Civil Design Report

5 Lauderdale Avenue, Fairlight

SCP Ref: S240033-CV-RP-01

Client HPG Project Lauderdale Pty Ltd and COP Project Lauderdale Pty Ltd

Project 5 Lauderdale Avenue, Fairlight

Date 30 October 2024

Revision table

Rev #	Date	Issue description	Prepared by	Reviewed by	Issued by
A	30/10/24	Issue for DA	SC	KZ	SC

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Contents

1 Introduction

SCP Consulting has been engaged by HPG Project Lauderdale Pty Ltd and COP Project Lauderdale Pty Ltd to prepare a Civil Design Report for the proposed development at 5 Lauderdale Avenue, Fairlight.

1.1 Background

The site is located at 5 Lauderdale Avenue, Fairlight, adjacent to Fairlight Beach. The development site is located in the Northern Beaches Council LGA and is bound by Fairlight Beach to the South, Lauderdale Avenue to the North, and two residential buildings to the east and west. The site currently accommodates a single storey residential building. Refer to Figure 1 below for the site area.

Figure 1: Aerial View of Site Boundary (Source: Near Maps)

2 Existing Site

The existing site is located adjacent to Fairlight Walk and Fairlight Beach. A desktop review of the site was undertaken to determine the topography and existing drainage infrastructure within the development area according to survey plan provided by Mitch Ayres Surveying Pty Ltd (Reference: 231207). The study revealed the following:

- The existing site is grades in a North to South direction, with a grade of approximately 14%.
- The existing kerb inlet pit with a lintel located at the north-eastern corner of the development site in Lauderdale Avenue is about 700mm deep measured from the surface. A 600mm diameter pipe connects to the pits and drains towards Fairlight Beach through an 1845mm wide easement (F918684) within the site.
- There is an existing retaining wall located along the Northern & Southern boundary of the site which is to be removed.
- Based on the low flood risk planning precinct map provided by the Northern Beaches Council, it is observed that the eastern boundary of the site is affected by a potential flood risk. This area of impact is located over the existing drainage easement.

  Development plan ensures that no structures will be constructed within the easement. The proposed development site should not be determined as flood-prone land, referred to the on-site detention checklist (Appendix B).

Please refer to Figure 2 and Figure 3 for details, as discussed above.

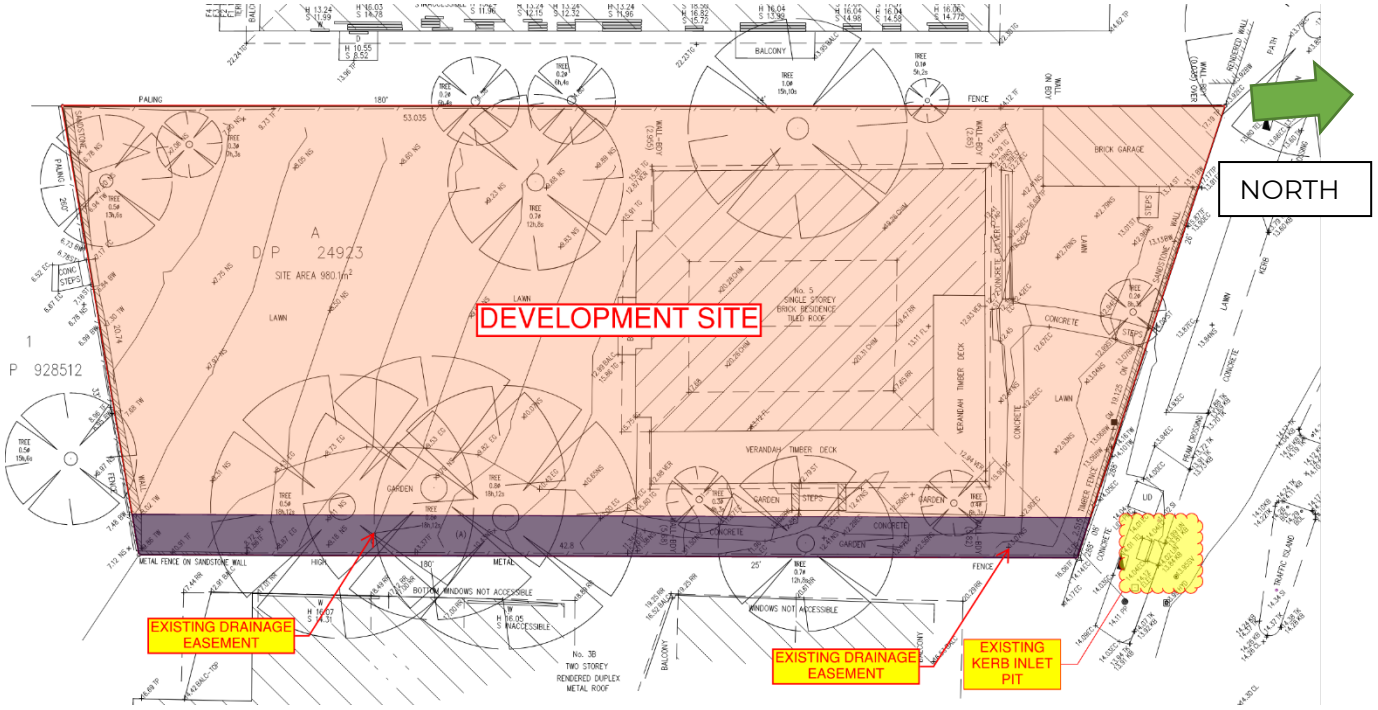


Figure 2: Existing Site Grading and Stormwater Infrastructure

Figure 3: SITE LOCATION IN LOW FLOOD RISK PLANNING PRECINCT

(Source: Northern Beaches Council)

The proposed development consists of five three-bedroom residential units, with lower ground and basement level of car parking. Pedestrian access is provided from Lauderdale Avenue. A new vehicle crossing is proposed on Lauderdale Avenue. Refer to Figure 4 for the proposed development layout.

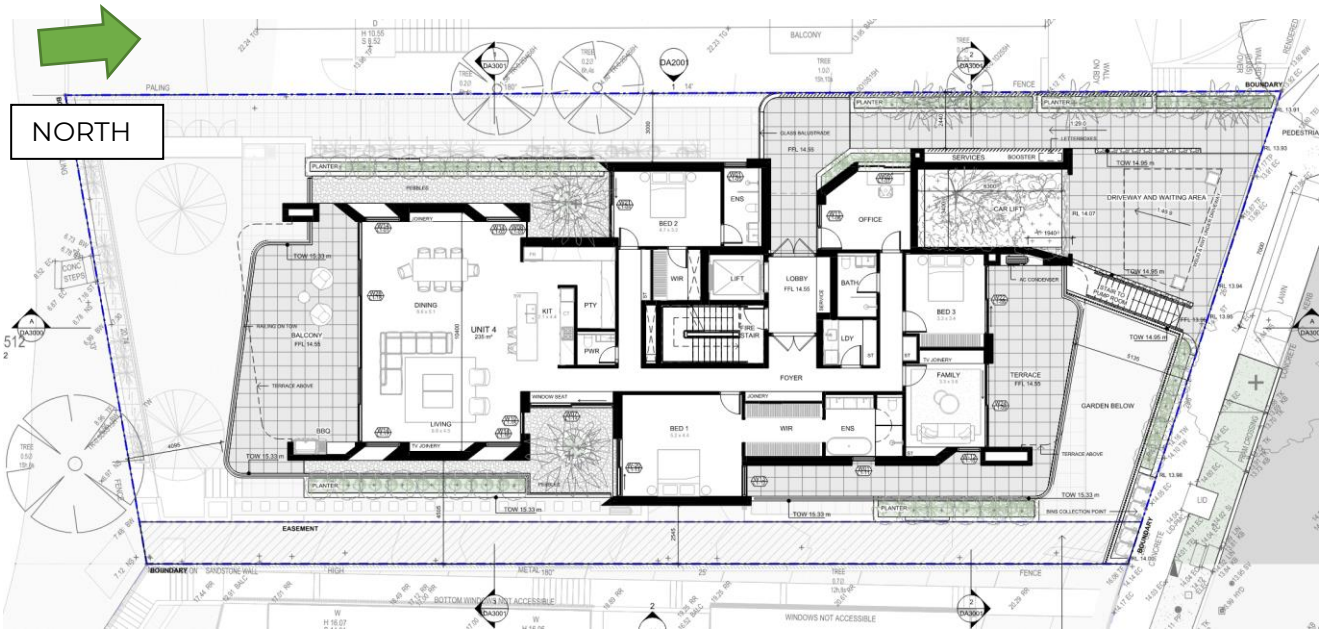


Figure 4: Proposed Development Layout

(Source: Platform Architects: LAF-DA1003-Level1-DA1)

3 Civil Services

3.1 Purpose of this Document

The purpose of this document is to describe the civil stormwater services in relation to the residential development at 5 Lauderdale Avenue, Fairlight NSW 2094.

3.2 Reference Documents

This report is based on the following reference documents:

- Survey Plan by Mitch Ayres Surveying Pty Ltd (Reference: 231207), undertaken 18/01/2024;
- Architectural plans by Platform Architects, job number: LAF-DA1;
- Dial Before You Dig.
- Northern Beaches Council Stormwater Maps

3.3 Civil Scope of Work

The Civil Services scope of work consists of the following:

- Proposed connections to Council stormwater drainage system;
- Proposed stormwater drainage design works;
- Proposed Water Sensitive Urban Design (WSUD) within the site
- Proposed public domain works and driveway design and;
- Sediment and erosion control.

The Civil scope for proposed stormwater drainage shall comprise of the in-ground pit and pipe network external to the building and external overland flow paths. For stormwater drainage associated with suspended slabs, refer to the Hydraulic Engineer's design documentation.

3.4 Limitations

This report is based primarily on the information provided by Central Element and survey drawings, and information communicated during the design development process. Any assumptions made through the design process have been communicated in this report.

3.5 Design Criteria

Table 1: Civil Design Criteria

ITEM	DESIGN CRITERIA
Stormwater Drainage	Australian Rainfall and Runoff (ARR) 2019 AS/NZS 3500.3-2021 – Stormwater Drainage Northern Beaches Council Development Control Plan (DCP)
Driveway Design	Northern Beaches Council Development Control Plan (DCP) AS/NZS 2890.1-2004 – Offstreet Car Parking
Stormwater Quality	DRAFT NSW Music Modelling Guidelines 2010 Water Sensitive Urban Design Technical Guidelines for Western Sydney, Northern Beaches Council Development Control Plan (DCP)
Flooding and Freeboard	Northern Beaches Council Development Control Plan (DCP)
Sediment and Erosion Control	Landcom 'Blue Book' – Managing Urban Stormwater Soils and Construction Guideline Edition 4

4 Proposed Stormwater Drainage

4.1 Stormwater Drainage Design Requirements

4.1.1 Stormwater Drainage

With reference to Northern Beaches Council's Water Management for Development Policy, the stormwater requirements are as follows:

- The minor (piped) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 10% Annual Exceedance Probability (AEP) storm event.
- The major (overland) drainage system must be designed to convey stormwater runoff for storm events up to, and including, the 1% AEP storm event.
- Region 3 – Southern Catchments stormwater disposal controls (section 9.3.3) is applied to stormwater design guidelines.

4.1.2 On-Site Detention (OSD) Requirements

- OSD is not required for developments where the site of the development located within stormwater zone 3 of Region 3 - Southern Stormwater Region, referring to the On-site Detention Checklist of Northern Beaches Council (Appendix B).

Water Sensitive Urban Design (WSUD) Requirements

In accordance with the Northern Beaches Council's Water Management Policy (Section 4.1), the pollutant reduction targets for the development are as specified in Table 2.

Table 2: WSUD Objectives

POLLUTANT	REDUCTION TARGET (%)
Gross Pollutants (GP)	90
Total Suspended Solids (TSS)	85
Total Phosphorus (TP)	65
Total Nitrogen (TN)	45

4.2 Site Stormwater Design

The total site development area is 0.098 Ha. Stormwater runoff from the majority of the site shall be captured via a pit and pipe network and reticulated to the proposed 5000-litre rainwater tank and water treatment tank and prior to connecting to the council drainage system via a silt arrestor pit with OceanGuard.

Refer to Figure 5 for the proposed stormwater drainage plan.

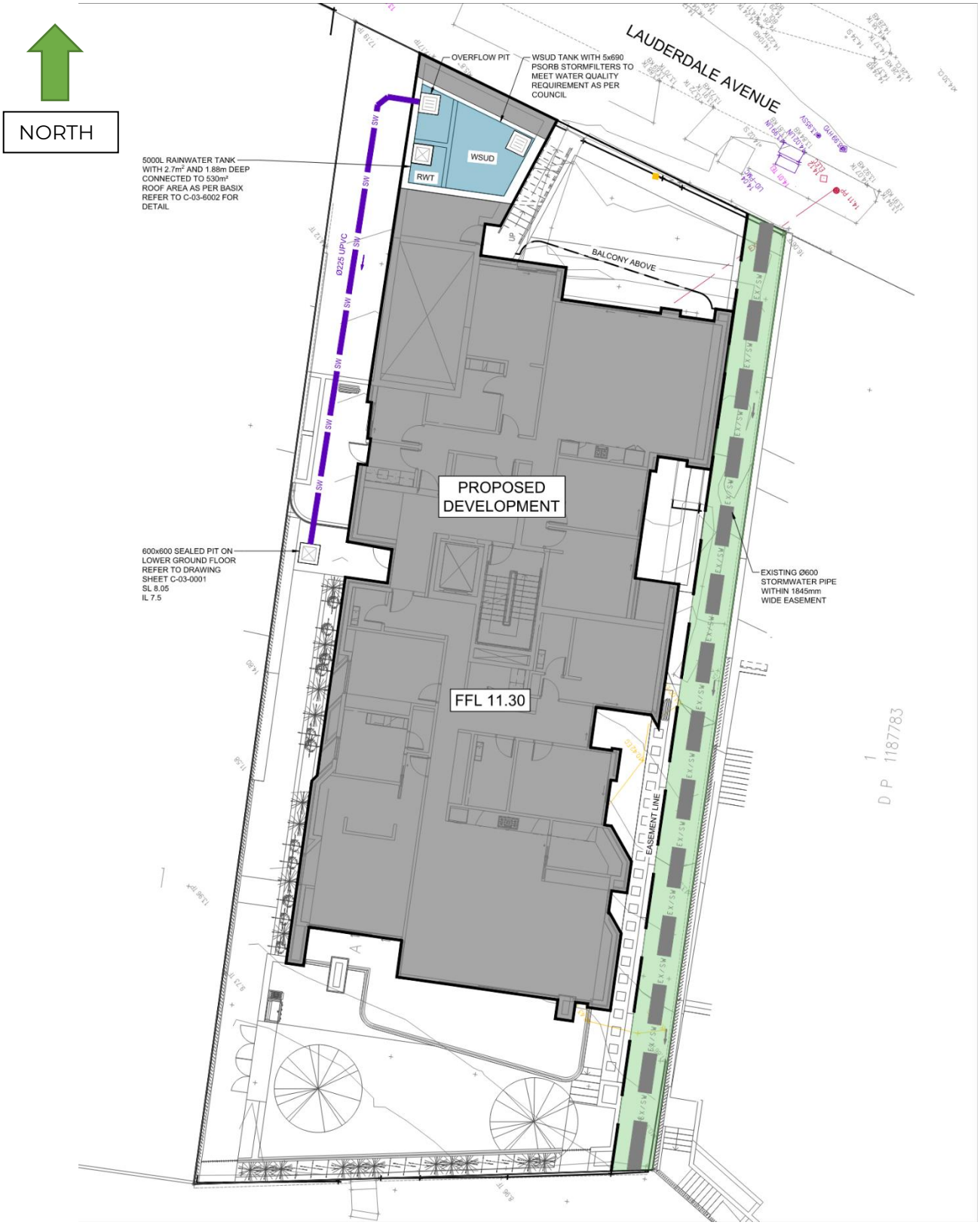


Figure 5: Proposed Stormwater Layout Plan

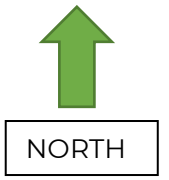
5 Water Quality Management Plan

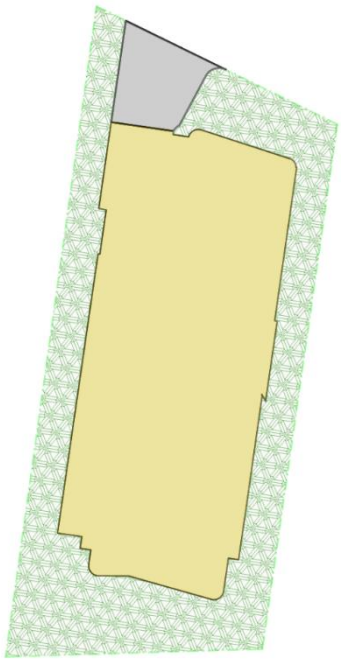
To comply with Northern Beaches Council's stormwater quality requirements. The proposed treatment system has been modelled in MUSIC (Model for Urban Stormwater Improvements Conceptualisation). MUSIC conceptually models and estimates the performance of the proposed treatment devices, which is then compared against the performance targets specified for the project. The pollutants modelled in MUSIC include TSS, TP, TN and GP.

5.1 Proposed Stormwater Catchment Plan

A 5kL rainwater tank is proposed on site to collect roof runoffs. 5x690mm Stormfilter cartridges are designed to be installed within the proposed tank to trap particulates and adsorb pollutants from stormwater runoff such as total suspended solids, hydrocarbons, nutrients, metals, and other common pollutants. Before any stormwater leaves the site, an OceanGuard insert to be installed inside the proposed silt arrestor pit as a final treatment measure aiming to improve the water quality of any runoffs from OSD bypass area. MUSIC model has been set up to ensure the proposed treatment devices are sufficient to reduce and quantity and quality of the stormwater leaving from the site. The result is proved in the figure below and design details refer to drawing sheet C-03-6002 in the civil plan set attached in Appendix A.

Refer to Figure 6 below for the stormwater catchment plan.





MUSIC CATCHMENT PLAN

WATER TREATMENT CATCHMENT				
HATCH	CATCHMENT NAME	AREA(m2)	IMPERVIOUS AREA RATIO(%)	TREATMENT METHODOLOGY
	ROOF	533	100	RAINWATER TANK, STORMFILTER
	REST OF PROPERTY	402	100	OCEANGUARD
	DRIVEWAY	47	100	STORMFILTER

CATCHMENT TABLE

Figure 6: Proposed Stormwater Catchment Plan

5.2 MUSIC MODELLING RESULTS

The proposed treatment system has been modelled in MUSIC;

Refer to Figure 7 below for the treatment plan and Figure 8 for the MUSIC modelling results.

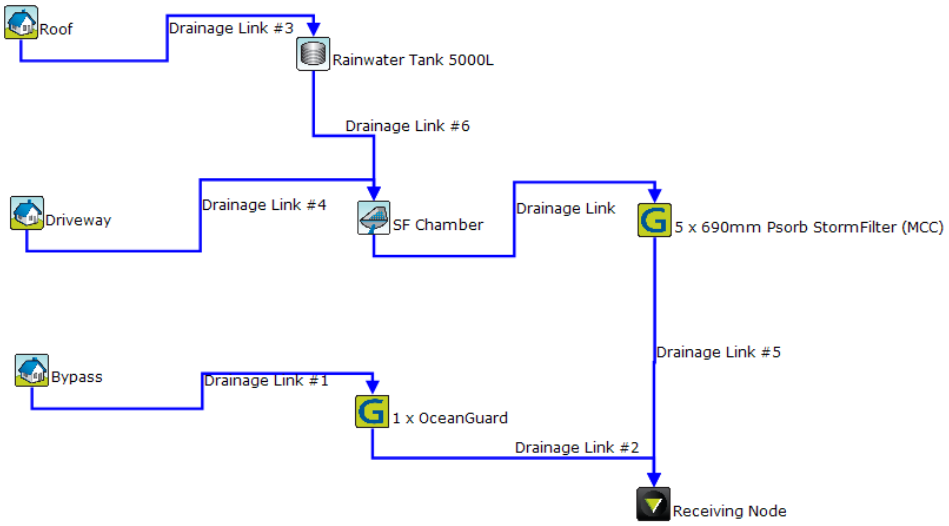


Figure 7: MUSIC Model Treatment Plan

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.062	1.057	0.4774
Total Suspended Solids (kg/yr)	80.43	11.62	85.55
Total Phosphorus (kg/yr)	0.219	0.07288	66.72
Total Nitrogen (kg/yr)	2.296	1.203	47.61
Gross Pollutants (kg/yr)	24.74	0	100

Figure 8: MUSIC Modelling Results

6 Erosion and Sediment Control

Erosion and Sediment Control (ECS) has been prepared in accordance with Landcom's Soil and Construction manual (commonly known as the Blue Book). The Contractor for the works is required to provide the specified measures in accordance with the general requirements outlined in the ESC plans including:

- Temporary stabilised site access
- Sediment control including, fences, sandbags and geofabric silt traps.

All erosion and sediment controls will be maintained to ensure they remain operational for the duration of the construction activities.

Appendix A Civil DA Drawings

A1

5 LAUDERDALE AVENUE, FAIRLIGHT

CIVIL WORKS PACKAGE

LOCALITY PLANS

SCALE 1:500

Sheet List Table	
Sheet Number	Sheet Title
C-00-0000	COVERSHEET AND DRAWING INDEX
C-00-1000	SPECIFICATIONS AND LEGEND
C-03-0001	SITE STORMWATER DRAINAGE PLAN - LOWER GROUND FLOOR
C-03-0002	SITE STORMWATER DRAINAGE PLAN - UPPER GROUND FLOOR
C-03-0003	SITE STORMWATER DRAINAGE PLAN -LEVEL ONE
C-03-6001	OSD DESIGN DETAILS
C-03-6002	WATER QUALITY MANAGEMENT DESIGN DETAIL
C-06-0000	EROSION AND SEDIMENT CONTROL PLAN
C-06-6001	EROSION AND SEDIMENT CONTROL DETAILS
C-12-0001	PUBLIC DOMAIN WORKS AND DRIVEWAY
C-12-0002	DRIVEWAY LONGITUDINAL SECTIONS
C-12-0003	COUNCIL'S TYPICAL DETAILS SHEET 1
C-12-0004	COUNCIL'S TYPICAL DETAILS SHEET 2

NORTH

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Rev	Revision Description	Date
B	SHEET LIST TABLE UPDATE	22/10/2024
A	ISSUE FOR DA	18/10/2024

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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2094

Title
COVERSHEET AND DRAWING INDEX

Scale: 0 5 10 15 20 25m
1:500

Drawn	Designed	Checked	Approved
EE	KZ	KZ	AV

Project Number	Drawing Number	Revision
240033	C-00-0000	B

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A1

SERVICES LEGEND (TYP.)

G	GAS LINE
S	SEWER LINE
W	WATER LINE
E	ELECTRICAL LINE
FI	FIRE LINE
C	COMMUNICATION LINE
T	TELECOMS LINE
EX/G	EXISTING GAS LINE
EX/S	EXISTING SEWER LINE
EX/W	EXISTING WATER LINE
EX/E	EXISTING ELECTRICAL LINE
EX/FI	EXISTING FIRE LINE
EX/C	EXISTING COMMUNICATION LINE
EX/T	EXISTING TELECOMS LINE
EX/SW	EXISTING STORMWATER DRAINAGE LINE
X	REDUNDANT SERVICE LINE
?	UNKNOWN SERVICE LINE
X X X X X X X X	TO BE DEMOLISHED/REDUNDANT

STORMWATER DRAINAGE LEGEND

SW	STORMWATER DRAINAGE LINE
SSD / CO	SUBSOIL DRAINAGE LINE WITH CLEAR OUT
	STORMWATER OVERLAND FLOWPATH
	GRASS LINED SWALE DRAIN
	GRATED PITS (VARIES IN SIZES)
	JUNCTION PITS (VARIES IN SIZES)
	KERB INLET PITS (VARIES IN TYPE & SIZES)
	GRATED DRAIN (VARIES IN TYPE & SIZES)
OSD	ON-SITE DETENTION TANK (OSD)

STORMWATER DRAINAGE LINE WITH:

SW

Ø375mm RCP2 *.....(PIPE SIZE AND CLASS)*
15.0m @ 1.0% *.....(PIPE GRADE)*
10m *.....(PIPE LENGTH)*
US/IL: *.....(UP STREAM INVERT LEVEL)*
DS/IL: *.....(DOWN STREAM INVERT LEVEL)*

Ø375 SW — *FLOW DIRECTION*

PIPE DIAMETER

A-00 ..... STORMWATER DRAINAGE STRUCTURE NUMBER

PIT NUMBER

STORMWATER LINE NUMBER

ABBREVIATIONS (STORMWATER)

S.G.G.P	SINGLE GRATED GULLY PIT
E.K.I.	EXTENDED KERB INLET
G.S.I.P.	GRATED SURFACE INLET PIT
G.D.	GRATED DRAIN
J.P.	JUNCTION PIT
MH	MANHOLE
H.W.	HEADWALL
RCP	REINFORCED CONCRETE PIPE
RRJ	RUBBER RING JOINT
C2, C3, C4	PIPE CLASSIFICATIONS
RCBC	REINFORCED CONCRETE BOX CULVERT
A.D.D.	APRON DISH DRAIN
G.R.P.	GLASS REINFORCED POLYMER
DP	DOWNPIPE
HER	HIGH END RISER
IR	INTERMEDIATE RISER
CO	CLEAROUT
DP	DOWNPIPE
FRP	FIBRE REINFORCED POLYMER
SQID	STORMWATER QUALITY IMPROVEMENT DEVICE
SP	SURCHARGE PIT

SITEWORKS LEGEND

	LIMIT OF WORKS BOUNDARY
	SITE WORKS BOUNDARY
	CHAIN WIRE FENCE
	SITE FENCE
RW01	RETAINING WALL AND NUMBER
	EXISTING CONTOUR
	DESIGN CONTOUR
BM NAIL IN KERB R.L. (A.H.D.)	SURVEY BENCHMARK
P63.45	PROPOSED SURFACE LEVEL
E63.45	EXISTING SURFACE LEVEL
FFL180.00	FINISHED FLOOR LEVEL
	LANDSCAPE REEFER TO LANDSCAPE ARCHITECT'S DRAWING

STORMWATER NOTES

1. ALL DRAINAGE PIPES GREATER THAN Ø300mm SHALL BE CLASS 2 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO).
2. WHERE DRAINAGE LINE PASS UNDER VEHICULAR PAVEMENTS PIPES SHALL BE CLASS 4 APPROVED SPIGOT AND SOCKET REINFORCED CONCRETE PIPES WITH RUBBER RING JOINTS (UNO).
3. ALL DRAINAGE PIPES LESS THAN OR EQUAL TO Ø300mm SHALL BE uPVC DWV GRADE CLASS SN8 IN ACCORDANCE WITH AS/NZS1260:2009-PVC-U PIPES AND FITTINGS FOR DRAIN, WASTE AND VENT APPLICATION WITH SOLVENT WELDED JOINTS.
4. EQUIVALENT STRENGTH REINFORCED CONCRETE OR FIBROUS REINFORCED CONCRETE MAY BE USED SUBJECT TO APPROVAL BY THE SUPERINTENDENT.
5. PIPES FOR SUB-SOIL DRAINS SHALL BE SLOTTED 100MM DIAMETER CLASS 1000 WRAPPED IN GEOFABRIC, UNO, COMPLYING WITH THE REQUIREMENTS OF AS 2439
6. ALL PIPE JUNCTIONS UP TO AND INCLUDING 300 DIA. AND TAPERS SHALL BE VIA PURPOSE MADE FITTINGS.
7. ALL MILD STEEL FIXTURES INCLUDING GRATES, FRAMES, STEP IRONS, LADDERS, ETC., SHALL BE HOT DIP GALVANISED. GALVANISING SHALL COMPLY WITH THE REQUIREMENTS OF AS 1214 OR AS 1650, AS APPROPRIATE.
8. MINIMUM GRADE TO STORMWATER LINES TO BE 1%. (U.N.O.)
9. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
10. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
11. PRECAST PITS SHALL NOT BE USED UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE SUPERINTENDENT.
12. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN. 50MM CONCRETE BED (OR 75MM THICK BED OF 12MM BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK. IN OTHER THAN ROCK, PIPES SHALL BE LAID ON A 75MM THICK SAND BED. IN ALL CASES BACKFILL THE TRENCH WITH SAND TO 200MM ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL COMPACTED IN 150MM LAYERS TO 98% STANDARD MAX. DRY DENSITY.
13. BEDDING SHALL BE (U.N.O) TYPE H2 (NOT UNDER ROADWAYS) OR HS2 (UNDER ROADWAYS) IN ACCORDANCE WITH CURRENT RELEVANT AUSTRALIAN STANDARDS.
14. BACKFILL TRENCH WITH SAND OR APPROVED GRANULAR BACKFILL TO 300mm(MIN) ABOVE THE PIPE. WHERE THE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO PAVEMENT SUBGRADE WITH SAND OR APPROVED GRAVEL SUB-BASE COMPACTED IN 150mm LAYERS TO 98% STANDARD MAXIMUM DRY DENSITY. THE CONTRACTOR IS TO ENSURE COMPACTION EQUIPMENT IS APPROPRIATE FOR THE PIPE CLASS USED
15. WHERE STORMWATER LINES PASS UNDER FLOOR SLABS DWV GRADE uPVC RUBBER RING JOINTS ARE TO BE USED (UNO).
16. WHERE SUBSOIL DRAINAGE LINES PASS UNDER VEHICULAR PAVEMENTS, UNSLOTTED uPVC DWV GRADE CLASS SN8 PIPE SHALL BE USED.
17. 100mm DIA. SUBSOIL DRAINAGE PIPE 3m LONG WRAPPED IN FILTER SOCK TO BE PROVIDED IN PIPE TRENCHES UPSTREAM OF ALL PITS.
18. CONTRACTOR TO SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
19. PITS DEEPER THAN 1000mm SHALL HAVE ACCESS LADDERS OR STEP IRONS INSTALLED AND SHALL BE IN ACCORDANCE WITH THE LOCAL OR STATUTORY AUTHORITY REQUIREMENTS
20. ALL FRAMES, COVERS AND GRATINGS FOR PITS, SUMPS, DRAINS, GRATED DRAINS ETC MUST BE PROVIDED TO SUIT CLASS D DUTIES AND ALL GRATES SHALL BE SLIP RESISTANT AND HEELGUARD UNO
21. WHERE A PIT IS IDENTIFIED AS A CONFINED SPACE, PIT COVERS SHALL BE PROVIDED WITH STANDARD CONFINED SPACE SIGNAGE
22. SUBSOIL DRAINAGE LINES SHALL BE INSTALLED AT THE BASE OF ALL RETAINING WALLS AND FOR ALL STORMWATER PITS. ALL SUBSOIL LINES SHALL BE CONNECTED TO DRAIN TO THE STORMWATER DRAINAGE SYSTEM
23. CAPPED FLUSHING POINTS MUST BE PROVIDED FOR ALL SUBSOIL AND SEEPAGE DRAINAGE SYSTEMS AT THE END OF EACH PIPE, AT 30M SPACING AND AT CHANGES IN DIRECTIONS
24. INSPECTION OPENINGS AND CLEAROUTS MUST BE PROVIDED AT EVERY JUNCTION, BEND, CHANGE OF DIRECTION AND AT THE BASE OF ALL DOWNPIPES IMMEDIATELY ABOVE WHERE THE DOWNPIPE PENETRATES THE GROUND OR SLAB ON GROUND
25. ALL SUBSOIL PIPES SHALL BE FACTORY SLOTTED HDPE, MINIMUM 100MM DIAMETER SN8 CLASS, SIMILAR OR EQUAL TO VINIDEX DRAINCOIL, CERTIFIED UPVC, IN ACCORDANCE WITH AS1260, AS2032 (PIPE) & AS3789 (JOINTING) INSTALLED ON GEOTEXTILE FABRIC WITH 150MM SURROUND OF 25MM BLUE METAL AGGREGATE. UNO

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 HUNTERS HILL COUNCIL CONSTRUCTION SPECIFICATIONS, THE DETAILS SHOWN ON THE DRAWINGS AND THE SPECIFICATIONS AND THE DIRECTIONS OF THE PRINCIPAL'S REPRESENTATIVE.
4. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
5. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
6. 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.
7. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH AN APPROVED GRANULAR MATERIAL AND COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS.1289.5.1.1.
8. ALL TRENCH BACKFILL MATERIAL NOT IN PAVEMENTS SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
9. 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.
10. PROVIDE 10mm WIDE EXPANDING CORK JOINTS BETWEEN CONCRETE PAVEMENTS AND ALL BUILDINGS , WALLS, FOOTINGS, COLUMNS, KERBS, DISH DRAINS, GRATED DRAINS, BOLLARD FOOTINGS ETC
11. CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS.
12. ALL BATTERS TO BE GRASSED LINED IN ACCORDANCE WITH HUNTERS HILL COUNCIL CONSTRUCTION SPECIFICATIONS AND LANDSCAPE ARCHITECTS SPECIFICATION.
13. MAKE SMOOTH TRANSITION TO EXISTING SERVICES AND MAKE GOOD.
14. 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.
15. THESE PLANS SHALL BE READ IN CONJUNCTION WITH HUNTERS HILL COUNCIL CONSTRUCTION SPECIFICATIONS AND APPROVED LANDSCAPE, ELECTRICAL AND TELECOMMUNICATION DRAWINGS AND SPECIFICATIONS.
16. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
17. 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.

EXISTING SERVICES AND FEATURES

1. 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 SUPERINTENDENT.
2. 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 SUPERINTENDENT.
3. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
4. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN WRITTEN APPROVAL OF HIS PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
5. EXISTING BUILDINGS, EXTERNAL STRUCTURES, AND TREES SHOWN ON THESE DRAWINGS ARE FEATURES EXISTING PRIOR TO ANY DEMOLITION WORKS.
6. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT SERVICE AUTHORITY.
7. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF SUPERINTENDENT FOR TIME OF INTERRUPTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL LIAISON.
8. CLEARANCE AND COVER REQUIREMENTS SHALL BE OBTAINED FROM THE HUNTERS HILL COUNCIL AND RELEVANT SERVICE AUTHORITY BEFORE COMMENCEMENT OF WORKS AND SHALL BE ADHERED TO AT ALL TIMES.
9. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER TELECOM OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS ONLY.

EROSION AND SEDIMENT CONTROL NOTES

SEDIMENT CONTROL INSTRUCTIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE SUPERINTENDENT TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
3. SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
4. STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
5. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE. 6. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

SOIL EROSION CONTROL INSTRUCTIONS

1. EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTED, THAN:
   a. 2(H):1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
   b. 2.5(H):1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
   c. 3(H):1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
   d. 4(H):1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
2. ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
3. WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUNDCOVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", DEPT OF HOUSING 1998 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
4. STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.1 (60% GROUND-COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
5. ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
6. FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY COVER: JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
7. PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND-COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
8. RE-VEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

WASTE CONTROL INSTRUCTIONS

1. ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BT THE SITE SUPERINTENDENT.
2. ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
3. ALL SITE STAFF AND SUB-CONTACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
4. 4. ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
5. PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

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Project
5 LAUDERDALE AVENUE FAIRLIGHT NSW 2094

Title
SPECIFICATIONS AND LEGEND

Scale:

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EE	KZ	KZ	AV

Project Number	Drawing Number	Revision
S240033	C-00-1000	A

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Project
5 LAUDERDALE AVENUE FAIRLIGHT NSW 2049

Title
SITE STORMWATER DRAINAGE PLAN - LOWER GROUND FLOOR

Scale: 0 1 2 3 4 5m
1:100

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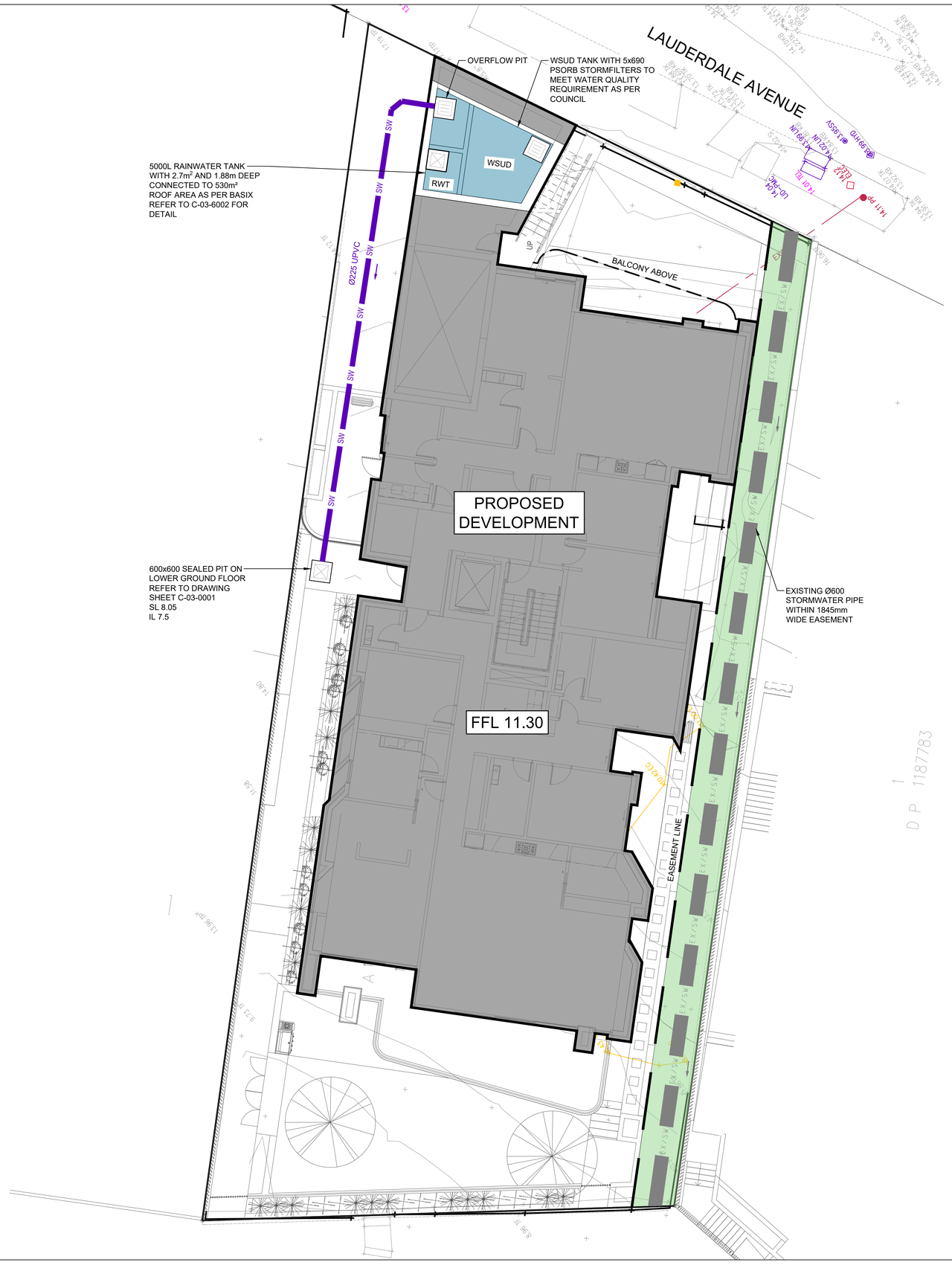

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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2049

Title
SITE STORMWATER DRAINAGE PLAN - UPPER GROUND FLOOR

Scale: 0 1 2 3 4 5m
1:100

Drawn	Designed	Checked	Approved
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Project Number	Drawing Number	Revision
S240033	C-03-0002	A

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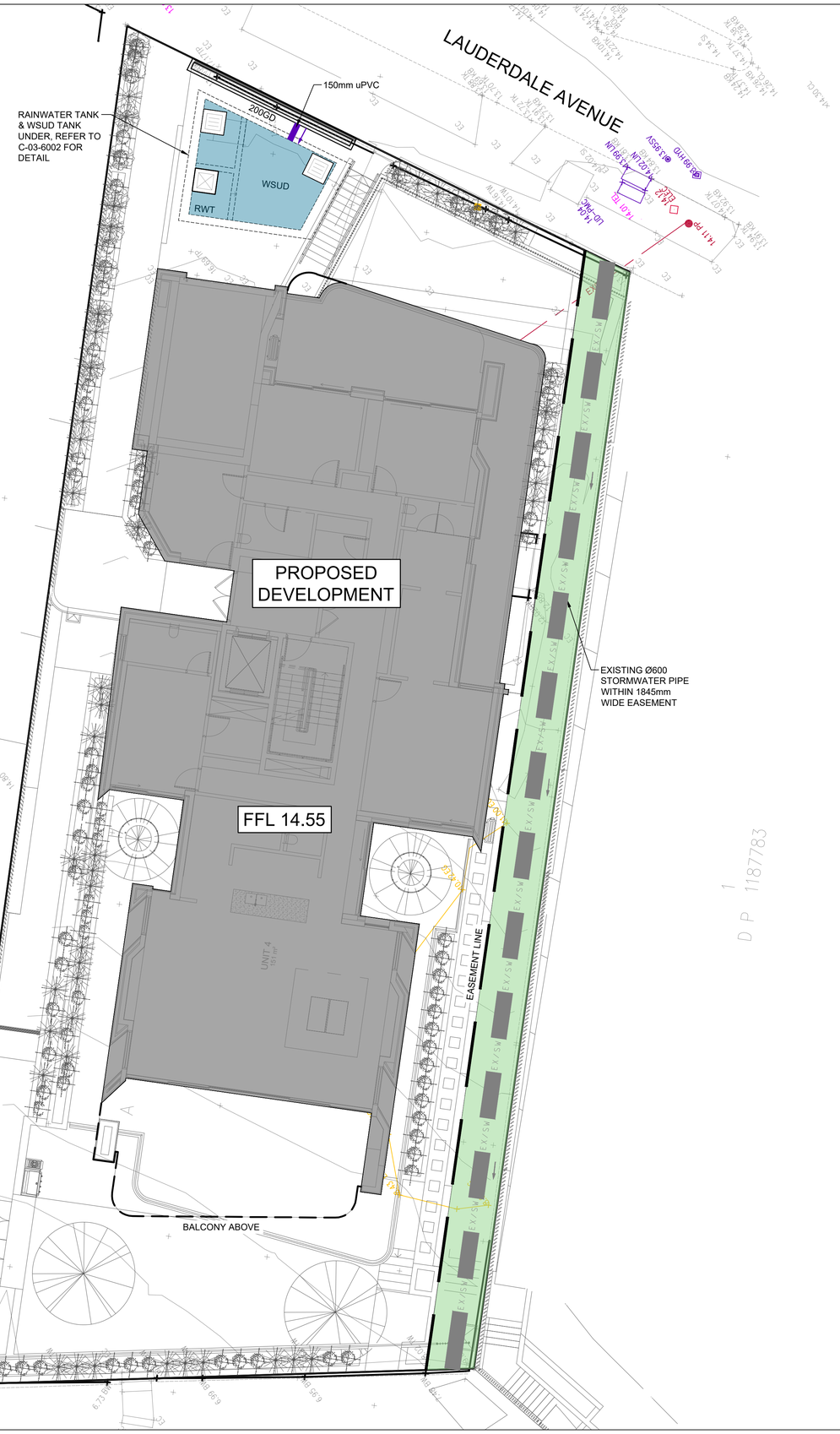

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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2049

Title
SITE STORMWATER DRAINAGE PLAN -LEVEL ONE

Scale: 0 1 2 3 4 5m
1:100

Drawn	Designed	Checked	Approved
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Project Number	Drawing Number	Revision
S240033	C-03-0003	A

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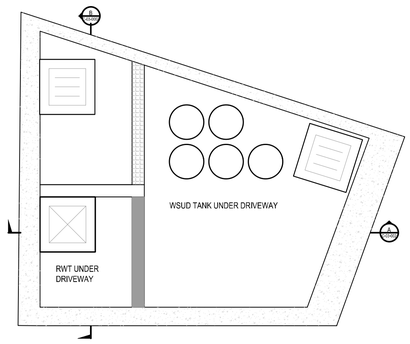
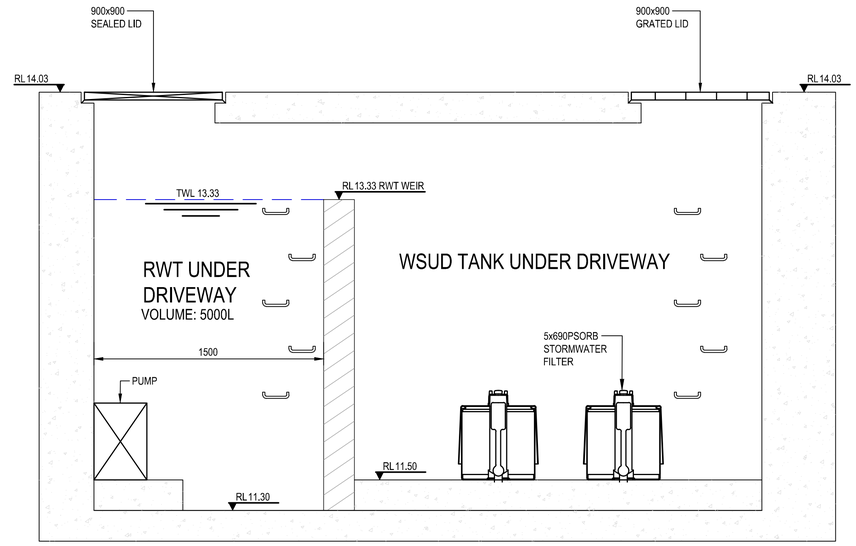
RWT WEIR RL 13.33m

WSUD WEIR RL 12.22m



WSUD AND RAINWATER TANK UNDER DRIVEWAY
SCALE 1:50



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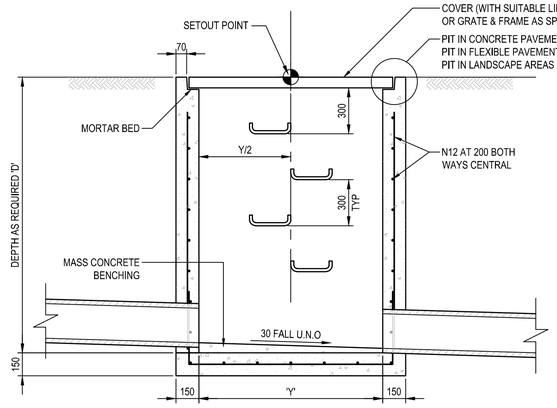
C-03-001



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SCALE 1:20
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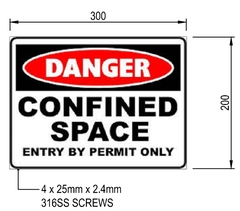
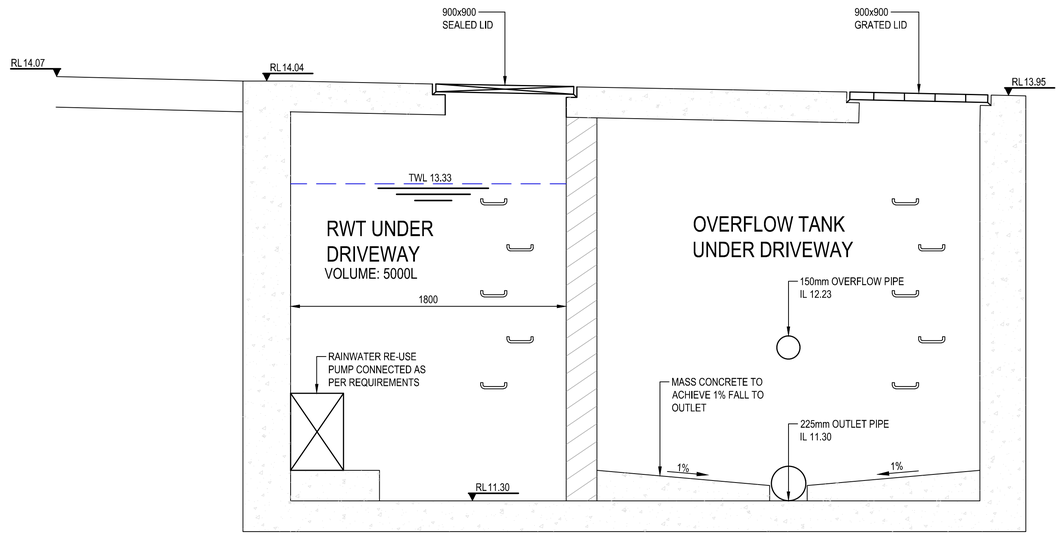


CONFINED SPACES SIGN
NTS



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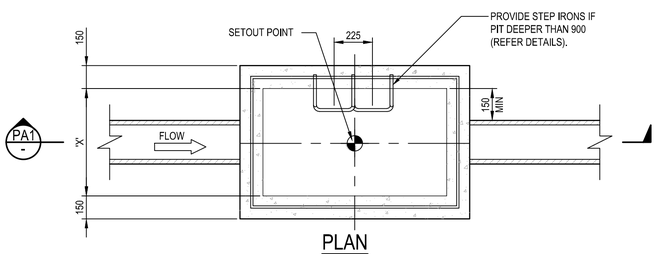
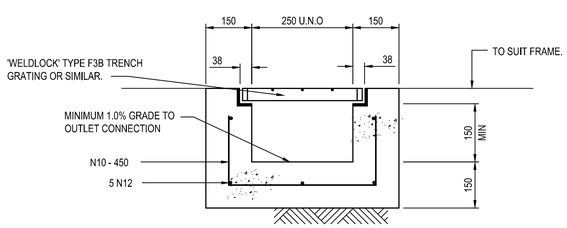


PLAN

SURFACE INLET/JUNCTION PIT
PIT TYPE 'A'
SCALE 1:20

MINIMUM INTERNAL PIT DIMENSIONS		
'D'	'X'	'Y'
D ⩽ 600	450	450*
D ⩽ 900	600	600*
D ⩽ 1200	600	900
D > 1200	900	900

NOTE: PITS DENOTED * SHALL BE USED ONLY WHERE SPECIFIED IN DRAINAGE SCHEDULE OR ON PLAN.



GRATED DRAIN
SCALE 1:10

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5 LAUDERDALE AVENUE FAIRLIGHT NSW 2094

Title
OSD DESIGN DETAILS

Scale: 0 0.2 0.4 0.6 0.8 1m
1:20

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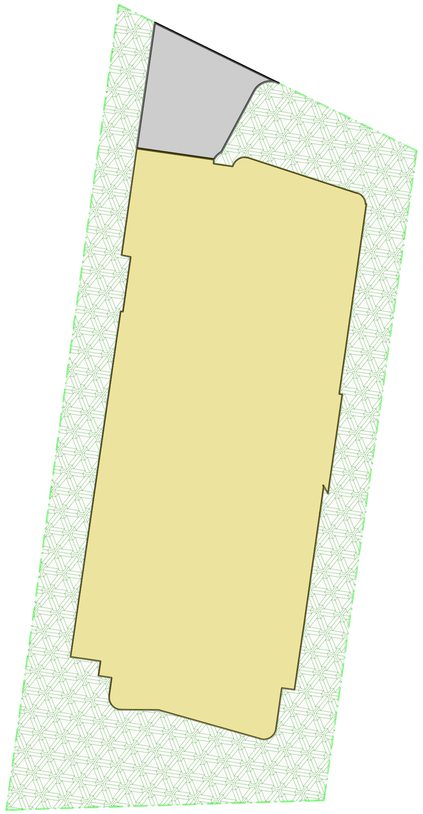
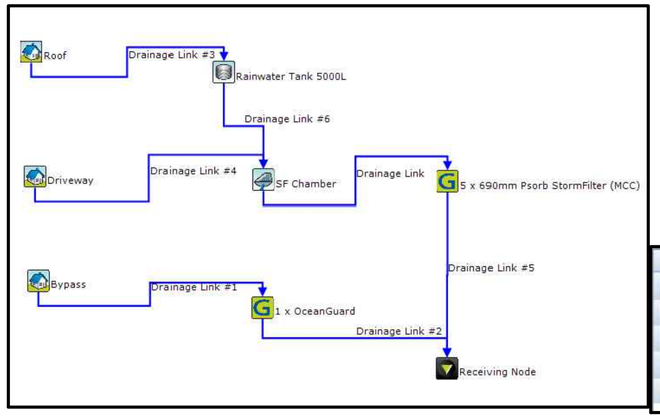


MUSIC CATCHMENT PLAN

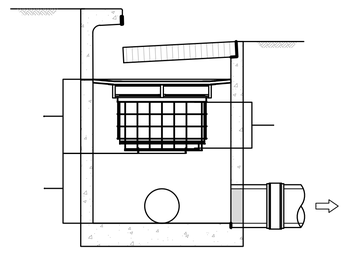
WATER TREATMENT CATCHMENT				
HATCH	CATCHMENT NAME	AREA(m2)	IMPERVIOUS AREA RATIO(%)	TREATMENT METHODOLOGY
	ROOF	533	100	RAINWATER TANK, STORMFILTER
	REST OF PROPERTY	402	100	OCEANGUARD
	DRIVEWAY	47	100	STORMFILTER

CATCHMENT TABLE



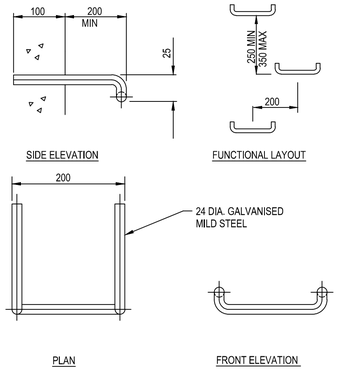
	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.062	1.057	0.4774
Total Suspended Solids (kg/yr)	86.61	12.5	85.56
Total Phosphorus (kg/yr)	0.215	0.07189	66.57
Total Nitrogen (kg/yr)	2.338	1.232	47.31
Gross Pollutants (kg/yr)	24.74	0	100

MUSIC MODEL RESULT



SURFACE FLOW OCEAN PROTECT CONFIGURATION 1

SCALE NTS

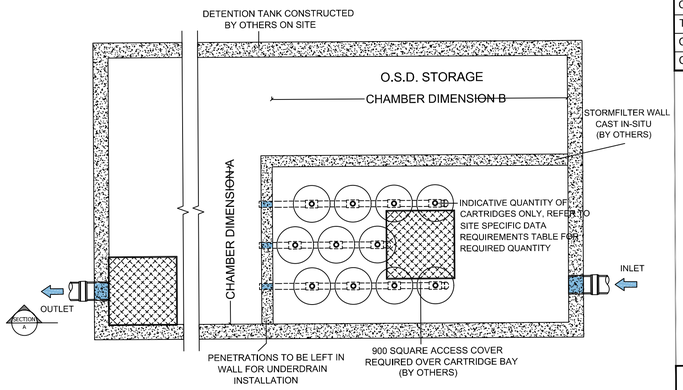


STEP IRON DETAIL

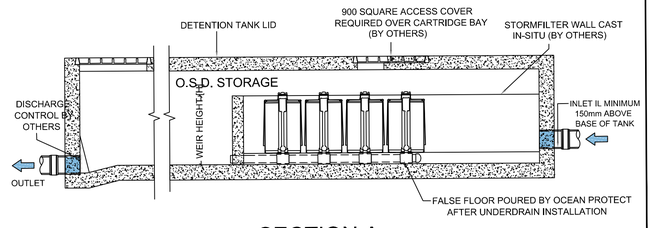
N.T.S.

(APPLICABLE FOR ALL PITS DEEPER THAN 1200mm)

NOT FOR CONSTRUCTION



PLAN LAYOUT

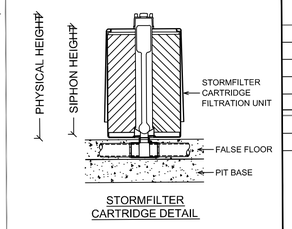


SECTION A

STORMFILTER DESIGN TABLE

- STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED.
- THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S).
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm.

CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT [H] (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39



STORMFILTER CARTRIDGE DETAIL

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	[ ]
NUMBER OF CARTRIDGES REQ'D	[ ]
SIPHON HEIGHT (310 / 460 / 690)	[ ]
MEDIA TYPE (ZPG / PSORB)	[ ]
WATER QUALITY FLOW RATE (L/S)	[ ]
DIMENSION A	[ ]
DIMENSION B	[ ]

TOTAL CARTRIDGE BAY AREA (A x B) TO MATCH AREA REQUIRED BY MUSIC MODELLING OR COUNCIL SPECIFIC REQUIREMENTS

GENERAL NOTES

1. INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
2. A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
3. ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
4. SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
5. THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
6. CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
7. THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
8. DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

1. UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

OCEAN PROTECT

PHONE: 1300 354 722 www.oceanprotect.com.au

OCEAN PROTECT STORMFILTER SYSTEM DETENTION TANK ARRANGEMENT SPECIFICATION DRAWING

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Project
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Title
WATER QUALITY MANAGEMENT DESIGN DETAIL

Scale: 0 0.2 0.4 0.6 0.8 1m
1:20

Drawn	Designed	Checked	Approved
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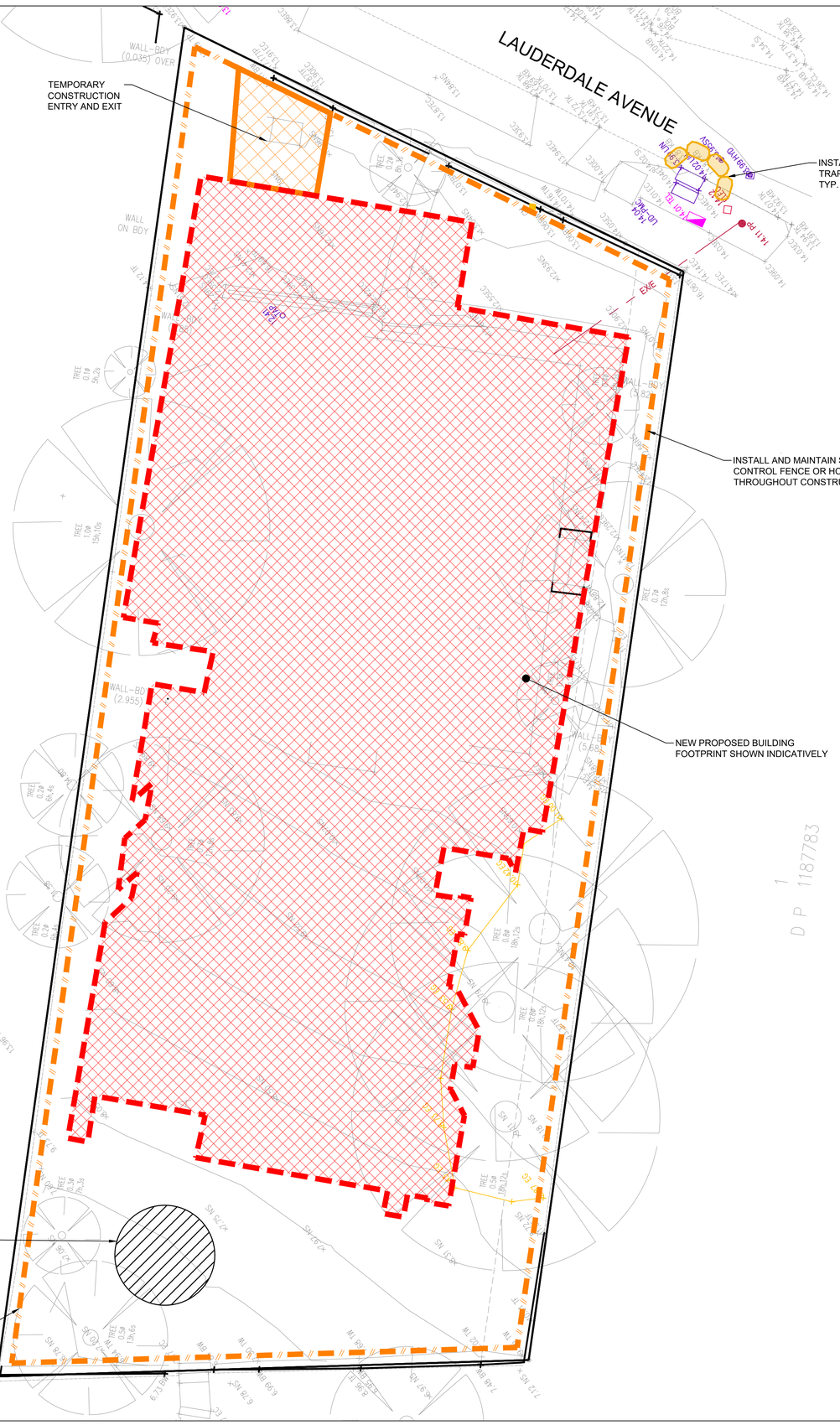

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Project
5 FAIRLIGHT AVENUE
FAIRLIGHT NSW 2094

Title
EROSION AND SEDIMENT CONTROL PLAN

Scale: 0 1 2 3 4 5m
1:100

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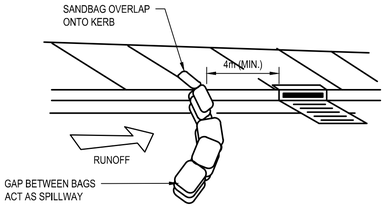
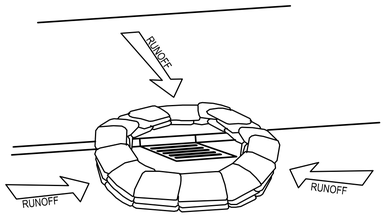


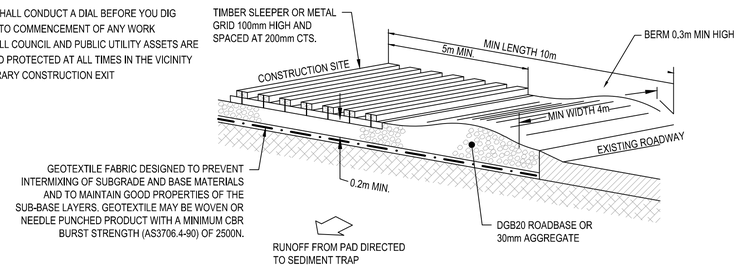
KERB INLET SEDIMENT FILTER (ON GRADE)
NTS



KERB INLET SEDIMENT FILTER - SANDBAG SURROUND
NTS

KERB INLET SEDIMENT FILTER
1. REFER TO APPROVED PLANS FOR LOCATIONAND INSTALLATION DETAILS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION,DIMENSIONS, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THAT THE INSTALLATION OF THE SEDIMENT TRAP WILL NOT CAUSE UNDESIRABLE SAFETY OR FLOODING ISSUES.
3. INSTALL SEDIMENT TRAP IN ACCORDANCE WITH STANDARD DRAWING SUPPLIED WITH THE APPROVED PLAN, OR AS DIRECTED BY THESITE SUPERVISOR.
4. ENSURE THE SEDIMENT TRAP IS CONSTRUCTED UP-SLOPE OF AN ON-GRADE KERB INLET. THE SEDIMENT TRAP MUST NOT SURROUND THE KERB INLET UNLESS SPECIFICALLY DIRECTED BY THE SITE SUPERVISOR.
5. ENSURE THE SEDIMENT TRAP FULLY ENCLOSES THE KERB INLET. USE APPROPRIATE SPACERS TO ENSURE THE SEDIMENT TRAP DOES NOT BLOCK THE SIDE-ENTRY INLET.
6. TAKE ALL NECESSARY MEASURE TO MINIMISE THE SAFETY RISK CAUSED BY THE STRUCTURE

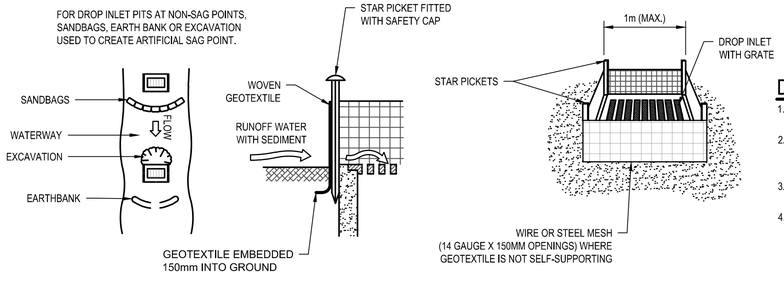
NOTES
1. CONTRACTOR SHALL CONDUCT A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF ANY WORK
2. ENSURE THAT ALL COUNCIL AND PUBLIC UTILITY ASSETS ARE MAINTAINED AND PROTECTED AT ALL TIMES IN THE VICINITY OF THE TEMPORARY CONSTRUCTION EXIT



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 AGGREGATE.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP WHERE THE SEDIMENT IS COLLECTED AND REMOVED.

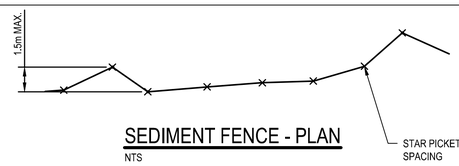
MAINTENANCE NOTES
THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT OFF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED OFF THE CONSTRUCTION SITE MUST BE REMOVED IMMEDIATELY.

TEMPORARY STABALISED CONSTRUCTION EXIT
NTS

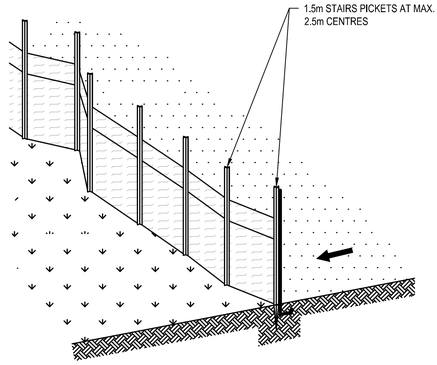


DROP INLET FILTERS
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OF STRAW BALES.
2. FOLLOW STANDARD DRAWINGS OF STRAW BALE FILTERS AND SEDIMENT FENCES FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTERS.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

DROP INLET FILTER
NTS

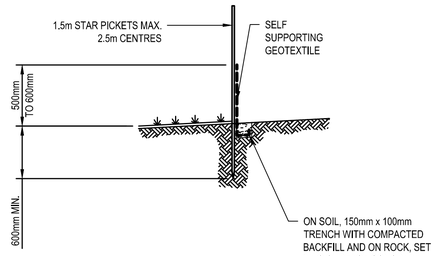


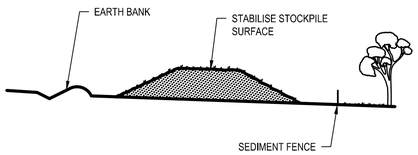
SEDIMENT FENCE - PLAN
NTS



SEDIMENT FENCE - DETAIL
NTS

SEDIMENT FENCE
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BE PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING, TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 litres/sec IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METER LONG STAR PICKETS INTO GROUND AT 2.5 METER INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS, ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES, OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.





STOCKPILE
NTS

STOCKPILE
1. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95% STANDARD PROCTOR DENSITY.
2. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK LARGE STONE OR FOREIGN MATERIAL.
3. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
4. STOCKPILE TO BE STABILISED WITHIN 10 DAYS OF COMPLETION OF FORMATION.

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Rev	Revision Description	Date
A	ISSUE FOR DA	18/10/2024

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Client
HPG PROJECT LAUDERDALE PTY LTD and COP PROJECT LAUDERDALE PTY LTD

Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2049

Title
EROSION AND SEDIMENT CONTROL DETAILS

Scale:

Drawn	Designed	Checked	Approved
EE	KZ	KZ	AV

Project Number	Drawing Number	Revision
S240033	C-06-6001	A

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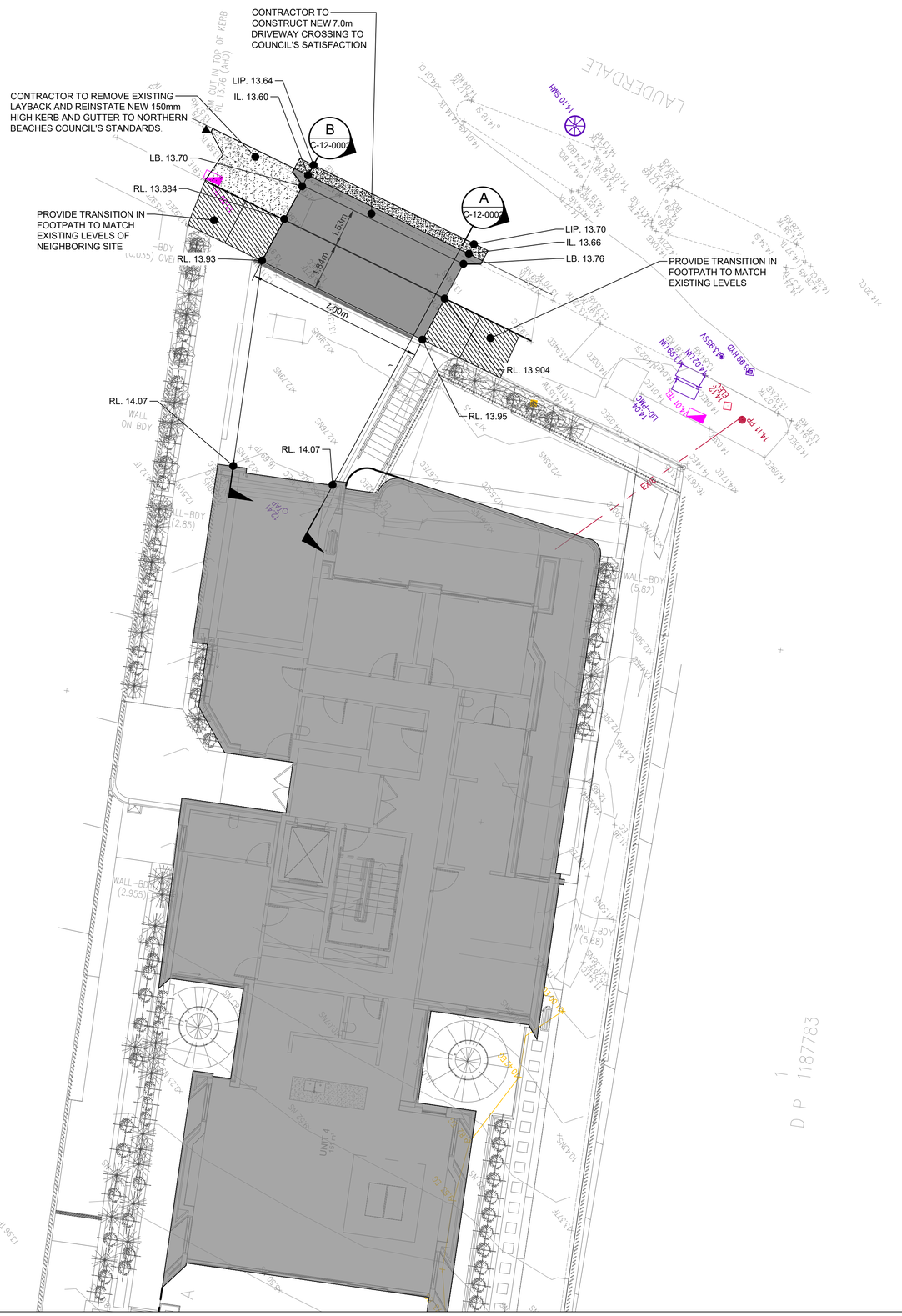

NORTH

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A	ISSUE FOR DA	22/10/2024

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Project
5 LAUDERDALE AVENUE FAIRLIGHT NSW 2094

Title
PUBLIC DOMAIN WORKS AND DRIVEWAY

Scale 0 1 2 3 4 5m
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NY	SC	KZ	KZ

Project Number	Drawing Number	Revision
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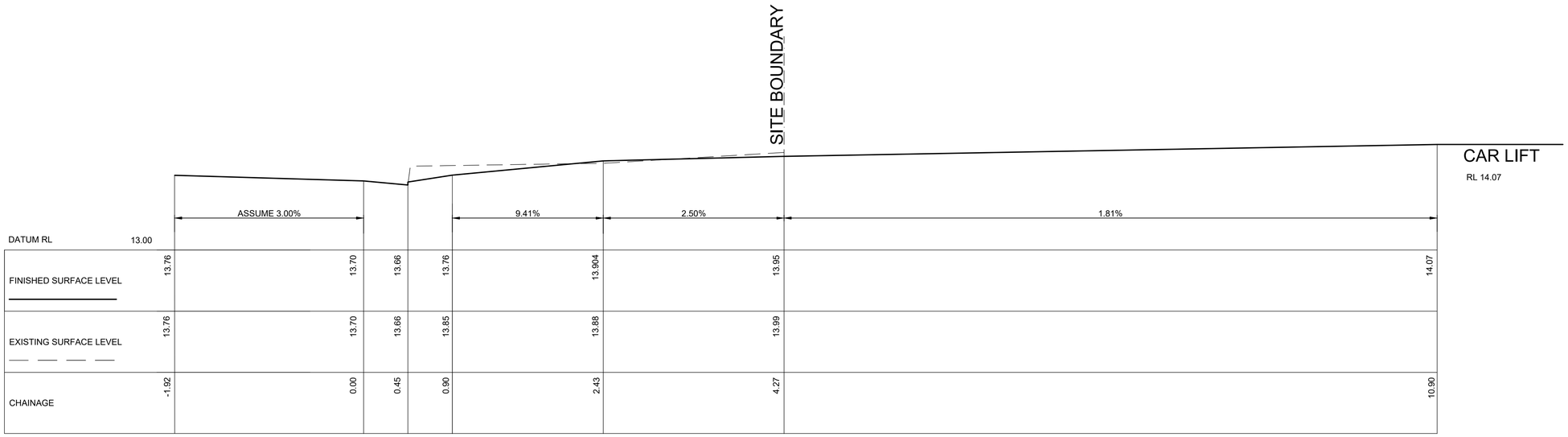
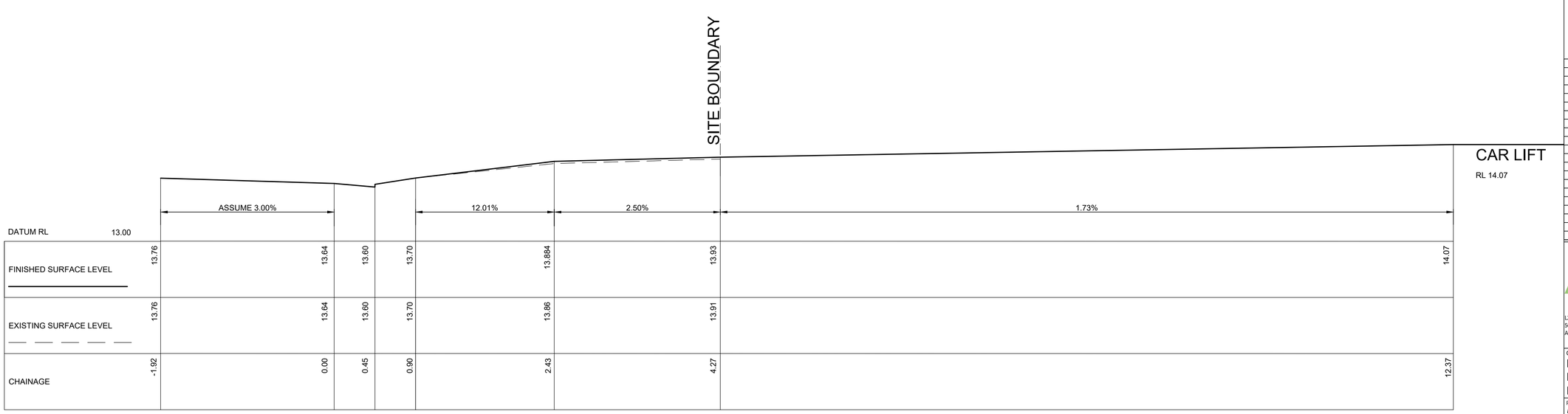


LONGITUDINAL SECTION A
DRIVEWAY ALIGNMENT 1



LONGITUDINAL SECTION B
DRIVEWAY ALIGNMENT 1

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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2094

Title
DRIVEWAY LONGITUDINAL SECTIONS

Scale
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Project Number	Drawing Number	Revision
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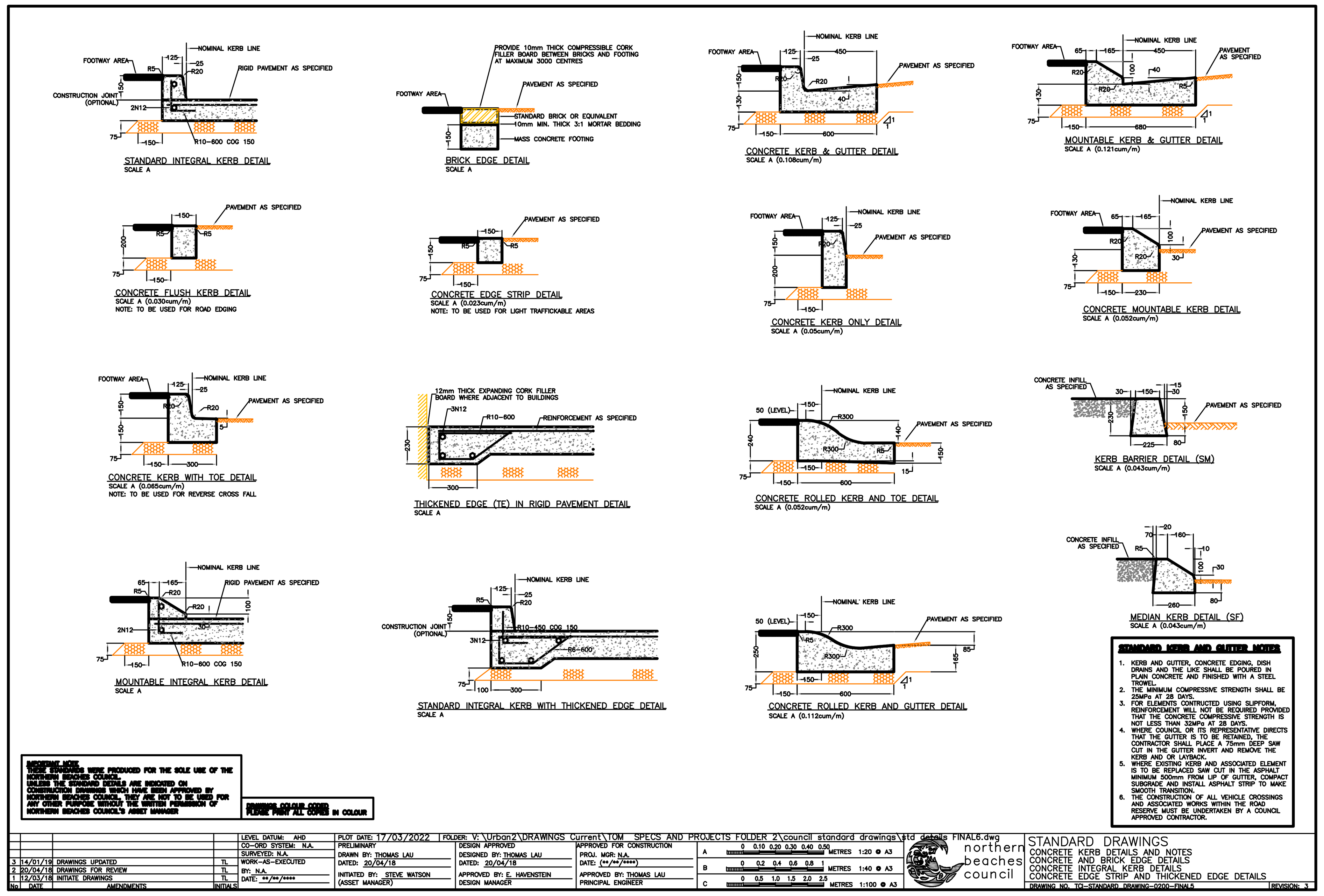

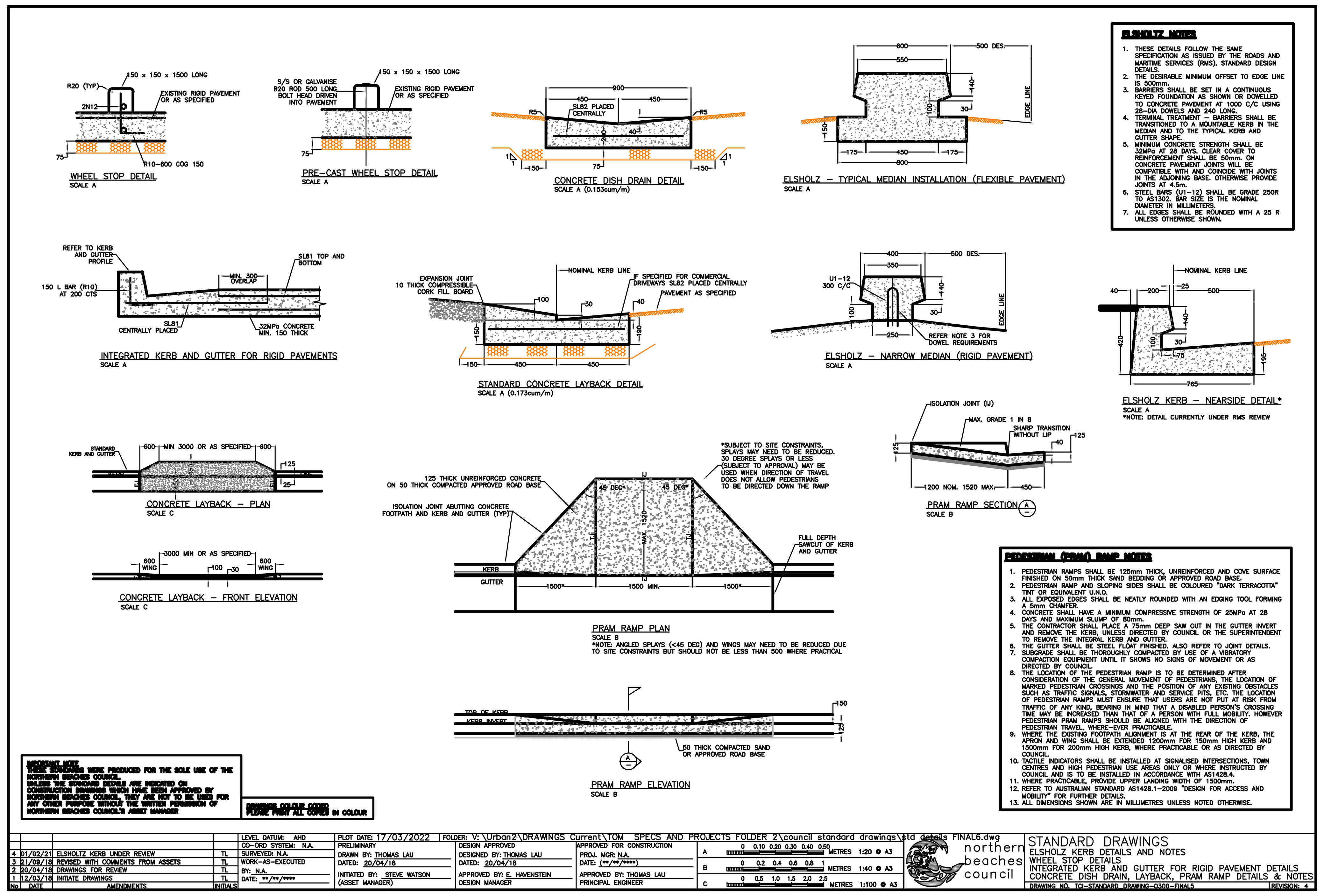

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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2094

Title
COUNCIL'S TYPICAL DETAILS SHEET 1

Scale
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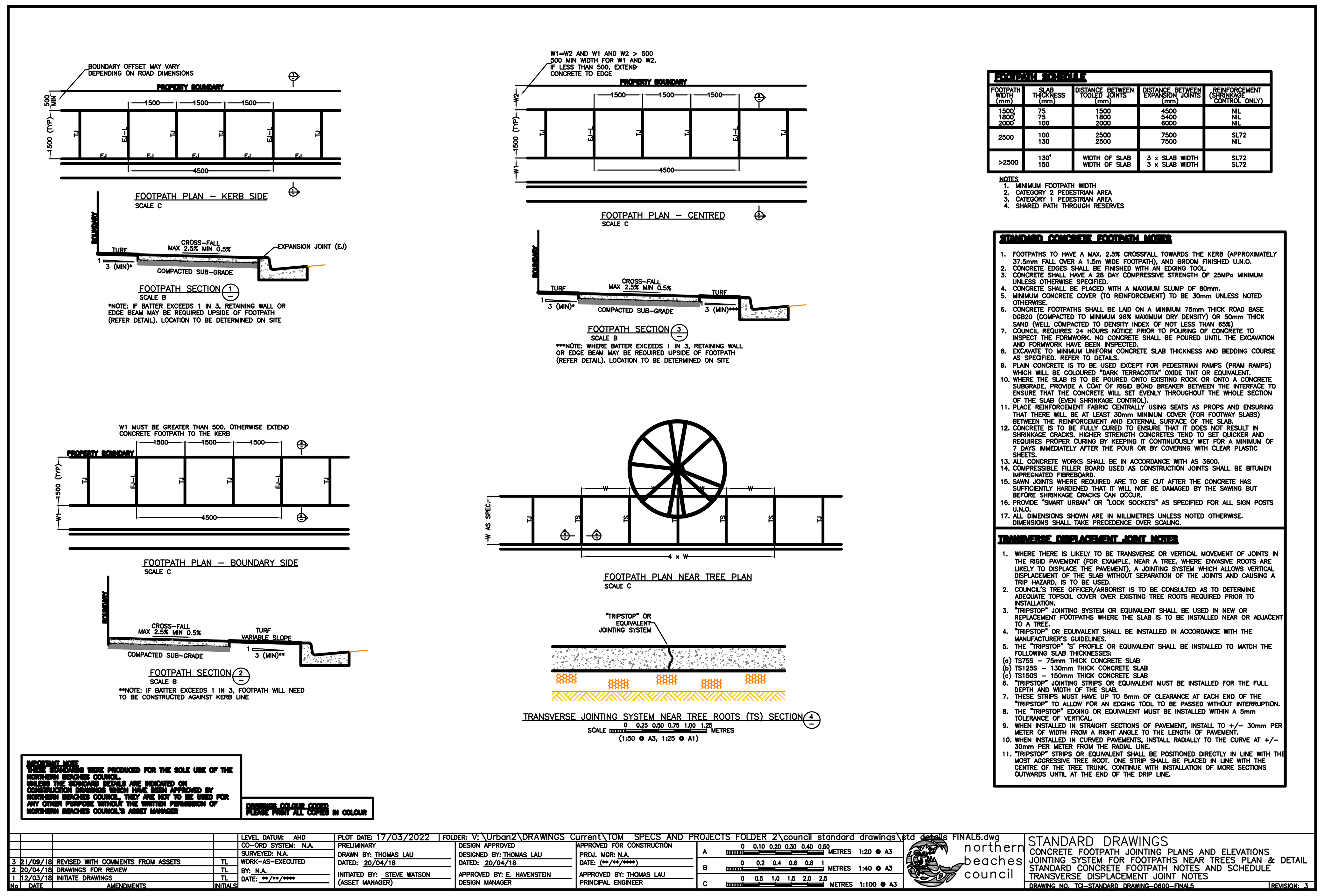
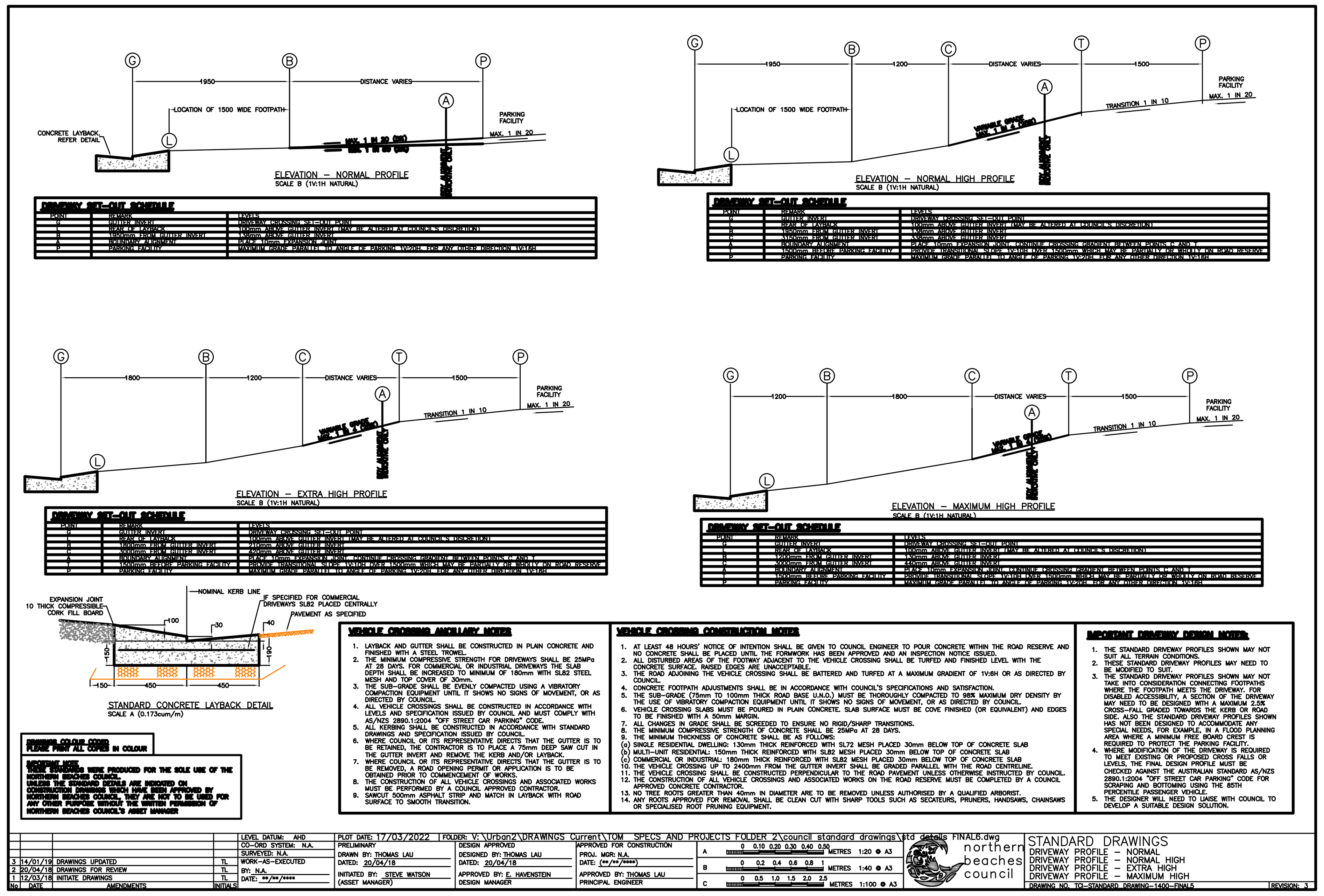
Drawn	Designed	Checked	Approved
NY	SC	KZ	KZ

Project Number	Drawing Number	Revision
S240033	C-12-0003	A





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Project
5 LAUDERDALE AVENUE
FAIRLIGHT NSW 2094

Title
COUNCIL'S TYPICAL DETAILS SHEET 2

Scale

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NY	SC	KZ	KZ

Project Number	Drawing Number	Revision
S240033	C-12-0004	A

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Appendix B On-site Detention Checklist

Appendix 16 – On-site Detention Checklist

This checklist is to be used to determine the on-site stormwater disposal requirement for developments and must be completed and included with the submission of any development application for these works. Please read this form carefully for its notes, guidelines, definition and relevant policies.

For assistance and support, please contact Council's Development Engineering and Certification team on 1300 434 434.

Part 1 Location of the Property			
House Humber	5	Legal Property Description	
Street	LAUDERDALE AVENUE	Lot	A
Suburb	FAIRLIGHT	Section	
Postcode	2094	DP	DP24923

Part 2 Site Details			
Northern Beaches Stormwater Regions (refer to Map 2 of Northern Beaches Council's Water Management for Development policy)	3	Total Site Area	980.1 sq.m
Pre-Development Impervious Area	313 sq.m	Post-Development Impervious Area	718 sq.m
Is the site of the development located within an established Flood Prone Land as referred to Council's Local Environmental Plans? If yes, On-site stormwater Detention system (OSD) is not required and please proceed to part 5 of this checklist If no, please proceed to part 3 of this checklist.			Yes ☐ No ☑

Part 3: Northern Beaches Stormwater Regions (refer to Map 2 of Northern Beaches Council's Water Management for Development policy)
If the site of the development located within Region 1, please proceed to the part 4.1 of this checklist
If the site of the development located within Region 2, please proceed to the part 4.2 of this checklist
If the site of the development located within Region 3, please proceed to the part 4.3 of this checklist
If the site of the development located within Region 4, please refer to Council's Warriewood Valley Water Management Specification.

Part 4 Determination of OSD Requirements

Part 4.1 Northern Beaches Stormwater Region 1	
Is the additional impervious area of the development more than 50 m^2 on a cumulative basis since February 1996?	Yes ☐ No ☐
If yes, OSD is required and please refer to section 9.3.1 of Council's Water Management for Development Policy If no, OSD is not required and please proceed to the part 5 of this checklist	

Part 4.2 Northern Beaches Stormwater Region 2	
Part 4.2.1 Description of Work	
Residential flat building, commercial, industrial, multiple occupancy development and subdivisions resulting in the creation of three lots or more, will require OSD in all case. Please provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. Any single residential building development, please proceed to part 4.2.2 of this checklist.	
Part 4.2.2 Exemption	
Is the site area less than 450m^2?	Yes ☐ No ☐
Does the site of the development drain directly to the ocean without the need to pass through a drainage control structure such as pipe, bridge, culvert, kerb and gutter or natural drainage system?	Yes ☐ No ☐
Is it an alternation and addition development to the existing dwellings?	Yes ☐ No ☐
If yes to any of the above questions, OSD is not required. If no to all the above questions, proceed to part 4.2.3	
Part 4.2.3 Determination of OSD Requirements	
Calculation	a) Site area m^2 x 0.40 (40%) = ... m^2 b) Post- development impervious area = ... m^2 **OSD will not be required when (a) is greater than (b)** Is OSD required for this development (tick one only) Yes ☐ No ☐ If yes, provide a design in accordance with the section 9.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5 of this checklist.

Part 4.3 Northern Beaches Stormwater Region 3	
Part 4.3.1 Stormwater Zone	
In the region, the method of stormwater control to be applied shall depend on the location of the site. Please refer to Map 3 of Northern Beaches Council's Water Management for Development policy.	
If the site of the development located within stormwater zone 1, please proceed to the part 4.3.2 of this checklist	
If the site of the development located within stormwater zone 2, please provide a design in accordance with the section 9.3.3.3 of Council's Water Management for Development Policy.	
If the site of the development located within stormwater zone 3, please provide a design in accordance with the section 9.3.3.4 of Council's Water Management for Development Policy.	
If the site of the development located within stormwater zone 4, please provide a design in accordance with the section 9.3.3.5 of Council's Water Management for Development Policy.	
Part 4.3.2 Determination of OSD requirements in Stormwater Zone 1	
Part 4.3.2.1 For A New Building	
1) Exemption	a) Is the site area less than 400? Yes ☐ No ☐ b) Is the post-development impervious area less than 190 m^2? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, please process to calculation
2) Calculation	a) Site area _____m^2 x 0.35 = _____m^2 + 50 = _____m^2 b) Post- development impervious area _____m^2 OSD will not be required when (b) is less than 250 m^2 and (a) is greater than (b) Is OSD required for this development? Yes ☐ No ☐ If yes, provide a design in accordance with the section 9.3.3.2 of Council's Water Management for Development Policy. If no, OSD is not required and please proceed to part 5.
Part 4.3.2.2 For Alterations and Additions	
If the current impervious area of the site is more than 60% of the site area, OSD will be required. Alternatively, please proceed to the next calculation section.	
1) Calculation	Is the post development impervious area increased by less than 50 m^2? Yes ☐ No ☐ Is the post development impervious area less than 60% of the site area? Yes ☐ No ☐ If yes to both questions, OSD is not required. If no to any of the above questions, provide a design in accordance with section 9.3.3.2 of Council's Water Management for Development Policy

Part 5 Disposal of Stormwater
Does the site fall naturally towards the street? Yes ☐ No ☑ If yes, provide a design in accordance with section 5.1 of Council's Water Management for Development Policy. If no, provide a design in accordance with section 5.5 of Council's Water Management for Development Policy.

Definitions	
Designed to help you fill out this application	**Site area:** This refers to the area of the land bounded by its existing or proposed boundaries. **Impervious area:** This refers to driveways, parking spaces, pathways, paved areas, hardstand areas, roofed areas, garages and outbuildings. **Pre Development Impervious area**: This refers all impervious areas of the site before the development. **Post Development Impervious areas**: This refers all the impervious areas within the site after the development is completed.