Civil Engineering Return Brief

Mixed-used Residential Development
23 Kiora Road, Miranda

Client

Formus Property Pty Ltd
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Document Revision History

Date	Rev	Author	Comments
14/08/23	A	Allen Ang	Preliminary Issue
13/09/23	B	Allen Ang	Issue for DA

1 Introduction

1.1 Background

Formus Property Pty Ltd (the Client) has engaged Intrax Consulting Engineers Pty Ltd (Intrax) to provide Civil consultancy for the proposed residential dwelling development at 23 Kiora Road, Miranda. It outlines the expected timeline, design preferences and performance requirements for the understanding and input of the client.

1.2 Aims

The aim of this Return Brief is to provide a detailed description of the civil engineering design proposals associated with development. Specifically, the brief is intended to provide a summary of the following;

a. Identification of services to be provided.

b. Description of the codes to which they will be designed and compliance.

c. Description of the development

d. Description of the design criteria.

This document shall form the basis for communication of design principles and specific civil engineering design requirements to the Client and wider design team, such that the civil engineering design principles can be fundamentally incorporated into the architectural planning proposal to be submitted for the development.

1.3 Briefing Documents

The civil engineering elements considered within this report have taken into account the following preliminary documentation and investigations;

a) National Construction Code.

b) Relevant Australian Standards.

c) Authority design and guidelines.

d) Authority Main Diagrams.

e) Conceptual architecture drawings prepared by Turner Architect

1.4 Associated Services

The associated services engineering elements to be considered in conjunction within this report are as follows;

Table 1 - Engineering Services References

Associated Services	Documentation Received (Y/N)	Document Owner	Date and Revision Received
BCA Report	N	BCA Consultant	Not Available
BASIX Report	N	BASIX Consultant	Not Available
Acoustic Performance	N	Acoustic Consultant	Not Available
Transport Impact Assessment Report	N	Traffic Consultant	Not Available
Geotechnical Investigation Report	N	Geotechnical Consultant	Not Available
Arborist Concept Plan	N	Arborist Consultant	Not Available

Arboricultural Impact Assessment	N	Arborist Consultant	Not Available
Heritage Impact Statement	N	Heritage Consultant	Not Available

1.5 Code Compliance

The civil engineering covered by this Return Brief will be designed to comply with the following requirements.

Table 2 - Proposed Design Codes and Compliance

Civil Services	Design Codes	Proposed Compliance
Sediment and Control Plan	Managing Urban Stormwater: Soils and Construction –Volume 1 (4th Edition)–The Blue Book DCP Sutherland Shire Council Environmental Site Management Get your Site Right	Deemed to Satisfy
On Site Detention and Stormwater System	AS 3500.3 Stormwater Drainage -Plumbing and Drainage -Stormwater Drainage Sutherland Shire Council Stormwater and Ground Management DCP 2015 Chapter 38	Deemed to Satisfy
Flooding	Sutherland Shire Council Stormwater and Ground Management DCP 2015 Chapter 38 Gwawley Bay Catchment Flood Study 2012	Deemed to Satisfy
Water Quality	Australian Runoff Quality, A guide to Water Sensitive Urban Design, Engineers Australia, 2006 Sutherland Shire Council Stormwater and Ground Management DCP 2015 Chapter 38	Deemed to Satisfy
Kerbs, Access Driveway, Channels and Hardstandings	AS 2890.1 (2004) - Off-street Car Parking Sutherland Shire Council Public Domain Design Manual (PDDM) Part D - Specification	Deemed to Satisfy

2 Development Information

2.1 Development Description

The proposed development scheme continues to be developed for the Development Application to Council and is yet to be finalised. However, for the purposes of this Return Brief we have made the following assumptions for the development.

The proposed development consists of the demolition of an existing unit block and the construction of a new residential building consisting of the following:

- The development will be an entirely new construction, requiring all existing buildings on the site to be fully demolished.
- A mixed-use residential building providing;
  - Multiple levels of underground carparking,
  - Ground level commercial tenancies/spaces and back of house areas,
  - 16 levels of residential apartments with a total of 133 units,
  - A roof level plant room and communal space.
- The development will be more than 25m in effective height as classified by the National Construction Code.
- The development will be required to achieve a high level of environmental performance, however specific targets have yet to be nominated. Regardless, the project will need to comply with the BASIX requirements for the development.

2.2 Authority Infrastructure

Sutherland Shire Council are the Authority who provide stormwater drainage infrastructure in the locality of the development site.

- **Kiora Road (unknown size)** – An existing unknown size of stormwater pipe runs on the western side of Kiora Road, parallel with the site's eastern boundary and falling towards the north.
- **Willock Ave (unknown size)** – An existing unknown size of stormwater pipe runs on the northern side of Willock Ave and intersect with the stormwater main trunk at Kiora Road

The detail of the existing stormwater network is subject to confirmation from a registered surveyor.

Existing Council stormwater mains are located in adjacent Willock Avenue and Kiora Road. Refer to Sutherland Maps as shown in Figure 1.

Figure 1 - Existing Stormwater System

2.3 Stormwater Drainage

The proposed development will provide mixed residential in accordance with the Development Description as detailed herein. The site has an approximate area in the order of 2,475m^2.

We have based our stormwater drainage load estimates upon the following allowances;

- 5% AEP (5 min) rainfall of 181mm/hr.
- 1% AEP (5 min) rainfall of 230mm/hr.

Peak run-off for a pre-developed site with a max of 75% impervious area has been estimated at 73.0 L/s for the 20% AEP storm event, and 136.0 L/s for the 1% AEP storm event.

The shows the stormwater catchment plan for the proposed development.

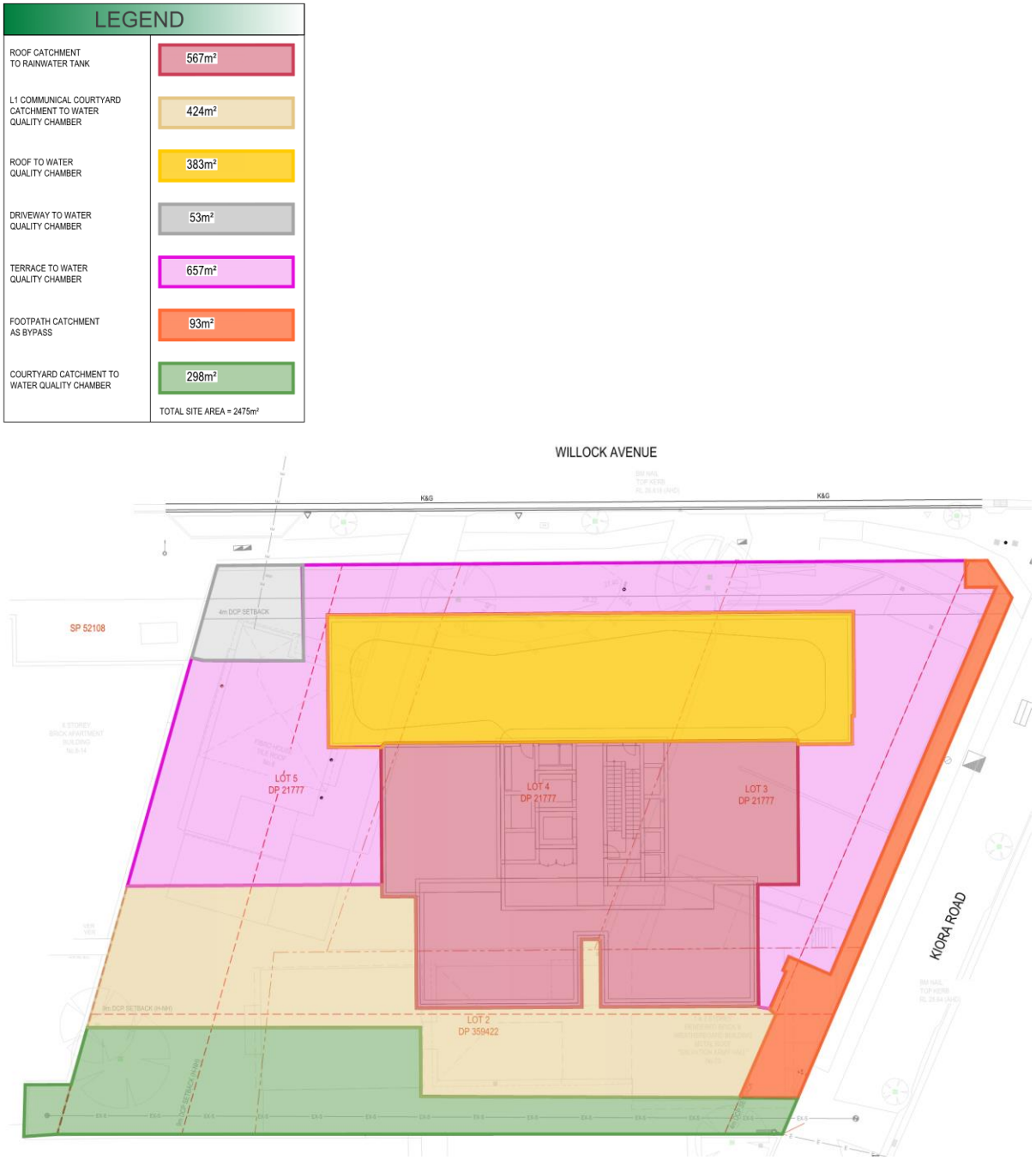

Figure 2 - Stormwater Catchment Plan

The Figure 3 below shows the preliminary design of the OSD tanks location and proposed stormwater network for the proposed development.

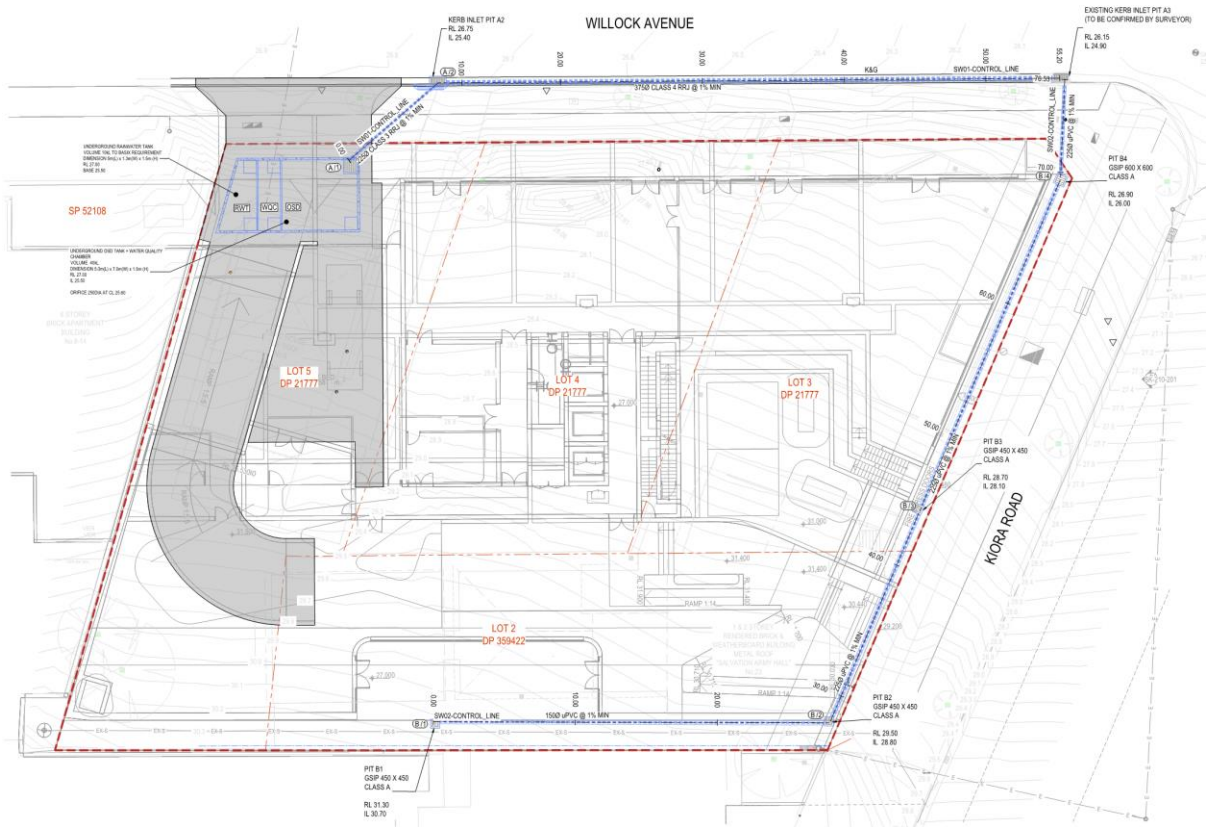

Figure 3 - Schematic RWT and OSD Tanks location and stormwater system

The details showing the overall stormwater network and concept design are attached in **Appendix A**.

2.4 Flooding Requirements

The high-level flooding design requirement based on Stormwater Management Specification are highlighted as below:

Table 3 - Flood Planning Levels Parameters

Description	Requirement
Design Flood Level	1% AEP (Annual Exceedance Probability)
Freeboard (Habitable)	0.5m above 1% AEP Water Surface Level
Freeboard (Non-habitable)	0.2m above 1% AEP Water Surface Level
Flood Map Provided	Y
Flood Modelling Required	N

The proposed residential building or dwelling must be free from overland flow path and flooding up to and including 1% AEP and must meet Flood Planning Level Requirements detailed in Section 149 Certificate

The Flood map provided by Council as shown in Figure 4 has indicated that the proposed dwelling (23 Kiora Road) is outside of the floodplain where it is above the mainstream and local drainage flood planning levels including freeboard. Hence, the proposed dwelling is not affected by floodplain.

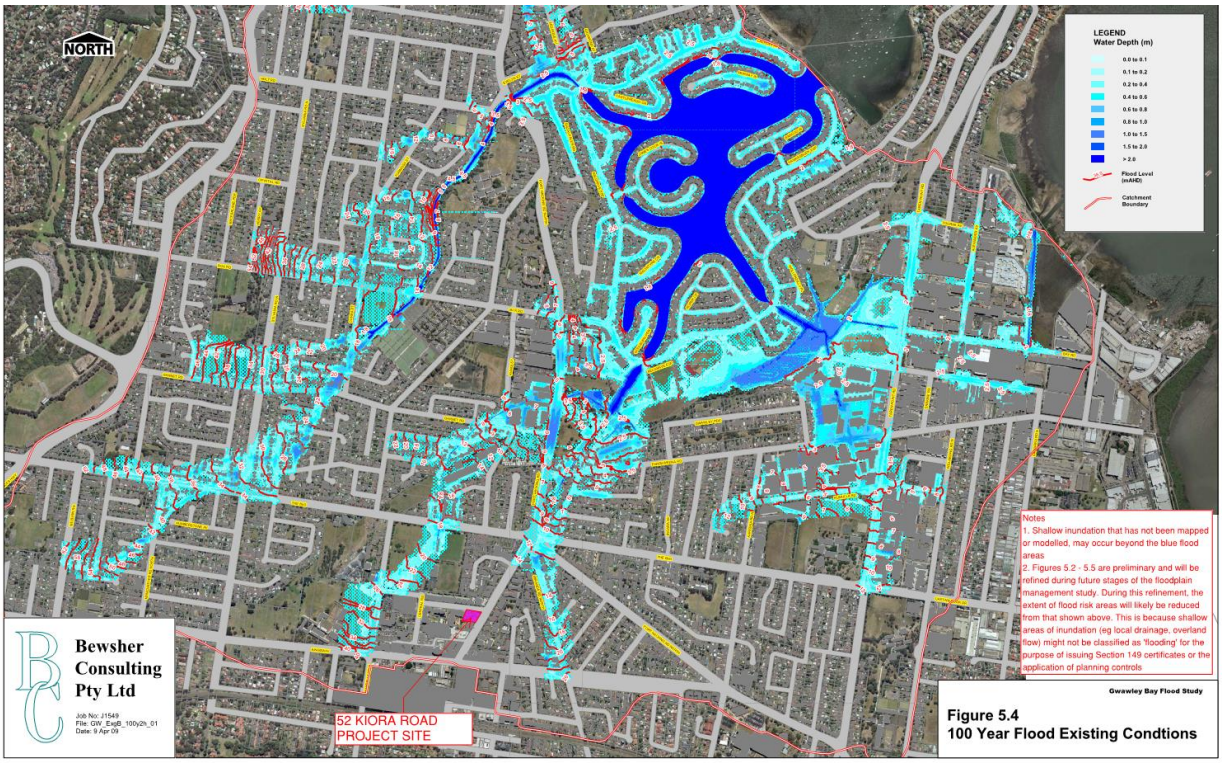

Figure 4 – Gwawley Bay catchment floodplain management studies map (1%AEP)

2.5 Stormwater Drainage

Preliminary stormwater drainage services design will be undertaken in accordance with the following allowances.

Table 4 - Design Storm Intensity

IFD Design Rainfall Intensity (mm/h)

Issued: 10 May 2023

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	305	359	401
2 min	126	140	185	216	247	291	326
3 min	116	129	171	201	230	270	303
4 min	109	121	162	190	217	256	286
5 min	103	115	153	180	207	243	272
10 min	80.6	90.5	122	144	165	194	217
15 min	67.1	75.3	102	120	138	162	181
20 min	57.8	64.9	87.4	103	119	139	155
25 min	51.1	57.3	77.1	90.8	104	123	137
30 min	46.0	51.5	69.2	81.5	93.7	110	123
45 min	35.9	40.2	53.8	63.2	72.7	85.5	95.6
1 hour	30.0	33.5	44.7	52.5	60.3	71.0	79.5
1.5 hour	23.1	25.8	34.3	40.3	46.3	54.7	61.3
2 hour	19.2	21.4	28.5	33.4	38.5	45.5	51.1
3 hour	14.9	16.6	22.0	25.9	29.9	35.5	39.9
4.5 hour	11.6	12.9	17.2	20.3	23.5	28.0	31.6
6 hour	9.76	10.9	14.5	17.2	20.0	23.9	27.0
9 hour	7.69	8.58	11.6	13.8	16.0	19.2	21.7
12 hour	6.50	7.27	9.87	11.8	13.8	16.5	18.7
18 hour	5.13	5.76	7.89	9.46	11.1	13.3	15.1
24 hour	4.32	4.87	6.72	8.07	9.47	11.4	12.9
30 hour	3.77	4.26	5.90	7.10	8.33	10.0	11.3
36 hour	3.36	3.81	5.29	6.37	7.47	8.98	10.2
48 hour	2.79	3.17	4.42	5.32	6.23	7.48	8.45
72 hour	2.10	2.40	3.36	4.03	4.70	5.62	6.33
96 hour	1.70	1.94	2.71	3.24	3.77	4.49	5.04
120 hour	1.43	1.63	2.27	2.71	3.15	3.73	4.17
144 hour	1.24	1.41	1.96	2.33	2.70	3.18	3.54
168 hour	1.09	1.24	1.72	2.04	2.35	2.76	3.07

The design stormwater disposal is designed in accordance with the following criteria: -

1. Stormwater roof runoff will be collected and discharged to a re-use rainwater tank. The overflow will be channel to the water quality chamber and OSD tank within the central OSD tank at basement 1.
2. Stormwater run-off on the driveway will be collected through the grated trench drain and discharge to water quality chamber.
3. The southern courtyard and the footpath at eastern boundary where the ground level is lower than the OSD tank will be channel to the point of discharge via a pit and pipe system. This catchment will be a bypass to the OSD system.
4. The Legal Discharge Point of drainage will be to the existing stormwater pit at eastern corner of the Willock Avenue.

2.6 Onsite Detention Requirements

The Onsite Detention (OSD) requirements according to the DCP Chapter 38, Section 1.3 are as below:

1.3 Controls for All Other Built Development, Subdivision and Works

1. The post development rate of stormwater runoff (both piped and overland) from the site shall not exceed the rate of flow of runoff from the site than would exist prior to the subject development occurring.
2. The peak rate of flow for any site shall be calculated on the basis of catering for all storm events up to and including the 1% AEP event.
3. Where a site has a greater impervious area than the required landscaped area under SSLEP2015, the rate of stormwater runoff will be based upon a rate of flow of runoff that would occur from a site developed to its minimum required landscaped area. Where the LEP does not prescribe a minimum landscaped area, the rate of flow of stormwater runoff for any site shall be no greater than would be generated by a site having a maximum impervious area of 75%.
4. Where the post development rate of flow would exceed the predevelopment rate, or the rate established in accordance with subclause 2, the stormwater must be managed on site by a strategy utilising one or a combination of on-site retention and reuse, infiltration systems and on-site detention techniques. Where rainwater tanks are relied upon for stormwater management, rainwater tanks shall be assumed to be two-thirds full for the purposes of calculating peak flow and discharge.
5. Despite subclause 4 properties may be permitted to exceed the permissible site discharge, where it can be shown that the discharge from a property:
   a. does not pass through Council stormwater drainage infrastructure e.g. natural systems such as mangroves, creeks, a pipe, culvert, bridge, overland flow path or other control source or,
   b. the peak rate of flow is equal to or less than the PSD in all storm events up to and including the 1% AEP event.

The Stormwater Management Specification 2009 specify that the on-site detention is required to ensure the peak discharge rate of stormwater flow from new development is no greater than that of the Permissible Site Discharge (PSD) in accordance with SSDCP2206 requirements. OSD systems temporarily detail stormwater on-site, restricting the discharge to a rate that can be accommodated by Council's existing drainage system. OSD applies to all forms of development.

The proposed development will provide commercial facilities in accordance with the Development Description as detailed herein.

Table 5 - OSD Tank Parameters

Design Description	Parameters
Site Area (m^2)	2,475
Area Draining to OSD (m^2)	2,084
Area bypass to OSD (m^2)	391
OSD Location	Underground Tank at the northwest corner of the buildings at B1
OSD Discharge Location	To the new proposed stormwater kerb inlet pit A1
Design permissible site discharge (PSD) rate (L/s)	73L/s (for 1%AEP) 60L/s (for 5%AEP)

	46L/s (for 20%AEP)
Rainwater Tank Volume Provided (m^3)	10.0
OSD Offset requirement (one third of RWT size) (m^3)	3.3
Site Detention Requirements (m^3)	40.0

2.7 First Flush Diverter

In accordance with the council requirement, the first flush diverter shall retain the first 1mm of rainwater from the roof. The total roof area for stormwater catchment is approximately 520m^2, therefore, the first flush diverter will retain as 520L. The detail requirements on First Flush Diverter will be highlighted in Building Services Hydraulic Technical Specification Report as the design develops.

2.8 Rainwater Tank

A Central Rainwater Tank (RWT) has been provided to reduce the non-potable demand of the building. The catchment from the roof will be directed to the rainwater tank for water re-use. The rainwater harvested will be reused for irrigation purpose only, the overflow will be discharged to the nearest stormwater pit and pipe system.

The estimation from the Fire Engineer for the flow require for fire testing strategy is as below:

- The fire test water will be discharged to stormwater system (bypassing the RWT).

Hence the proposed size of the re-use rainwater tank for this development is recommended to be at least **10kL** as per nominated in BASIX report.

2.9 Water Quality Requirements

The development aims to achieve Sydney Water target by demonstrating the stormwater runoff discharged from the site to meet the required pollution reduction targets. As part of the Water Sensitive Urban Design (WSUD) stormwater management strategy, the water quality design under the proposed development is targeted to achieve water quality best practices targets as per specified in Table 6 from Sydney Water website.

Table 6 - Recommended Stormwater Quality Reduction Targets (Sydney Water)

Stormwater Pollutant	Reduction Targets
Gross pollutants (m^2)	90%
Total suspended solids (TSS)	85%
Total phosphorus (TP)	65%
Total Nitrogen (TN)	45%

The proposed reduction targets are also in line with Sutherland Shire Council Requirement.

2.10 Access Driveway Design Requirements

The proposed main access driveway and entrance junction have been designed geometrically in accordance with the principles outlined in AS 2890.1-2004 off-street parking.

The key driveway parameters are as follows:

Design Criteria for Main Access Driveway

Table 7 - Design Criteria for B99

Feature	Standard	Comment
Design Speed	10 km/hr	Deem to satisfy
Stop Sight Distance	X= 3.0m and Y= 55m (5 second gap @ 40km/hr)	Deem to satisfy
Design Vehicle	B99 Vehicle for Carpark	Design Vehicle as per AS 2890.1 Deem to satisfy
Driveway Width	One-way: 3.0m (Min.) Two-ways: 5.5m (Min.) 300mm min sideway	Deem to satisfy
Vertical Clearance	2.2m for B99 design vehicle	Design Vehicle as per AS 2890.1 Deem to satisfy
Maximum Superelevation	5.0%	Deem to satisfy
Maximum Gradient	1:4 (25%) AS 2890.1-2004	Deem to satisfy
Rate of Change of Grade	1:8 (12.5%) in 2m of travel summit 1:6.7 (15%) in 2m of travel for sag	Deem to satisfy
Minimum Horizontal Curve Radius	4.0m Inside Radius (R_i) 1 way: 7.6m Outside Radius (R_o) 2 ways: 11.8m Outside Radius (R_o)	Deem to satisfy
Footways	1.5m Min.	Deem to satisfy
Bicycle Lane	2.0m Min.	TBC
Verge	Varies	Deem to satisfy

The proposed main access to the loading dock have been designed geometrically in accordance with the principles outlined in AS 2890.2-2002 Off-Street Commercial Vehicle Facilities.

Table 8 - Design Criteria for Loading Dock Access Driveway

Feature	Standard	Comment
Design Speed	10 km/hr	Deem to satisfy
Stop Sight Distance	X= 3.0m and Y= 55m (5second gap @ 40km/hr)	Deem to satisfy
Design Vehicle	Medium Rigid Vehicle (MRV) for Loading Dock	Design Vehicle as per AS 2890.2 Deem to satisfy
Driveway Width	Determine by sweptpath for small turning radius 300mm min sideway	Deem to satisfy

Vertical Clearance	4.5m for MRV	Design Vehicle as per AS 2890.2 Deem to satisfy
Maximum Superelevation	3.0%	Deem to satisfy
Maximum Gradient	1:6.5 (15.4%) AS 2890.2-2002	Deem to satisfy
Rate of Change of Grade	1:16 (6.25%) in 7m of travel	Deem to satisfy
Minimum Horizontal Curve Radius	12.5m @ 10km/h	Clause 5.2.4 AS 2890.2-2002 Deem to satisfy
Footways	1.5m Min.	Deem to satisfy
Verge	Varies	Deem to satisfy

3 Safety in Design

Intrax Consulting Engineers conducts a Safety in Design procedure on all design projects to ensure that risk is minimized during construction and maintenance. Where practicable potential hazards that can be designed out are. When it is not be practicable to remove a hazard entirely the risk or consequences is assessed and flagged with the relevant stakeholder.

4 Appendix A – Concept Design

23 KIORA ROAD, MIRANDA NSW 2228
CONCEPT DESIGN

CIVIL SERVICES

SITE / LOCATION (IMAGE COURTESY OF NEARMAP 30/03/2022)

SHEET SCHEDULE		
REV.	**DWG No.**	**PLAN TITLE**
02	C-0000	COVER SHEET
02	C-0001	GENERAL NOTES
02	C-0002	GENERAL ARRANGEMENT PLAN AND LEGEND
02	C-1001	SEDIMENT AND EROSION CONTROL PLAN
02	C-1011	SEDIMENT AND EROSION CONTROL DETAILS AND NOTES
02	C-3001	CIVIL WORKS PLAN
02	C-3111	DRIVEWAY PLAN AND LONGITUDINAL SECTION
02	C-3811	ROAD STANDARD DETAIL AND TYPICAL SECTIONS
02	C-4001	STORMWATER MANAGEMENT PLAN
02	C-4101	STORMWATER CATCHMENT PLAN
02	C-4301	STORMWATER MANAGEMENT DETAILS SHEET 01 OF 02
02	C-4302	STORMWATER MANAGEMENT DETAILS SHEET 02 OF 02
02	C-4501	MUSIC MODEL AND WATER QUALITY DETAILS
TOTAL NUMBER OF SHEETS		13

ISSUED FOR **CONCEPT DESIGN**
NOT FOR CONSTRUCTION

Services Consultant:
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Architect:
TURNER
LEVEL 7, ONE OXFORD STREET
DARLINGHURST NSW 2010 AUSTRALIA

CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
COVER SHEET

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-0000

Issue: 02

ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032_23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-0000.dwg PLOTTED BY: "faisal merchant" PLOT DATE & TIME: 9/13/2023 2:46 PM

GENERAL NOTES

REFER TO SUTHERLAND SHIRE COUNCIL PUBLIC DOMAIN DESIGN MANUAL, TECHNICAL MANUAL, PART C STANDARD DRAWINGS, AND PART D SPECIFICATION CODE.

ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THIS CODE UNO.

1. ALL DIMENSIONS ARE IN MILLIMETRES AND ALL LEVELS IN m AHD UNO.
2. NO DIMENSIONS ARE TO BE OBTAINED BY SCALING FROM DRAWINGS.
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS.
4. IN PREPARING THESE DRAWINGS WE HAVE RELIED ON THE ACCURACY AND COMPLETENESS OF INFORMATION PROVIDED BY THE UTILITY PROVIDERS AND SURVEYORS REGARDING ONSITE LOCATION OF ASSETS. WE ACCEPT NO LIABILITY FOR ANY ERROR OR OMISSION IN THESE DRAWINGS TO THE EXTENT THE SAME RESULTS FROM ERROR OR OMISSION IN THE INFORMATION PROVIDED.
5. ANY DISCREPANCIES OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT PRIOR TO PROCEEDING WITH THE WORKS.
6. THE CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS ONLY AS SUPPLIED BY A REGISTERED SURVEYOR.
7. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS, EXISTING LEVELS AND PROPOSED SET-OUT ON SITE PRIOR TO THE COMMENCEMENT OF WORKS. ANY DISCREPANCIES OR OMISSIONS ARE TO BE REPORTED TO THE SUPERINTENDENT.
8. THE SUPERINTENDENT IS TO BE GIVEN 48 HOURS NOTICE OF ANY INSPECTION REQUESTS.
9. ALL EXISTING STRUCTURES, SERVICES AND UTILITIES ARE TO BE LOCATED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. THE LOCATION OF EXISTING SERVICES SHOWN ON PLANS ARE INDICATIVE ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE RESPONSIBILITY FOR LOCATING, AVOIDANCE AND WHERE NECESSARY, TEMPORARY PROTECTION OF THESE EXISTING SERVICES IS THAT OF THE CONTRACTOR. ANY DAMAGE TO EXISTING STRUCTURES, SERVICES AND UTILITIES IS TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.
10. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND CODES OF PRACTICE EXCEPT WHERE VARIED BY THE DRAWINGS. THE APPLICABLE STANDARDS SHALL BE THE REFERENCED STANDARDS CURRENT AT DATE OF DRAWING ISSUE.
11. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED OUT BY OTHERS, (e.g. ADJUSTMENT OF SERVICES) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF ANY THIRD PARTY WORKS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE WORKS AND SURROUNDING AREA UNTIL PROJECT COMPLETION AND SHALL ENSURE THAT NO PART OF THE WORKS ARE OVERSTRESSED BY CONSTRUCTION LOADING.
13. ALL TESTING IS TO BE CARRIED OUT BY A NATA REGISTERED LABORATORY. TESTING METHODS ARE TO BE IN ACCORDANCE WITH THE APPLICABLE AUSTRALIAN STANDARD.
14. ON COMPLETION OF THE WORKS THE CONTRACTOR SHALL PROVIDE AN AS-CONSTRUCTED SURVEY OF THE SITE.
15. WHERE PROPRIETARY PRODUCTS ARE SPECIFIED ON THE DRAWING, THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE PRODUCT TO THE SUPERINTENDENT FOR APPROVAL. THE CONTRACTOR SHALL PROVIDE SUFFICIENT INFORMATION TO DEMONSTRATE TO THE SUPERINTENDENT'S SATISFACTION THAT THE ALTERNATIVE PROPOSED IS OF EQUIVALENT QUALITY TO THE PRODUCT SPECIFIED.
16. EXISTING SERVICES ARE SHOWN AS PER SITE SURVEY COMPLETED BY LAWRENCE GROUP DATED 07 MARCH 2023). LOCATIONS ARE INDICATIVE ONLY AND MAY NOT BE EXHAUSTIVE. PRESENCE AND LOCATIONS OF SERVICES TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION.
17. ALL SERVICE PIT COVERS TO BE RECESSED AND IN-FILLED WITH PAVERS TO SUIT SURROUNDING FINISH. EXISTING DAMAGED PAVERS TO BE REPLACED.
18. SUBGRADE DENSITY TESTS WILL BE REQUIRED DURING PUBLIC DOMAIN CONSTRUCTION WORKS. REFER TO THE PUBLIC DOMAIN OFFICER AT PRELIMINARY PUBLIC DOMAIN WORKS SITE MEETING FOR QUANTITY AND LOCATIONS OF TESTING REQUIRED.

SURVEY NOTES

1. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN GENERAL NOTES.
   THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. INTRAX CONSULTING ENGINEERS PTY LTD. DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
   SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT INTRAX CONSULTING ENGINEERS PTY LTD.
2. FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

NOTES

BEARINGS RELATE TO MGA GRID NORTH TAKEN FROM DP 1048612.
SEE NORTH POINT FOR APPROXIMATE RELATIONSHIP TO TRUE NORTH.

1. SERVICES SHOWN ARE INDICATIVE ONLY. POSITIONS ARE BASED ON SURFACE INDICATOR(S) LOCATED DURING FIELD SURVEY. CONFIRMATION OF THE EXACT POSITION SHOULD BE MADE TO THE RELEVANT AUTHORITIES PRIOR TO ANY EXCAVATION WORK. OTHER SERVICES MAY EXIST WHICH ARE NOT SHOWN.
2. LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) USING SSM 58162 WITH A REDUCED LEVEL 25.388 CLASS LB ORDER L2
3. ORIGIN OF CO-ORDINATES SSM 58162
4. RIDGE, EAVE, GUTTER, PARAPETS, WINDOWS & DOORS HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE TO ± 0.05M.
5. ADJOINING BUILDINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY.
6. CONTOURS ARE AN INDICATION OF LANDFORM AND SHOULD NOT BE TAKEN IN PREFERENCE TO SPOT LEVELS SHOWN.
7. CONTOUR INTERVAL 0.5

DEMOLITION

1. ALL DEMOLITION WORK IS TO BE UNDERTKEN IN ACCORDANCE WITH REQUIREMENTS OF AUSTRALIAN STANDARDS AS2601 - 1991 - "THE DEMOLITION OF STRUCTURES".
2. HAZARDOUS MATERIALS (INCLUDING ASBESTOS) ARE TO BE HANDLED, STORED, TREATED, RTANSPORTED AND DISPOSED OF IN ACCORDANCE WITH THE REQUIRMENTS OF THE WORK HEALTH & SAFETY ACT 2011 AND ANY RELEVANT REQUIREMENTS OF THE WORK COVER AUTHORITY OF NSW.

ROADWORKS GENERAL

G1. THE SUB-CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS ONLY AS SUPPLIED BY THE APPOINTED SURVEYORS.
G2. SERVICES SHOWN ON THESE PLANS ARE LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE OR CORRECT. ALL SERVICE LOCATIONS ARE TO BE VERIFIED BY THE SUB-CONTRACTOR PRIOR TO CONSTRUCTION.
G3. ALL REMOVING, DIVERSION AND PROTECTION WORKS RELATED TO EXISTING SERVICES NEED TO BE VERIFIED AND APPROVED BY RELATIVE AUTHORITIES.
G4. NO WORK TO BE CARRIED OUT ON ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER.
G5. VEHICULAR ACCESS AND ALL SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO AREAS AFFECTED BY CONSTRUCTION UNLESS OTHERWISE AGREED.

PAVEMENT GENERAL

P1. SUBGRADE, SUBBASE AND BASE COURSES ARE TO BE COMPACTED TO THE REQUIREMENTS OF THE SPECIFICATION AND SHALL BE REVIEWED BY THE GEOTECHNICAL INSPECTION AND TESTING AUTHORITY.
P2. TRANSITION KERB FROM KO TO K&G AT KERB RETURN T.P OVER A LENGTH OF 1m.
P3. ALL EXISTING STRUCTURES, SERVICES AND UTILITIES ARE TO BE LOCATED BY THE SUB-CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS. THE LOCATION OF EXISTING SERVICES SHOWN ON PLANS ARE INDICATIVE ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE RESPONSIBILITY FOR LOCATING, AVOIDANCE AND WHERE NECESSARY, TEMPORARY PROTECTION OF THESE EXISTING SERVICES IS THAT OF THE SUB-CONTRACTOR. ANY DAMAGE TO EXISTING STRUCTURES, SERVICES AND UTILITIES IS TO BE REPORTED TO THE SUPERINTENDENT IMMEDIATELY.

DRAINAGE NOTES

D1. ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED.
D2. 100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE.
D3. MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm.
D4. ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS.
D5. BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL.
D6. HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS.
D7. PIT GRATE TO BE TYPE WELDOCK OR APPROVED EQUIVALENT.
D8. ALL PITS SHALL BE PROVIDED WITH LOCKING CLIP.
D9. ALL PITS SHALL BE MAINTAINED REGULARLY.
D10. TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER.
D11. Ø100mm SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES.
D12. COMPRESSIVE STRENGTH f'c FOR CAST INSITU CONCRETE TO BE MINIMUM OF 20MPa AT 28 DAYS.
D13. PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS.
D14. ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS.
D15. ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm.
D16. STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL.

EARTHWORKS

EW1. EARTHWORKS TO BE CARRIED OUT TO THE SATISFACTION OF THE PCA. UNSOUND MATERIALS NOT IN ACCORDANCE WITH THE SPECIFICATION ARE TO BE REMOVED FROM ROADS AND BUILDING AREAS PRIOR TO FILLING. ALL TESTING OF EARTHWORKS SHALL BE UNDERTAKEN BY THE GEOTECHNICAL INSPECTION AND TESTING AUTHORITY.
EW2. WHERE THE SLOPE OF THE NATURAL EXCEEDS ONE IN FOUR (1:4), BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE SUPERINTENDENT.
EW3. THE CONTROL TESTING OF EARTHWORKS BY GEOTECHNICAL INSPECTION & TESTING AUTHORITY SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS 3798-2007. WHERE IT IS PROPOSED TO USE TEST METHOD AS 1289.5.8.1-2007 TO DETERMINE THE FIELD DENSITY OF SOIL, A NUCLEAR SURFACE MOISTURE-DENSITY GAUGE IN THE DIRECT TRANSMISSION MODE OF OPERATION SHALL BE USED TO CONFIRM THE RESULTS, AS DIRECTED BY THE PCA. THE GEOTECHNICAL INSPECTION & TESTING AUTHORITY SHALL HAVE A LEVEL 2 RESPONSIBILITY AS DEFINED IN SECTION 8.3 AS 3798-2007, AND AT THE END OF THE WORKS SHALL CERTIFY IN A WRITTEN REPORT THAT THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OD THE SPECIFICATION AND DRAWINGS.
EW4. ALL SPOIL TO BE DISPOSED OF OFF SITE TO AN APPROVED DISPOSAL SITE.

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 AND OTHER RELEVANT AUSTRALIAN STANDARDS.
C2. CONCRETE SHALL BE SUPPLIED BY AN APPROVED MANUFACTURER IN ACCORDANCE WITH AS 1379.
C3. CONCRETE SHALL HAVE THE FOLLOWING PARAMETERS:

ELEMENT	SLUMP (mm)	AGGREGATE	f'c (MPa)	OTHER REQ
EXTERNAL VEHICLE SLAB	+80	20	N32	(1)

+ DENOTES SLUMP AT PLANT
(1) DENOTES MAXIMUM BASE SHRINKAGE STRAIN 650 x 10^{-6} AT 56 DAYS (TO AS1012 PART 13)

C4. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
C5. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY.
C6. HOLES, CHASES OR EMBEDMENT ITEMS, INCLUDING PIPES AND CONDUITS SHALL NOT BE PLACED IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
C7. CONDUITS, PIPES AND LIKE SHALL NOT BE PLACED WITHIN THE CONCRETE COVER, NOR DISPLACE THE REINFORCEMENT LAYERS.
C8. CONSTRUCTION JOINTS (CJ) SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY SCRABBLED.
C9. THE MAXIMUM HEIGHT OF POUR FOR CONCRETE ELEMENTS SHALL BE 3.0m. UNLESS METHOD OF PLACEMENT HAS BEEN APPROVED BY THE ENGINEER. COLUMNS SHALL NOT BE POURED WITH THE SLAB OVER.
C10. CONCRETE SHALL BE THOROUGHLY COMPACTED IN THE FORMS BY MEANS OF MECHANICAL VIBRATION.
C11. WHEN THE SHADE TEMPERATURE EXCEEDS 35°C, THE EXPOSED SURFACE OF CONCRETE SHALL BE SPRAYED WITH A FINE FILM OF APPROVED ALIPHATIC ALCOHOL DURING CONCRETE PLACEMENT AND FINISHING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ENSURING ADEQUATE SUPPLY OF ALIPHATIC ALCOHOL ON SITE BEFORE COMMENCING CONCRETE WORK.
C12. CURING OF CONCRETE SHALL COMMENCE WITHIN 2 HOURS OF FINISHING OPERATIONS AND SHALL BE MAINTAINED FOR A MINIMUM OF 7 DAYS USING AN APPROVED PROPRIETARY CURING COMPOUND IN ACCORDANCE WITH AS3799 AND COMPATIBLE WITH THE PROPOSED FINISH OR CONTINUOUS POUNDING WITH POTABLE WATER. THE CONTRACTOR TO SUBMIT PROPOSED CURING PROCEDURE FOR APPROVAL OF THE ENGINEER.
C13. ALL CONCRETE DELIVERED TO SITE SHALL BE SUBJECT TO PROJECT ASSESSMENT IN ACCORDANCE WITH AS 1379.
C14. THE CONTRACTOR SHALL NOMINATE A CONCRETE DELIVERY SUPERVISOR WHO SHALL BE A SUITABLE EXPERIENCED PERSON FOR THE APPROVAL OF THE ENGINEER, TO MONITOR THE DELIVERY AND PLACING OF THE CONCRETE FOR EACH POUR ON THE PROJECT. IN ADDITION, THE MANUFACTURER SHALL SAMPLE AND TEST FOR DRYING SHRINKAGE EACH TYPE OF CONCRETE SUPPLIED. AT LEAST EVERY MONTH DURING THE COURSE OF THE PROJECT OR FOR EVERY 1000 CUBIC METERS PLACED. NATA TEST CERTIFICATES SHALL BE FORWARDED TO THE ENGINEER. THE RESULTS OF THESE TESTS SHALL BE ALSO BE KEPT ON SITE.

C15. CONCRETE SAMPLES AND TESTS:
ARRANGE FOR A NATA REGISTERED TESTING LABORATORY TO TAKE SAMPLES OF AND TEST CONCRETE FOR COMPRESSION, FLEXURAL TENSILE STRENGTH (SLABS ON GROUND ONLY) AND SLUMP.

COMPRESSION TEST SAMPLES SHALL CONSIST OF 3 STANDARD CYLINDERS (4 STANDARD CYLINDERS FOR POST-TENSIONED CONCRETE), TESTED FOR COMPRESSIVE STRENGTH AS FOLLOWS:
ONE (1) CYLINDER AT 3 DAYS FOR POST-TENSIONED CONCRETE ONLY.
ONE (1) CYLINDER AT 7 DAYS.
TWO (2) CYLINDERS AT 28 DAYS.

THE MINIMUM NUMBER OF DAILY SAMPLES SHALL BE AS FOLLOWS:
IN COLUMNS/WALLS: 1 SAMPLE PER TRUCK
ALL OTHER CONCRETE OF ANY ONE TYPE AS FOLLOWS:
1 TRUCK PER DAY - 1 SAMPLE
2 - 5 TRUCKS PER DAY - 2 SAMPLES
6 - 10 TRUCKS PER DAY - 3 SAMPLES
10 - 20 TRUCKS PER DAY - 4 SAMPLES
FOR EACH ADDITIONAL 10 TRUCKS PER DAY, 1 SAMPLE.
SLUMP: 1 SAMPLE PER TRUCK AT TIME OF POURING.

C16. REFER TO TYPICAL STRIPPING AND PROPPING DETAIL.

EXISTING SERVICES & FEATURES

U1. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWING UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
U2. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
U3. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF HIS PROGRAM FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.
U4. CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDING 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.
U5. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
U6. EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
U7. EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND 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. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
U8. ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.
U9. CONDUITS TO BE PROVIDED FOR WATER AND ENERGY AUTHORITIES, TELSTRA AND OTHER SERVICES AS REQUIRED.
U10. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON THESE DRAWING'S HAVE BEEN PLOTTED FROM SURVEY AND AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
U11. INTRAX CONSULTING ENGINEERS CANNOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS, ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN ARISING FROM ANY CAUSE WHATSOEVER.
U12. 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. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
U13. CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ON SITE INCLUDING HAND EXCAVATION WHERE NECESSARY.
U14. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
U15. TELSTRA - DUTY OF CARE NOTE:
TELSTRA'S PLANS SHOW ONLY THE PRESENCE OF CABLES AND PLANT. THEY ONLY SHOW THEIR POSITION RELATIVE TO ROAD BOUNDARIES, PROPERTY FENCES ETC. AT THE TIME OF INSTALLATION AND TELSTRA DOES NOT WARRANT OR UPHOLD THAT SUCH PLANS ARE ACCURATE THEREAFTER DUE TO CHANGES THAT MAY OCCUR OVER TIME. DO NOT ASSUME DEPTH OR ALIGNMENT OF CABLES OR PLANT AS THESE VARY SIGNIFICANTLY.
THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR TELSTRA CABLES AND PLANT. BEFORE USING MACHINE EXCAVATORS TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG POT HOLING TO IDENTIFY IT'S LOCATION. TELSTRA WILL SEEK COMPENSATION FOR DAMAGES CAUSED TO IT'S PROPERTY AND LOSSES CAUSED TO TELSTRA AND IT'S CUSTOMERS.
U16. A MINIMUM OF 30 DAYS PRIOR TO COMMENCEMENT OF EXCAVATION WORKS THE SUBCONTRACTOR MUST CONTACT DIAL BEFORE YOU DIG.

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CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
GENERAL NOTES

North Point:

Project No: NSW220032

Dwg No: C-0001

Issue: 02

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

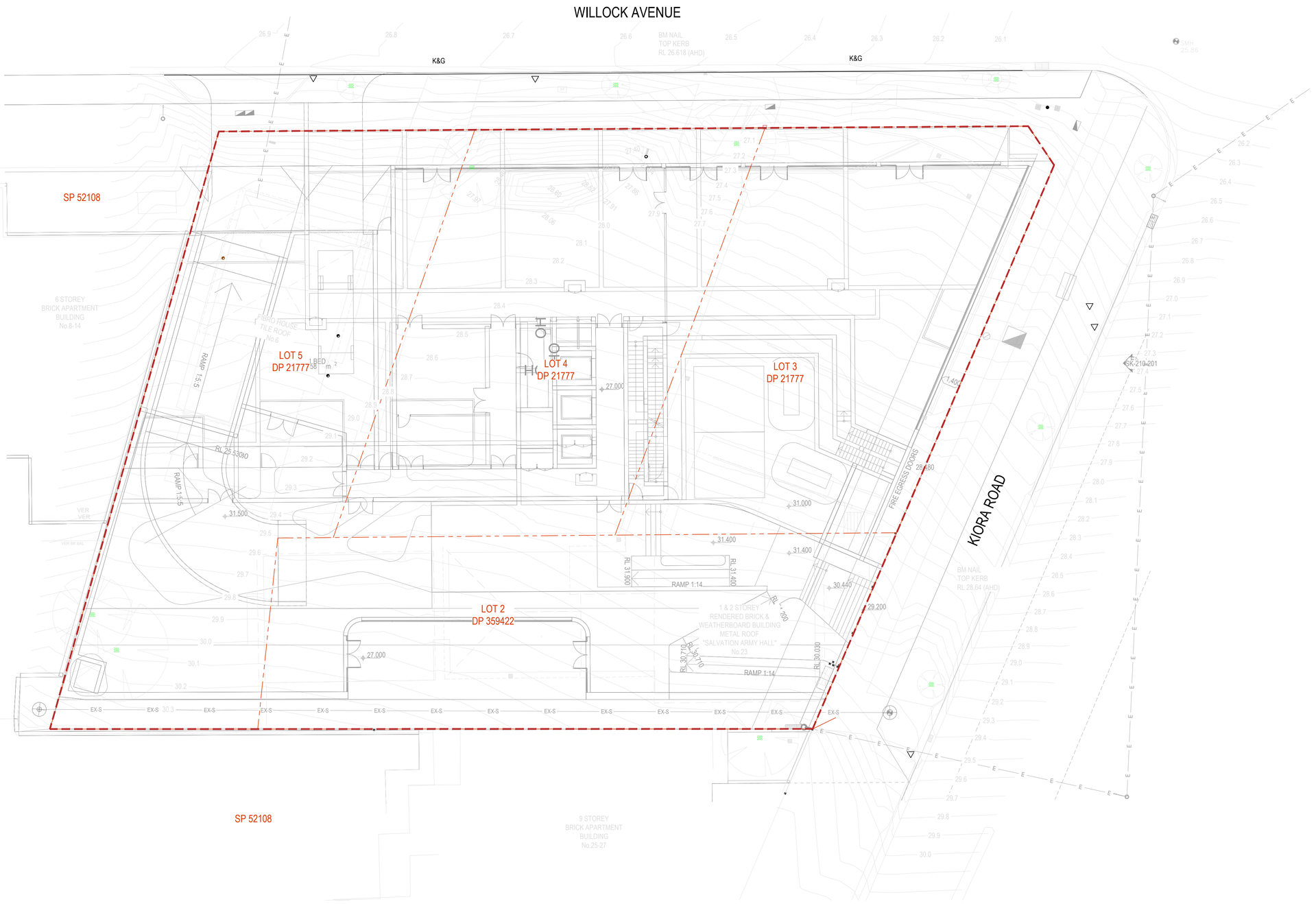
ISO 9001:2015 Quality Management

ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-0001.dwg PLOTTED BY: faisal merchant PLOT DATE & TIME: 9/13/2023 2:46 PM

LEGEND

	EXISTING	PROPOSED
UTILITY - ELECTRICITY	E	E
GAS	EX-G	G
SEWER	EX-S	S
WATER	EX-PW	PW
TELECOMS	T	T
CONTOUR LINE & LABEL	20.0	20.0
CADASTRAL BOUNDARY AND LOT NUMBER	DP #	
PROPERTY BOUNDARY		
EXISTING BUILDING		
PROPOSED ARCHITECTURAL WORKS		
ROAD TYPE WITH CONTROL LINE, NAME & CHAINAGE	ROAD CH #	ROAD CH #
KERB & GUTTER OR KERB ONLY TO COUNCIL SPECIFICATIONS	KERB	K&G KO
DRIVEWAY		
FOOTPATH TO COUNCIL SPECIFICATIONS		
STORMWATER DRAINAGE PIPE AND STRUCTURE		
SUBSOIL DRAIN		SS
PROPOSED OVERLAND FLOW PATH		
RETAINING WALL		RW
BATTER		
EXISTING TREE		
UTILITY - TO BE REMOVED:		
GAS		G
SEWER		S
WATER		W
TELECOMS		T
NBN		NBN
OPTIC FIBRE		OF
ELECTRICITY		E
LANDSCAPING		



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CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE: 0 1.5 3 6 9 12 15
REDUCTION RATIO 1:150 @ A1 & 1:300 @ A3

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
GENERAL ARRANGEMENT
PLAN AND LEGEND

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

Dwg No: C-0002

Issue: 02

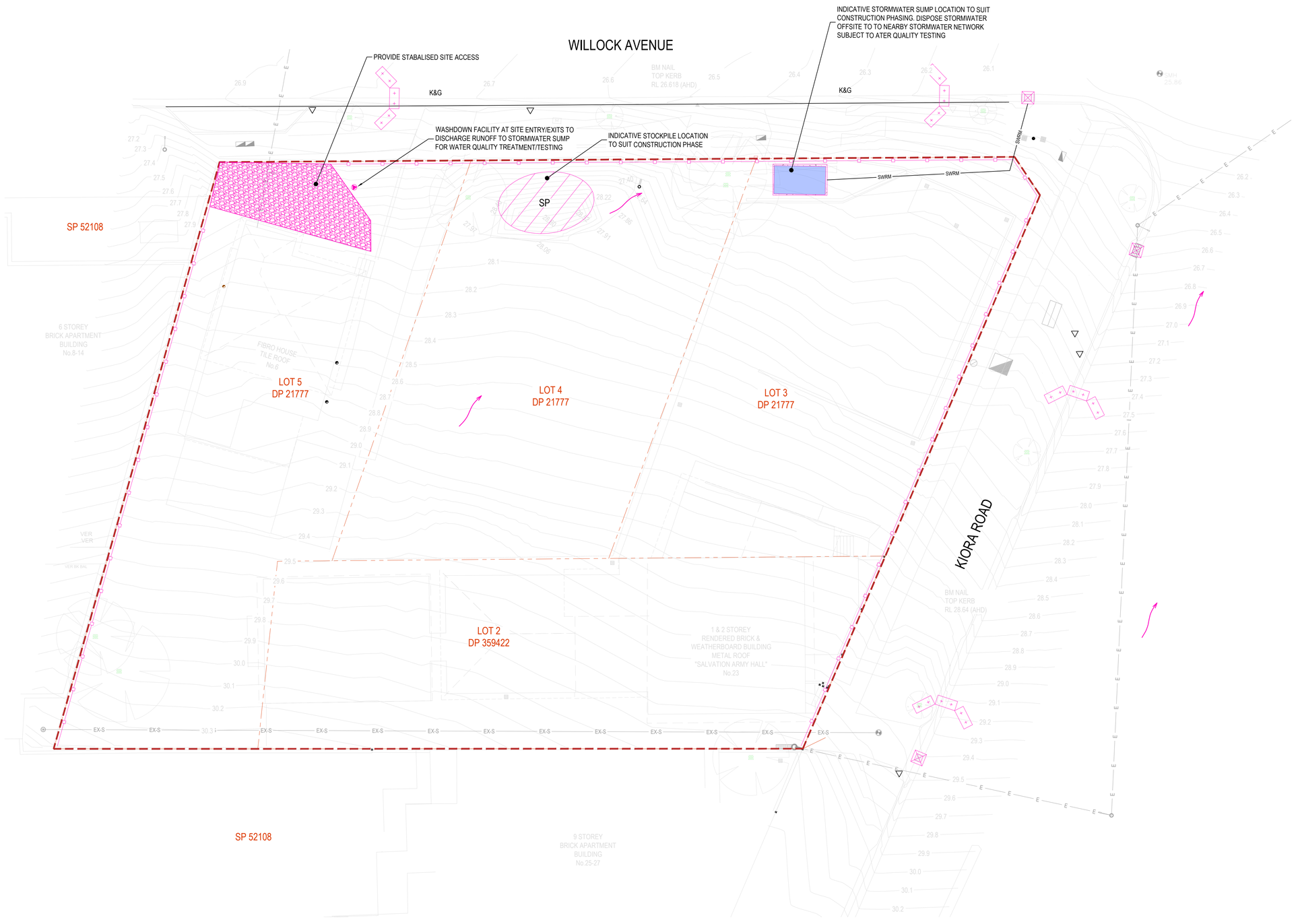
NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-0002.dwg PLOTTED BY: "faisal merchant" PLOT DATE & TIME: 9/13/2023 2:46 PM

LEGEND

- CONTOURS — 10.0 — 20.0
- STABILISED SITE ACCESS
- POSSIBLE STOCKPILE LOCATION — SP
- PROPERTY BOUNDARY
- SEDIMENT FENCE
- SANDBAG KERB INLET SEDIMENT TRAP
- MESH GRAVEL INLET FILTER
- STORMWATER RISING MAIN — SWRM
- OVERLAND FLOW ARROW
- WATERTAP & HOSE
- STORMWATER SUMP



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Services Consultant: Intrax PROJECTS, Suite 6.02, Level 6, 89 York Street, SYDNEY NSW 2000, Ph (02) 9262 3400, www.intrax.com.au, Intrax Consulting Group VIC | NSW | SA | QLD	Client: FORMUS, LEVEL 4/130 PITT STREET, SYDNEY NSW 2000	Architect: TURNER, LEVEL 7, ONE OXFORD STREET DARLINGHURST NSW 2010 AUSTRALIA	Issue	Date	Amendment	Int.	App.	SCALE: 0 1.5 3 6 9 12 15 REDUCTION RATIO 1:150 @ A1 & 1:300 @ A3	Keyplan:
			01	14/08/2023	ISSUED FOR COORDINATION	FD	AA		
			02	13/09/2023	DCP SETBACK UPDATED	FD	AA		

Project: 23 KIORA ROAD, MIRANDA, NSW 2228

Drawing Title: SEDIMENT AND EROSION CONTROL PLAN

North Point: N

ISO 9001:2015 Quality Management

Project No: NSW220032

Dwg No: C-1001

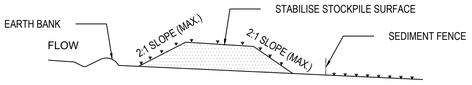
Issue: 02

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

CIVIL SERVICES

ORIGINAL SIZE A1

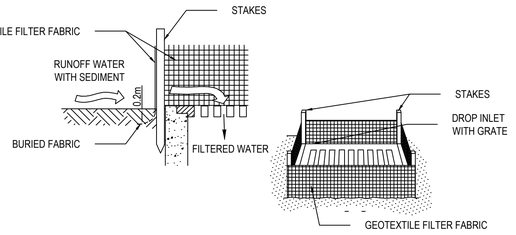
FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-1001.dwg PLOTTED BY: "faisal merchant" PLOT DATE & TIME: 9/13/2023 2:46 PM



STOCKPILE CONSTRUCTION NOTES:
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

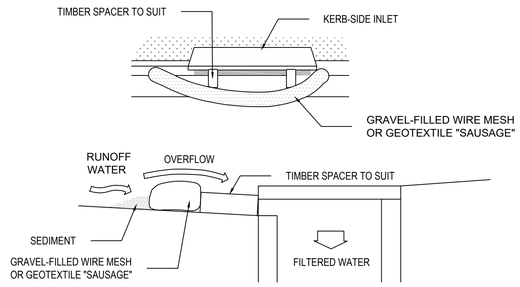
STOCKPILES DETAIL

SCALE: NTS



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

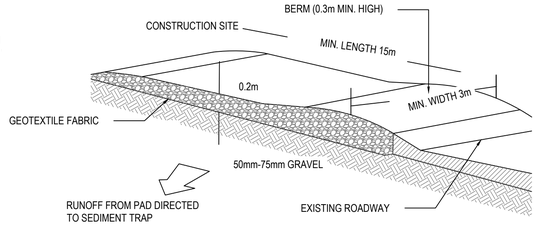
SCALE: NTS



MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:
1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET FILTER

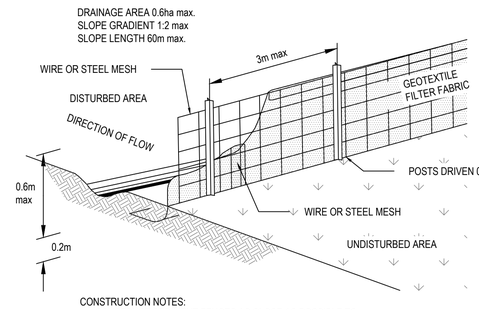
SCALE: NTS



CONSTRUCTION NOTES:
1. CONSTRUCT AT LEAST 150mm OF TOPSOIL, LEVEL AREA AND STOCKPILE ON SITE IF SPACE AVAILABLE.
2. COMPACT SUB-GRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT A 200mm THICK PAD OVER GEOTEXTILE USING AGGREGATE AT LEAST 40mm IN SIZE. MINIMUM LENGTH 15m OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3m.
5. CONSTRUCT DIVERSION HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OTHER SEDIMENT TRAP.

TEMPORARY CONSTRUCTION EXIT

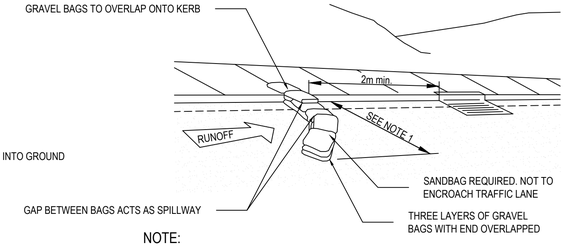
SCALE: NTS



CONSTRUCTION NOTES:
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO FOLLOW THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG POSTS INTO GROUND, MAXIMUM 3m APART.
3. STAPLE TO 40mm SQUARE HARDWOOD POSTS OR WIRE TIED TO STEEL POSTS.
4. DIG A 150mm DEEP TRENCH ALONG THE UP-SLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
5. BACKFILL TRENCH OVER BASE OF FABRIC AND COMPACT ON BOTH SIDES.

SEDIMENT FENCE

SCALE: NTS



NOTE:
1. 900mm WIDTH IS THE MAXIMUM WHERE TRAFFIC CONTROLS ARE ACTIVE. THE SAND BAGS SHOULD NOT PROTRUDE BEYOND THE CONCRETE GUTTER IF ABSENCE OF TRAFFIC CONTROL.

SANDBAG KERB INLET SEDIMENT TRAP

SCALE: NTS

NOTES:

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO C-0001.
2. REFER TO DRAWING C-1001 FOR EROSION & SEDIMENT CONTROL PLAN

EROSION AND SEDIMENT CONTROL

1. THE EROSION AND SEDIMENT CONTROL PLAN ADDRESSES THE MANAGEMENT OF ON SITE STORMWATER RUNOFF DURING CONSTRUCTION. IT DOES NOT ADDRESS BASEMENT EXCAVATION, GROUND WATER MANAGEMENT/ DEWATERING REQUIREMENTS. IT IS TO BE READ IN CONJUNCTION WITH ALL OTHER GEOTECHNICAL, RAP, ENVIRONMENTAL AND STRUCTURAL DOCUMENTATION.
2. THE PLAN IS CONCEPT ONLY. SITE CONDITIONS AND PHASING OF WORKS ARE LIKELY TO INFLUENCE CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AMENDING THE SCHEME TO SUIT CONDITIONS AT THE TIME OF WORKS AND CONSTRUCTION PROGRAM.
3. THE CONTRACTOR IS TO INFORM ALL BUILDERS AND SUBCONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO ROADWAYS AND WATERWAYS.
4. THE CONTRACTOR IS TO IMPLEMENT AN APPROPRIATE ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SPILL/ POLLUTION CONTAINMENT AND TREATMENT PROCEDURES. THE CONTRACTOR IS TO ENSURE THAT ANY SPILL/POLLUTION COLLECTED IN THE STORMWATER SUMP IS IMMEDIATELY TREATED.
5. WATER SHALL 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.
6. ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PROVIDED IN ACCORDANCE WITH THE LANDCOM SOIL AND CONSTRUCTION VOLUME1, MARCH 2004. ('BLUE BOOK') , SUTHERLAND SHIRE COUNCIL ENVIRONMENTAL SITE MANAGEMENT, GET THE SITE RIGHT, AND THE NSW PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997
7. STOCKPILE LOCATIONS TO BE DEPENDENT ON THE LOAD OUT LOCATION AND THE POINT OF EXCAVATION. STOCKPILE LOCATIONS TO BE MARKED ON THE SITE PLAN AT THE SITE OFFICE AS THE PROJECT PROGRESSES.
8. SHOULD ANY MATERIAL BE WASHED FROM EQUIPMENT, SUCH AS CONCRETE SLURRIES FROM CONCRETE TRUCKS, A WASHING/CLEANING AREA WITH APPROPRIATE SEDIMENT CONTROL MEASURES IS TO BE SETUP ON A FLAT AREA OF THE SITE.
9. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
   - RECORDS OF ALL RAINFALL (I.E. DAILY RAINFALL)
   - CONDITION OF SOIL AND WATER MANAGEMENT CONTROL MEASURES ANY ADDITIONAL REMEDIAL WORKS REQUIRED.

   THE LOG BOOK SHALL BE MAINTAINED ON A WEEKLY BASIS AND BE MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. THE ORIGINAL LOG BOOK SHALL BE ISSUED TO THE PROJECT MANAGER AT THE COMPLETION OF THE WORKS.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS TO THE SATISFACTION OF THE SUPERINTENDENT.
11. CONTROL MEASURES AFFECTED BY WORKS ARE TO BE RE-ESTABLISHED PRIOR TO THE COMPLETION OF EACH DAYS WORK.
12. ALL CONTROL MEASURES ARE TO BE CLEANED AND MAINTAINED AT LEAST WEEKLY OR AFTER EVERY RAINFALL EVENT.
13. FOLLOWING THE COMPLETION AND RESTORATION OF SITE, THE CONTRACTOR IS TO REMOVE ALL CONTROL MEASURES.
14. PERMANENT DRAINAGE STRUCTURES INCLUDING PIPES AND PITS ARE TO BE HANDED OVER IN A CLEAN CONDITION AT THE COMPLETION OF THE CONTRACT MAINTENANCE PERIOD.
15. PRIOR TO DISCHARGING COLLECTED WATER TO INCLUDING THOSE IDENTIFIED IN THE RAP, IT IS TO BE TESTED TO ENSURE COMPLIANCE WITH WATER QUALITY REQUIREMENTS. SHOULD TESTING GIVE RESULTS THAT DO NOT COMPLY WITH THE ABOVE, TREATMENT MEASURES (SUCH AS THE APPLICATION OF A pH NEUTRAL FLOCCULENT) AND SUBSEQUENT RETESTING ARE REQUIRED. DOCUMENTARY RESULTS OF WATER QUALITY TESTING PRIOR TO DEWATERING ARE TO BE KEPT. A FILE IS TO BE KEPT ONSITE OF ALL WATER TESTING/DEWATERING EVENTS. FOLLOWING DEWATERING THE SUMP IS TO BE CLEARED OF SEDIMENT AND THE GEOTEXTILE ON THE PUMP WELL IS TO BE REPLACED.
16. ALL STORMWATER PITS TO BE COVERED OR DROP INLET SEDIMENT TRAPS SHALL BE PROVIDED. KERB INLET TRAPS ARE TO BE INSTALLED AFTER COMPLETION OF PAVING.
17. ALL SERVICE TRENCHES MUST BE FILLED IN AND COMPACTED IMMEDIATELY AFTER SERVICES HAVE BEEN LAID.
18. ROADS AND FOOTPATHS AFFECTED BY THE WORKS MUST BE SWEPT CLEAN DAILY. SOILS MUST BE RETAINED BEHIND CONTROL DEVICES.
19. CONTRACTOR MUST ENSURE THAT ALL VEHICLES LEAVING SITE ARE HOSED DOWN (OR SIMILAR) TO REMOVE SEDIMENT.
20. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. TIE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
21. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
22. NO PARKING OR STOCKPILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
23. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
24. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXISTING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

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DARLINGHURST NSW 2010 AUSTRALIA

CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
SEDIMENT AND EROSION CONTROL DETAILS AND NOTES

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-1011

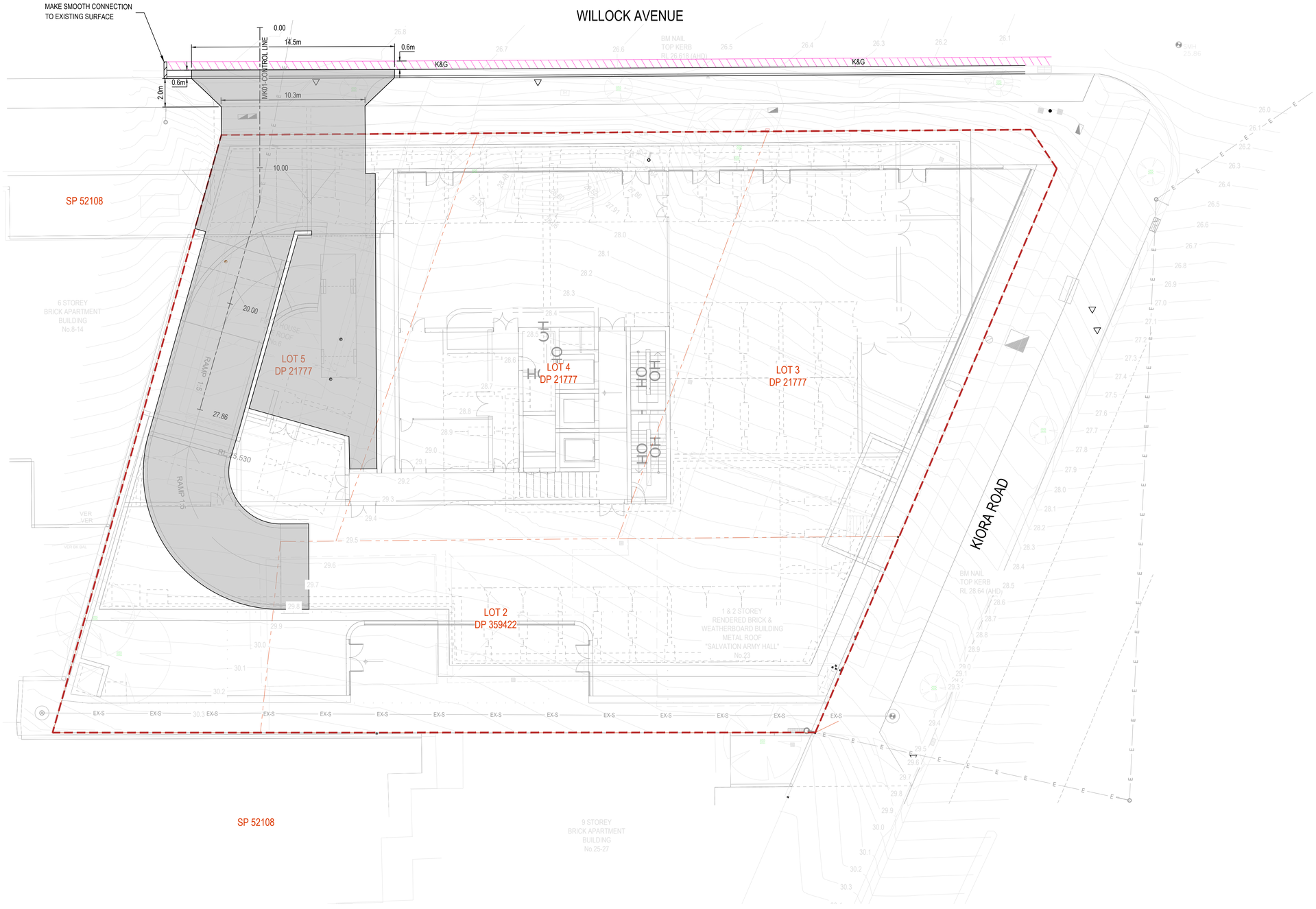
Issue: 02

ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-1011.dwg PLOTTED BY: 'faisal merchant' PLOT DATE & TIME: 9/13/2023 2:46 PM

LEGEND

	EXISTING	PROPOSED
ROAD TYPE WITH CONTROL LINE, NAME & CHAINAGE	ROAD CH #	ROAD CH #
KERB & GUTTER OR ROLL KERB TO COUNCIL SPECIFICATIONS	K&G RK	K&G RK
GRANITE KERB ONLY TO COUNCIL SPECIFICATION	KO	KO
DRIVEWAY		
LANDSCAPING		
PAVEMENT RESTORATION		
CONTOUR LINE AND LABEL	20.0	20.0
FOOTPATH TO COUNCIL SPECIFICATIONS		



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CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE: 0 1.5 3 6 9 12 15
REDUCTION RATIO 1:150 @ A1 & 1:300 @ A3

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
CIVIL WORKS PLAN

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-3001

Issue: 02

ORIGINAL SIZE: A1

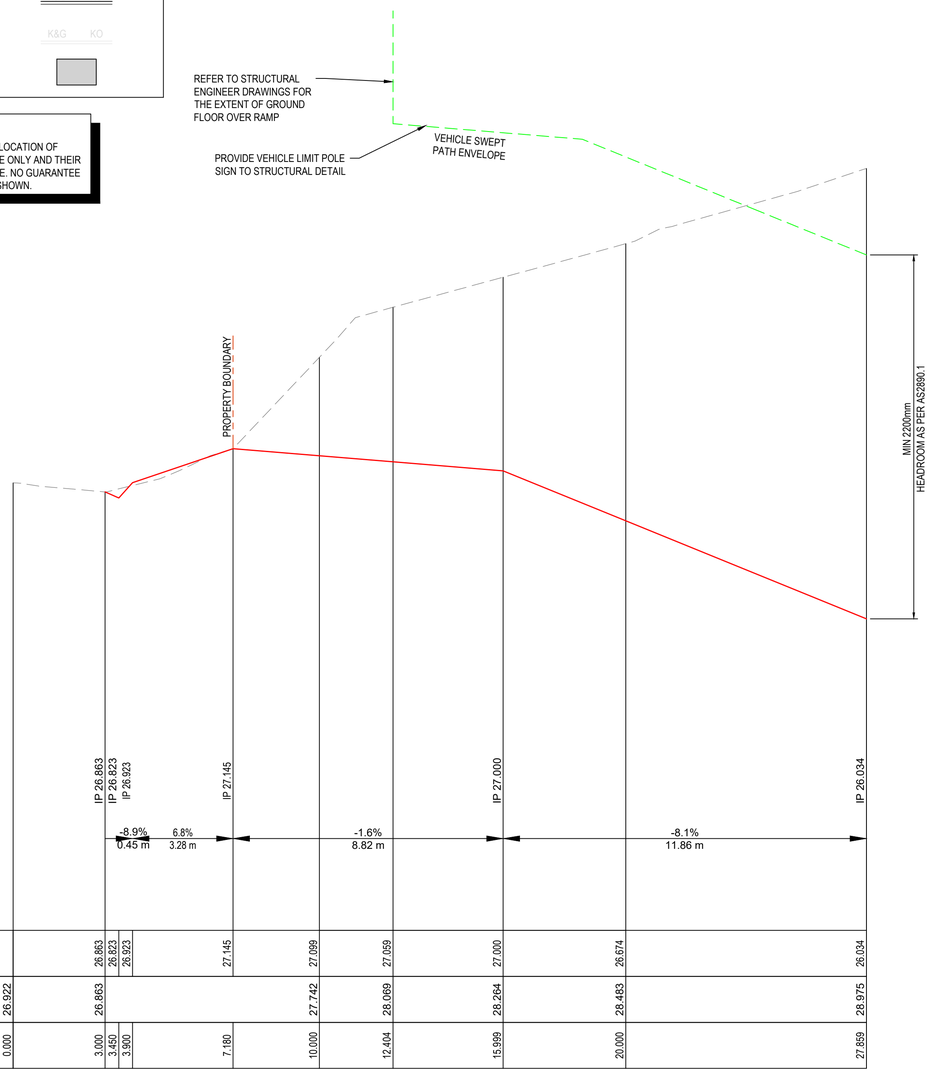
FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-3001.dwg PLOTTED BY: "faisal merchant" PLOT DATE & TIME: 9/13/2023 2:46 PM

LEGEND

CONTOURS	10.0 — 20.0
ROAD TYPE WITH CONTROL LINE, NAME & CHAINAGE	CH # ROAD
KERB & GUTTER OR KERB ONLY TO COUNCIL SPECIFICATIONS	K&G KO
EXISTING KERB & GUTTER OR KERB ONLY	K&G KO
DRIVEWAY	

WARNING

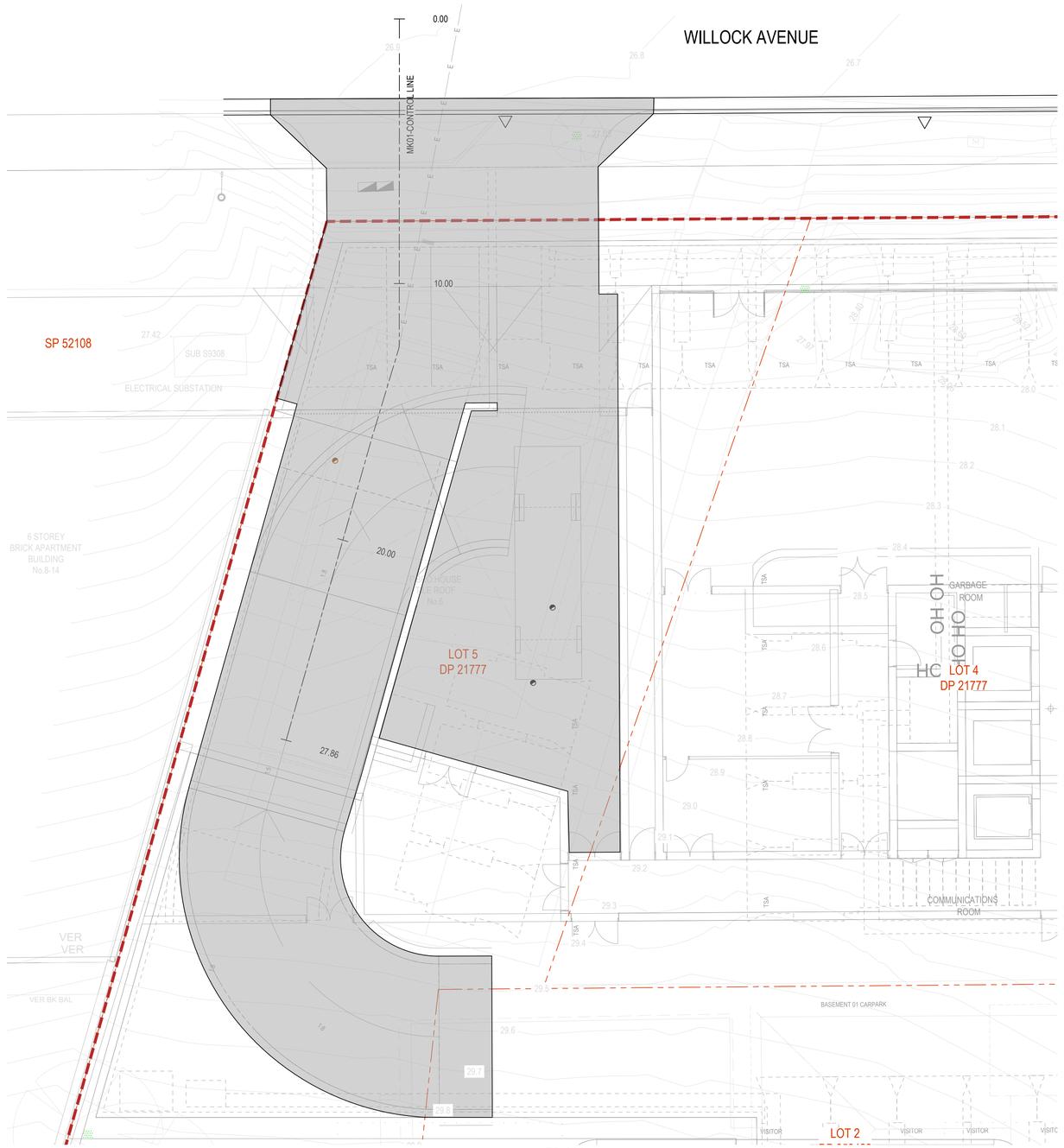
BEWARE OF UNDERGROUND SERVICES. THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.



HORIZ. GEOMETRY									
VERTICAL CURVE			IP 26.863	IP 26.823 IP 26.923	IP 27.145		IP 27.000		IP 26.034
VERTICAL GRADE (%)				-8.9% 0.45 m / 6.8% 3.28 m		-1.6% 8.82 m		-8.1% 11.86 m	
DATUM RL 24.00									
DESIGN LEVEL			26.863	26.823 26.923	27.145	27.099	27.059	27.000	26.674	26.034
EXISTING LEVEL	26.922		26.863			27.742	28.069	28.264	28.483	28.975
CHAINAGE	0.000		3.000	3.450 3.900	7.180	10.000	12.404	15.999	20.000	27.859

CONTROL - LINE MK01
LONGITUDINAL SECTION

SCALE - H 1:100
V 1:20



PLAN

SCALE: 1:100

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CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:
0 1 2 4 6 8 10
REDUCTION RATIO 1:100 @ A1 & 1:200 @ A3
0 0.2 0.4 0.8 1.2 1.6 2.0
REDUCTION RATIO 1:20 @ A1 & 1:40 @ A3

Keyplan:

Project: 23 KIORA ROAD, MIRANDA, NSW 2228

Drawing Title: DRIVEWAY PLAN AND LONGITUDINAL SECTION

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

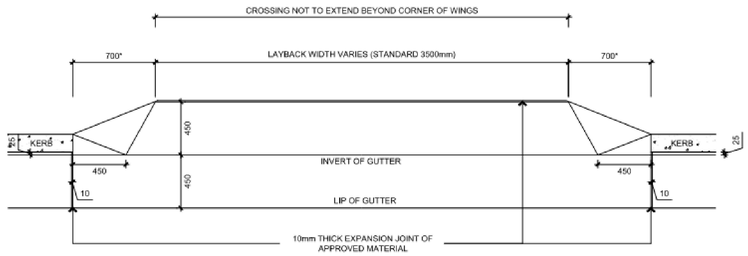
NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-3111

Issue: 02

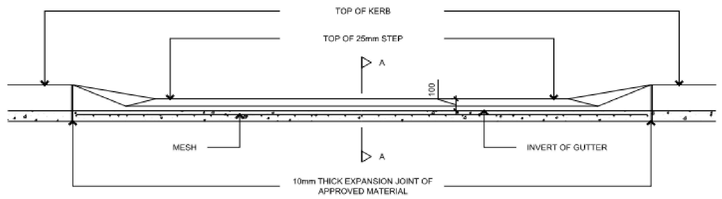
ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-3111.dwg PLOTTED BY: 'faisal merchant' PLOT DATE & TIME: 9/13/2023 2:46 PM

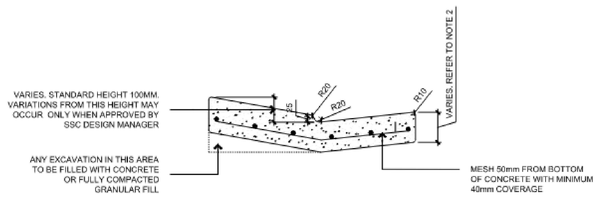


PLAN SCALE NTS

LAYBACK WING LENGTH		
** Where footpath may be constructed immediately behind kerb.*		
LAYBACK HEIGHT	WING LENGTH, 150mm HIGH KERB	WING LENGTH, 200mm HIGH KERB
100	700	1200
80	900	1400
60	1100	1600
40	1300	1800



SECTION ALONG GUTTER INVERT SCALE 1:20



SECTION A-A SCALE 1:10

NOTES

1. **LAYBACK HEIGHT:**
   - STANDARD HEIGHT IS 100mm. VARIATIONS FROM THIS HEIGHT OCCUR ONLY WHEN INDICATED ON CONSTRUCTION DRAWINGS.
2. **MINIMUM LAYBACK THICKNESS:**
   - SINGLE RESIDENTIAL DWELLING - 150mm THICK, 32MPa CONCRETE AND SL82 MESH.
   - MEDIUM DENSITY/UNITS/COMMERCIAL - 150mm THICK,32MPa CONCRETE AND SL82 MESH.
   - INDUSTRIAL - 200mm THICK, 32MPa CONCRETE AND SL82 MESH.
3. **MINIMUM CROSSING THICKNESS:**
   - SINGLE RESIDENTIAL DWELLING - 100mm THICK, 32MPa CONCRETE AND SL72 MESH ON 50mm THICK SAND. SEE NOTE 4 FOR VARIATIONS.
   - MEDIUM DENSITY/UNITS/COMMERCIAL - 150mm THICK, 32MPa CONCRETE AND SL82 MESH ON 50mm THICK SAND

   INDUSTRIAL - 200mm THICK, 32MPa CONCRETE AND SL82 MESH TOP AND BOTTOM ON 50mm THICK SAND.
4. ALL CONCRETE WORKS WITHIN ONE KILOMETRE OF THE COASTLINE ARE TO BE 40Mpa WITH A 65mm BOTTOM COVER, 45mm TOP COVER AND MINIMUM THICKNESS OF 120mm
5. DETAILS ARE FOR KERB AND GUTTER POURED BY HAND OR WHERE SPECIFIED ON DRAWING.
6. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING SSC-05-03 AND SSC-05-04.

1 STANDARD LAYBACK, 150mm HIGH KERB AND GUTTER
Typical Details - Scale As Shown

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01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
ROAD STANDARD DETAIL AND TYPICAL SECTIONS

North Point:

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-3811

Issue: 02

ISO 9001:2015 Quality Management

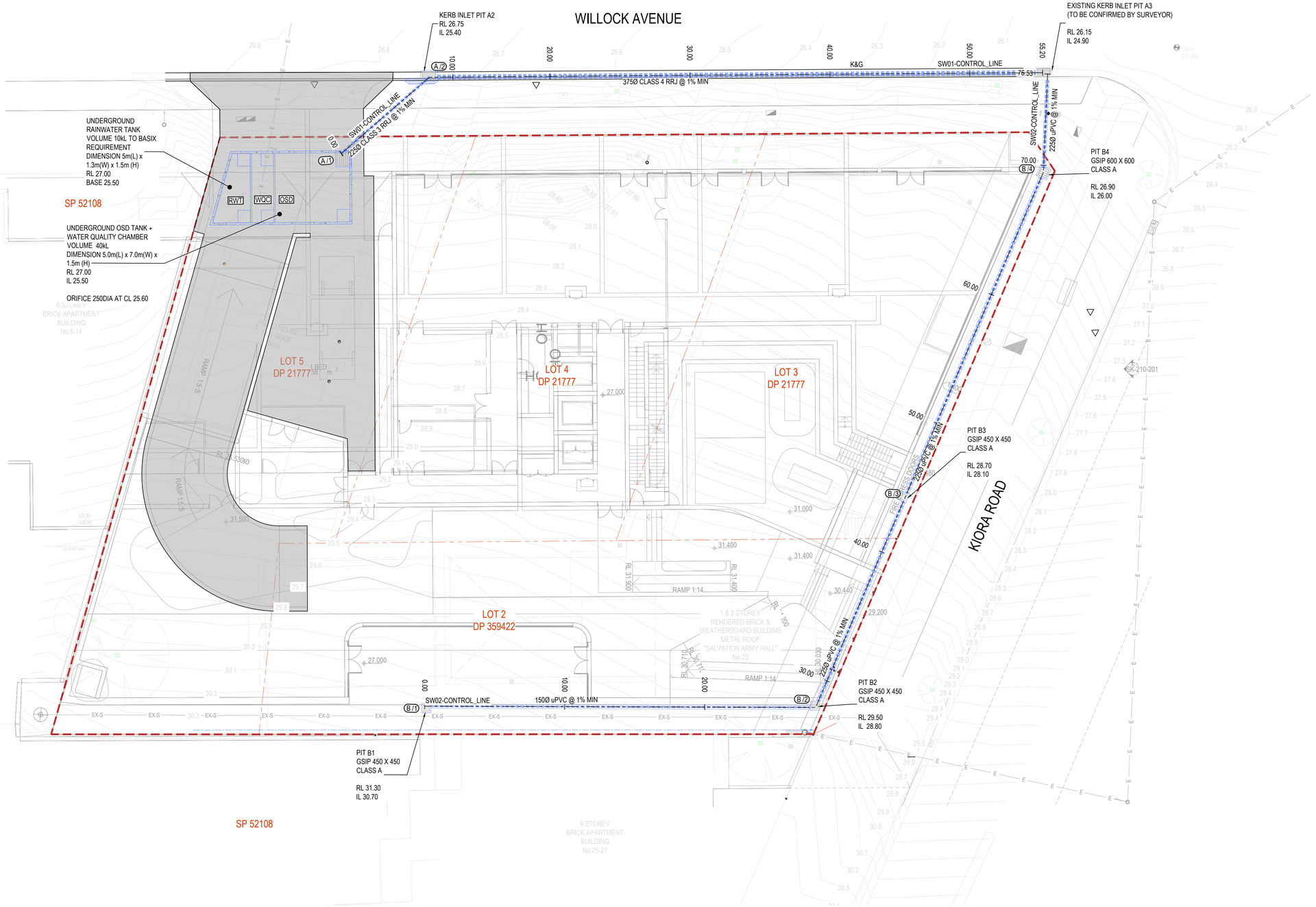
CIVIL SERVICES

ORIGINAL SIZE: A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-3811.dwg PLOTTED BY: 'faisal merchant' PLOT DATE & TIME: 9/13/2023 2:46 PM

LEGEND

CONTOURS	10.0 — 20.0
PROPOSED OVERLAND FLOW PATH	
PROPOSED DRAINAGE PIPE & STRUCTURE	
PROPOSED RAIN WATER TANK	
PROPOSED RETAINING WALL	RW
OVERLAND FLOW ARROW	
PROPOSED TRENCH GRATE	



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			01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
			02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE: 0 1.5 3 6 9 12 15
REDUCTION RATIO 1:150 @ A1 & 1:300 @ A3

Keyplan:

Project: 23 KIORA ROAD, MIRANDA, NSW 2228

Drawing Title: STORMWATER MANAGEMENT PLAN

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-4001

Issue: 02

ORIGINAL SIZE: A1

CIVIL SERVICES

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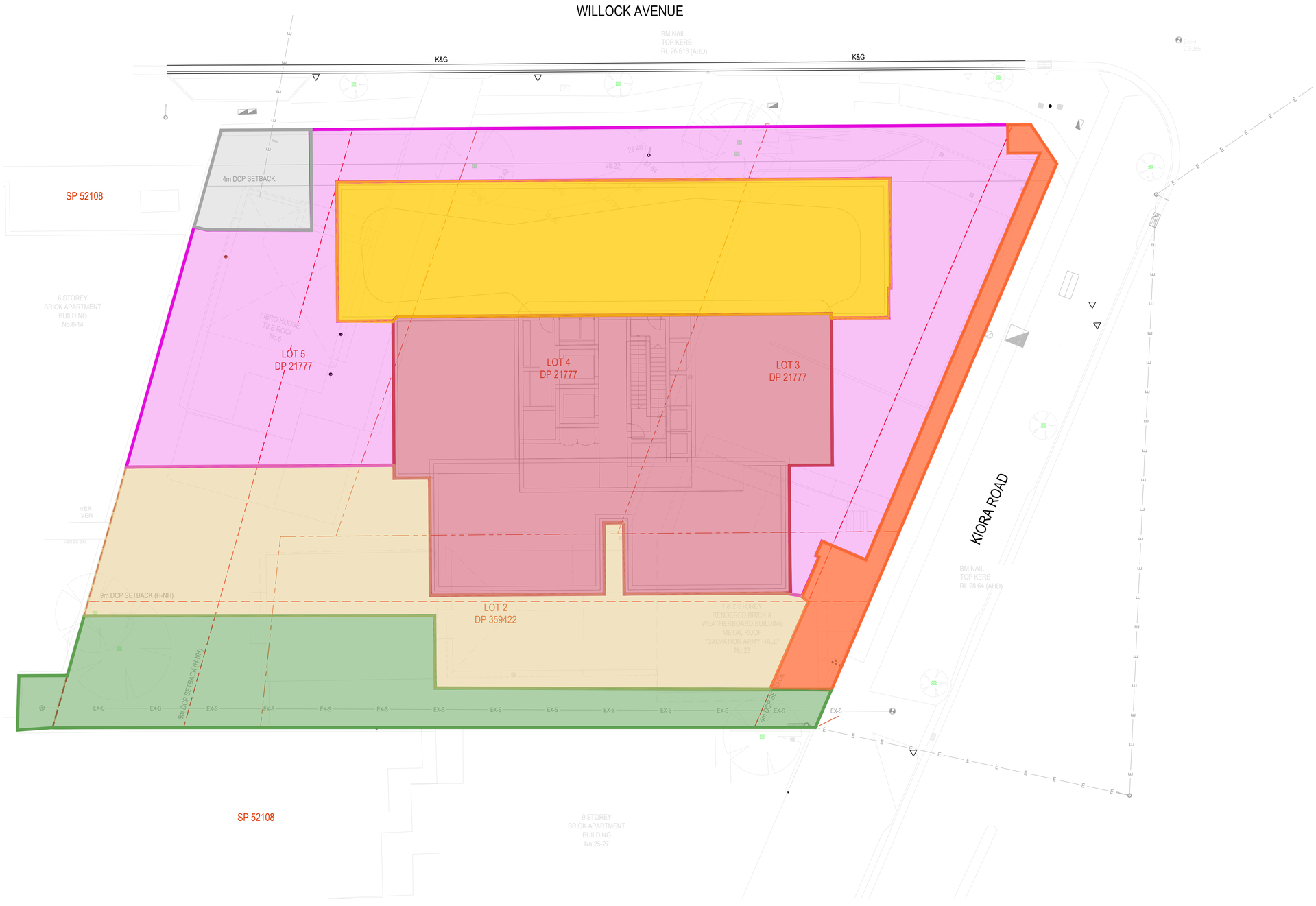
LEGEND

ROOF CATCHMENT TO RAINWATER TANK	567m²
L1 COMMUNICAL COURTYARD CATCHMENT TO WATER QUALITY CHAMBER	424m²
ROOF TO WATER QUALITY CHAMBER	383m²
DRIVEWAY TO WATER QUALITY CHAMBER	53m²
TERRACE TO WATER QUALITY CHAMBER	657m²
FOOTPATH CATCHMENT AS BYPASS	93m²
COURTYARD CATCHMENT TO WATER QUALITY CHAMBER	298m²

TOTAL SITE AREA = 2475m²



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CIVIL SERVICES

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02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE: 0 1.5 3 6 9 12 15
REDUCTION RATIO 1:150 @ A1 & 1:300 @ A3

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
STORMWATER CATCHMENT PLAN

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-4101

Issue: 02

ORIGINAL SIZE: A1

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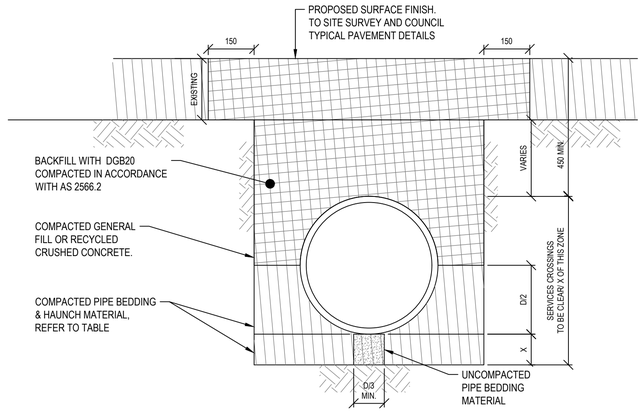

GRANULAR BACKFILL TYPICAL SECTION

SCALE: 1:10

D	X (mm)
≤ 1500	100 MIN
> 1500	150 MIN

D	Y (mm)
≤ 900	150
> 900	D/6

SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 - 50
2.36	100 - 30
0.60	50 - 15
0.075	25 - 0

GRADING LIMITS FOR PIPE BEDDING HAUNCH MATERIAL

TYPE	MIN. STD COMPACTION
COHESIVE	50% *1
COHESIONLESS	80% *2

*1 IN ACCORDANCE WITH AS3725-2007

PIPE BEDDING & HAUNCH MATERIAL COMPACTION REQUIREMENTS

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Issue	Date	Amendment	Int.	App.
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02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE: 0 0.1 0.2 0.4 0.6 0.8 1.0
REDUCTION RATIO 1:10 @ A1 & 1:20 @ A3

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
STORMWATER MANAGEMENT
DETAILS SHEET 01 OF 02

North Point:

Project No: NSW220032

Dwg No: C-4301

Issue: 02

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

CIVIL SERVICES

ISO 9001:2015 Quality Management

ORIGINAL SIZE: A1

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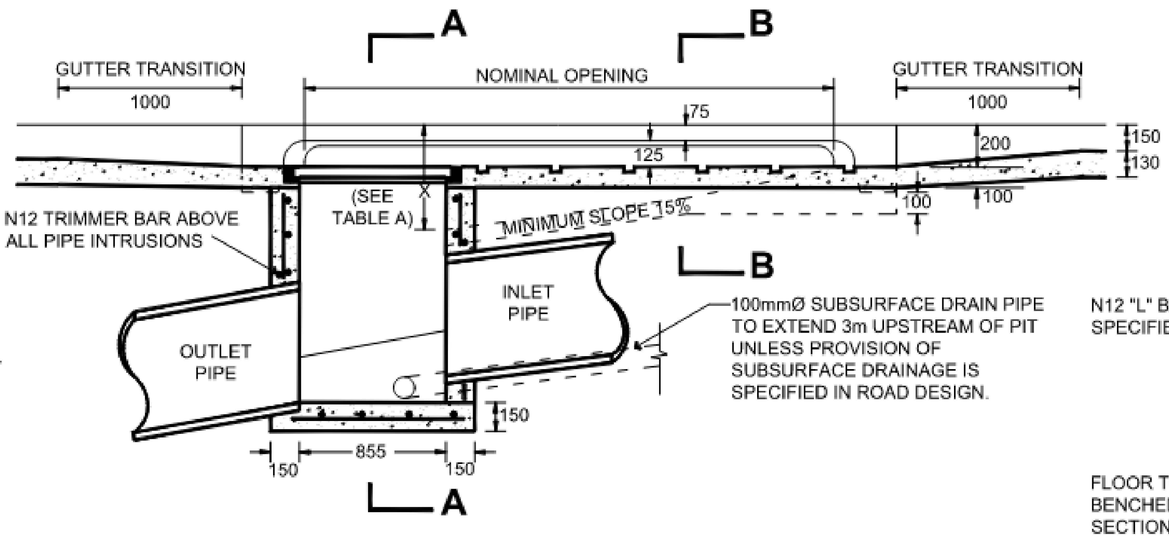
TABLE A

LINTEL ON ONE SIDE OF PIT

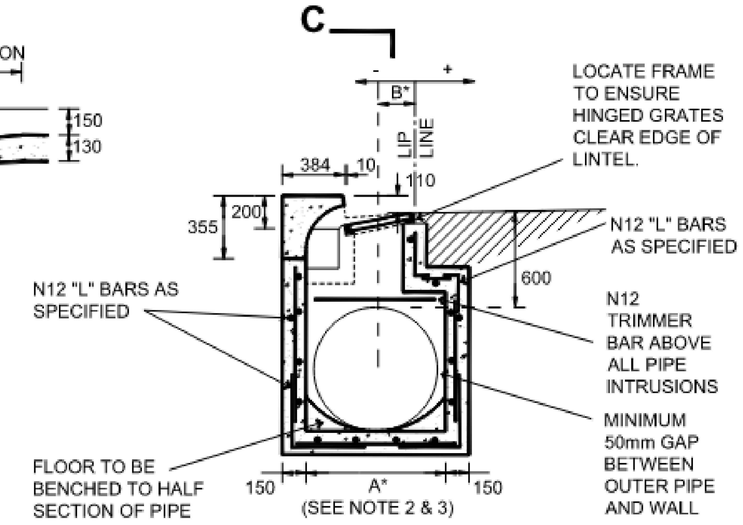
NOMINAL OPENING	X (MIN)
1.8	350
2.4	440
3.0	535

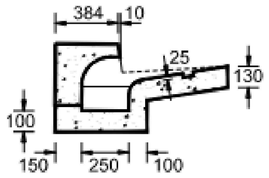
LINTEL SYMMETRICAL ABOUT SAG PIT

NOMINAL OPENING	X (MIN)
1.8	270
2.4	315
3.0	360



SECTIONAL ELEVATION C - C





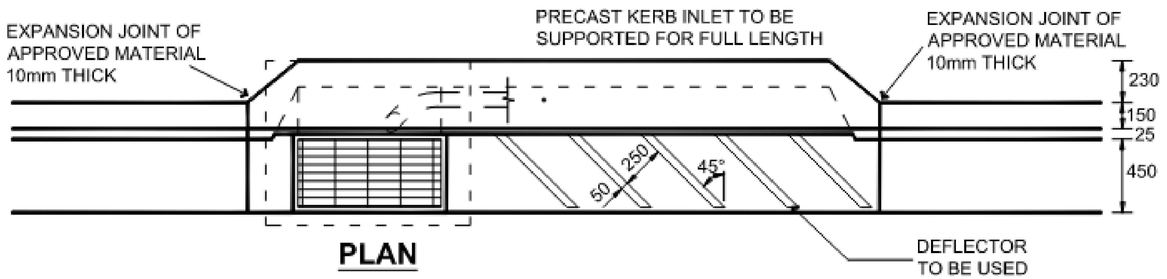
SECTION B - B

SECTION A - A

PIPE DIA.	A*	B*
675	889	-250
750	970	-209
825	1046	-171
900	1143	-123
1050	1294	- 47
1200	1465	39
1350	1624	118
1500	1789	201
1650	1954	283
1800	2119	366

A*: ASSUMES 50mm GAP BETWEEN OUTER EDGE OF PIPE AND WALL ON EITHER SIDE OF PIPE.

B*: NEGATIVE VALUES DEMONSTRATE PIPE CENTRELINE TO THE LEFT OF THE LIP LINE, AND POSITIVE VALUES DEMONSTRATE PIPE CENTRELINE TO THE RIGHT OF THE LIP LINE.



PLAN

NOTE: PITS UP TO 1m DEEP MAY HAVE 200mm MINIMUM WALL THICKNESS WITH NO REINFORCEMENT.

1 STANDARD GULLY PIT WITH LINTEL UP TO 1.8m DEEP

Detail - Scale NTS

ISSUED FOR CONCEPT DESIGN
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Services Consultant: Intrax PROJECTS
Suite 6.02, Level 6, 89 York Street, SYDNEY NSW 2000
Ph (02) 9262 3400
www.intrax.com.au
Intrax Consulting Group
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Client: FORMUS
LEVEL 4/130 PIT STREET, SYDNEY NSW 2000

Architect: TURNER
LEVEL 7, ONE OXFORD STREET
DARLINGHURST NSW 2010 AUSTRALIA

CIVIL SERVICES

Issue	Date	Amendment	Int.	App.
01	14/08/2023	ISSUED FOR COORDINATION	FD	AA
02	13/09/2023	DCP SETBACK UPDATED	FD	AA

SCALE:

Keyplan:

Project: 23 KIORA ROAD, MIRANDA, NSW 2228

Drawing Title: STORMWATER MANAGEMENT DETAILS SHEET 02 OF 02

North Point:

ISO 9001:2015 Quality Management

Project No: NSW220032

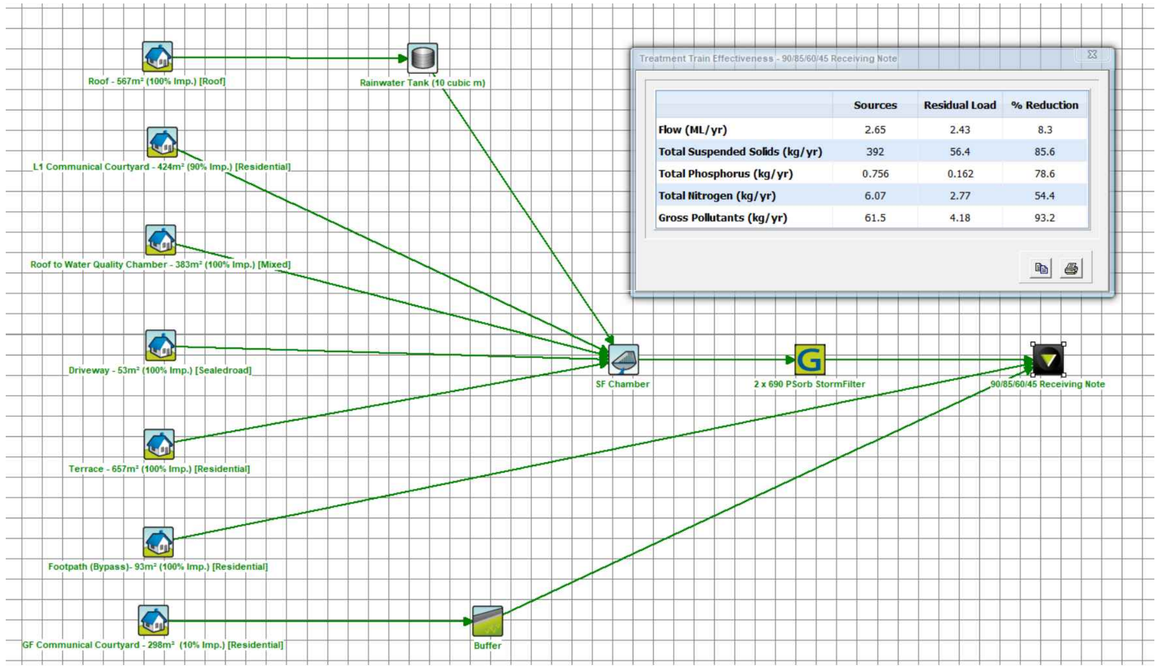
NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-4302

Issue: 02

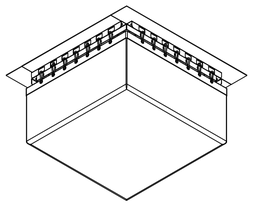
ORIGINAL SIZE A1

FILE NAME & PATH: \\INT-SYD-SVR\CompanyData\Synergy\Projects\NSW22\NSW220032 23 Kiora Road Miranda\Drawings\Current Drawings\Civil\Sheets\NSW220032-C-4302.dwg PLOTTED BY: "faisal merchant" PLOT DATE & TIME: 9/13/2023 2:46 PM



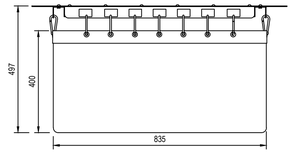
MUSIC MODEL

PLAN VIEW
SCALE: NTS

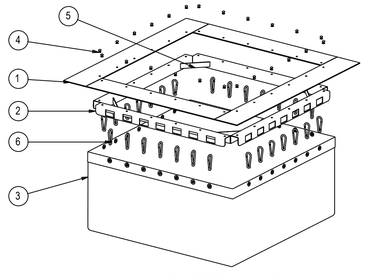


ISOMETRIC VIEW
BOTTOM
SCALE: NTS

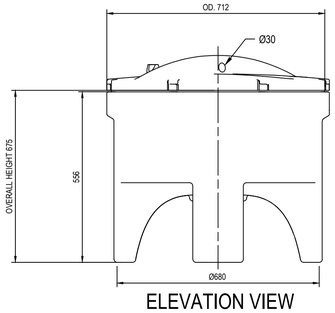
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	PLASTIC SHEETING	HDPE
2	4	SHEET METAL BENDING	STAINLESS STEEL 304
3	1	TEXTILE FABRIC & MESH LINER	HDPE
4	24	BLIND RIVET 7 DIA.	STAINLESS STEEL 304
5	4	CORNER STIFFENER - FLAT BAR 25 x 2 - 141 LG	STAINLESS STEEL 304
6	28	CARABINER CLIP 6	ALUMINIUM



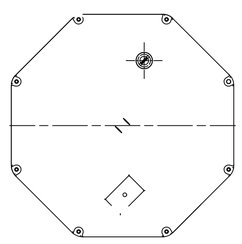
ELEVATION VIEW
SCALE: NTS



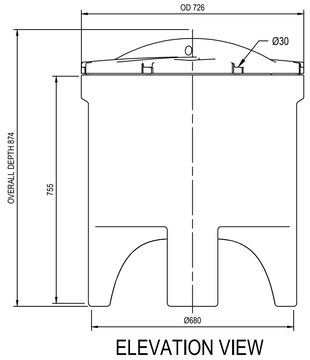
ISOMETRIC VIEW
EXPLOSION
SCALE: NTS



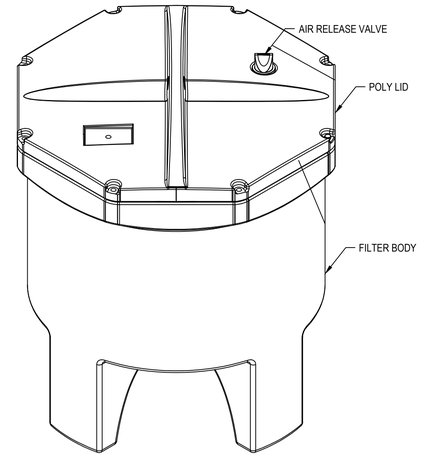
ELEVATION VIEW
SCALE: NTS



PLAN VIEW
SCALE: NTS



ELEVATION VIEW
SCALE: NTS



ISOMETRIC VIEW
SCALE: NTS

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SCALE:

Keyplan:

Project:
23 KIORA ROAD,
MIRANDA, NSW 2228

Drawing Title:
MUSIC MODEL
AND WATER QUALITY DETAILS

North Point:

Project No: NSW220032

NOTE: SYMBOLS ARE DRAWN IN THE CORRECT POSITION BUT ARE NOT SHOWN TO SCALE.

Dwg No: C-4501

Issue: 02

ISO 9001:2015 Quality Management

CIVIL SERVICES

ORIGINAL SIZE: A1

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