Stormwater Design Report

McDonalds Balgowlah– 37 Roseberry Street, Balgowlah

Prepared for: McDonalds Australia Pty Ltd

Issue no: B

Revision	Date	Purpose	Prepared By	Reviewed By
A	29/11/24	Issue for DA	N.Pearce	
B	12/12/24	Issue for DA	N.Pearce	

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1 Introduction

This stormwater design port has been written to support the Development Application for the McDonalds Balgowlah, which is proposed to be located at 37 Roseberry Street, Balgowlah.

In the preparation of this report, the following reference information has been used:

- Architectural plans prepared by Webber Architects
- Northern Beaches Council DA Pre-Lodgement Meeting Minutes – PLM2024/0130 – dated 5/11/24
- Northern Beaches Council DCP
- Northern Beaches Council Water Management Development Policy
- Northern Beaches Council WSUD & MUSIC Modelling Guidelines
- Site Comprehensive Flood Information Report – dated 09/10/2024
- Discussions with Northern Beaches Council development engineers

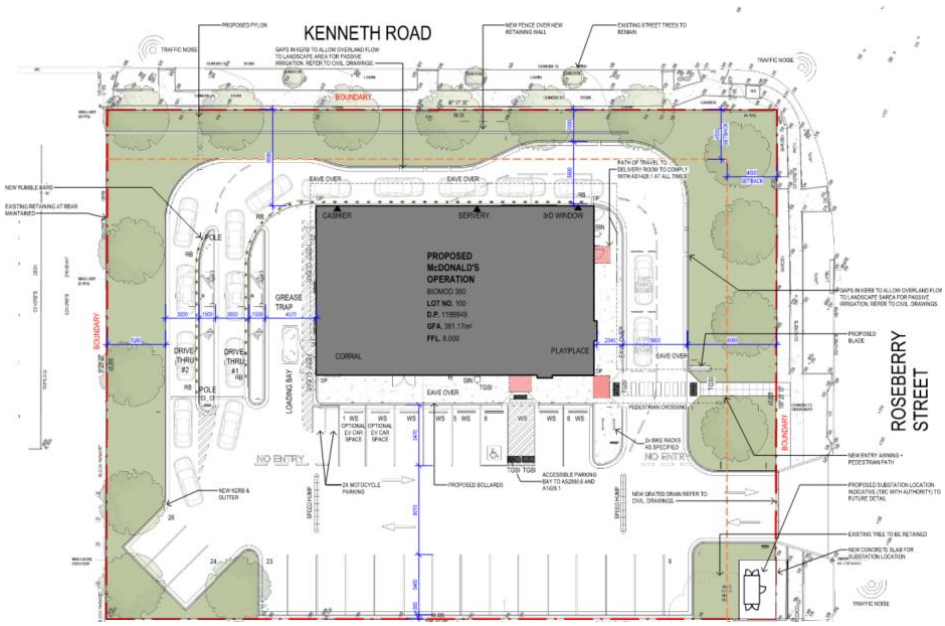
2 Site Description

The proposed McDonalds site is to be located at 37 Roseberry Street Balgowlah, on the corner of Roseberry Street and Kenneth Road and is currently occupied by a coffee roasting business.

The site is approximately 2,765m2 in area and is fully developed with buildings along the street frontage and along the rear boundary. A vehicular hardstand loading area is located in the centre of the site. It is relatively flat, with grades of approximately 3% towards Roseberry Street. The site has previously been excavated, with high retaining walls along the north and western boundaries, including the Kenneth Road site frontage.

The McDonald's restaurant is proposed to be a free-standing single-story building with a dual drive-thru at the rear and an ongrade carpark. Vehicular access is proposed to be via a driveway from Roseberry Street.

An existing stormwater pit is available in Roseberry Street. The pit has a 375 diameter outlet pipe and has an invert level of 6.24 mAHD which is approximately 750mm deep. This is proposed to be the discharge point for the McDonalds restaurant.



Proposed McDonalds architectural site plan

Existing site aerial (Mecone Mosaic)

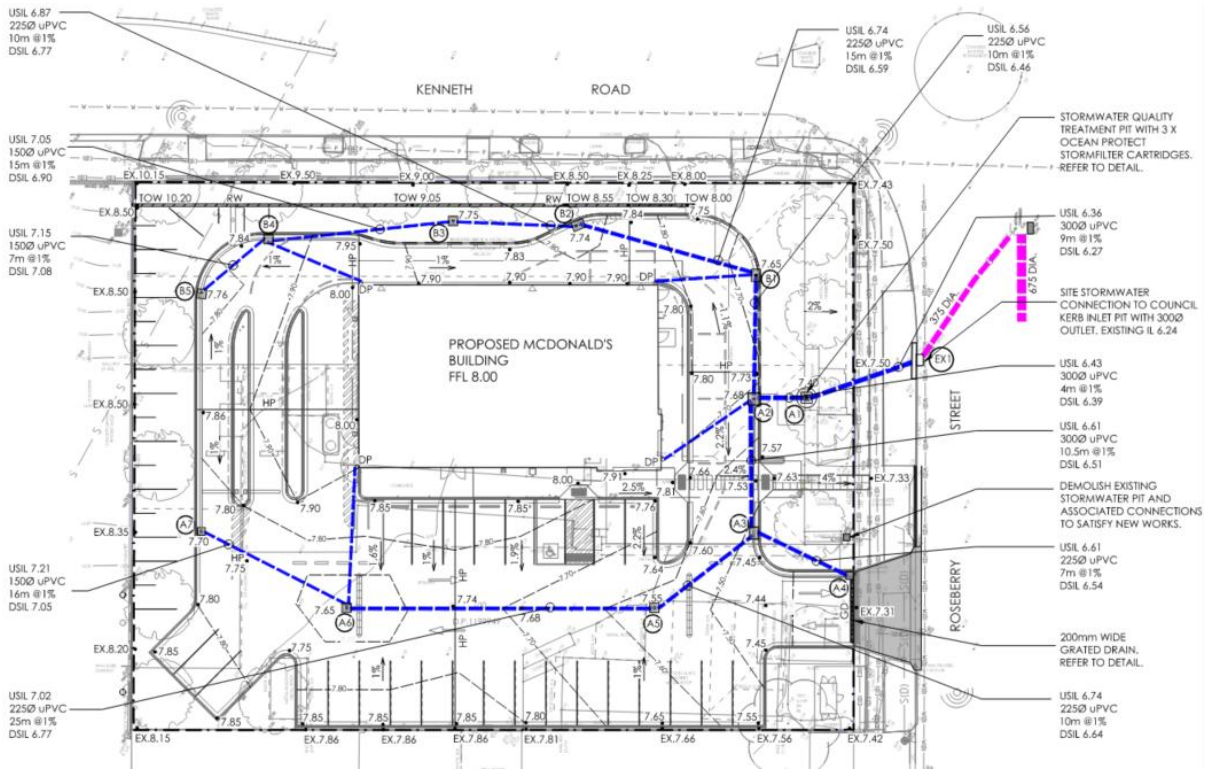
Stormwater pit in Roseberry Street (Google Street View)

3 Site Stormwater Layout

The building floor level is proposed to be set at RL8.00, which will be the high point on the site and is set by the accessible pedestrian access from the Roseberry site frontage. It is proposed that new surface levels match into the surrounding neighbouring properties to avoid undermining the existing buildings where possible. The existing building along the Kenneth Road frontage currently retains the Council verge and as such a new retaining wall will be constructed to suit the proposed McDonalds development. The existing site stormwater discharge connection to the Roseberry Street kerb is proposed to be demolished, with a new connection to be made to the adjacent stormwater kerb inlet pit.

The site grading design intent is generally to maintain the existing site grading and overland flow path regime which falls towards the driveway on Roseberry Street. The proposed McDonalds site is relatively flat and falls between 1-3% for ease of access for patrons. Localised low points throughout the drive-thru and carpark collect minor flows with major flows being directed around the McDonalds building to discharge to the Council road reserve at Roseberry Street via the proposed driveway. Onsite detention is not proposed for the site and discussed in further detail in section 5.1 and 6.1 of the report.

Stormwater treatment devices in the form of litter basket pit inserts are located in the carpark and drive-thru, with a filter cartridge chamber provided prior to the connection to the Council pit connection. Slots or gaps in the kerb within the drive-thru allow surface water from the pavements to flow into the surrounding landscape areas to provide passive irrigation and infiltration of stormwater. The WSUD strategy is discussed in further detail in sections 5.2 and 6 of the report.



Site Stormwater Management Plan

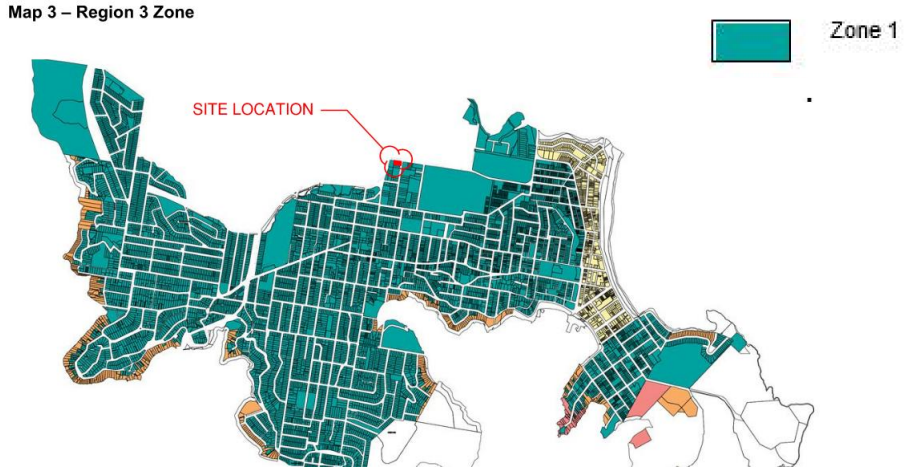
4 Council Requirements

The initial pre-lodgement meeting minutes states that the method of stormwater disposal is to be in accordance with the Councils Water Management for Development Policy which provides guidance on onsite detention (OSD) and water-sensitive urban design (WSUD) measures that will be required for the site.

4.1 Onsite Detention

The site is located within the Southern Region 3 zone 1 catchment and is therefore subject to clause 9.3.3.2 of the water management policy for OSD.

This clause states that OSD is required to control runoff from the site for re-developments and that the quantity of flow shall be reduced to that equivalent to an impervious portion of 35% of less. OSD may be exempt if the site is currently within a flood-affected zone and that Council are satisfied that an OSD system would be on no benefit in reducing the adverse flooding impacts.



Map 3 – Region 3 Zone Map from Council Water Management Policy

4.2 Water Sensitive Urban Design

The McDonalds site is considered to be a commercial development with a site area greater than 1000m^2 and as such is subject to the below Council stormwater water requirements as detailed in table 5 of the water management policy.

Natural bio-filtration and infiltration in the form of rain gardens and bio-retention basins are Councils preferred method for stormwater treatment, however, Council may approve the use of proprietary treatment devices where these systems may not be appropriate for the site conditions.

Table 5 – General Stormwater Quality Requirements

Pollutant	Performance Requirements
Total Phosphorous	65% reduction in the post development mean annual load[1]
Total Nitrogen	45% reduction in the post development mean annual load[1]
Total Suspended Solids	85% reduction in the post development mean annual load[1]
Gross Pollutants	90% reduction in the post development mean annual load[1] (for pollutants greater than 5mm in diameter)
pH	6.5 - 8.5
Hydrology	The post-development peak discharge must not exceed the pre-development peak discharge for flows up to the 50% AEP

[1]The percentage reduction in the post development mean annual loads are relative to the loads from the proposed development without treatment applied.

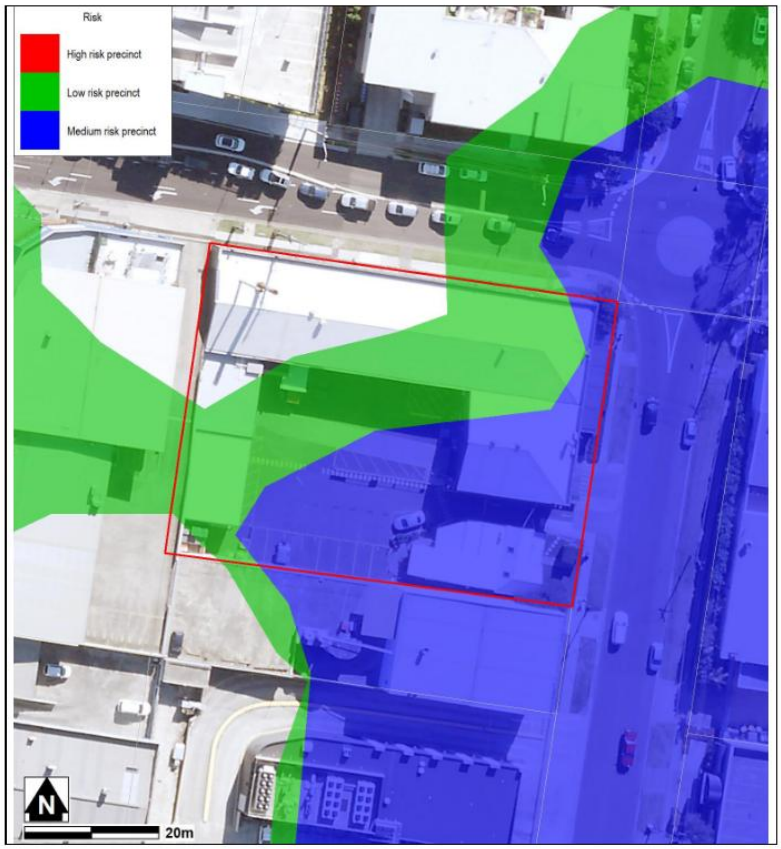
5 Design Clarifications and Assumptions

5.1 Onsite Detention

The site is located within the Southern Region 3 zone 1 catchment and therefore OSD is required in accordance with clause 9.3.3.2 of the water management policy for OSD.

The site is however in a medium-risk flood precinct as noted in the Comprehensive Flood Information Report which was requested from Council, refer map extract below. Therefore, the site is subject to a possible exemption from OSD under section 9.3.3.2.c of the water management policy.

MAP A: FLOOD RISK PRECINCTS



Liaison with Councils development engineer, Uma Shanmugalingam, was undertaken during the design period to verify this exemption. Subsequent discussions determined that the site would not require an OSD as the site is considered flood-affected which would render the OSD ineffective in restricting stormwater flows from the site.

OSD has therefore not been provided for the proposed McDonalds site as part of this Development Application.

5.2 Water Sensitive Urban Design

The site has limited opportunity for natural WSUD outcomes due to the existing built nature of the site being surrounded by existing buildings and retaining walls. Bio-retention and raingardens are not suitable due to the required excavation depth and likely undermining of the neighbouring buildings and retaining wall footings.

It is therefore proposed that the water quality targets be achieved using proprietary treatment devices supplied by Ocean Protect. This includes the use of OceanGuard filter basket pit inserts as well as PSorb Stormfilter cartridges.

Liaison with Councils WSUD engineer, David Hellot, was undertaken during the design period to discuss the merits of this proposal. It was noted that this approached was acceptable in principle as the existing site and its surrounding development is already mostly hardstand and therefore the implementation of bio-retention in the available landscape area is limited.

It was recommended that the McDonalds development implement passive watering of landscaping from the vehicle hardstand via breaks in kerb allowing overland flow to infiltrate into the surrounding landscape.

This has therefore been adopted where appropriate and is mainly within the drive-thru area which allows direct access to the on-grade landscape. This approach is not possible along the western edge of the site the landscape is required to batter up to the boundary to match the existing levels to prevent undermining of the neighbouring buildings.

The WSUD and MUSIC modelling has been completed in accordance with the Northern Beaches Council WSUD & MUSIC Modelling Guidelines. The project has reviewed this guideline and makes the following design clarifications and assumptions for the McDonalds site.

- NSW Government Website eSpade specifies that the site is within soil landscape group 9130wa
- Soil properties for sandy clay loam MUSIC Parameters have therefore been adopted for site catchment nodes as specified in the Council guidelines
- Pollutant generation parameters for source nodes have also been adopted from table 5 of the Council guidelines
- Proprietary treatment device nodes have been sourced from Ocean Protect

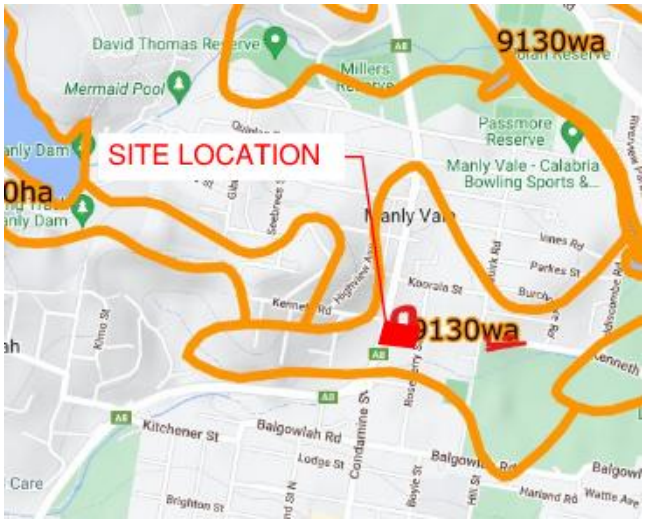


Table 4: Soil properties for MUSIC Source Nodes

Parameter	Unit	Recommended values	
Impervious area parameters			
Rainfall Threshold (mm)	mm	1.5 (for roads/paths etc.) 0.3 (for roofs)	
Pervious area parameters			
		Sand	**Sandy Clay Loam**
Soil Capacity (mm)	mm	350	108
Initial Storage (%)	%	30	30
Field Capacity (mm)	mm	144	73
Infiltration Capacity Coefficient a		360	250
Infiltration Capacity Coefficient b		0.5	1.3
Groundwater Properties			
		Sand	**Sandy Clay Loam**
Initial Depth (mm)	mm	10	10
Daily Recharge Rate (%)	%	100	60
Daily Baseflow Rate (%)	%	50	45
Deep Seepage (%)	%	0	0

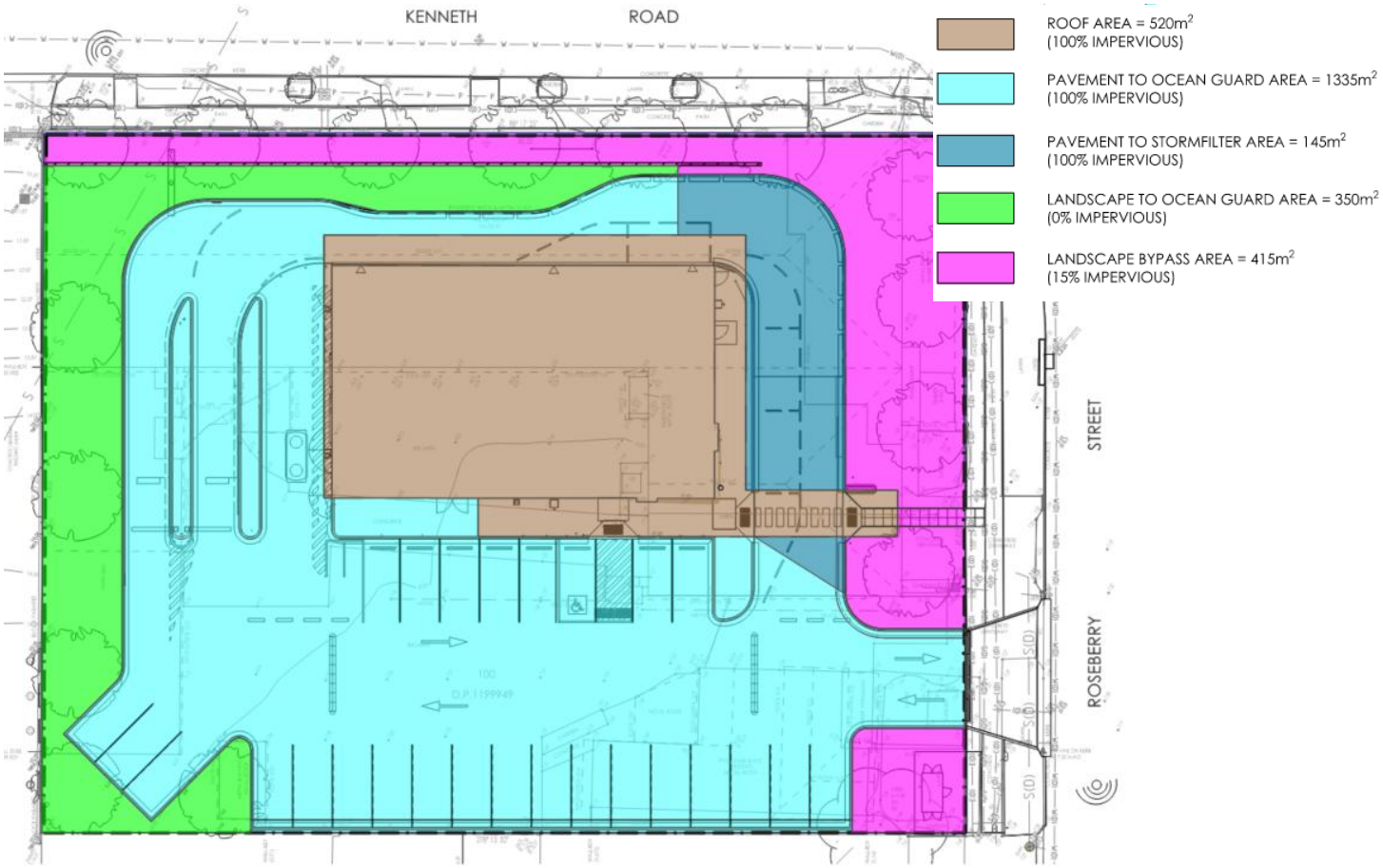
eSpade – soil landscape map showing sandy clay loam and Council MUSIC node parameters

6 Site Stormwater Quality - WSUD

A MUSIC model has been undertaken to represent the water quality measures required to meet the Council reduction targets. All node parameters have been obtained from the Northern Beaches Council WSUD & MUSIC Modelling Guidelines and have been used as the basis for the design model.

The MUSIC model, shown below, has been provided as part of the DA submission for Councils review.

The site has been split into 5 catchments with nodes to represent the landscaping, roof and hardstand pavement areas of the development that will be directed to the individual treatment devices for modelling purposes, as represented in the below catchment plan.



MUSIC Model Catchment Plan with associated areas

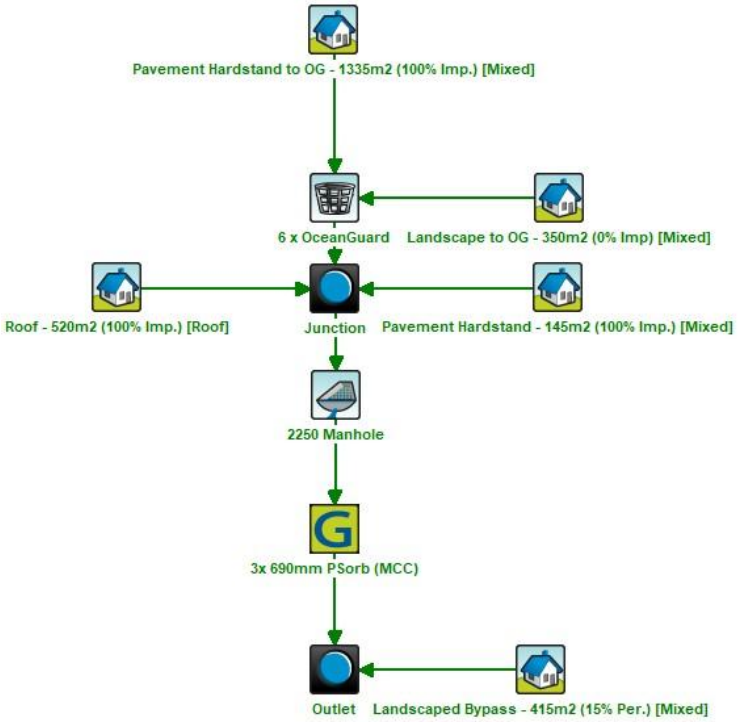
As stated above the site does not provide an opportunity for natural bio-retention due to the minimal depth of the stormwater connection to the Council pit in Roseberry Street and the likely undermining of neighbouring buildings. Slotted kerbs in the drive-thru are proposed to allow stormwater from the pavement to irrigate and infiltrate into the surrounding landscape, however this has not been incorporated into the MUSIC model to ensure that Council WSUD targets are achieved without this landscape buffer requirement.

The proposed treatment methodology is therefore proposed to be via proprietary treatment devices supplied by Ocean Protect. This will be in the form of OceanGuard filter basket pit inserts and Stormfilter cartridges.

OceanGuard pit inserts are proposed to be located in the six (6) stormwater pits within the carpark and driveway. The site stormwater drainage will pass through a treatment chamber pit which will contain three (3) 690mm Psorb Stormfilter cartridges prior to discharging to the Council network.

The landscape area along the site frontage of Kenneth and Roseberry Street which is proposed to allow for natural irrigation/infiltration will bypass the treatment chamber as represented in the MUSIC model below.

The results of the MUSIC model and the comparison to Council targets are shown in the tables below. Reduction targets are satisfied for all pollutants and as such are compliant with Council requirements.



Site MUSIC Model

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.07	2.07	0
Total Suspended Solids (kg/yr)	494	63.7	87.1
Total Phosphorus (kg/yr)	0.9	0.291	67.6
Total Nitrogen (kg/yr)	4.68	2.55	45.4
Gross Pollutants (kg/yr)	51.8	2.43	95.3

Site MUSIC Model Results

Stormwater Pollutant	Council Target %	Site Reduction %
Gross Pollutants	90	95.3
Total Suspended Solids (TSS)	85	87.1
Total Phosphorus (TP)	65	67.6
Total Nitrogen (TN)	45	45.4

Site WSUD reduction table

7 Site Stormwater Quantity - OSD

The site is located in a medium risk flood precinct and as such is considered to be flood affected as noted in section 4 above.

Liaison with Councils development engineer, Uma Shanmugalingam, was undertaken during the design to verify if the site was exempt from OSD in accordance with section 9.3.3.2 of the water management policy. It was determined that the site would not require an OSD as the site is flood-affected which would render the OSD ineffective in restricting flows from the site.

Notwithstanding the proposed McDonalds development will increase the amount of landscaping on-site and as such post-development flows generated from the site will be less than the existing pre-developed scenario, refer catchment flow calculation below.

The proposed McDonalds redevelopment will therefore have a net benefit to the Council stormwater system even without the installation of an OSD.

Pre-Development Area (m^2)

- Total Site Area = 2,765
- Impervious Area = 2,665 (96%)
- Pervious Area = 100 (4%)

Post-Development Area (m^2)

- Total Site Area = 2,765
- Impervious Area = 2,050 (74%)
- Pervious Area = 715 (26%)

Pre-Development Catchment Flows (l/s)

- Q_5 20% AEP = 110
- Q_{10} 10% AEP = 128
- Q_{20} 5% AEP = 147
- Q_{100} 1% AEP = 193

Post-Development Catchment Flows (l/s)

- Q_5 20% AEP = 100
- Q_{10} 10% AEP = 118
- Q_{20} 5% AEP = 136
- Q_{100} 1% AEP = 182

8 Conclusion

The proposed McDonalds development located at 37 Roseberry Street Balgowlah has been designed in accordance with Northern Beaches Council DCP and Water Management for Development Policy. Further liaison and discussions with Council stormwater engineers guidelines for stormwater quality treatment and on site detention requirements.

OSD is not required as the site is within a medium-risk flood area as noted in section 9.3.32 of the water management policy and as discussed with Councils development engineer during the design. Notwithstanding the existing site is predominantly impervious and the McDonalds development will increase landscape areas. Slotted kerbs in the drive-thru will allow stormwater from the pavement to irrigate and infiltrate into the surrounding landscape thereby decreasing post-development runoff.

Pre-Development Area (m^2)

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Post-Development Area (m^2)

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- Q_5 20% AEP = 100
- Q_{10} 10% AEP = 118
- Q_{20} 5% AEP = 136
- Q_{100} 1% AEP = 182

The development intends to use bio-retention basins to treat, detain and infiltrate stormwater generated from the site. The bio-basins are as follows;

MUSIC model results as noted below indicate that the water sensitive design requirements have been achieved.

Stormwater Pollutant	Council Target %	Site Reduction %
Gross Pollutants	90	95.3
Total Suspended Solids (TSS)	85	87.1
Total Phosphorus (TP)	65	67.6
Total Nitrogen (TN)	45	45.4

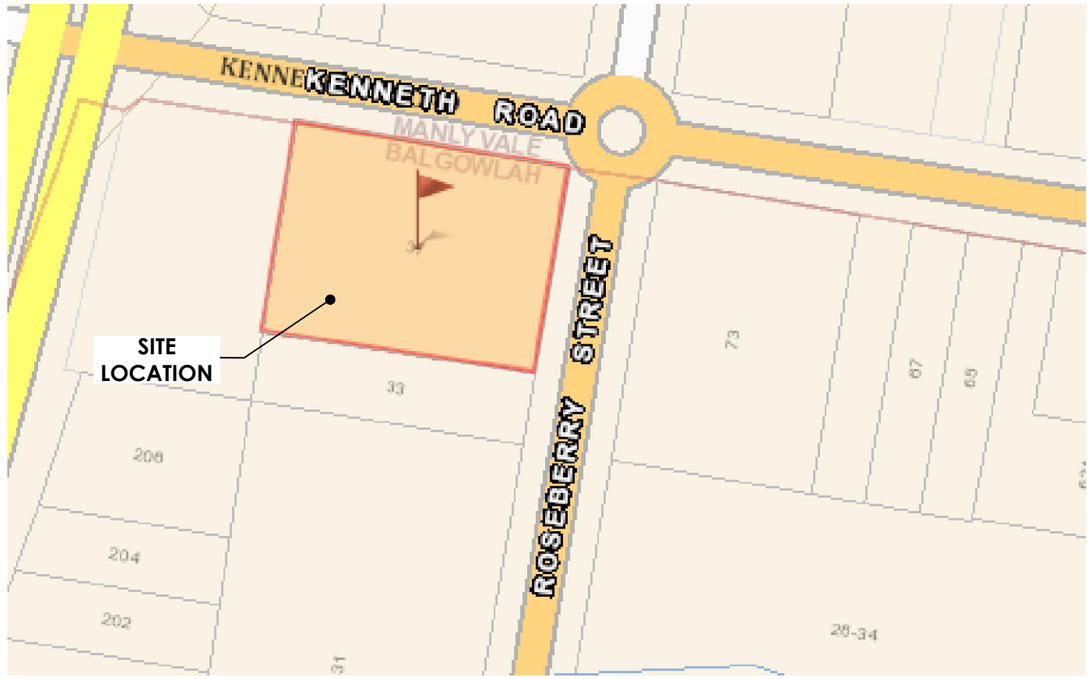
Based on the above the proposed McDonalds development satisfies the Northern Beaches Councils stormwater requirements as stated in the DCP and Water Management for Development policy.

Appendix A – Stormwater Management Plans

McDONALD'S BALGOWLAH
37 ROSEBERRY STREET, BALGOWLAH NSW 2093
CIVIL SERVICES

LEGEND

⇦ ⇦	OVERLAND FLOW PATH 1% AEP
1% ←	FALL ARROW
•7.84	FINISHED SURFACE LEVEL
• EX.7.63	EXISTING SURFACE LEVEL
K&G	KERB AND GUTTER
KO	KERB ONLY
KR	KERB RAMP
SK	SLOTTED KERB
○DP	DOWNPIPE
GD	GRATED DRAIN
⊠ ▤	STORMWATER DRAINAGE STRUCTURE
– – – – –	EXISTING STORMWATER DRAINAGE LINE
– – – – –	STORMWATER DRAINAGE LINE WITH;
USIL 25.30	INVERT LEVEL UPSTREAM
Ø300 uPVC	PIPE SIZE AND MATERIAL CLASS
10m @ 1.0%	PIPE LENGTH AND GRADE
DSIL 25.10	INVERT LEVEL DOWNSTREAM
RW	RETAINING WALL
HP	HIGH POINT
A1	PIT NUMBER
| |	BATTER



DRAWING SCHEDULE

C100	COVER SHEET, LEGEND, AND DRAWING SCHEDULE
C101	NOTES - SHEET 1
C102	NOTES - SHEET 2
C103	NOTES - SHEET 3
C104	EXISTING SERVICES PLAN
C200	EROSION AND SEDIMENT CONTROL PLAN
C201	EROSION AND SEDIMENT CONTROL DETAILS - SHEET 1
C202	EROSION AND SEDIMENT CONTROL DETAILS - SHEET 2
C300	CIVIL WORKS PLAN
C301	CIVIL WORKS DETAILS
C400	STORMWATER MANAGEMENT PLAN
C401	STORMWATER MANAGEMENT DETAILS - SHEET 1
C402	STORMWATER MANAGEMENT DETAILS - SHEET 2
C403	STORMWATER MANAGEMENT DETAILS - SHEET 3
C500	CATCHMENT PLAN
C501	STORMWATER CATCHMENT ANALYSIS PLAN

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

NORTH

CLIENT

ARCHITECT webber

CIVIL ENGINEER ENTEC CONSULTANTS

PROJECT
McDONALDS BALGOWLAH
37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
COVER SHEET, LEGEND, AND DRAWING SCHEDULE

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C100	C

SITEWORKS NOTES

1. ORIGIN OF LEVELS :- AUSTRALIAN HEIGHT DATUM (A.H.D.)

2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK.

3. ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS, THE SPECIFICATIONS AND THE DIRECTIONS OF THE PRINCIPAL'S REPRESENTATIVE.

4. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE PRINCIPAL'S REPRESENTATIVE. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.

5. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.

6. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.

7. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER COMMUNICATIONS OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.

8. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH AN APPROVED NON-NATURAL GRANULAR MATERIAL AND COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS.1289.5.1.1.

9. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.

10. ON COMPLETION OF PIPE INSTALLATION ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS.

11. PROVIDE 10mm WIDE EXPANDING CORK JOINTS BETWEEN CONCRETE PAVEMENTS AND ALL BUILDINGS , WALLS, FOOTINGS, COLUMNS, KERBS, DISH DRAINS, GRATED DRAINS, BOLLARD FOOTINGS ETC

12. CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS.

13. ALL BATTERS TO BE GRASSED LINED WITH MINIMUM 100 TOPSOIL AND APPROVED COUCH LAID AS TURF.

SITEWORKS NOTES (CONT.)

1. MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.

2. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY DIVERSION DRAINS AND MOUNDS TO ENSURE THAT AT ALL TIMES EXPOSED SURFACES ARE FREE DRAINING AND WHERE NECESSARY EXCAVATE SUMPS AND PROVIDE PUMPING EQUIPMENT TO DRAIN EXPOSED AREAS.

3. THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.

4. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.

5. ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MIN OF 500mm PAST PAVING.

6. ON COMPLETION OF WORKS ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL INCLUDING, BUT NOT LIMITED TO, KERBS, FOOTPATHS, CONCRETE AREAS, GRASS AND LANDSCAPED AREAS.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL INSTRUCTIONS

E1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT AT THE SUBJECT SITE.

E2. THE PRINCIPAL'S REPRESENTATIVE WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 2004 (BLUE BOOK).

E3. ALL BUILDERS AND SUB-CONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

CONSTRUCTION SEQUENCE

E4. THE SOIL EROSION POTENTIAL ON THIS SITE SHALL BE MINIMISED. HENCE WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE :

   a. INSTALL SEDIMENT FENCES, TEMPORARY CONSTRUCTION EXIT AND SANDBAG KERB INLET SEDIMENT TRAP.
   b. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION AND SEDIMENT CONTROL NOTES (CONT.)

EROSION CONTROL

E5. DURING WINDY CONDITIONS, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

E6. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

FENCING

E7. 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.

E8. 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.

E9. 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.

E10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

OTHER MATTERS

E11. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

E12. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE PRINCIPAL'S REPRESENTATIVE.

SITE INSPECTION & MAINTENANCE

E13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER RAINFALL EVENTS TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIR AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED.

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

NORTH

CLIENT

ARCHITECT
webber

CIVIL ENGINEER
ENTEC CONSULTANTS

PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
NOTES SHEET 1

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
YS	240001-26	C101	C

EXISTING SERVICES AND FEATURES

1. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION, REMOVAL AND DISPOSAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA, AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE PRINCIPAL'S REPRESENTATIVE.

2. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.

3. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN WRITTEN APPROVAL OF THEIR PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.

4. EXISTING BUILDINGS, EXTERNAL STRUCTURES, AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.

5. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE PRINCIPAL'S REPRESENTATIVE. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE PRINCIPAL'S REPRESENTATIVE.

6. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF PRINCIPAL'S REPRESENTATIVE FOR TIME OF INTERRUPTION.

SUBGRADE PREPARATION

1. REMOVE ALL TOPSOIL, VEGETABLE MATTER AND RUBBLE.

2. PROOF ROLL NATURAL SURFACE.

3. REMOVE ANY SOFT AREAS.

4. PLACE APPROVED NON ORGANIC FILL WITH A MAXIMUM PARTICLE SIZE OF 75mm AND COMPACT IN 200mm MAX. THICK LAYERS. U.N.O.

5. COMPACTION IS TO BE CARRIED OUT BY ROLLING AT OPTIMUM MOISTURE CONTENT TO OBTAIN A DENSITY EQUIVALENT TO 98% OF MAXIMUM DRY DENSITY WHEN TESTED BY THE STANDARD COMPACTION TEST. No. E1.1 FROM A.S. 1289.

6. COMPACTION SHALL BE CARRIED OUT WITH A VIBRATING ROLLER WITH AT LEAST 10 TONNE STATIC WEIGHT.

7. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY.

CONCRETE NOTES

GENERAL

1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS 3600 CURRENT EDITIONS WITH AMENDMENTS, AND THE ACSE CONCRETE SPECIFICATION EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

2. VERIFY ALL SETTING OUT DIMENSIONS WITH THE ARCHITECT AND/OR THE SURVEYOR.

3. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS.

4. IN CASE OF DOUBT - ASK.

CONCRETE

1. PLACE CONCRETE OF THE FOLLOWING CHARACTERISTIC COMPRESSIVE STRENGTH F'C AS DEFINED IN AS.3600 OR M.R. FORM 609. ADD WATER REDUCING ADMIXTURE EQUAL TO WRDA.

LOCATION	AS.3600 F'c MPa AT 28 DAYS	SPECIFIED SLUMP	NOMINAL AGG. SIZE
ALL KERB PITS ETC.	25	80	20
VEHICULAR PAVEMENTS	32	80	20

2. USE "A.C.S.E. SPECIFICATION TYPE A" CEMENT.

3. ALL CONCRETE SHALL BE SUBJECT TO PROJECT CONTROL SAMPLE AND TESTING TO AS.3600.

4. CONSOLIDATE BY VIBRATION.

REINFORCEMENT

1. FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL AS SHOWN BELOW. ON THE DRAWING N IS FOLLOWED BY A NUMERAL WHICH INDICATES THE SIZE IN MILLIMETRES. A MARK NUMERAL (IF USED) FOLLOWS THIS NUMERAL.

   N. HOT ROLLED DEFORMED BARS, GRADE 500N
   R. HOT ROLLED PLAIN BARS, GRADE 250N
   W. COLD DRAWN PLAIN ROUND WIRE, GRADE 500L
   SL. SQUARE WELDED MESH, GRADE 500L
   RL. RECTANGULAR WELDED MESH, GRADE 500L
   LTM. RECTANGULAR WELDED TRENCH MESH, GRADE 500L

CONCRETE NOTES (CONT.)

CURING

1. CURING OF ALL CONCRETE SHALL BE IN ACCORDANCE WITH AS3600 AND SHALL COMMENCE WITHIN 2 HOURS OF FINISHING OPERATIONS.

2. CURING SHALL BE CONTINUAL SATURATION WITH POTABLE WATER FOR 3 DAYS FOLLOWED BY PREVENTION OF MOISTURE LOSS FOR THE NEXT 4 DAYS, USING POLYTHENE SHEETING OR WET HESSIAN PROTECTED BY WIND OR TRAFFIC AND THEN ALLOWING GRADUAL DRYING OUT.

3. CURING COMPOUNDS MAY BE USED PROVIDED THAT THEY COMPLY WITH AS3799 AND NOT AFFECT THE PROPOSED FINISH.

4. THE COMPATIBILITY OF CURING COMPOUNDS WITH THE PROPOSED FINISH AND OTHER CONCRETE ADMIXTURES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING AND APPLICATION.

5. CURING COMPOUNDS ARE APPLIED UNIFORMLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
   PVA - BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

6. CURING SHALL BE UNDERTAKEN BY AN EXPERIENCED CONTRACTOR FAMILIAR WITH THE PROPOSED COMPOUNDS AND THE MANUFACTURER'S SPECIFICATIONS.

7. WHERE SHADE TEMPERATURES EXCEEDS 35°C, SPRAY THE EXPOSED SURFACE OF THE CONCRETE PAVEMENT / SLAB DURING THE PLACING OF FINISHING OPERATION WITH A FINE FILM OR APPROVED ALIPHATIC ALCOHOL. REPEAT THE SPRAY IF THE SPRAY SURFACE HAS BEEN RE-WORKED.

8. ENSURE ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON-SITE PRIOR TO CONCRETE WORKS.

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
NOTES SHEET 2

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C102	C

CONCRETE PAVEMENT JOINT NOTES

1. CONCRETE MIX PARAMETERS ;

   - MAXIMUM AGGREGATE SIZE 20mm
   - FLEXURAL STRENGTH AT 28 DAYS = 3.5MPa
   - FLEXURAL STRENGTH AT 90 DAYS = 3.85 MPa
   - MAXIMUM WATER / CEMENT RATIO = 0.55
   - MAXIMUM SHRINKAGE LIMIT = 650 MICRON STRAINS (AS 1012 Pt 13)
   - MINIMUM CEMENT CONTENT = 300kg/m3
   - CEMENT TO BE TYPE "A" (NORMAL CEMENT) TO AS.1315
   - SLUMP = 50mm

2. JOINT TO BE SAWN AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY THAT IT WILL NOT BE DAMAGED BY SAWING. IF AN UNPLANNED CRACK OCCURS THE CONTRACTOR SHALL REPLACE WHOLE SLABS EITHER SIDE OF THE UNPLANNED CRACK, UNLESS DIRECTED OTHERWISE.

3.
   a. CONSTRUCT JOINTS AS DETAILED

   b. CONSTRUCTION JOINTS WHERE REQUIRED BUT NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER AND CONSTRUCTED AT THE CONTRACTORS EXPENSE.

   c. ALL LONGITUDINAL CONSTRUCTION JOINTS SHALL BE FORMED AND INCLUDE DOWEL BARS AS SPECIFIED. ALL TRANSVERSE CONSTRUCTION JOINTS SHALL BE FORMED AND INCLUDE DOWEL BARS AS SPECIFIED.

   d. BOND BREAKER TO BE TWO (2) UNIFORM COATS OF BITUMEN EMULSION ALL OVER THE EXPOSED SURFACE AND ON END.

3. DOWELS AND TIE BARS TO MEET STRENGTH REQUIREMENTS OF STRUCTURAL GRADE STEEL IN ACCORDANCE AS. 1302. DOWELS AND TIE BARS SHALL BE ;-

   - STRAIGHT
   - TO LENGTH SPECIFIED
   - CLEAN AND FREE FROM MILL SCALE, RUST AND OIL.
   - SAWN TO LENGTH NOT CROPPED.

4. DIMENSIONS OF SEALANT RESERVOIR DEPENDANT ON THE SEALANT TYPE ADOPTED. ENGINEERS APPROVAL TO BE OBTAINED FOR SEALANT AND RESERVOIR DIMENSIONS AND DETAIL PROPOSED BY THE CONTRACTOR. REFER DETAIL "B" FOR TYPICAL ARRANGEMENT AND SEALANT.

CONCRETE PAVEMENT JOINT NOTES Cont.

1. PRIOR TO THE PLACEMENT OF CONCRETE IN THE ADJACENT SLAB, SELF EXPANDING CORK FILLER SHALL BE ADHERED TO THE ALREADY CAST AND CLEANED CONCRETE FACE USING AN APPROVED WATERPROOF ADHESIVE. ADHESIVE SHALL BE LIBERALLY APPLIED TO THE FULL FACE OF THE CONCRETE SLAB TO BE COVERED BY THE FILLER, AND ON THE FULL FACE OF THE FILLER TO BE ADHERED.

2. REFER TO COMPACTION NOTES FOR PREPARATION OF SUB-BASE AND SUB-GRADE.

3. ALL WORK TO BE BROOM FINISH.

VEHICULAR PAVEMENT JOINTING

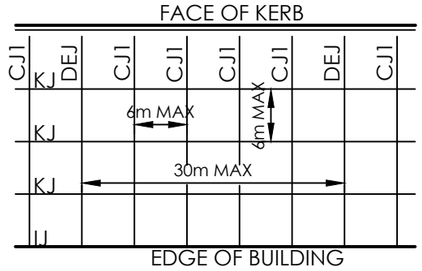
8. ALL VEHICULAR PAVEMENT TO BE JOINTED AS SHOWN ON DRAWINGS.

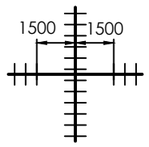
9. KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6m CENTRES.

10. SAWN JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6m CENTRES OR 1.5 x THE SPACING OF KEYED JOINTS, WHERE KEY JOINT SPACING IS LESS THAN 4m, WITH DOWELLED EXPANSION JOINTS AT MAXIMUM OF 30m CENTRES.

11. PROVIDE 10mm WIDE FULL DEPTH ISOLATION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS.

12. VEHICULAR PAVEMENT JOINTING AS FOLLOWS.





13. WHERE DOWELLED JOINTS INTERSECT
14. REMOVE DOWELS FROM LAST 1500mm
15. FROM JOINT IN DIRECTION OF POUR.

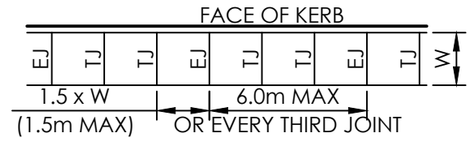
CONCRETE PAVEMENT JOINT NOTES Cont.

PEDESTRIAN FOOTPATH JOINTING

1. DOWELED JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 6.0m CENTRES.

2. TOOLED JOINTS ARE TO BE LOCATED AT A MAX 1.5 x WIDTH OF THE PAVEMENT.

3. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND/OR ADJACENT PAVEMENT JOINTS.



4. ALL PEDESTRIAN FOOTPATH JOINTING LAYOUTS AS FOLLOWS (UNO).

5. ALL RAMPED CROSSINGS SHALL BE DOWELED INTO ADJOINING PATH PAVEMENT.

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
NOTES SHEET 3

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C103	C

100Ø WATER MAIN.

HIGH VOLTAGE ELECTRICAL. APPROX. DEPTH 500mm.

225Ø SEWER APPROX. 1.7m DEEP. FURTHER POTHOLING INVESTIGATION TO BE COMPLETED TO ENSURE MINIMUM COVER IS MAINTAINED.

OVERHEAD ELECTRICAL.

EXISTING 375Ø STORMWATER DRAINAGE. IL 6.24.

HIGH VOLTAGE ELECTRICAL APPROX. DEPTH 700mm.

TELSTRA/NBN.

100 DIA. WATERMAIN. APPROX. DEPTH 500 - 700mm.

225Ø SEWER APPROX. DEPTH 1.5m.

210 KPa MEDIUM PRESSURE GAS MAIN. APPROX. DEPTH OF COVER 600mm.

SEWER MANHOLE

LEGEND

- WATER LINE
- UNDERGROUND ELECTRICAL LINE
- OVERHEAD ELECTRICAL LINE
- GAS LINE
- COMMUNICATION LINE
- SEWER LINE
- STORMWATER LINE

ROAD

STREET

ROSEBERRY

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
EXISTING SERVICES PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:250	NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C104	C

LEGEND

- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER
- STABILISED SITE ACCESS
- MESH AND GRAVEL INLET FILTER
- STOCKPILE

NOTE

EXACT LOCATION OF STABILISED SITE ACCESS AND TEMPORARY STOCKPILE TO BE DETERMINED ON-SITE DURING CONSTRUCTION BY CONTRACTOR.

KENNETH ROAD

PROPOSED MCDONALD'S BUILDING

ROSEBERRY STREET

MESH AND GRAVEL INLET FILTER.

GEOTEXTILE INLET FILTER.

SEDIMENT FENCE.

STABILISED SITE ACCESS.

STOCKPIPE. ACCURATE LOCATION OF STOCKPILE SHOULD BE CONFIRMED ON SITE BY CONTRATOR.

ISSUE	AMENDMENT	DATE	DRAWN	APP
E	ISSUE FOR DA	12.12.24	YS	NP
D	ISSUE FOR DA	09.12.24	YS	NP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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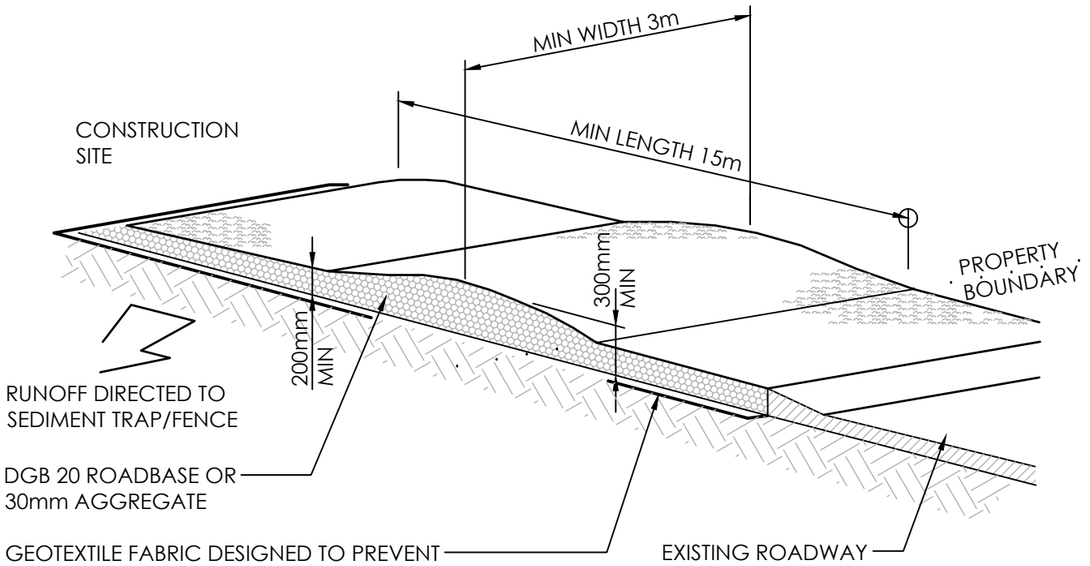
PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:250	NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C200	E

SOURCE: MANAGING URBAN STORMWATER
SOILS AND CONSTRUCTION
THIRD EDITION, AUGUST 1998
PRODUCED BY THE DEPARTMENT OF
HOUSING.

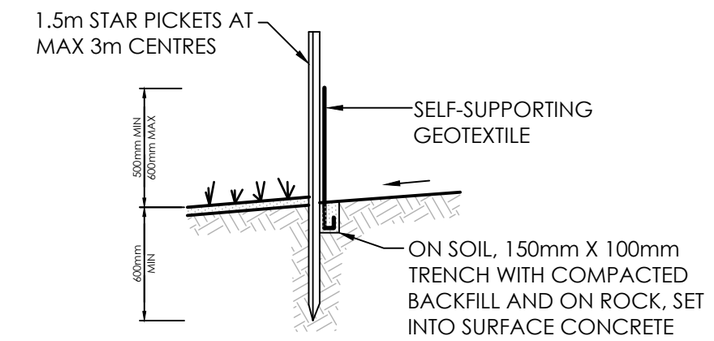


CONSTRUCTION NOTES:

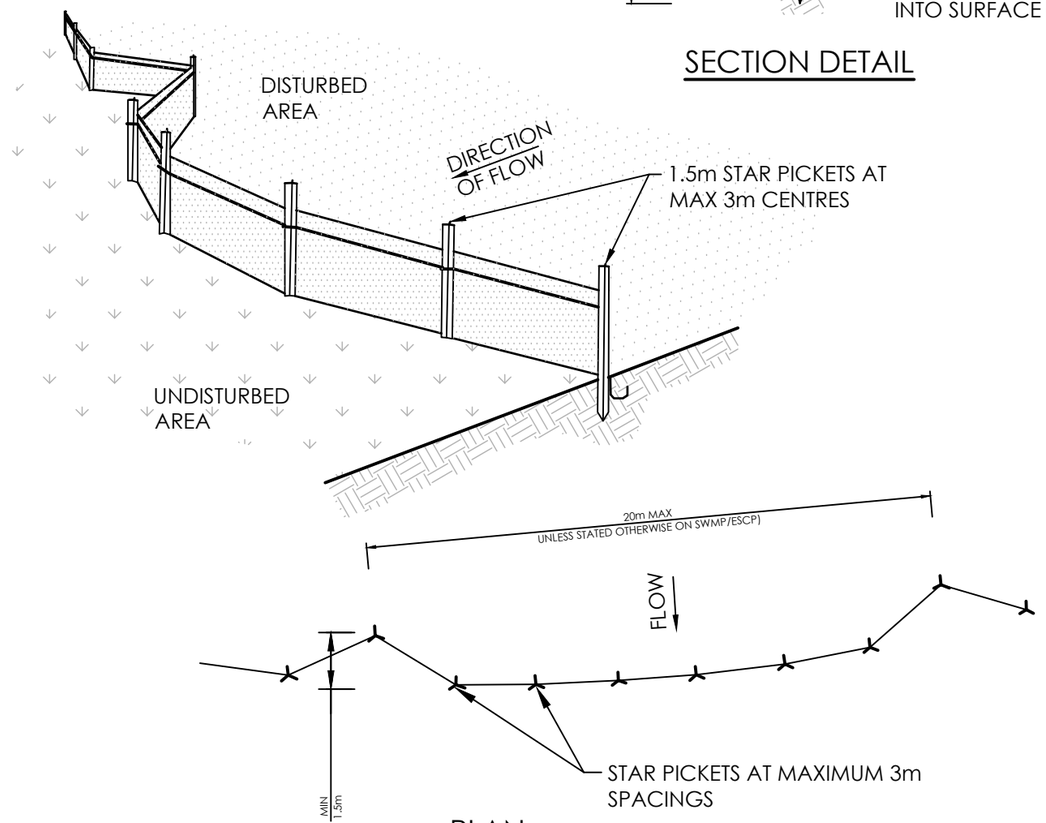
1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200MM THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30MM AGREGATE. MINIMUM LENGTH 15M OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BUUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS

SOURCE: MANAGING URBAN STORMWATER
SOILS AND CONSTRUCTION
THIRD EDITION, AUGUST 1998
PRODUCED BY THE DEPARTMENT OF
HOUSING.



SECTION DETAIL



PLAN

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND, 3 METRES APART.
3. DIG A 150 MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150 MM OVERLAP.

SEDIMENT FENCE

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
EROSION AND SEDIMENT CONTROL DETAIL
SHEET 1

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C201	C

SOURCE: MANAGING URBAN STORMWATER
SOILS AND CONSTRUCTION
THIRD EDITION, AUGUST 1998
PRODUCED BY THE DEPARTMENT OF
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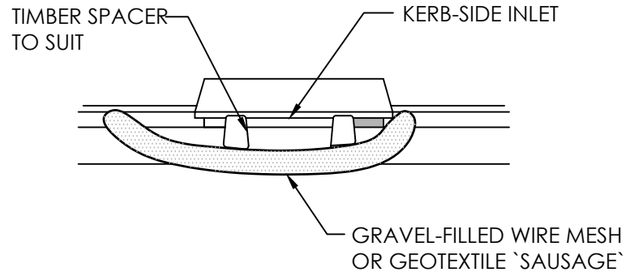

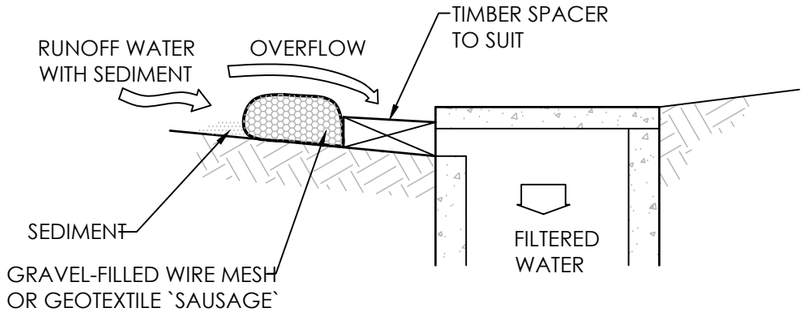

NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES:

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT.
2. FILL THE SLEEVE WITH 25MM TO 50MM GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150MM HIGH X 400MM WIDE.
4. PLACE THE FILTER AT THE OPENING OF THE KERB INLET LEAVING A 100MM GAP AT THE TOP TO ACT AS AN EMERGENCY SPILLWAY.
5. MAINTAIN THE OPENING WITH SPACER BLOCKS.
6. FORM A SEAL WITH THE KERBING AND PREVENT SEDIMENT BYPASSING THE FILTER.
7. FIT TO ALL KERB INLETS AT SAG POINTS.

MESH AND GRAVEL INLET FILTER

SOURCE: MANAGING URBAN STORMWATER
SOILS AND CONSTRUCTION
THIRD EDITION, AUGUST 1998
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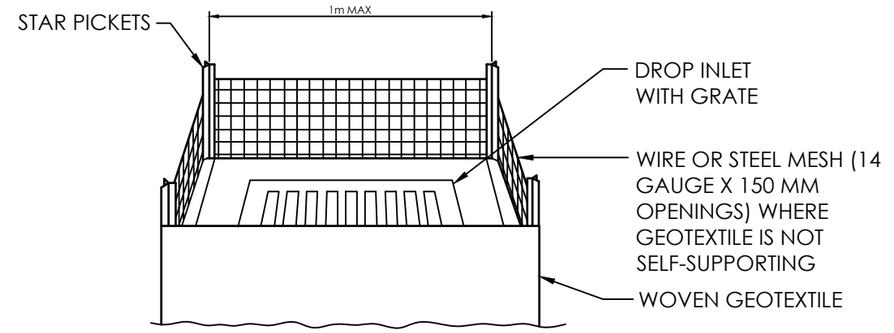
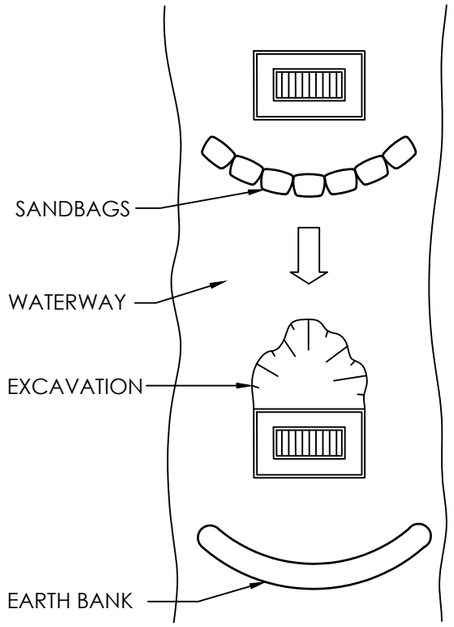
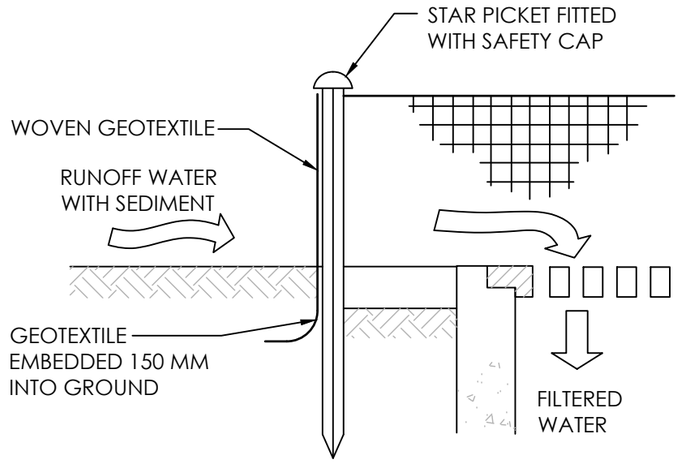
HOUSING.







FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER FROM GEOTEXTILE OR STRAW BALES.
2. SUPPORT GEOTEXTILE WITH MESH TIED TO POSTS AT 1 METRE CENTRES.
3. DO NOT COVER INLET WITH GEOTEXTILE.
4. CONSTRUCTION DETAILS ARE SIMILAR TO TYPICAL SEDIMENT FENCING DETAIL.

GEOTEXTILE INLET FILTER

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C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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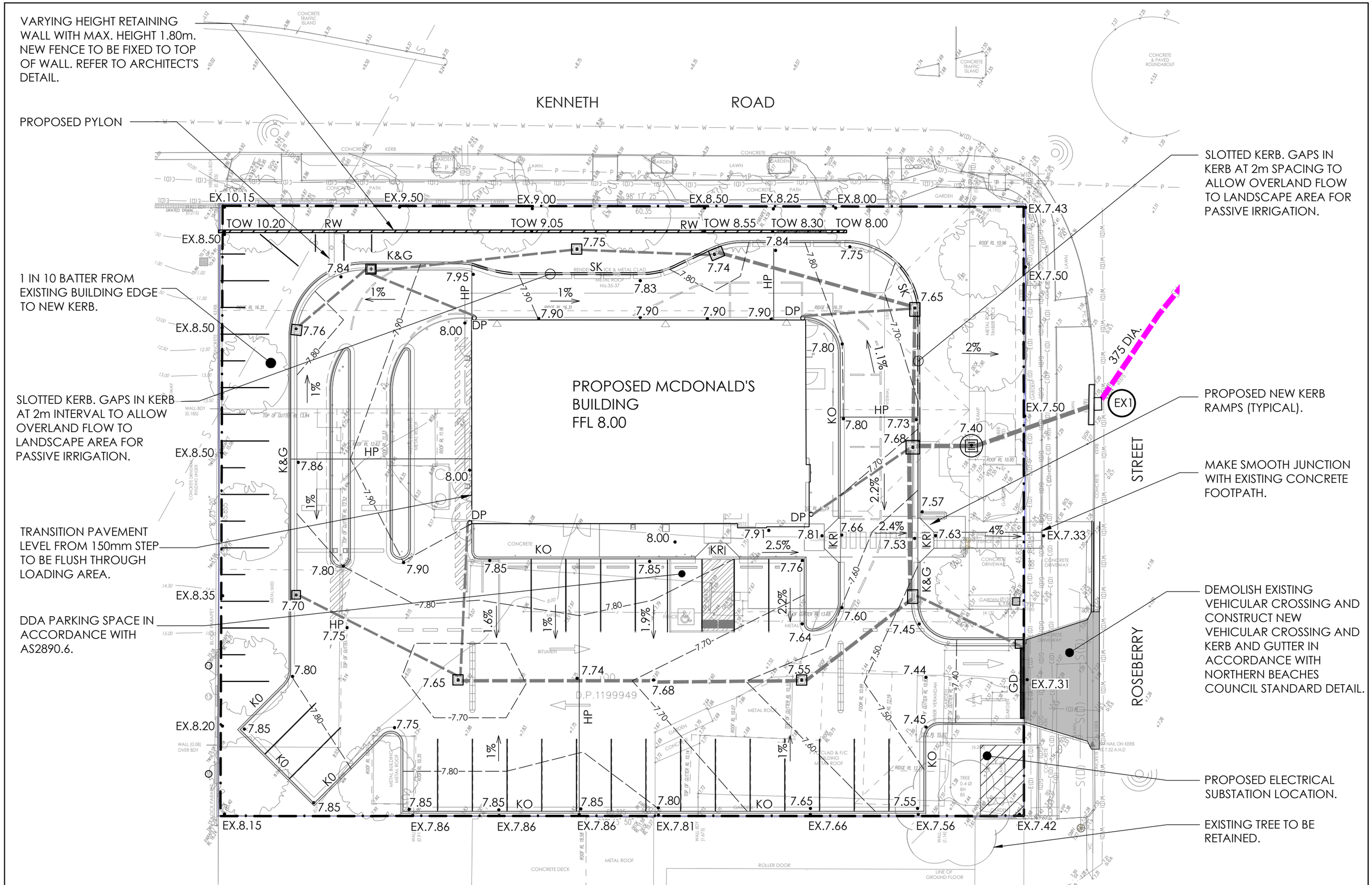
PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
EROSION AND SEDIMENT CONTROL DETAIL
SHEET 2

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24		NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C202	C



E	ISSUE FOR DA	12.12.24	YS	NP
D	ISSUE FOR DA	09.12.24	YS	NP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP
ISSUE	AMENDMENT	DATE	DRAWN	APP

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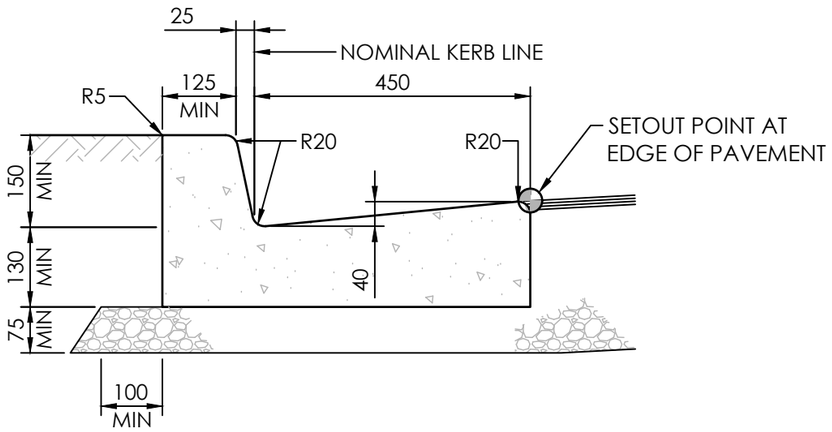
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

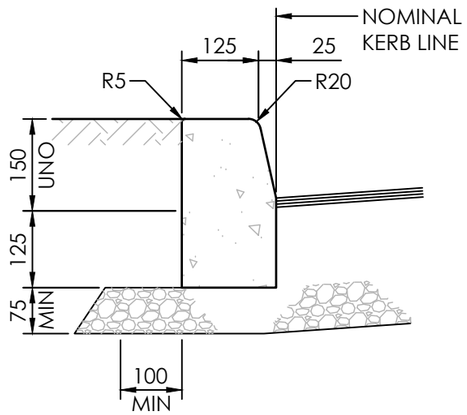
DRAWING TITLE
CIVIL WORKS PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:250	NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C300	E



KERB & GUTTER

SCALE 1:10
SHOWN AS 'K&G'



KERB ONLY

SCALE 1:10
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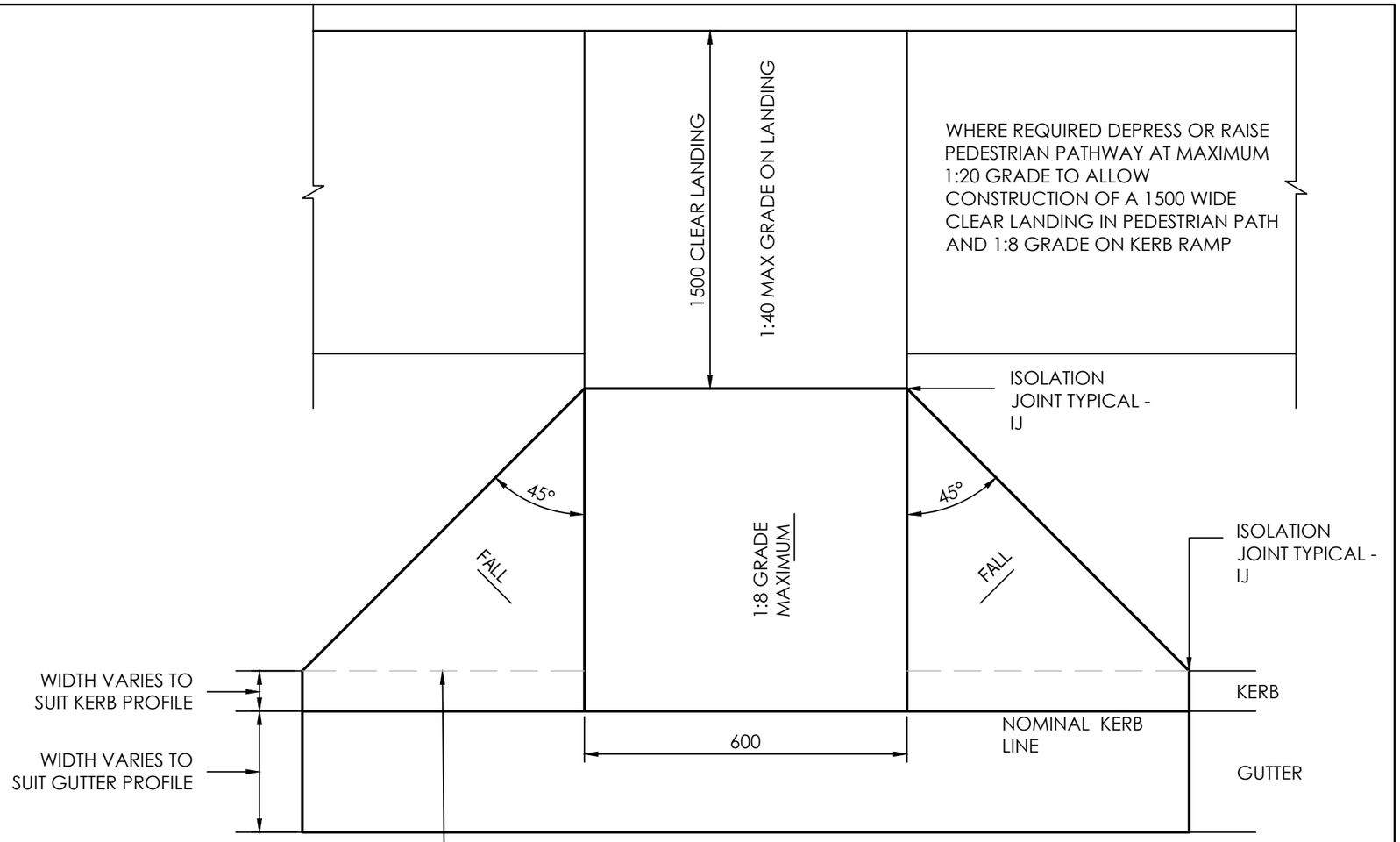

NOTE 1: GRADE AT 1:8 UP TO A MAXIMUM OF 1:4 GRADE IF REQUIRED TO ALLOW CONSTRUCTION OF FOOTPATH CLEAR LANDING IN CONSTRAINED AREAS. GREATER THAN 1:8 GRADE ONLY ALLOWABLE WHERE RAMP DOES NOT FORM PART OF THE PEDESTRIAN PATHWAY. 1:4 GRADE ON RAMP SPLAY REQUIRES HANDRAIL TO AS/NZS 1428.1

NOTE 2: REFER TO AS/NZS 1428.4 FOR TACTILE INDICATOR REQUIREMENTS

KERB RAMP DETAIL

SCALE 1:10
SHOWN AS 'KR' ON PLAN

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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ENTEC CONSULTANTS

PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
CIVIL WORKS DETAILS

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:10	NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C301	C

USIL 6.87
225Ø uPVC
10m @1%
DSIL 6.77

USIL 7.05
150Ø uPVC
15m @1%
DSIL 6.90

USIL 7.15
150Ø uPVC
7m @1%
DSIL 7.08

USIL 7.21
150Ø uPVC
16m @1%
DSIL 7.05

USIL 7.02
225Ø uPVC
25m @1%
DSIL 6.77

USIL 6.74
225Ø uPVC
15m @1%
DSIL 6.59

USIL 6.56
225Ø uPVC
10m @1%
DSIL 6.46

KENNETH ROAD

STORMWATER QUALITY TREATMENT PIT WITH 3 X OCEAN PROTECT STORMFILTER CARTRIDGES. REFER TO DETAIL.

USIL 6.36
300Ø uPVC
9m @1%
DSIL 6.27

675 DIA.

SITE STORMWATER CONNECTION TO COUNCIL KERB INLET PIT WITH 300Ø OUTLET. EXISTING IL 6.24

375 DIA.

USIL 6.43
300Ø uPVC
4m @1%
DSIL 6.39

STREET

USIL 6.61
300Ø uPVC
10.5m @1%
DSIL 6.51

DEMOLISH EXISTING STORMWATER PIT AND ASSOCIATED CONNECTIONS TO SATISFY NEW WORKS.

USIL 6.61
225Ø uPVC
7m @1%
DSIL 6.54

ROSEBERRY

200mm WIDE GRATED DRAIN. REFER TO DETAIL.

USIL 6.74
225Ø uPVC
10m @1%
DSIL 6.64

PROPOSED MCDONALD'S BUILDING
FFL 8.00

EX.10.15 EX.9.50 EX.9.00 EX.8.50 EX.8.25 EX.8.00 EX.7.43
TOW 10.20 RW TOW 9.05 RW TOW 8.55 TOW 8.30 TOW 8.00
EX.8.50 EX.8.50 EX.8.35 EX.8.20 EX.8.15
EX.7.50 EX.7.50 EX.7.33 EX.7.31 EX.7.42
EX.7.86 EX.7.86 EX.7.86 EX.7.81 EX.7.66 EX.7.56
B1 B2 B3 B4 B5 A1 A2 A3 A4 A5 A6 A7 EX1
HP DP 1% 2% 2.2% 2.4% 4% 1.1% 1.6% 1.9% 2.5%
7.84 7.75 7.74 7.83 7.95 7.90 7.80 7.76 8.00 7.65 7.73 7.68 7.40 7.57 7.66 7.53 7.63 7.91 7.81 7.60 7.64 7.45 7.44 7.55 7.68 7.74 7.75 7.70 7.86 7.85 7.80 7.90

D.P.1199949

CONCRETE TRAFFIC ISLAND
CONCRETE & PAVED ROUNDABOUT
CONCRETE KERB GARDEN LAWN CONCRETE PATH
RENDERED BRICK & METAL CLAD METAL ROOF NO.35-37
METAL ROOF TIMBER ROOF
CONCRETE DRIVEWAY GARDEN BITUMEN CONCRETE DECK
ROLLER DOOR LINE OF GROUND FLOOR
TREE 0.4 Ø BH 8m
NAIL ON KERB 7.32 A.H.D

ISSUE	AMENDMENT	DATE	DRAWN	APP
D	ISSUE FOR DA	12.12.24	YS	NP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
STORMWATER MANAGEMENT PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:250	NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C400	D

PIT NOTES

1. PRECAST STORMWATER PITS ARE SHOWN TO COVER INTENT ONLY. EQUIVALENT PRECAST OR CAST-IN-SITU PITS MAY BE USED UPON APPROVAL OF THE CIVIL ENGINEER.

2. PITS SHALL HAVE ADEQUATE CAPACITY TO SUPPORT A COMBINATION OF THE FOLLOWING LOADS:

LATERAL LOADS
A. EARTH PRESSURE
B. HYDROSTATIC PRESSURE
C. COMPACTION PRESSURE 25 kPa MIN.

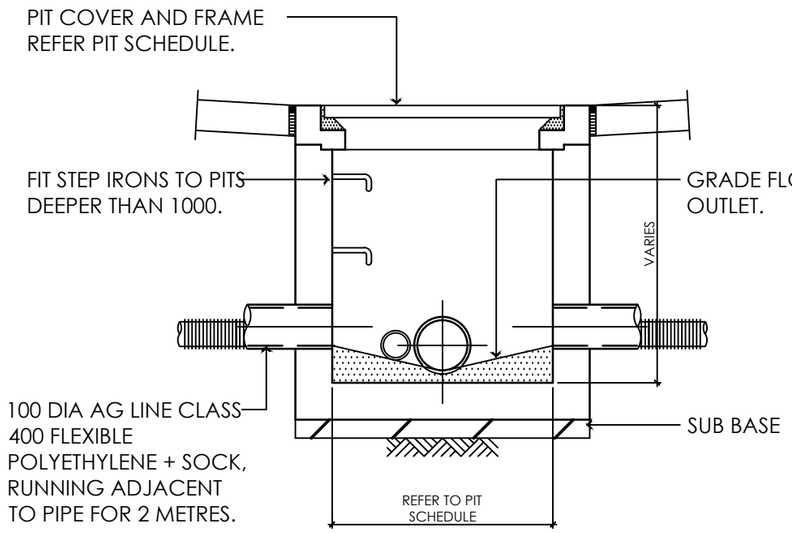
VERTICAL LOADS
A. 210 kN

3. MINIMUM CONCRETE STRENGTH FOR PITS SHALL BE: F'c = 25 MPa AT 28 DAYS.

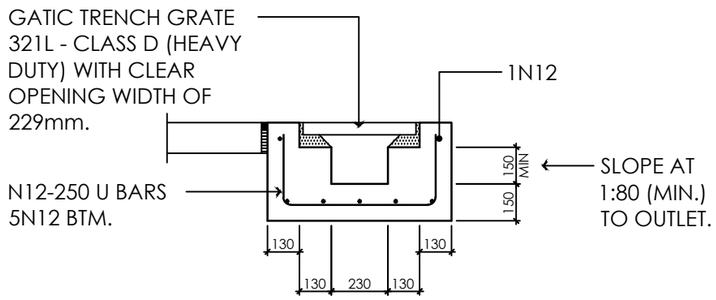
4. PIT COVERS AND FRAMES MUST HAVE ADEQUATE ANCHORAGE TO ENSURE THAT THEY DO NOT COME LOOSE UNDER TRAFFIC.

5. COVERS AND LINTELS FOR THE KERB ENTRY PIT SHALL SUPPORT A TEST LOAD OF 100 kN WITHOUT PERMANENT DEFORMATION OR DAMAGE.

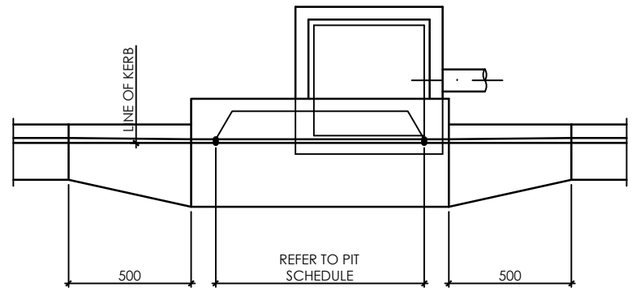
6. THIS DRAWING IS INTENDED TO DETERMINE THE MINIMUM REQUIREMENTS FOR CIVIL DETAILS. ADDITIONAL DETAILS MAY BE INCLUDED WHERE REQUIRED.



INLET PIT JUNCTION PIT
SIMILAR



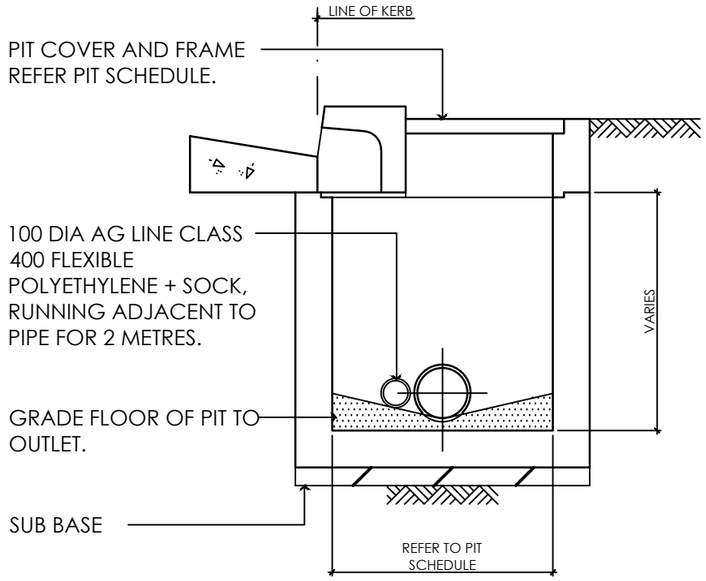
GRATED TRENCH DRAIN



KERB ENTRY PIT PLAN
1:50

PIT SCHEDULE				
SIZE	PIT AND LID TYPE	CLASS	PIT NUMBER	COMMENT
450 x 450	SURFACE INLET PIT WITH HEELSAFE GRATE	D	A4, A7	PIT TO BE FITTED WITH 'OCEAN GUARD' FILTER BASKET. IN ACCORDANCE WITH OCEAN PROTECT SPECIFICATION.
600 x 600	SURFACE INLET PIT WITH HEELSAFE GRATE	D	A5, A6, B3, B5	PIT TO BE FITTED WITH 'OCEAN GUARD' FILTER BASKET. IN ACCORDANCE WITH OCEAN PROTECT SPECIFICATION.
600 x 600	SURFACE INLET PIT WITH HEELSAFE GRATE	D	B4	
600 x 900	SURFACE INLET PIT WITH HEELSAFE GRATE	D	A3, B1, B2	
900 x 900	SURFACE INLET PIT WITH HEELSAFE GRATE	B	A1	WATER QUALITY TREATMENT PIT WITH 3x OCEAN PROTECT STORMWATER CARTRIDGES. REFER TO DETAIL ON DRAWING 'C403'.
900 x 900	SURFACE INLET PIT WITH HEELSAFE GRATE	D	A2	
EXISTING	KERB INLET PIT	D	EX1	MAKE NEW CONNECTION TO EXISTING COUNCIL STORMWATER PIT. EXISTING DOWNSTREAM INVERT LEVEL 6.24.

PIT SCHEDULE



KERB ENTRY PIT SECTION

ISSUE	AMENDMENT	DATE	DRAWN	APP
D	ISSUE FOR DA	12.12.24	YS	NP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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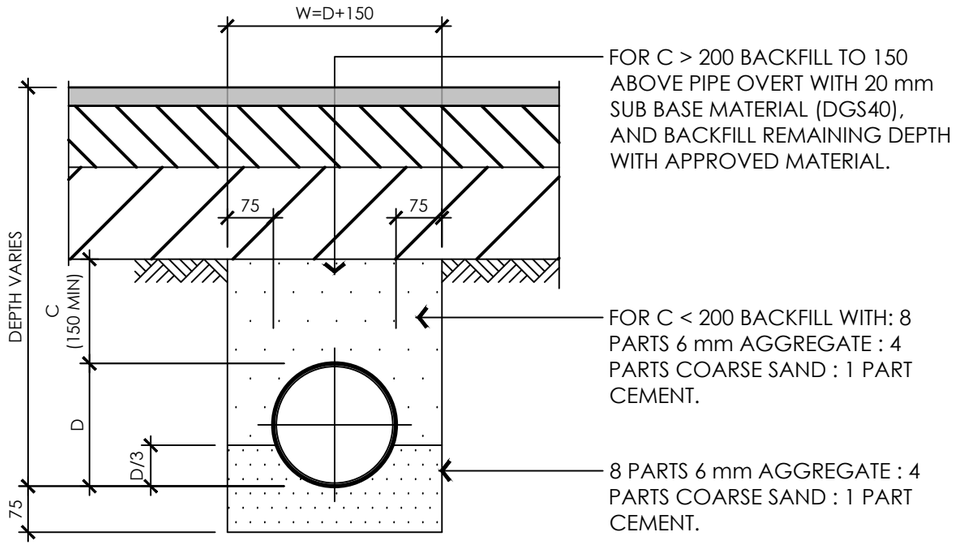
PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

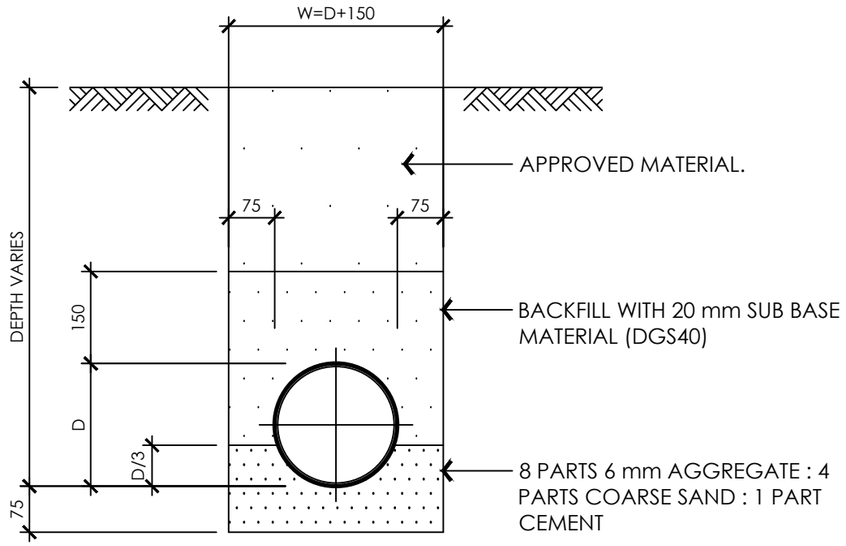
DRAWING TITLE
STORMWATER MANAGEMENT DETAILS
SHEET 1

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:25	NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C401	D



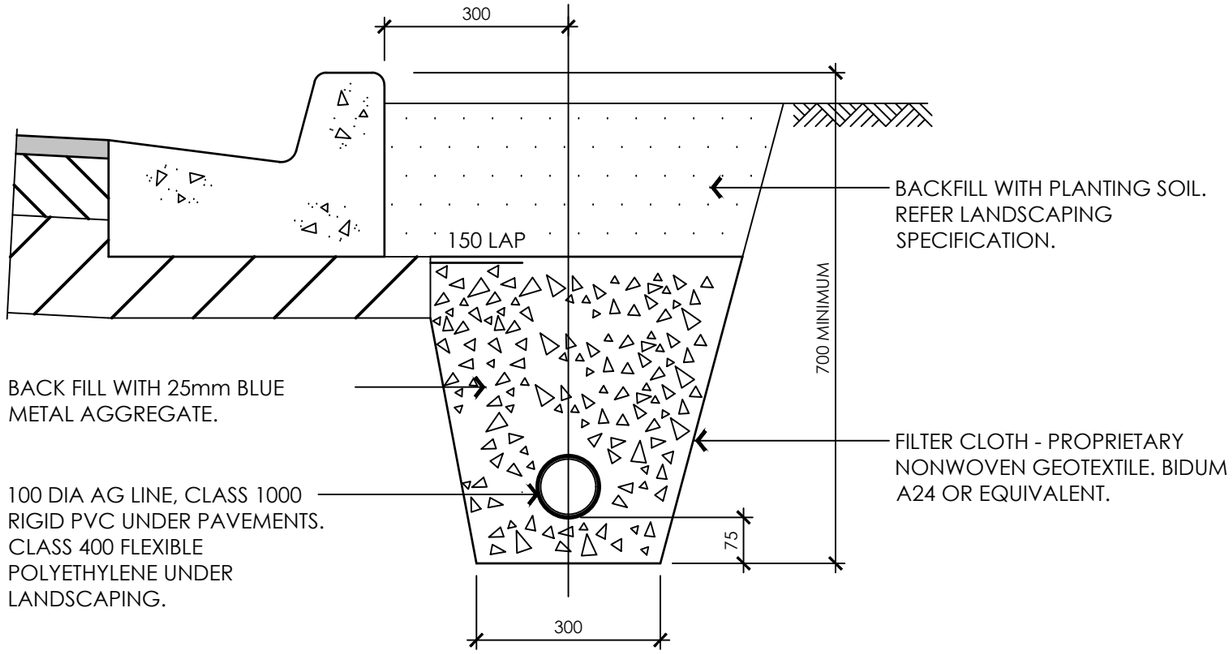
STORMWATER PIPE BEDDING DETAIL UNDER PAVEMENT



STORMWATER PIPE BEDDING DETAIL UNDER GROUND

NOTES

1. THIS DRAWING IS INTENDED TO DETERMINE THE MINIMUM REQUIREMENTS FOR CIVIL DETAILS. ADDITIONAL DETAILS MAY BE INCLUDED WHERE REQUIRED.



AGRICULTURAL DRAIN DETAIL

ISSUE	AMENDMENT	DATE	DRAWN	APP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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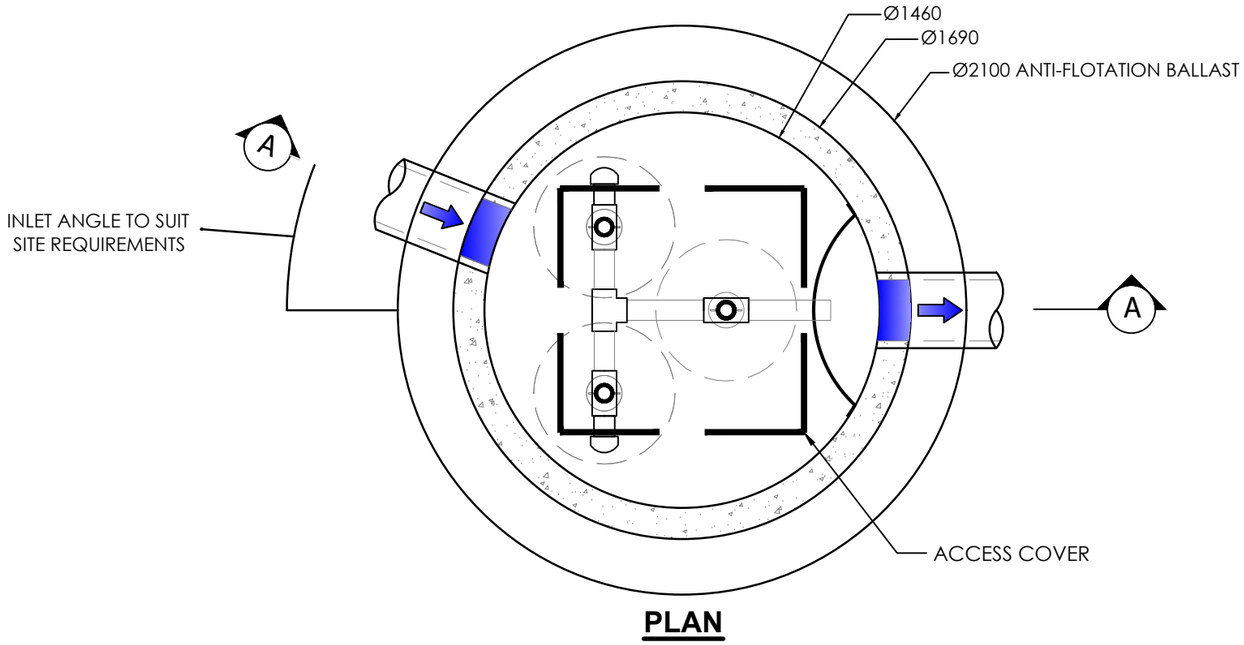
PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

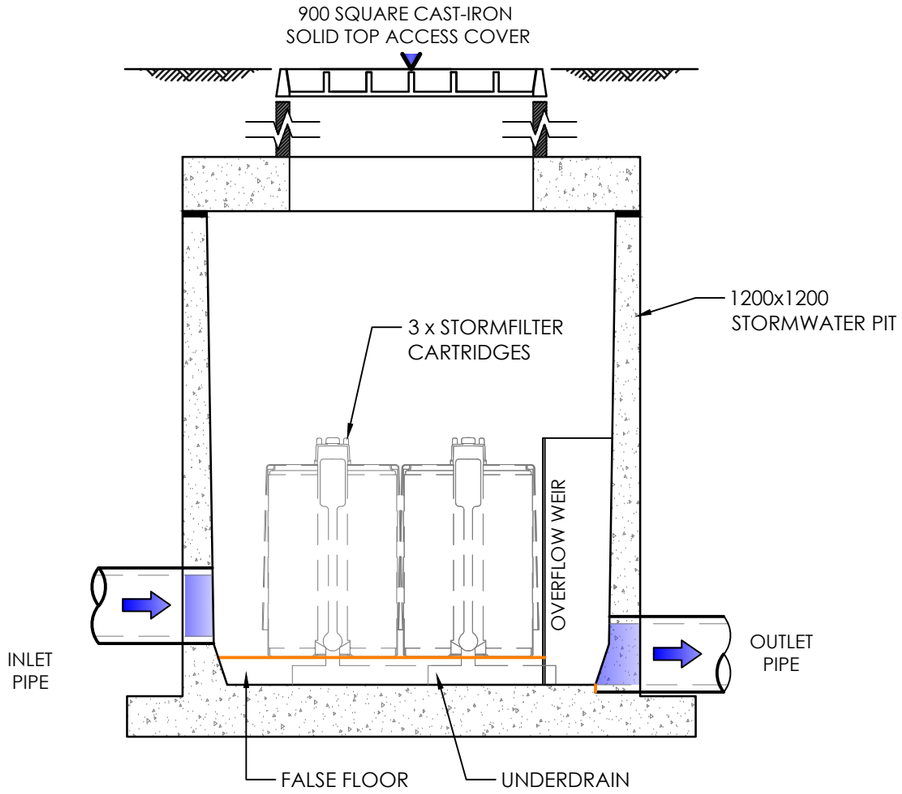
DRAWING TITLE
STORMWATER MANAGEMENT DETAILS
SHEET 2

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:10	NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C402	C



PLAN

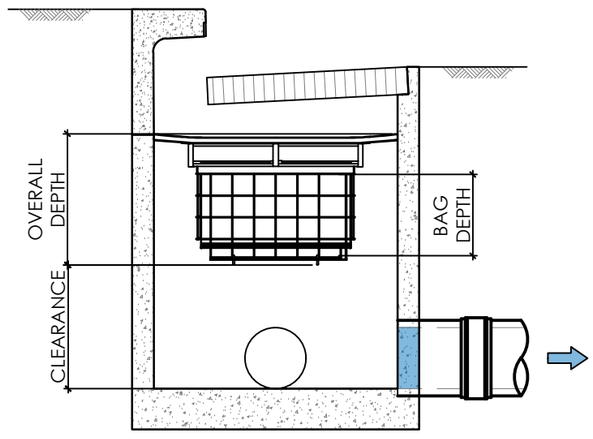


FILTER CARTRIDGE PIT

PLAN ID	MAXIMUM PIT PLAN DIMENSIONS
S	450mm x 450mm
M	600mm x 600mm
L	900mm x 900mm
XL	1200mm x 1200mm

DEPTH ID	BAG DEPTH	OVERALL DEPTH
1	170	270
2	300	450
3	600	700

PLAN ID	DEPTH ID 1	DEPTH ID 2	DEPTH ID 3
S	-		
M	-	-	
L	-	-	
XL	-	-	



FILTER BASKET PIT

FILTER BASKET SIZING

ISSUE	AMENDMENT	DATE	DRAWN	APP
D	ISSUE FOR DA	12.12.24	YS	NP
C	ISSUE FOR DA	06.12.24	YS	NP
B	ISSUE FOR DA	29.11.24	YS	NP
A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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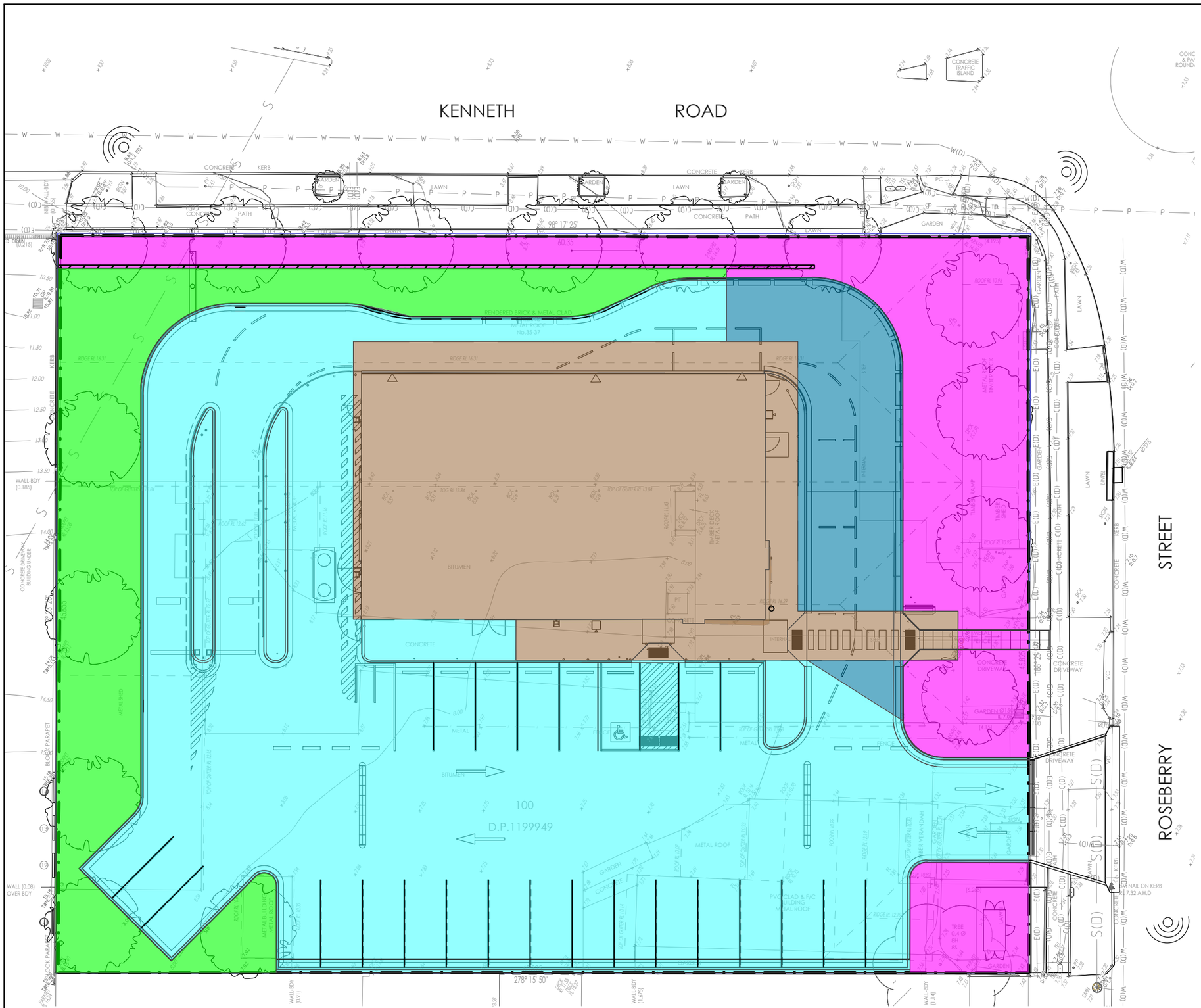
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
STORMWATER MANAGEMENT DETAILS
SHEET 3

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:20	NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C403	D



LEGEND

- ROOF AREA = 520m^2 (100% IMPERVIOUS)
- PAVEMENT TO OCEAN GUARD AREA = 1335m^2 (100% IMPERVIOUS)
- PAVEMENT TO STORMFILTER AREA = 145m^2 (100% IMPERVIOUS)
- LANDSCAPE TO OCEAN GUARD AREA = 350m^2 (0% IMPERVIOUS)
- LANDSCAPE BYPASS AREA = 415m^2 (15% IMPERVIOUS)

ISSUE	AMENDMENT	DATE	DRAWN	APP
D	ISSUE FOR DA	12.12.24	YS	NP
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A	ISSUE FOR DRAFT DA	15.11.24	YS	NP

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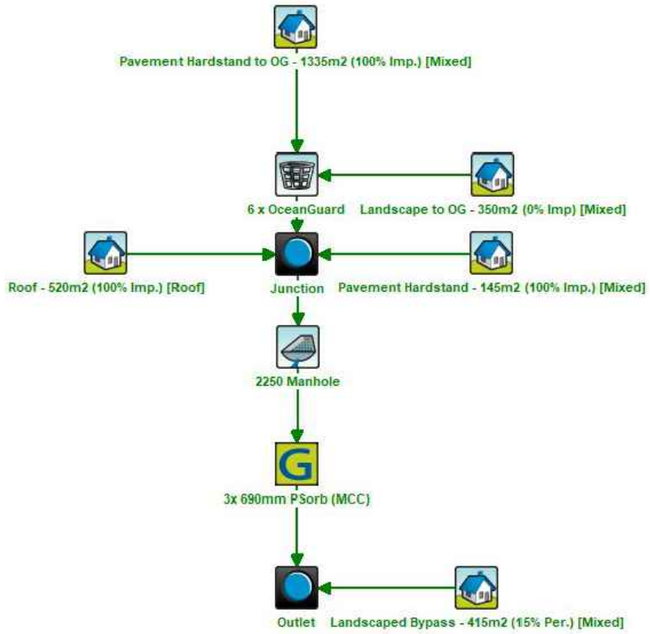
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
CATCHMENT PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV 24	1:250	NP	
DESIGNED	PROJECT NO.		DWG. NO.	ISSUE
NP	240001-26		C500	D



MUSIC MODEL

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.07	2.07	0
Total Suspended Solids (kg/yr)	494	63.7	87.1
Total Phosphorus (kg/yr)	0.9	0.291	67.6
Total Nitrogen (kg/yr)	4.68	2.55	45.4
Gross Pollutants (kg/yr)	51.8	2.43	95.3

MUSIC RESULTS

WSUD ANALYSIS

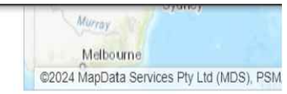
1. WSUD REQUIREMENTS AS STATED IN THE COUNCIL WATER MANAGEMENT POLICY SECTION 4.1.1 ARE ACHIEVED USING PROPRIETARY FILTER DEVICES SUPPLIED BY OCEAN PROTECT WHICH HAVE BEEN APPROVED FOR USE BY NORTHERN BEACHES COUNCIL.

2. NATURAL FILTRATION SYSTEMS SUCH AS BIO-RETENTION ARE NOT APPROPRIATE FOR USE FOR THE DEVELOPMENT AS THERE IS LIMITED AVAILABLE LANDSCAPE SPACE AND DEPTH OF STORMWATER DRAINAGE.

3. PASSIVE IRRIGATION OF LANDSCAPE AREAS FOR INFILTRATION HAS BEEN MADE USING A SLOTTED KERB FROM THE VEHICLE HARDSTAND. THIS HAS NOT BEEN INCORPORATED INTO THE MUSIC MODEL TO ENSURE ALL COUNCIL TARGETS ARE ACHIEVED WITHOUT THE LANDSCPE BUFFER REQUIREMENTS.

Latitude: -33.7865 [Nearest grid cell: 33.7875 (S)]

Longitude: 151.2676 [Nearest grid cell: 151.2625 (E)]



IFD Design Rainfall Intensity (mm/h)

Issued: 23 October 20

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP)
FAQ for New ARR probability terminology

Table | Chart

Unit: mm/h

	Annual Exceedance Probability (AEP)						
Duration	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	150	168	225	265	304	358	400
2 min	126	140	183	213	242	283	316
3 min	116	129	170	198	226	264	295
4 min	109	121	160	188	215	252	281
5 min	103	115	152	179	205	241	269
10 min	81.0	90.7	122	144	166	195	218
15 min	67.5	75.7	102	120	138	163	182
20 min	58.2	65.3	87.8	103	119	140	157
25 min	51.5	57.7	77.4	91.1	105	123	138
30 min	46.3	51.8	69.4	81.6	93.8	110	123
45 min	36.2	40.4	53.7	62.9	72.2	84.8	94.6

BOM IFD TABLE FOR BALGOWLAH

PRE-DEVELOPMENT CATCHMENT FLOWS (l/s)

Q_5 20% AEP = 110
Q_{10} 10% AEP = 128
Q_{20} 5% AEP = 147
Q_{100} 1% AEP = 193

POST-DEVELOPMENT CATCHMENT FLOWS (l/s)

Q_5 20% AEP = 100
Q_{10} 10% AEP = 118
Q_{20} 5% AEP = 136
Q_{100} 1% AEP = 182

ONSITE DETENTION ANALYSIS

1. THE PROPOSED SITE IS LOCATED IN A MEDIUM RISK FLOOD PRECINCT AND AS SUCH IS CONSIDERED TO BE FLOOD AFFECTED BY NORTHERN BEACHES COUNCIL.

2. ONSITE DETENTION IS THEREFORE NOT REQUIRED IN ACCORDANCE WITH SECTION 9.3.3.2 OF THE COUNCIL WATER MANAGEMENT POLICY.

3. NOTWITHSTANDING THE PROPOSED McDONALD'S DEVELOPMENT INCREASES LANDSCAPED PERVIOUS AREAS AND AS SUCH POST-DEVELOPMENT CATCHMENT FLOWS ARE REDUCED FROM PRE-DEVELOPMENT FLOWS AS SHOWN ABOVE.

ISSUE	AMENDMENT	DATE	DRAWN	APP
B	ISSUE FOR DA	06.12.24	Y.S.	N.P.
A	ISSUE FOR DA	29.11.24	Y.S.	N.P.

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PROJECT
McDONALDS BALGOWLAH

37 ROSEBERRY STREET
BALGOWLAH, NSW 2093

DRAWING TITLE
STORMWATER CATCHMENT ANALYSIS PLAN

DRAWN	DATE	SCALE A3	QA CHECK	DATE
YS	NOV. 23	N/A	NP	

DESIGNED	PROJECT NO.	DWG. NO.	ISSUE
NP	240001-26	C501	B