/yr)	43.08	20.64	52.09
Gross Pollutants (kg/yr)	506.8	0	100

Export... Open

Appendix C – Drains Model

City of Ryde

Lifestyle and opportunity @ your doorstep

Carlo Bartolome
Level 7, 153 Walker Street,
NORTH SYDNEY NSW 2060

25 June 2024 Our ref: D24/87929

Dear Mr. Bartolome,

RE: Request for Flood Information – No. 97 Waterloo Road, Macquarie Park

Reference is made to your application received on 24 June 2024 seeking flood level information pertaining to the above-mentioned address.

Please find attached flood level data sheet providing flood levels for the 100 year ARI (Average Recurrence Interval) flood event and the PMF (Probable Maximum Flood) event.

The DRAINS model 100 Year ARI (Average Recurrence Interval) peak overland flow rate near the site is approximately 0.971 m^3/s (0.243 m^3/s pipe flow). For more detailed information, refer to DRAINS model extract at the end of this report.

This information is derived from models established as part of the Macquarie Park Flood Study Report and Floodplain Risk Management Study and Plan.

Council's database indicates the presence of a Ø375mm drainage pipe near the site.

Please be advised that flood models are approximate. Care and expertise is required in the interpretation of these flood levels. In addition, this flood information does not take into account any local overland flow issues.

Any person or organisation who acts on the information provided does so at his / her / its own risk. To the extent permitted by law, the City of Ryde accepts no responsibility and excludes all liability whatsoever in respect of any use of or reliance upon this information.

Should you require any further information, please feel free to contact me on (02) 9952 8222.

Yours sincerely,

Leila Faghihi
SENIOR ENGINEER STORMWATER AND FLOODPLAIN MANAGEMENT

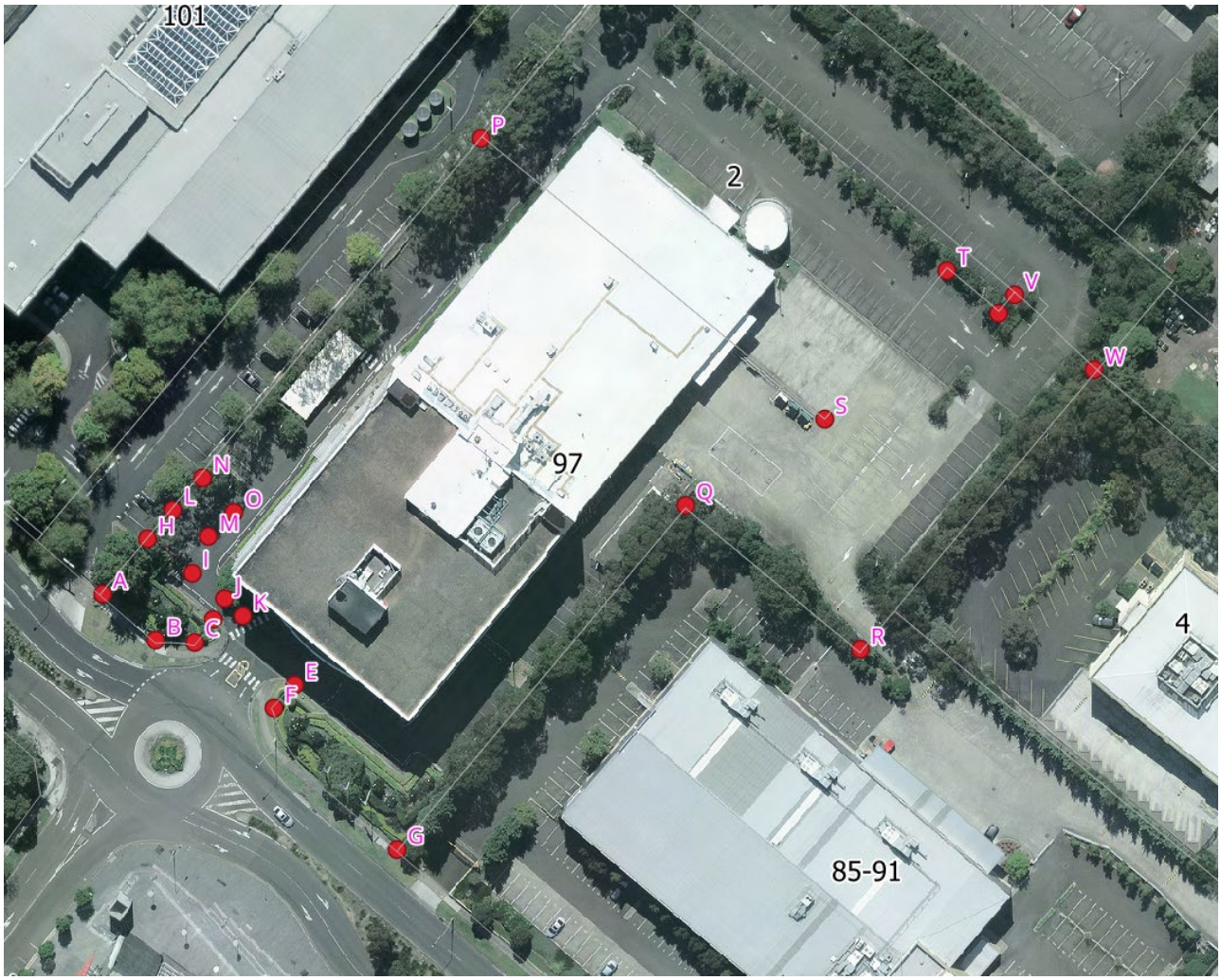
City of Ryde

Lifestyle and opportunity @ your doorstep

FLOOD INFORMATION REQUEST

Property Address: No. 97 Waterloo Road, Macquarie Park
Issue Date: 25 June 2024
Flood Study Reference: Macquarie Park Flood Study Report (April 2010)
Flood Model Reference: TUFLOW Model (July 2010)

Flood Level Location Map



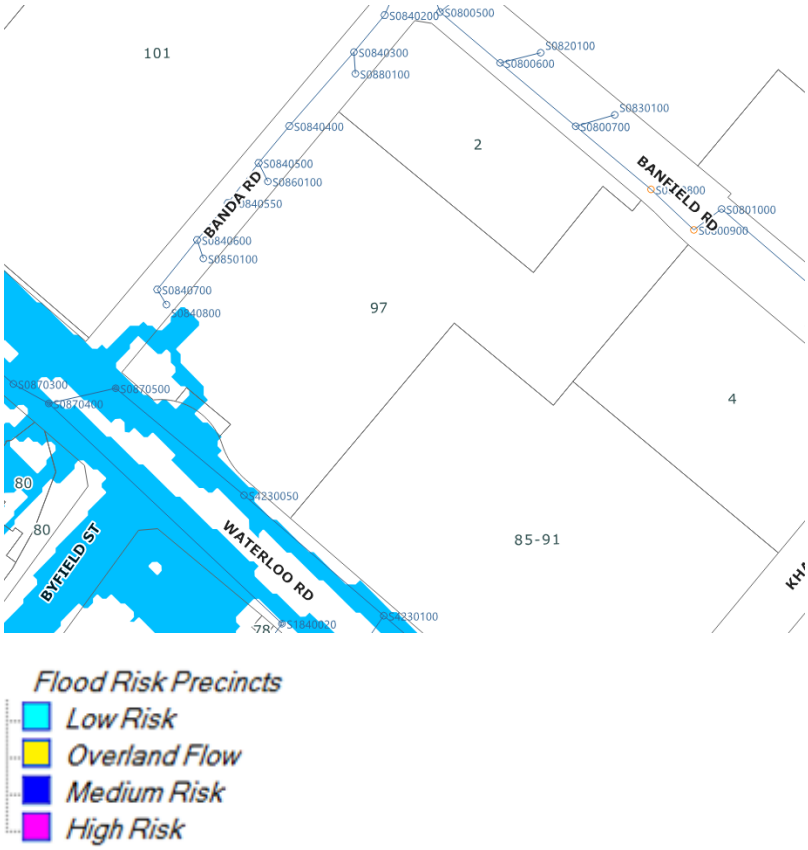
Flood Level Data Table

Location	100 Year ARI Flood Event (m AHD)	Probable Maximum Flood (m AHD)
A	Nil	Nil
B	Nil	50.49
C	Nil	Nil
D	50.80	50.83
E	Nil	Nil
F	50.95	50.97
G	Nil	52.99
H	51.00	51.06
I	50.97	51.05
J	50.85	50.87
K	50.81	50.83
L	51.01	51.06
M	51.01	51.09
N	51.01	51.10
O	51.01	51.10
P	Nil	Nil
Q	Nil	Nil
R	Nil	Nil
S	Nil	Nil
T	Nil	Nil
U	Nil	Nil
V	Nil	Nil
W	Nil	Nil

Notes:

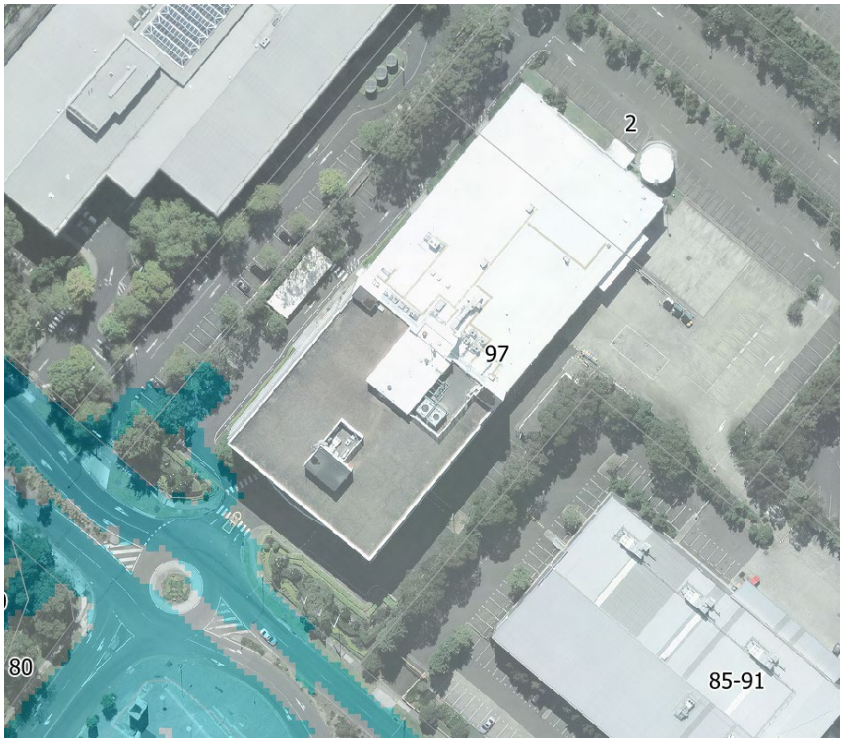
- All levels are based on Australian Height Datum (AHD).
- Flood levels are indicative only.
- The flood levels were derived using Aerial Laser Survey (ALS) data which is considered as approximate.
- This flood level information is for existing site conditions only.
- Concept plans are required for all new development proposals.
- The floor levels of the proposed habitable floor area should be set with a freeboard of 300 mm (Overland Flow and Low Risk) and 500 mm (Medium Risk and High Risk) to the 100 year ARI flood level. A freeboard of 150 mm (Overland Flow and Low Risk) and 300 mm (Medium Risk and High Risk) is applicable for non-habitable floor areas. Refer City of Ryde Development Control Plan 2014.
- A site specific flood study / risk assessment may be required for any future development. Engage a suitably qualified engineer to assist you in this matter. Any study or assessment shall be in accordance with the NSW Government's Floodplain Development Manual 2005 and the City of Ryde Development Control Plan 2014.
- Site specific ground and building survey levels should be used to relate flood levels and to assess the impact of flooding.

Flood Risk Map

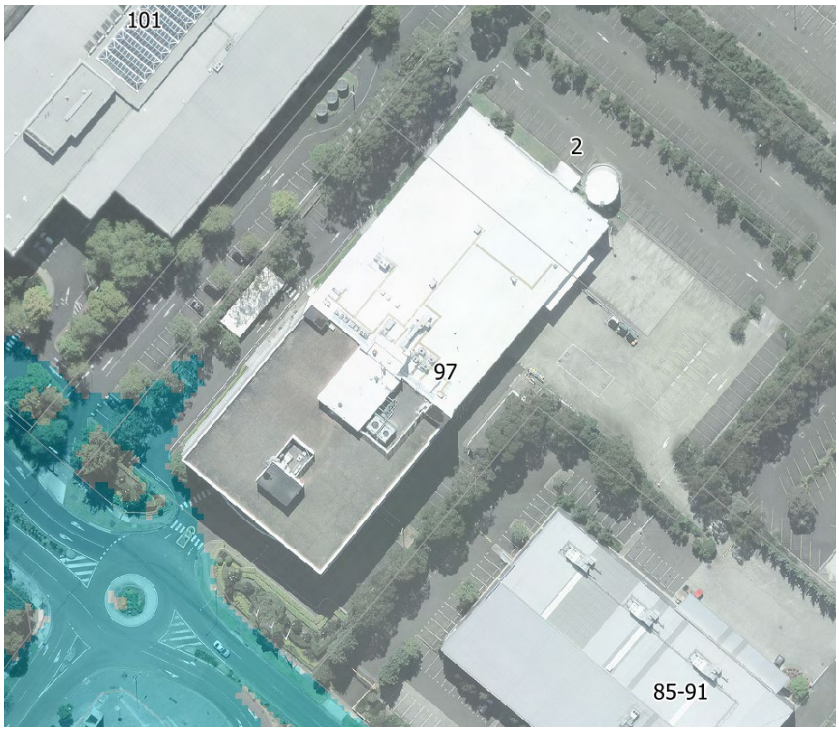


Flood Risk Precincts
- *Low Risk*
- *Overland Flow*
- *Medium Risk*
- *High Risk*

Flood Extent (100 Year ARI Event)



Flood Extent (Probable Maximum Flood)



DRAINS Model Peak Flow Rates for the 100 year ARI (Average Recurrence Interval)