

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL STANDARDS.
2. NORTHERN BEACHES COUNCIL STANDARDS DETAILS TO BE USED WHERE POSSIBLE.
3. UTILITY ADJUSTMENTS AT DEVELOPERS EXPENSE.
4. CONDUITS TO BE PLACED WHERE REQUIRED BY THE RELEVANT AUTHORITIES.

1. ORIGIN OF SURVEY

PROJECT:	53A WARRIEWOOD ROAD	DATE: 02/01/2021
CARRIED OUT BY:	COLLIERS	
SURVEY NAME:	434-20C T01 [02]	
REFERENCE NO:	434-20	
SSM/PM:	SSM 24840	
E:	342191.825	
N:	36271409.780	
RL:	13.902	
2. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN SUPPLIED BY REGISTERED SURVEYORS TO PROVIDE A BASIS FOR DESIGN. THE USE OF THIS SURVEY BASE DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
3. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE SUPERINTENDENT.
4. THE RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES ARE DIAGRAMMATIC ONLY. WHERE DISTANCES TO BOUNDARIES ARE CRITICAL THEY SHOULD BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION BY FURTHER SURVEY.



GENERAL INSTRUCTIONS

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, NSW OFFICE OF WATER, OFFICE OF ENVIRONMENT AND HERITAGE. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.
2. THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED TO SUIT CONSTRUCTION STAGING AND WORK PRACTICES OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT.
ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
a. LOCAL AUTHORITY REQUIREMENTS
b. EPA REQUIREMENTS
c. LANDCOM MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

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

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

9. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSTREAM WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
11. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE. I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH SECTION 4 OF AS4970 'PROTECTION OF TREES ON DEVELOPMENT SITES' AND COUNCIL CONSENT CONDITIONS.

AT THE COMMENCEMENT OF THE CUT AND FILLING OPERATIONS FOR BULK EARTHWORKS A GEOTECHNICAL ENGINEER IS TO VISIT THE SITE & CONFIRM THE SUITABILITY OF THE METHODOLOGY OF ACHIEVING THE REQUIRED BUILDING PLATFORMS AND COMPACTION REQUIREMENTS. SUBSEQUENTLY, THE HEAD CONTRACTOR IS TO CONFIRM, IN WRITING TO THE SUPERINTENDENT THAT THE METHODOLOGY APPROVED AT THE TIME OF THE GEOTECHNICAL ENGINEERS VISIT WAS MAINTAINED DURING ALL THE BULK EARTHWORKS PROCESS.

2. STRIP TOPSOIL, ORGANIC MATTER AND RUBBLE FROM CONSTRUCTION AREA TO EXPOSE NATURALLY OCCURRING MATERIAL AND STOCKPILE ON SITE AS DIRECTED BY THE SUPERINTENDENT.

3. WHERE FILLING, STRUCTURAL SLABS OR PAVEMENTS ARE REQUIRED, PROOF ROLL THE EXPOSED NATURAL SURFACE WITH A MINIMUM OF TEN PASSES OF A SMOOTH DRUM NON-VIBRATING ROLLER (MINIMUM STATIC WEIGHT OF 10 TONNES) TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER) IN THE PRESENCE OF THE SUPERINTENDENT. THE CONTRACTOR IS TO ALLOW TO REMOVE AND REPLACE A PROVISIONAL QUANTITY OF UNSUITABLE SUBGRADE MATTER.

4. ALL SOFT, WET OR UNSUITABLE MATERIAL IS TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS LISTED BELOW.

5. EXCAVATED MATERIAL IS NOT TO BE USED AS STRUCTURAL FILL UNLESS APPROVED BY THE GEOTECHNICAL ENGINEER.

6. THE CONTRACTOR IS TO PROVIDE CERTIFICATES VERIFYING THE QUALITY OF IMPORTED MATERIAL FOR THE SUPERINTENDENTS APPROVAL.

7. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM LAYER THICKNESS TO COUNCIL SPECIFICATIONS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR -2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289 E3.1 OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 E5.1.1.1:

LOCATION	COMPACTION REQUIREMENT
UNDER BUILDING SLABS	95% SMD
LANDSCAPED AREAS	98% SMD
ROADS & PAVED AREAS	100% SMD

8. FOR NON COHESIVE MATERIAL, COMPACT TO NOT LESS THAN

UNDER ROAD	80% DENSITY
OTHER AREA	75% DENSITY

9. THE CONTRACTOR IS TO ALLOW FOR COMPACTION TESTING BY NATA REGISTERED LABORATORY FOR PLATFORMS AND FILL LAYERS IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 - FOR TYPE 1 OPERATIONS (MINIMUM 3 TESTS PER LAYER).

10. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN:

- 1 TEST PER 200m³ OF FILL PLACED PER LAYER OF FILL.
- 3 TESTS PER VISIT
- 1 TEST PER 1000m³ OF EXPOSED SUBGRADE

11. TESTING SHALL BE "LEVEL 1" UNDERTAKEN IN ACCORDANCE WITH AS3798.

12. WHERE TEST RESULTS ARE BELOW THE SPECIFIED COMPACTION, RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION STANDARD IS ACHIEVED.

13. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND U.N.O. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXCAVATION IN WET OR HARD GROUND.

14. WHERE THERE IS INSUFFICIENT EXCAVATED MATERIAL SUITABLE FOR FILLING OR SUBGRADE REPLACEMENT, THE CONTRACTOR IS TO ALLOW TO IMPORT FILL. IMPORTED FILL SHALL COMPLY WITH THE FOLLOWING:

- MAXIMUM SIZE 50mm. PASSING 75% SIEVE (S<25%).
- PLASTICITY INDEX BETWEEN 2-16% AND CBR=8.
- FREE FROM ORGANIC AND PERISHABLE MATTER.

15. THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED AT THEIR COST.

16. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE AND MAINTAIN THE INTEGRITY OF ALL SERVICES, CONDUITS AND PIPES DURING CONSTRUCTION. SPECIFICALLY DURING THE BACKFILLING AND COMPACTION PROCEDURE, ANY AND ALL DAMAGE TO NEW OR EXISTING SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXTRA COST.

17. PROTECT FINAL SURFACE WITH EITHER A TEMPORARY LOOSE SOIL LAYER OR A GRANULAR SUB-BASE LAYER TO PREVENT DRYING OUT PRIOR TO ON-GROUND SLAB CONSTRUCTION.

1. ALL WORKS TO BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS, SPECIFICATIONS AND AUSTRALIAN STANDARDS. CONFLICTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT.
3. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES DURING CONSTRUCTION IN ACCORDANCE WITH TNSW AND LOCAL AUTHORITY REGULATIONS AND REQUIREMENTS.
4. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED.
5. RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION ON COMPLETION OF WORKS.
6. ON COMPLETION OF ANY TRENCHING WORKS, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL, GRASSED AREAS AND ROAD PAVEMENTS.
7. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO LODGMENT OF TENDER AND ON SITE WORKS. THE PRICE AS TENDERED SHALL BE INCLUSIVE OF ALL WORKS SHOWN ON THE TENDER PROJECT DRAWINGS. ADDITIONAL PAYMENTS FOR WORKS SHOWN ON THE TENDER PROJECT DRAWINGS WILL NOT BE APPROVED.
9. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND SPECIFICATIONS, AND ANY OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT OF THE SUBJECT SITE.
10. THESE PLANS SHALL BE READ IN CONJUNCTION WITH ALL APPROVED DRAWINGS AND SPECIFICATIONS PREPARED BY OTHER PROJECT CONSULTANTS.
11. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL LEVELS ARE IN METRES (m). UNO. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
12. IN CASE OF DOUBT OR DISCREPANCY REFER TO THE SUPERINTENDENT FOR CLARIFICATION OR CONFIRMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. OTHERWISE THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REMEDIATION WORKS.
13. WHERE NEW WORKS ABOUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
14. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING TRAFFIC CONTROL.
15. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO ALL BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.
16. WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.
17. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.
18. ALL VARIATIONS TO SPECIFIED PRODUCTS OR DESIGNS SHALL BE REFERRED TO THE DESIGN ENGINEER IN WRITING FOR APPROVAL.
19. EPA AND COUNCIL REQUIREMENTS MUST BE ADHERED TO REGARDING THE LEVEL OF NOISE AND WORKING HOURS, TO ENSURE THAT RESIDENTS AND OTHER APPLICABLE NEIGHBOURS TO THE SITE ARE NOT DISTURBED UNREASONABLY. THE GENERATION OF NOISE MUST BE MINIMISED.

1. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 AND AS/NZS 3500 3.2.
2. SUBSOIL DRAINAGE LINES SHALL BE INSTALLED BEHIND ALL KERBS EXCEPT WHERE STORMWATER DRAINAGE IS LOCATED ALONG THE KERBLINE.
3. A MINIMUM OF 3m OF SUBSOIL LINE SHALL BE LAID INTO UPSTREAM SIDE OF ALL DRAINAGE PITS.
4. FLUSHING POINTS SHALL BE INSTALLED TO COUNCIL SPECIFICATION
5. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC (CLASS SN4) WITH SOLVENT WELDED JOINTS.
6. PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE MIN CLASS 2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
7. ALL PIPES ARE TO BE LAID AT (min) 1.0% GRADE (UNO)
8. ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.
9. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.
10. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
11. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE
12. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
13. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 TO DETERMINE THE APPROPRIATE PIPE CLASS. ANY CHANGES IN PROPOSED PIPE CLASS SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.
14. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
15. PRECAST PITS MAY BE USED SUBJECT TO WRITTEN APPROVAL BY THE SUPERINTENDENT.
16. ALL PIPE PENETRATIONS (EXISTING, IN-SITU AND PRECAST) ARE TO BE FINISHED FLUSH WITH THE INTERNAL PIT WALL AND PROPERLY SEALED WITH CEMENT RENDER. MASS CONCRETE BENCHING IS TO BE INSTALLED TO MATCH THE OUTLET PIPE INVERT LEVEL AND A LOCKABLE HINGED GRATE AND FRAME WITH CONCRETE SURROUND INSTALLED U.N.O.

17. COVERS

- A. USE HOT DIPPED GALVANISED GRATES AND CONCRETE FILLED COVERS WITH HINGES AND HOLD DOWN BOLTS COMPLYING WITH AS3996 AND OTHER RELEVANT AUSTRALIAN AND COUNCIL STANDARDS.
- B. ALL COVERS AND GRATES TO BE POSITIONED IN A FRAME AND MANUFACTURED AS A UNIT.
- C. ALL COVERS AND GRATES TO BE FITTED WITH POSITIVE COVER LIFTING KEYS.
- D. OBTAIN SUPERINTENDENT'S APPROVAL FOR THE USE OF CAST IRON SOLID COVERS AND GRATES. CAST IRON SOLID COVERS (IF APPROVED) TO CONSIST OF CROSS-WEBBED, CELLULAR CONSTRUCTION WITH THE RIBS UPPEMOST TO ALLOW INFILLING WITH CONCRETE. INSTALL POSITIVE COVER LIFTING KEYS AND PLASTIC PLUGS.
- E. UNLESS DETAILED OR SPECIFIED OTHERWISE COVERS AND GRATES TO BE CLASS "D" IN VEHICULAR PAVEMENTS AND CLASS "B" ELSEWHERE.

18. NOTE THAT THE PIT COVER LEVEL NOMINATED IN GUTTERS ARE TO THE INVERT OF THE GUTTER WHICH IS 40mm LOWER THAN THE PAVEMENT LEVEL AT LIP OF GUTTER.

19. Ø100mm SUB-SOIL DRAINAGE LINES SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT AND PROVIDED IN THE FOLLOWING LOCATIONS:

- A. ADJACENT ALL TRAFFICKED AND CARPARK PAVEMENT AREAS (BEHIND KERB);
- B. ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS;
- C. BEHIND RETAINING WALLS (IN ACCORDANCE WITH DRAWINGS);
- D. BELOW ALL TRAFFICABLE DISH DRAINS;
- E. ALL OTHER AREAS SHOWN ON THE DRAWINGS.

20. THE CONTRACTOR SHALL INSTALL FLUSHING POINTS TO ALL SUBSOIL DRAINAGE LINES AND DOWNPIPE LINES AS SPECIFIED ON DRAWINGS, AT MAXIMUM CENTRES TO COUNCIL SPECIFICATION AND AT ALL UPSTREAM ENDPOINTS.



21. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE PIPE WRAPPED IN A NON-WOVEN GEOTEXTILE FABRIC, TO THE UPSTREAM SIDE OF STORMWATER PITS, LAID IN STORMWATER PIPE TRENCHES AND CONNECTED TO THE DRAINAGE PIT.

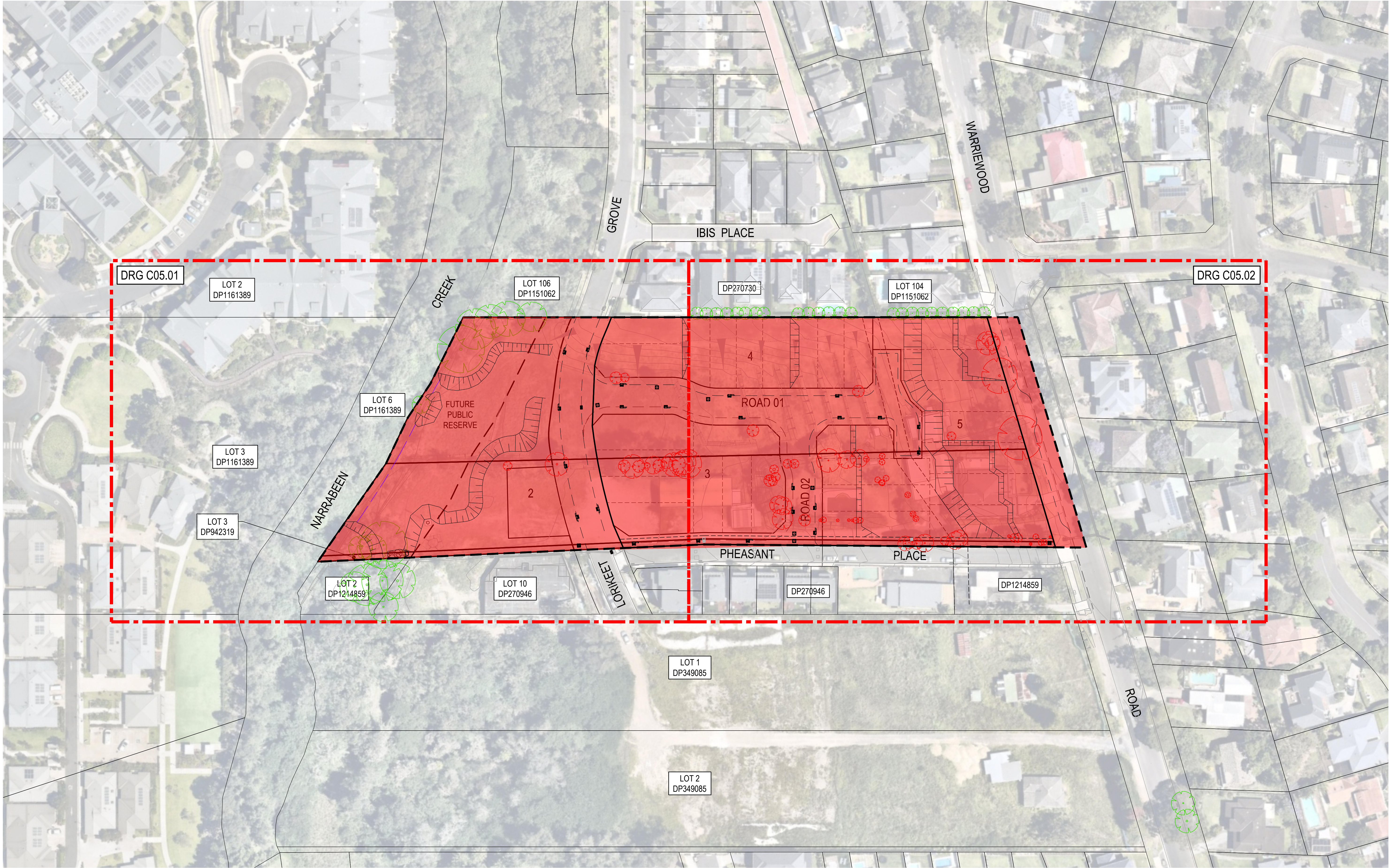
22. SUBSOIL TRENCHES SHALL BE BACKFILLED WITH SINGLE SIZED 10mm AGGREGATE WRAPPED IN NON-WOVEN GEOTEXTILE FABRIC. SUBSOIL TRENCHES BELOW TRAFFICABLE PAVEMENTS SHALL BE BACKFILLED WITH NO FINES CONCRETE WRAPPED IN NON-WOVEN GEOTEXTILE FABRIC. U.N.O.

23. ALL RECTANGULAR HOLLOW SECTIONS (RHS) SPECIFIED AS STORMWATER CONDUITS TO BE HOT DIPPED GALVANISED AND HAVE (MINIMUM) 5mm WALL THICKNESS.

24. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.
25. ELECTRICAL PITS ARE TO DRAIN TO THE NEAREST STORMWATER PIT WITH VERMIN PROOF NON-RETURN FLAP VALVES AS REQUIRED. THE CONTRACTOR IS TO CONFORM WITH THE ELECTRICAL DESIGNER AS PART OF THE TENDER.
26. THE CONTRACTOR SHALL ENSURE AND PROTECT THE INTEGRITY OF ALL STORMWATER PIPES DURING CONSTRUCTION, ANY AND ALL DAMAGE TO THESE PIPES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT, AND AT NO EXTRA COST.
27. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
28. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.
29. ANY VARIATION TO SPECIFIED PRODUCTS OR DETAILS SHALL BE REFERRED TO THE SUPERINTENDENT FOR APPROVAL.

1. ALL PAVEMENT MATERIALS SHALL COMPLY WITH CURRENT TNSW SPECIFICATIONS. PROVIDE MECHANICAL ANALYSIS FOR EACH BATCH OF PAVEMENT MATERIAL TO ENSURE CONFORMITY.
2. COMPACTION STANDARDS:
 - A) BASE: 98% MODIFIED MAXIMUM DRY DENSITY
 - B) SUBBASE: 98% MODIFIED MAXIMUM DRY DENSITY
3. THE CONTRACTOR SHALL CONFIRM THE DESIGN CBR WITH A MINIMUM OF 3 TESTS TAKEN AT SUBGRADE LEVEL. WHERE DISCREPANCY IS FOUND, CONTACT THE SUPERINTENDING.
4. ALLOW FOR COMPACTION TESTING BY NATA REGISTERED LABORATORY FOR: BASE LAYER, SUBBASE LAYER, SUBGRADE IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 FOR PAVEMENTS. ALLOW FOR AT LEAST TWO SUCCESSFUL COMPACTION TESTS IN EACH LAYER.
5. MATCH NEW PAVEMENT LAYERS NEATLY AND FLUSH WITH EXISTING WHERE REQUIRED.
6. KEY NEW BASE AND SUBBASE LAYERS INTO EXISTING WITH 150mm WIDE STEPS. ASPHALTIC CONCRETE WEARING COURSE IS TO EXTEND 150mm (MIN) PAST BASECOURSE INTERFACE.
7. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
8. ALL ASPHALTIC CONCRETE (AC) WORK TO BE PREPARED AND CARRIED OUT IN ACCORDANCE WITH GOOD ASPHALTIC PAVING PRACTICE AS DESCRIBED IN AS2734 "ASPHALT (HOT-MIXED) PAVING - GUIDE TO GOOD PRACTICE" AND CURRENT TNSW SPECIFICATIONS (R116).
9. WHERE NOMINATED, THE CONTRACTOR SHALL ALLOW FOR ALL COMPONENTS OF PROPRIETARY JOINTING SYSTEMS INCLUDING FIXING, TEMPLATES & PEGGING TO ENSURE THAT ALL DOWEL BARS REMAIN IN THE CORRECT ALIGNMENT AND POSITION.
10. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TNSW. SPECIFICATION 3051, COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m² OF BASECOURSE MATERIAL PLACED.
11. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TNSW. SPECIFICATION 3051, AND COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m² OF SUB-BASE COURSE MATERIAL PLACED.
12. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (1) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH TNSW. SPECIFICATION 3051 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF THE COUNCIL ENGINEER.
13. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.

										Client				 SEKISUI HOUSE				Scale				North				 Enspire Solutions Pty Ltd Level 4, 153 Walker Street, North Sydney NSW 2060 ABN: 71 624 801 690 Phone: 02 9922 6135				Project 53A & 53B WARRIEWOOD ROAD WARRIEWOOD NSW 2102 CIVIL ENGINEERING WORKS				Scale N.T.S. Date 28/06/2024		Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION					
1 28/06/2024 ISSUED FOR DEVELOPMENT APPLICATION										SS	TPB	RLE	MC																					Size A1 Datum MGA2020		Project Number/Drawing Number 220122-00-DA-C01.21				Revision 1	
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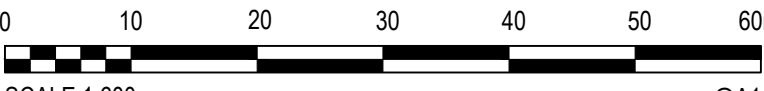
2	5/08/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
REV.	DATE	DESCRIPTION	DRN	DES.	VERIF.	APPD.

Client



SEKISUI HOUSE

Scale



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SCALE 1:600 @A1

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North



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Project
53A & 53B WARRIWOOD ROAD
WARRIWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
GENERAL ARRANGEMENT PLAN

Scale
1:600

Date
01/07/2024

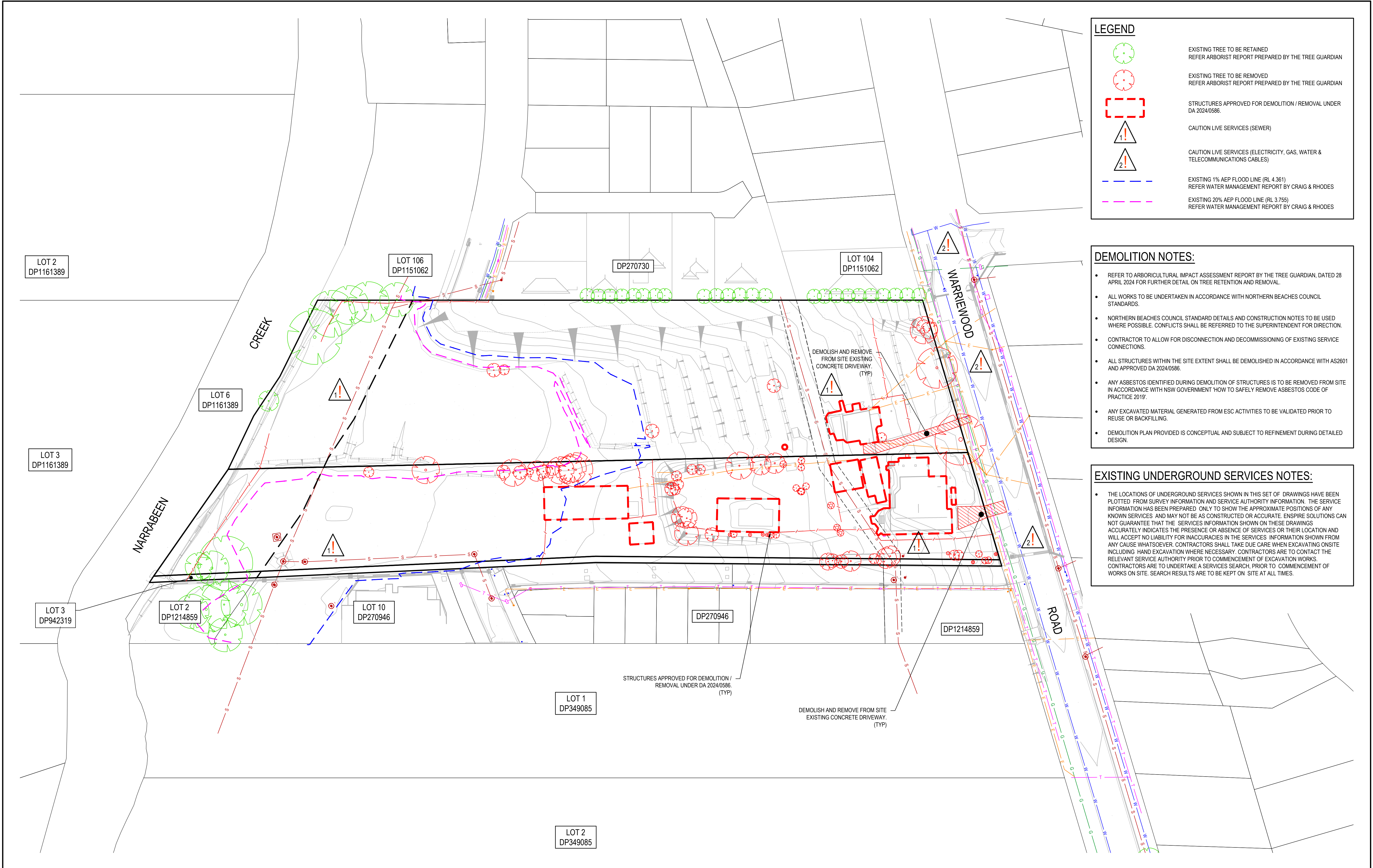
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Datum
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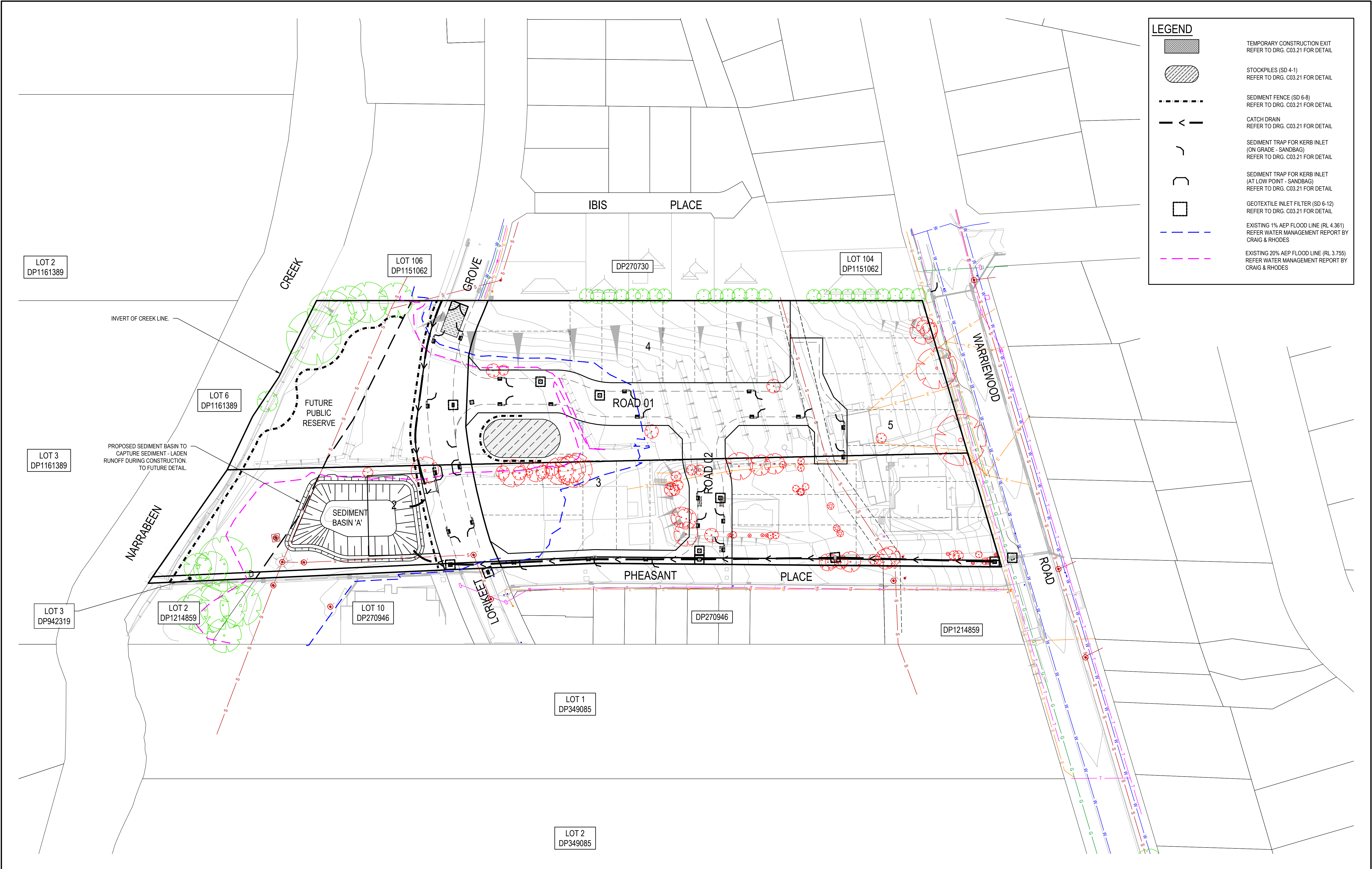
Status
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Project Number/Drawing Number
220122-00-DA-C01.41

Revision
2



Client				Scale				North				Project				Scale				Status			
SEKISUI HOUSE				0 10 20 30 40 50m				enspire				53A & 53B WARRIEWOOD ROAD WARRIEWOOD NSW 2102 CIVIL ENGINEERING WORKS				1:500				FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION			
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3 5/08/2024 ISSUED FOR DEVELOPMENT APPLICATION				SS TPB RLE MC																			
2 25/07/2024 ISSUED FOR DEVELOPMENT APPLICATION				SS TPB RLE MC																			
1 1/07/2024 ISSUED FOR DEVELOPMENT APPLICATION				SS TPB RLE MC																			



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	5/08/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

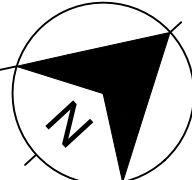
Client


SEKISUI HOUSE

Scale

0 10 20 30 40 50m
SCALE 1:500 @A1

North



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Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
EROSION AND SEDIMENTATION
CONTROL PLAN

Scale
1:500

Date
01/07/2024

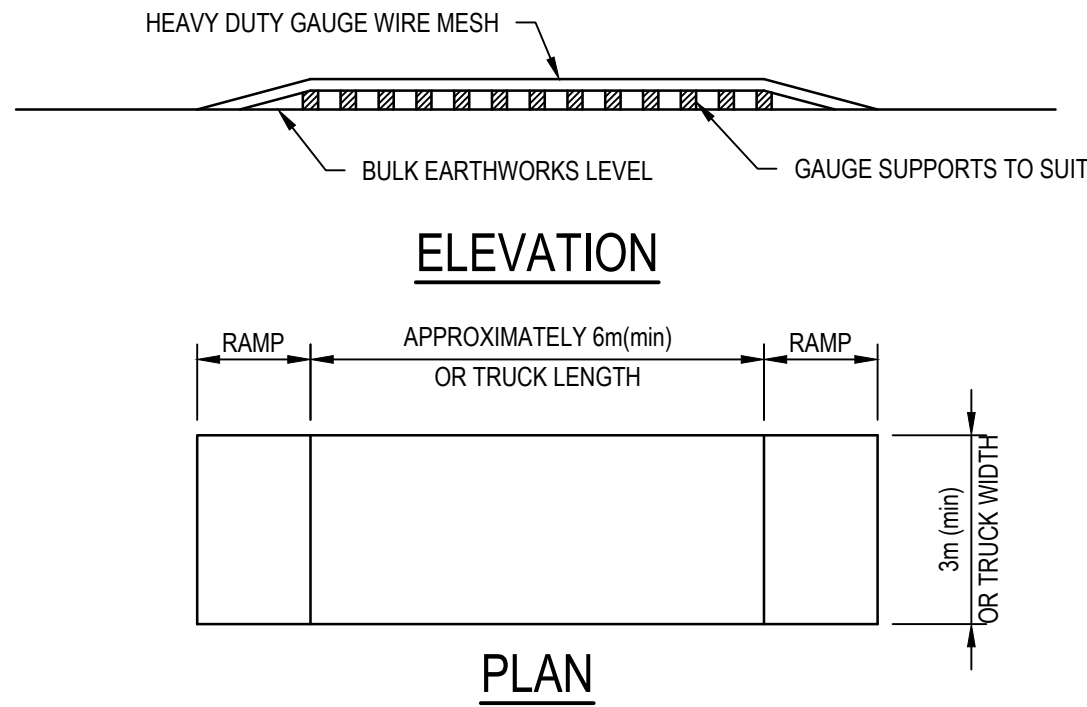
Size
A1

Datum
MGA2020

Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

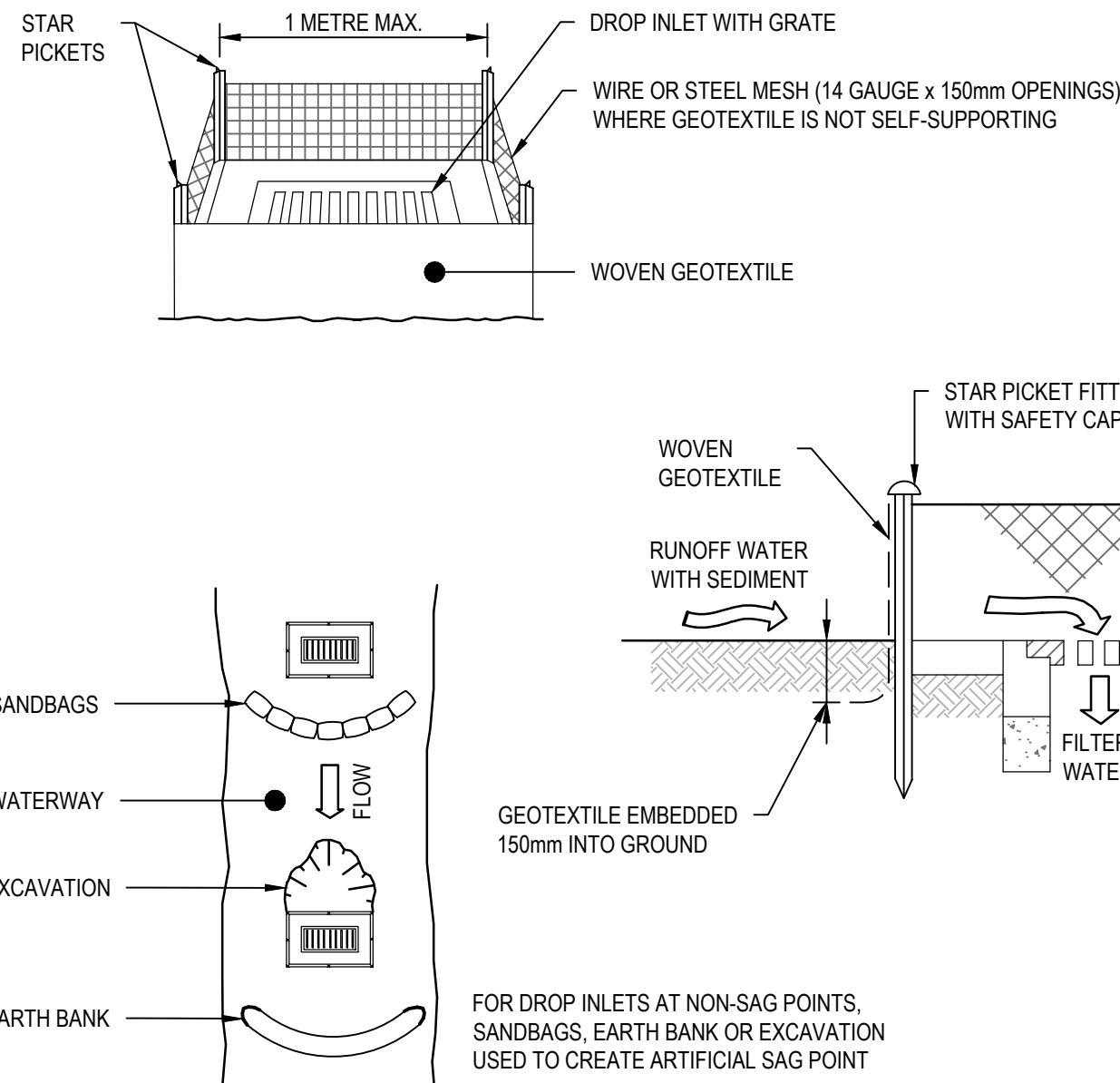
Project Number/Drawing Number
220122-00-DA-C03.01

Revision
2



TEMPORARY CONSTRUCTION EXIT (SHAKER PAD DETAIL)

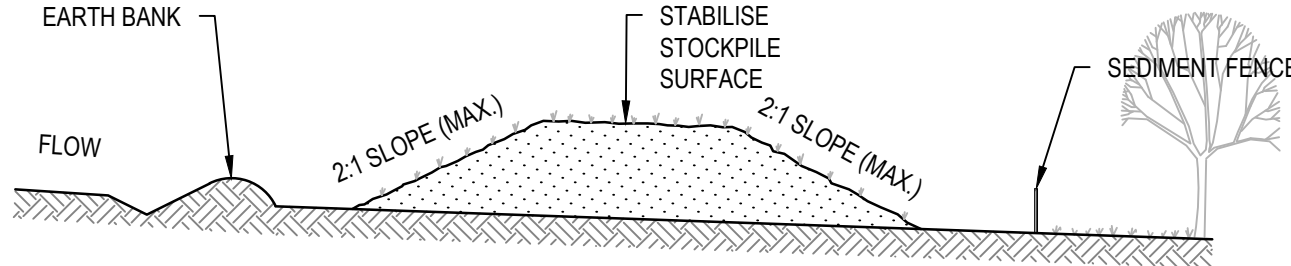
THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.



CONSTRUCTION NOTES

- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

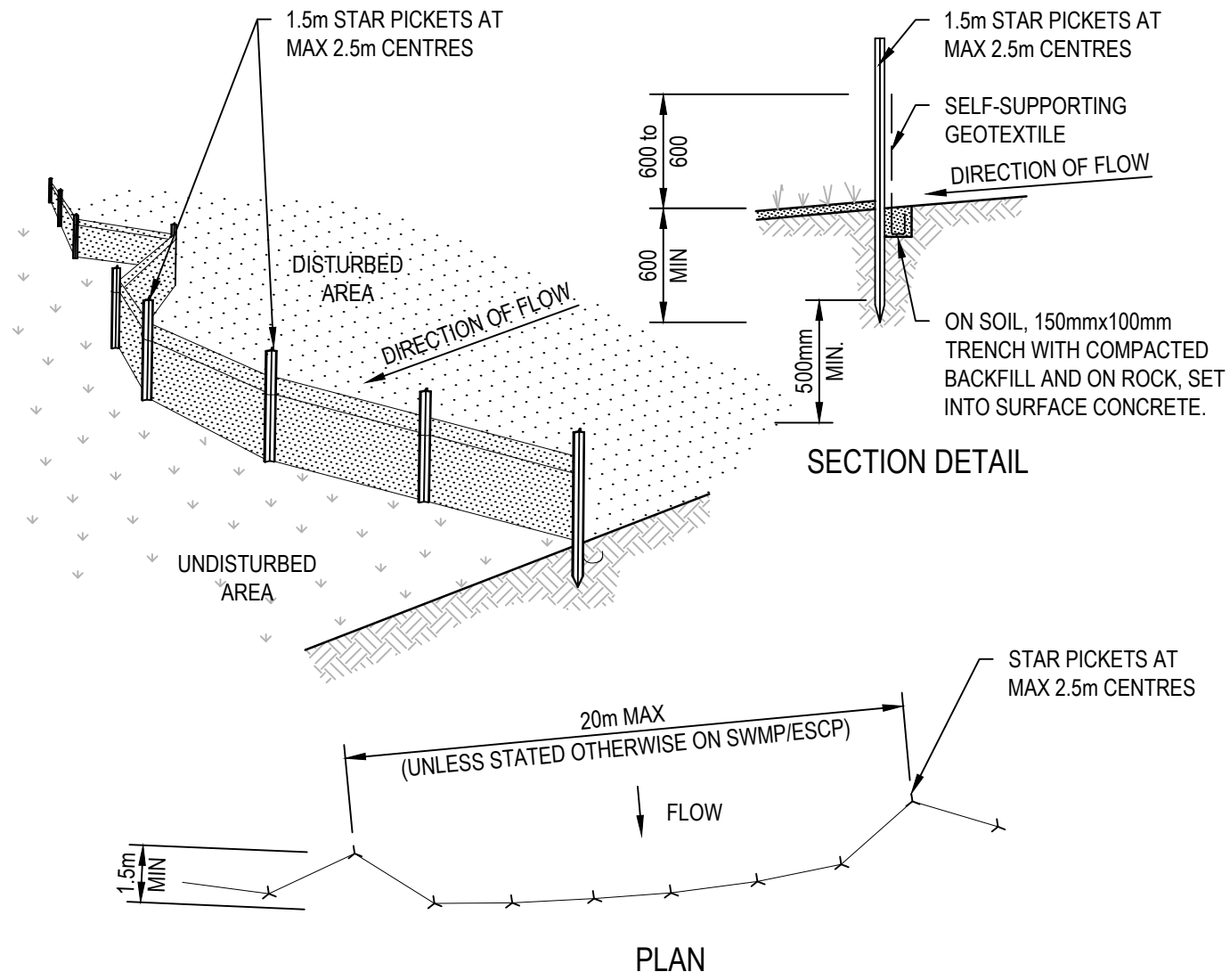
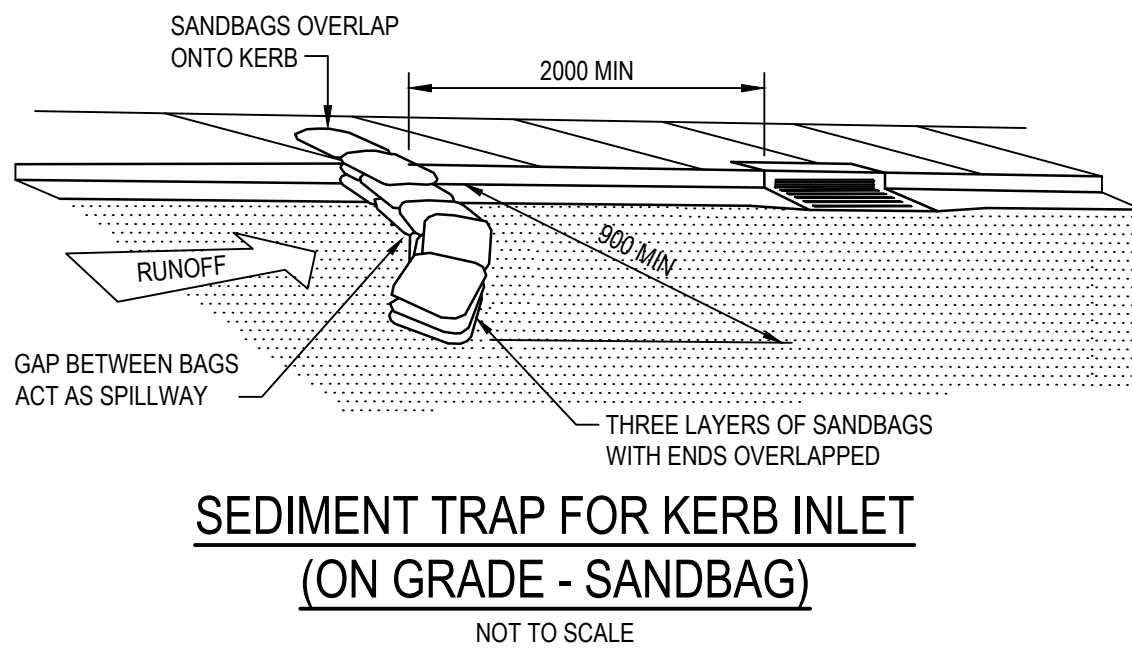
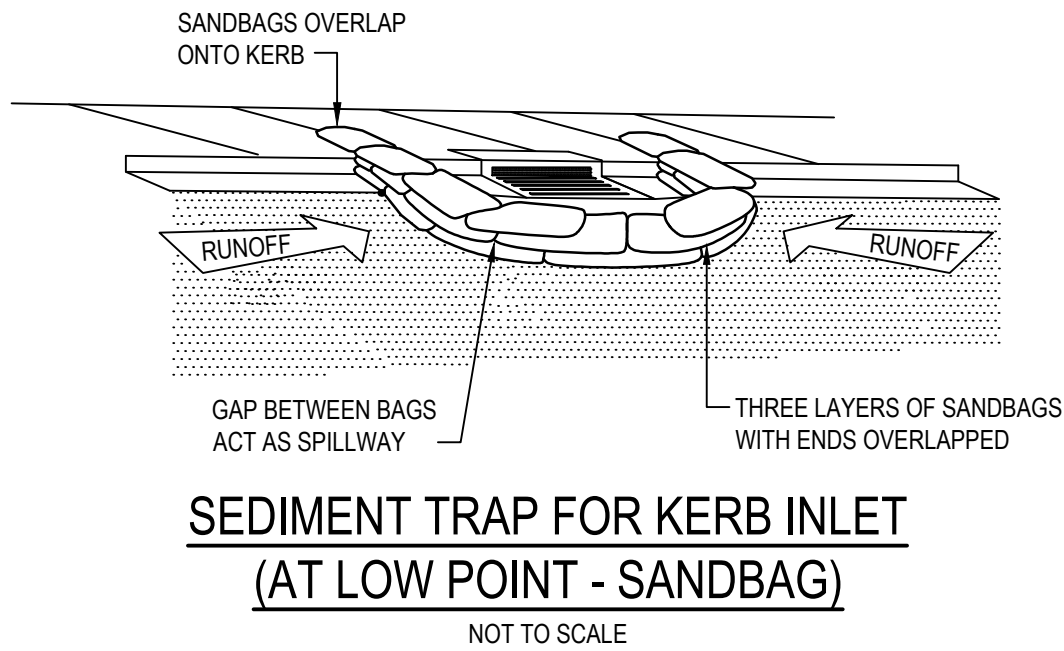
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

- PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
- CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
- WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
- WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
- CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

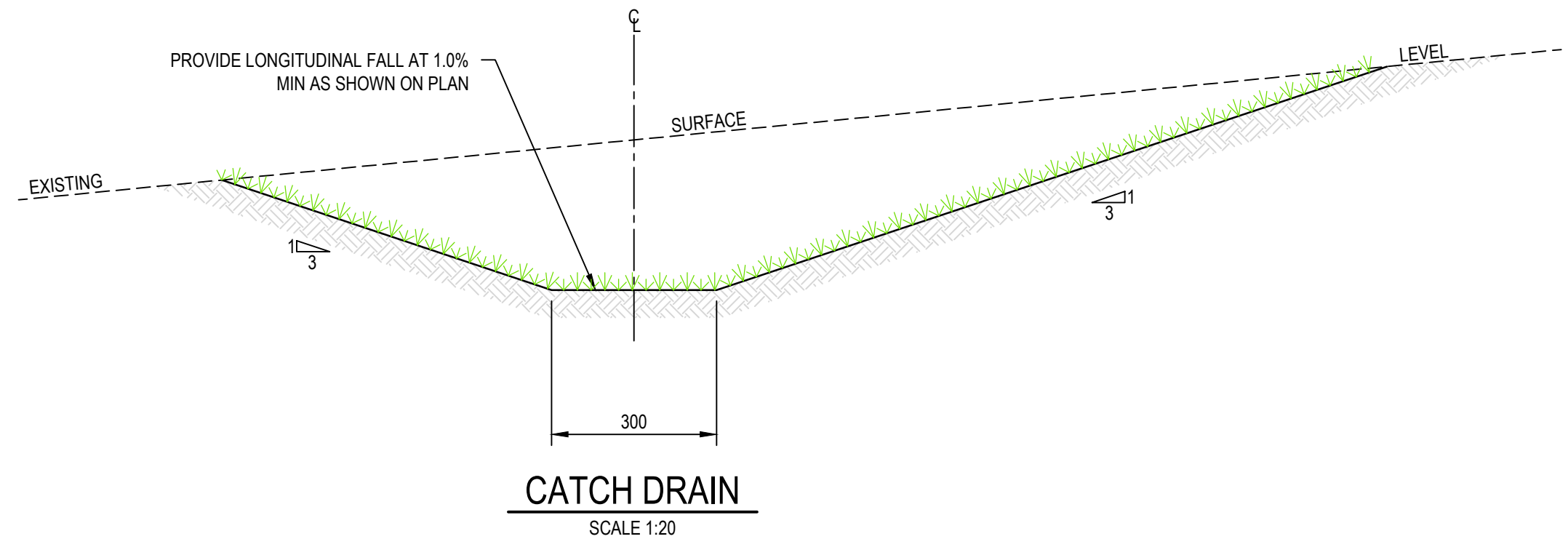
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING 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 PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- 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.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
1	28/06/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

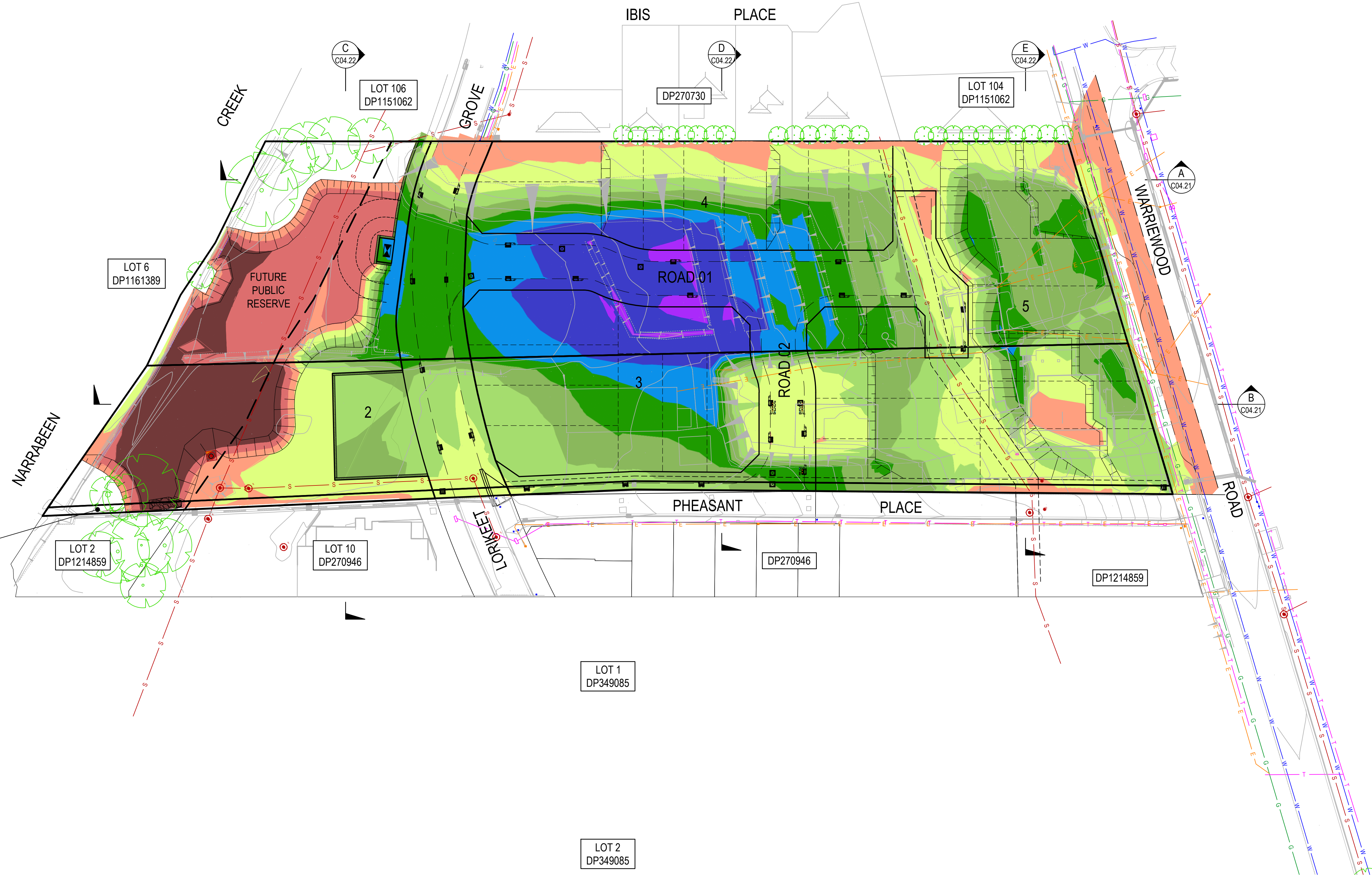


Scale	0 0.5 1 1.5 2m SCALE 1:20 @A1	North
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Enspire Solutions Pty Ltd 1302/83 Mount Street, North Sydney NSW 2060 ABN: 71 624 801 690 Phone: 02 9922 6135

Project 53A & 53B WARRIEWOOD ROAD WARRIEWOOD NSW 2102 CIVIL ENGINEERING WORKS
Title EROSION AND SEDIMENTATION CONTROL DETAILS

Scale N.T.S	Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION
Date 28/06/2024	Project Number/Drawing Number 220122-00-DA-C03.21
Size A1	Revision 1
Datum MGA2020	



LEGEND

1.5m TO 2.0m CUT

1.0m TO 1.5m CUT

0.5m TO 1.0m CUT

0.0m TO 0.5m CUT

0.0m TO 0.5m FILL

0.5m TO 1.0m FILL

1.0m TO 1.5m FILL

1.5m TO 2.0m FILL

2.0m TO 2.5m FILL

GREATER THAN 2.5m FILL

NOTES

1. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.

2. NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS, ie SERVICE TRENCHING, DETAILED EXCAVATION AND THE LIKE.

3. APPROXIMATE BULK EARTHWORKS VALUES AS FOLLOWS:
CUT 2,787m³
FILL 15,079m³
BALANCE 12,292m³ (IMPORT)

4. VOLUMES BASED ON:
EXISTING SURFACE STRIPPED 200mm
PRELIMINARY BULK EARTHWORKS SURFACE
400mm BELOW ULTIMATE DESIGN LEVELS

5. EXCAVATED MATERIAL TO BE ASSESSED DURING DETAILED DESIGN TO CONFIRM STABILITY FOR REUSE ON SITE.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	5/08/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

Client



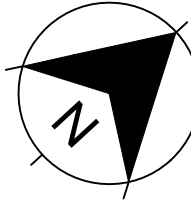
SEKISUI HOUSE

Scale

0 10 20 30 40 50m

SCALE 1:500 @A1

North



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Phone: 02 9922 6135

Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

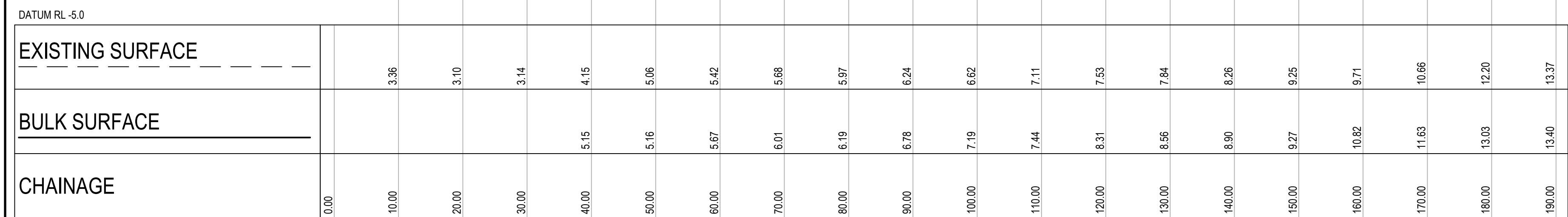
Title
BULK EARTHWORKS
CUT AND FILL PLAN

Scale
1:500
Date
01/07/2024
Size
A1
Datum
MGA2020

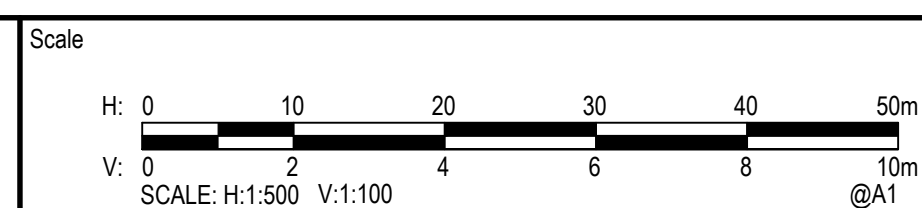
Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number
220122-00-DA-C04.01

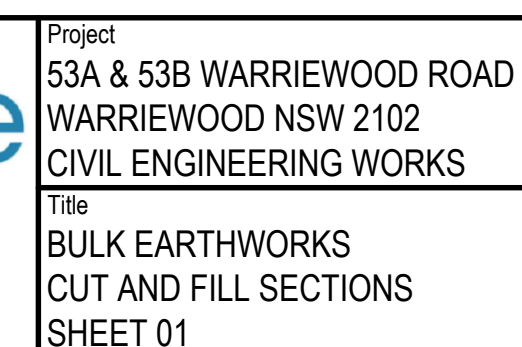
Revision
2

[illegible]

1	28/06/2024	ISSUED FOR DEVELOPMENT APPLICATION				SS	TPB	RLE	MC
REV.	DATE	DESCRIPTION				DRN.	DES.	VERIF.	APPD.



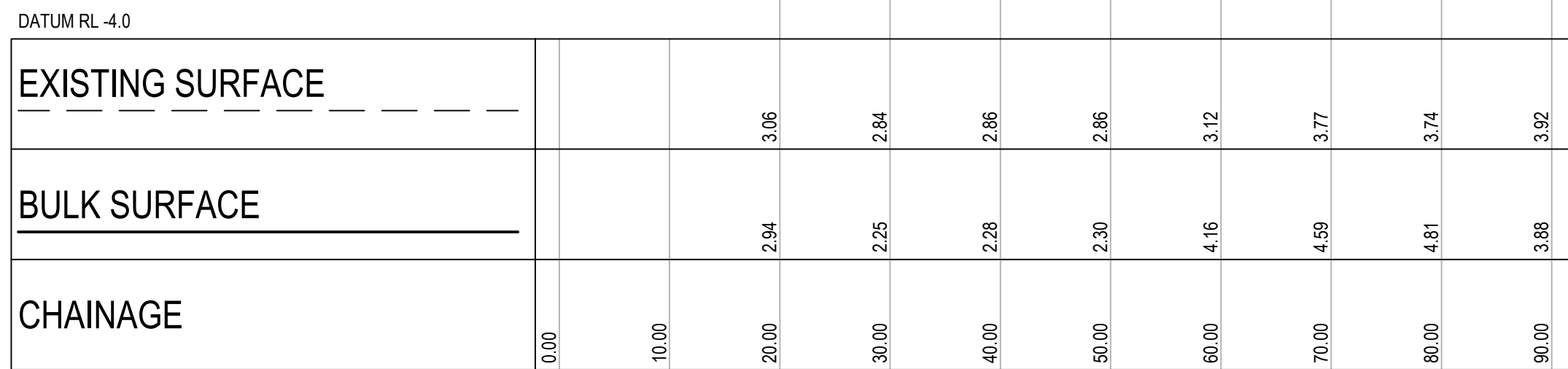
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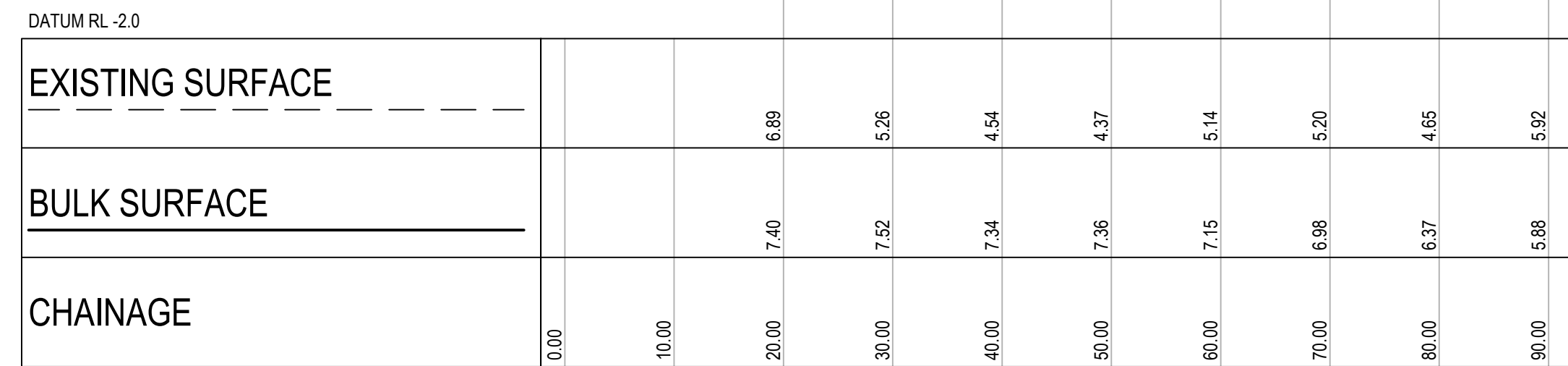
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number	Revision
220122-00-DA-C04.21	1

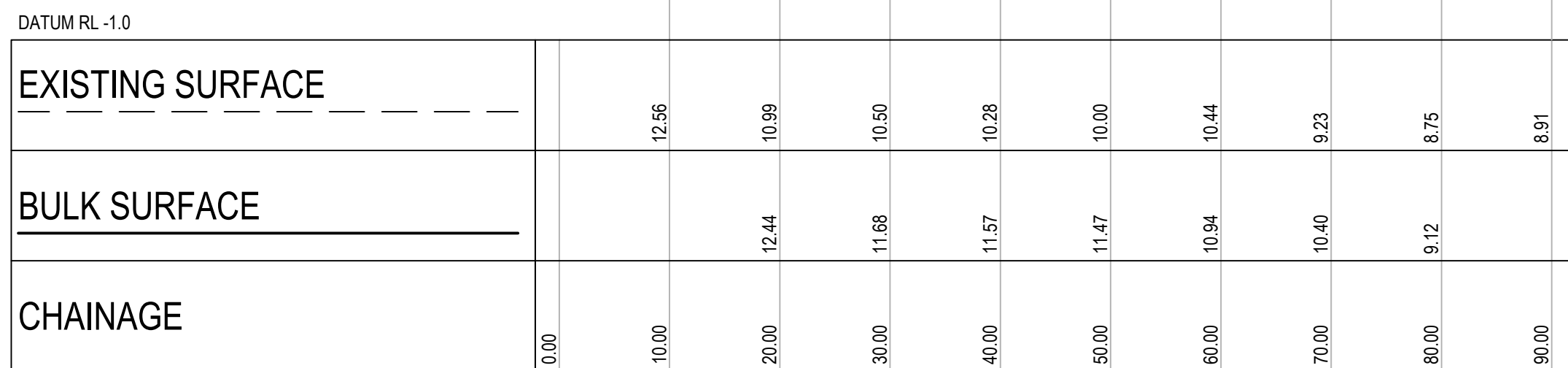
DATE PLOTTED: 1 July 2024 4:43 PM BY : SUDHA SHRESTHA



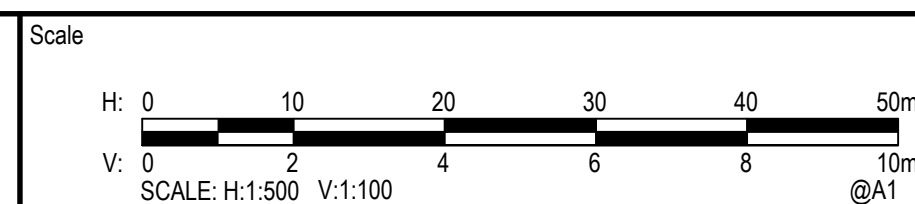
LONGITUDINAL SECTION C
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1



LONGITUDINAL SECTION D
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1



LONGITUDINAL SECTION E
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1

[illegible]

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Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
BULK EARTHWORKS
CUT AND FILL SECTIONS
SHEET 02

Scale	AS SHOWN
Date	28/06/2024
Size	A1
Datum	MGA2020

Status

FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number	220122-00-DA-C04.22
-------------------------------	---------------------

1

LEGEND

	SITE BOUNDARY
	CONTOUR
	BATTER
	RETAINING WALL
	KERB AND GUTTER
	ROLL KERB AND GUTTER
	BULK EARTHWORKS PAD LEVEL
	EXISTING LEVEL
	FINISHED LEVEL
	INVERT LEVEL
	SWALE DRAIN
	TEMPORARY DRAINAGE CHANEL
	PIPE SIZE
	STORMWATER DRAINAGE LINE (SUBDIVISION) FLOW DIRECTION
	TRUNK STORMWATER DRAINAGE LINE
	STORMWATER LINE/PIT NUMBER
	KERB INLET PIT
	SURFACE INLET PIT/JUNCTION PIT
	HEADWALL
	DRIVEWAY LOCATION (FUTURE)
	EXISTING SEWER PIPE
	EXISTING SEWER MAINTENANCE SHAFT & MANHOLE
	STAMPED AC, PORPHYRY PAVERS OR SIMILAR
	EXISTING 1% AEP FLOOD LINE (RL 4.361) REFER WATER MANAGEMENT REPORT BY CRAIG & RHODES
	EXISTING 20% AEP FLOOD LINE (RL 3.755) REFER WATER MANAGEMENT REPORT BY CRAIG & RHODES
	PROPOSED 1% AEP FLOOD LINE (RL 4.361)
	PROPOSED 20% AEP FLOOD LINE (RL 3.755)
	ELECTRICAL SUBSTATION
	OVERLAND FLOW
	SCOUR PROTECTION
	STORMWATER PIT INSERTS (OCEANGUARD)
	PAVEMENT INTERFACE DETAIL
	TNSW STEEL RAIL SAFETY BARRIER TO MANUFACTURER SPECIFICATIONS

DESIGN SUMMARY:

CATCHMENT AREA = 1.654 ha
LGA = NORTHERN BEACHES COUNCIL
REGION = NORTHERN STORMWATER REGION 1.

A - WATER QUANTITY

- OSD REQUIRED IN ACCORDANCE WITH COUNCIL'S WATER MANAGEMENT FOR DEVELOPMENT POLICY
- REFER DRAINS MODEL BY ENSPIRE SOLUTIONS FOR DETAILS.

STORM EVENT	PRE-DEVELOPMENT FLOWS (m³/s)	POST-DEVELOPMENT FLOWS (m³/s)
20% AEP	0.509	0.487
5% AEP	0.717	0.631
1% AEP	0.921	0.777

B - WATER QUALITY

- WATER QUALITY REQUIREMENTS IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY.

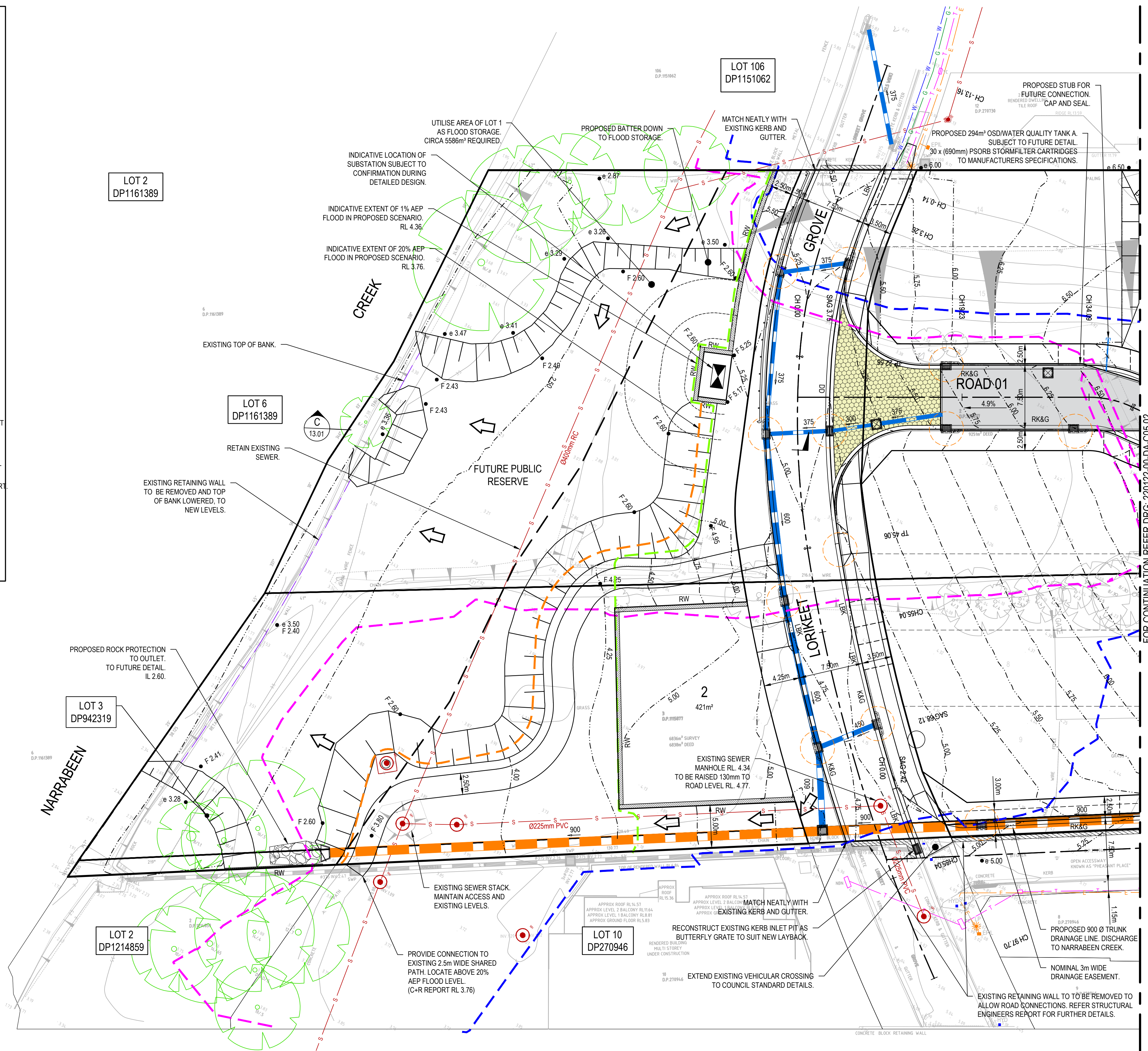
POLLUTANT	TARGET	REDUCTION
GP	90%	96%
TSS	85%	85%
TP	65%	65%
TN	45%	51.1%

- WATER QUALITY TREATMENT PROVIDED BY:
 - PROPRIETARY FILTER CARTRIDGES SYSTEM LOCATED WITHIN OSD/WATER QUALITY TANKS.
 - OCEAN SAVE PIT BASKETS.
 - RAINWATER TANKS IN FUTURE RESIDENTIAL LOTS.
- REFER MUSIC MODEL PREPARED BY ENSPIRE SOLUTIONS FOR DETAILS.
- FILTER CARTRIDGE SYSTEM TO BE INSTALLED AFTER 80% OF CATCHMENT IS DEVELOPED.

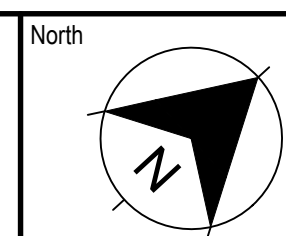
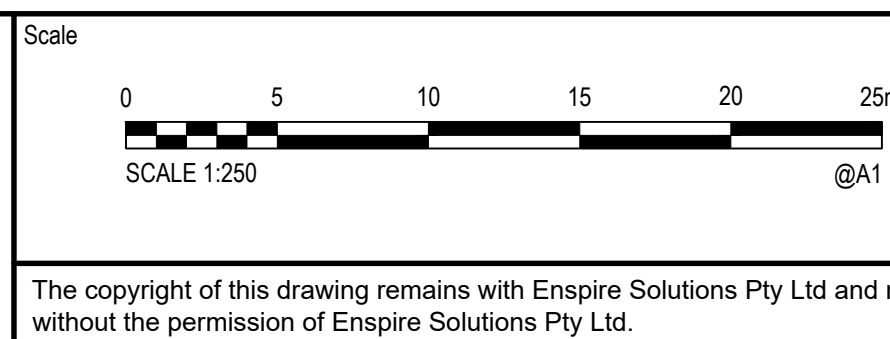
C - FLOOD STORAGE

- FLOOD STORAGE HAS BEEN MAINTAINED AS PART OF THIS DEVELOPMENT AS FOLLOWS:
- PEAK SURFACE WATER LEVELS AS PER C&R WATER MANAGEMENT REPORT.

STORM EVENT	EXISTING	PROPOSED
20% AEP	2001m³	3104m³
5% AEP	3303m³	3908m³
1% AEP	4736m³	4664m³



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
3	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
2	12/06/2024	ISSUED FOR INFORMATION	SS	TPB	RL	MC
1	6/05/2024	ISSUED FOR INFORMATION	JS	TPB	RLE	MC



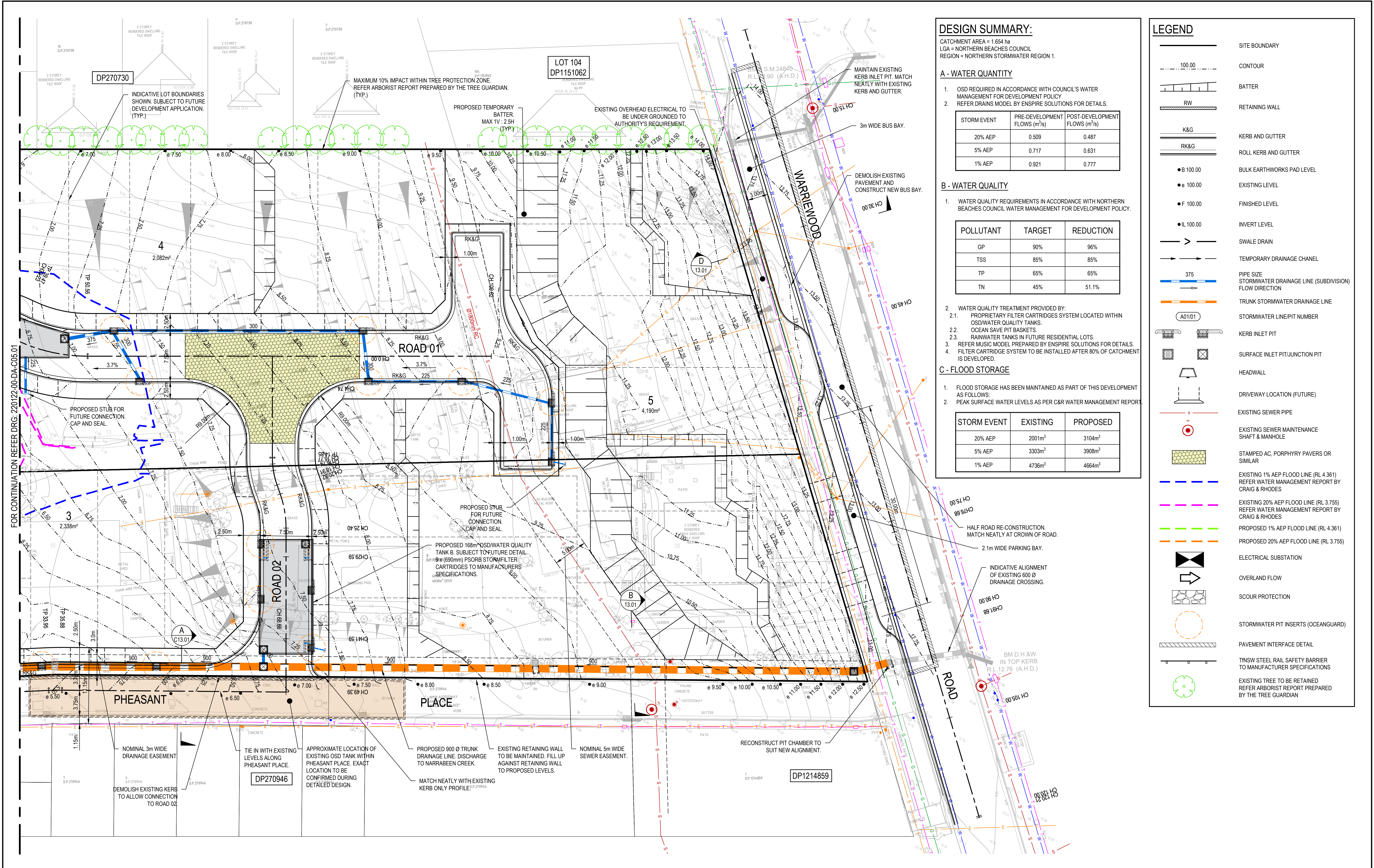
Project	53A & 53B WARRIWOOD ROAD WARRIWOOD NSW 2102 CIVIL ENGINEERING WORKS
Title	SITWORKS AND STORMWATER MANAGEMENT PLAN
SHEET	01

Scale	1:250	Status	FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION
Date	06/05/2024	Project Number/Drawing Number	220122-00-DA-C05.01
Size	A1	Revision	3
Datum	MGA2020		

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FOR CONTINUATION REFER DRG: 220122-00-DA-C05.02

DATE PLOTTED: 1 July 2024 4:44 PM BY: SUDHA SHRESTHA



DESIGN SUMMARY:

CATCHMENT AREA = 1.654 ha
LGA = NORTHERN BEACHES COUNCIL
REGION = NORTHERN STORMWATER REGION 1.

A - WATER QUANTITY

1. OSD REQUIRED IN ACCORDANCE WITH COUNCIL'S WATER MANAGEMENT FOR DEVELOPMENT POLICY
2. REFER DRAINS MODEL BY ENSPIRE SOLUTIONS FOR DETAILS.

STORM EVENT	PRE-DEVELOPMENT FLOWS (m³/s)	POST-DEVELOPMENT FLOWS (m³/s)
20% AEP	0.509	0.487
5% AEP	0.717	0.631
1% AEP	0.921	0.777

B - WATER QUALITY

1. WATER QUALITY REQUIREMENTS IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY.

POLLUTANT	TARGET	REDUCTION
GP	90%	96%
TSS	85%	85%
TP	65%	65%
TN	45%	51.1%

2. WATER QUALITY TREATMENT PROVIDED BY:
2.1. PROPRIETARY FILTER CARTRIDGES SYSTEM LOCATED WITHIN OSD/WATER QUALITY TANKS.
2.2. OCEAN SAVE PIT BASKETS.
2.3. RAINWATER TANKS IN FUTURE RESIDENTIAL LOTS.
3. REFER MUSIC MODEL PREPARED BY ENSPIRE SOLUTIONS FOR DETAILS.
4. FILTER CARTRIDGE SYSTEM TO BE INSTALLED AFTER 80% OF CATCHMENT IS DEVELOPED.

C - FLOOD STORAGE

1. FLOOD STORAGE HAS BEEN MAINTAINED AS PART OF THIS DEVELOPMENT AS FOLLOWS:
2. PEAK SURFACE WATER LEVELS AS PER C&R WATER MANAGEMENT REPORT

STORM EVENT	EXISTING	PROPOSED
20% AEP	2001m³	3104m³
5% AEP	3303m³	3908m³
1% AEP	4736m³	4664m³

LEGEND

	SITE BOUNDARY
	CONTOUR
	BATTER
	RETAINING WALL
	K&G
	RK&G
	● B 100.00
	● E 100.00
	● F 100.00
	● IL 100.00
	>
	→
	375
	→
	→
	A01/01

4

5/08/2024

ISSUED FOR DEVELOPMENT APPLICATION

SS

TPB

RLE

MC

3

1/07/2024

ISSUED FOR DEVELOPMENT APPLICATION

SS

TPB

RLE

MC

2

12/06/2024

ISSUED FOR INFORMATION

SS

TPB

RLE

MC

1

6/05/2024

ISSUED FOR INFORMATION

JS

TPB

RLE

MC

REV.

DATE

DESCRIPTION

DRN.

DES.

VERIF.

APPD.

SEKISUI HOUSE

Scale

0 5 10 15 20 25m

SCALE 1:250

@A1

North

Ensfire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project

53A & 53B WARRIWOOD ROAD
WARRIWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title

SITWORKS AND STORMWATER MANAGEMENT PLAN

Project Number/Drawing Number

220122-00-DA-C05.02

Revision

4

Status

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NOT TO BE USED FOR CONSTRUCTION

Scale

1:250

Date

06/05/2024

Size

A1

Datum

MGA2020

Project

53A & 53B WARRIWOOD ROAD
WARRIWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title

SITWORKS AND STORMWATER MANAGEMENT PLAN

Sheet

02

Scale

1:250

Date

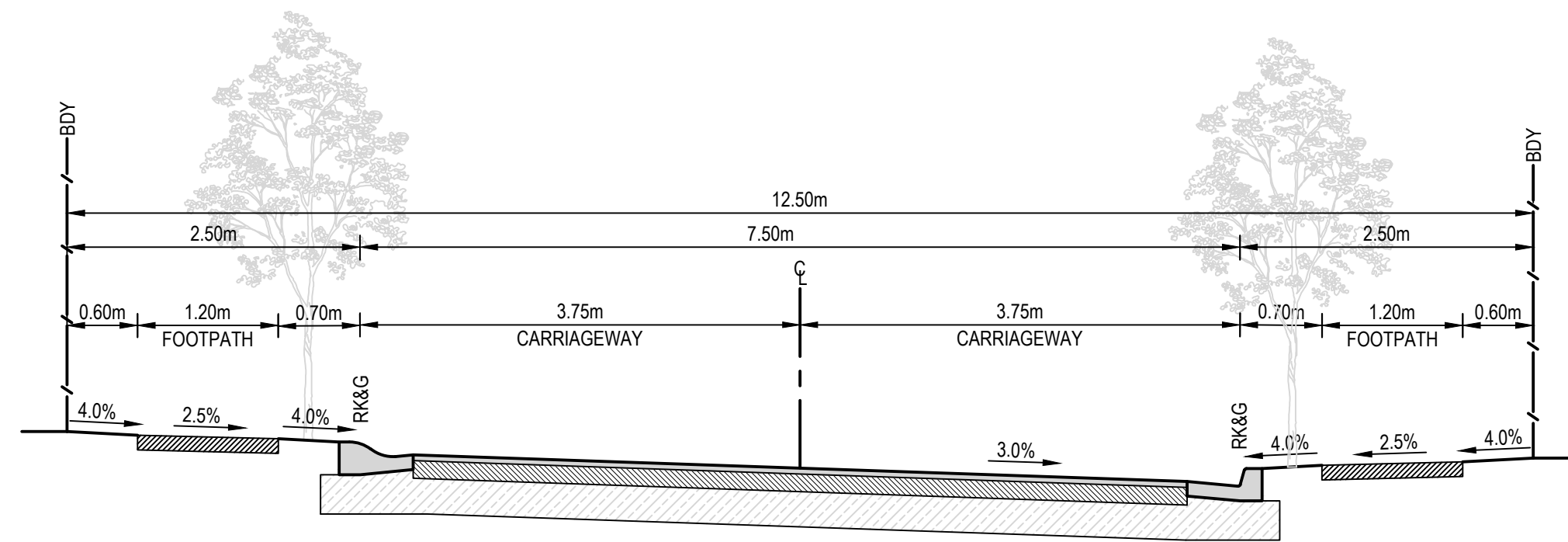
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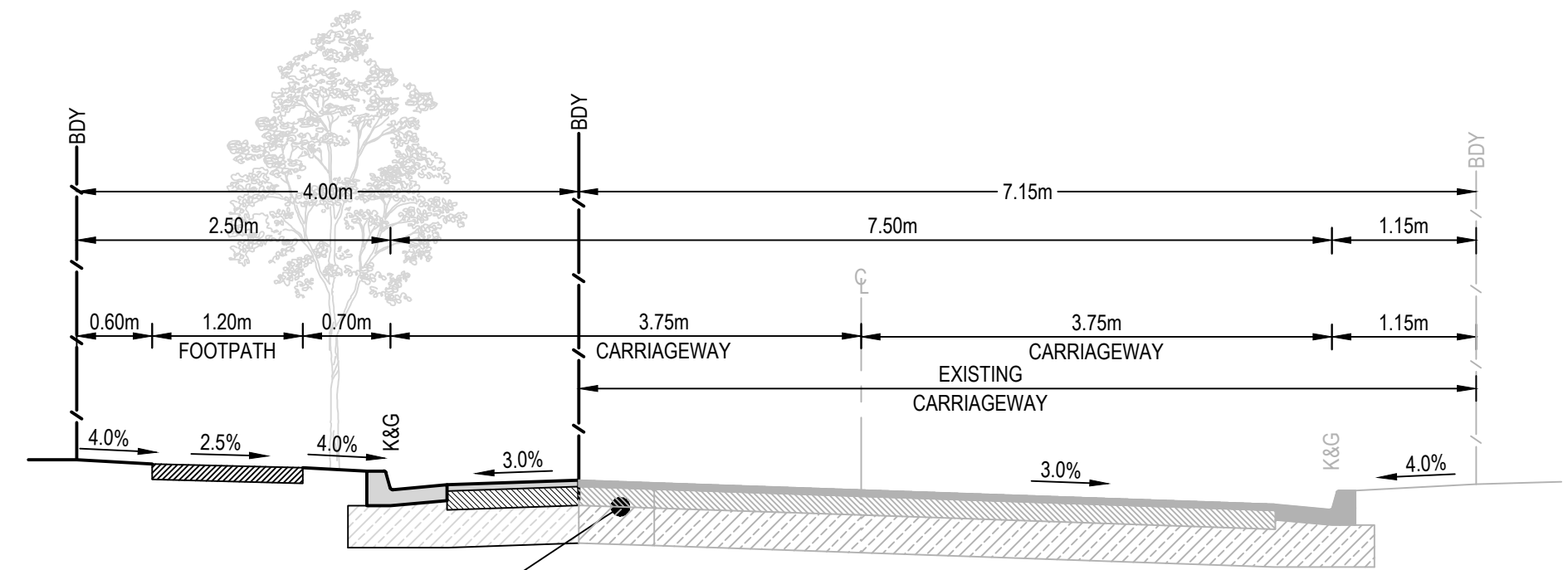
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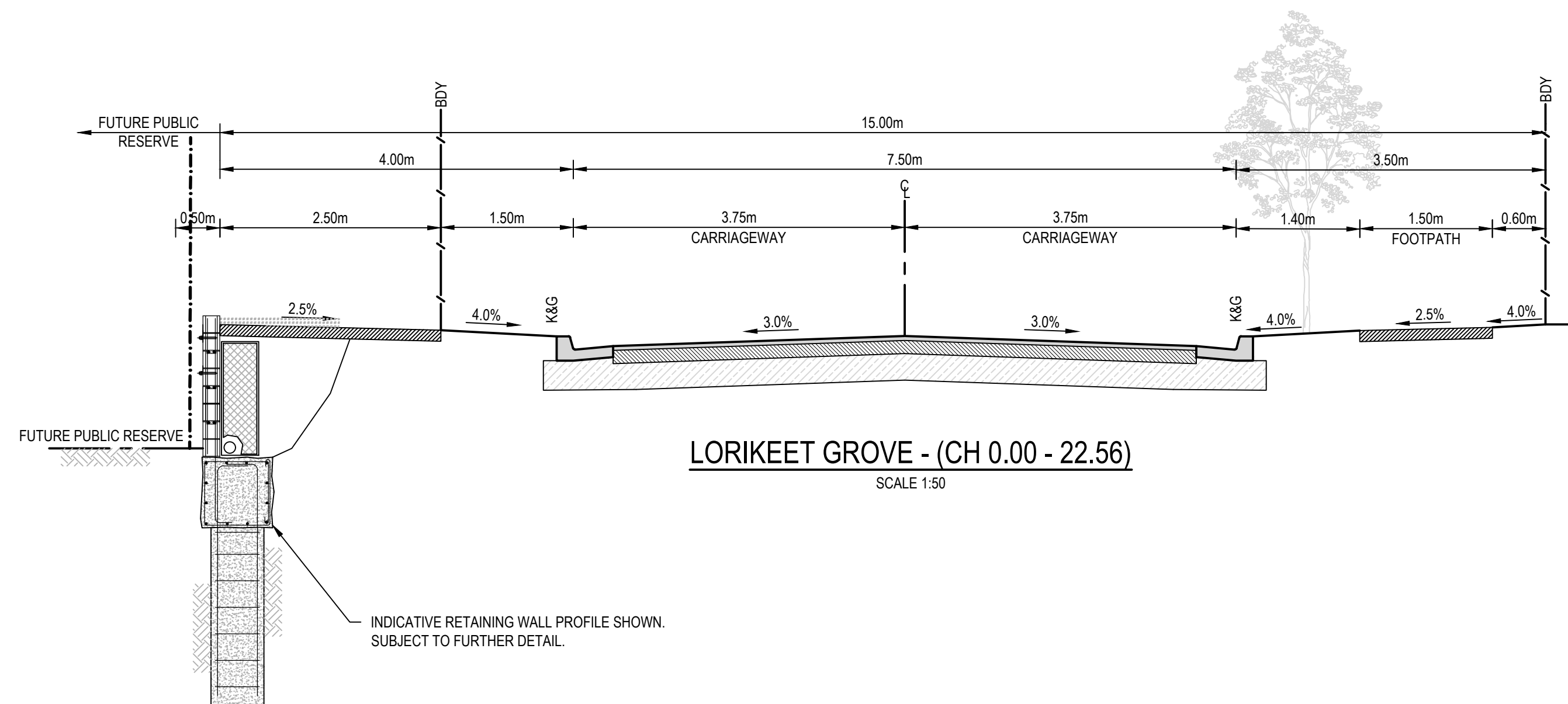
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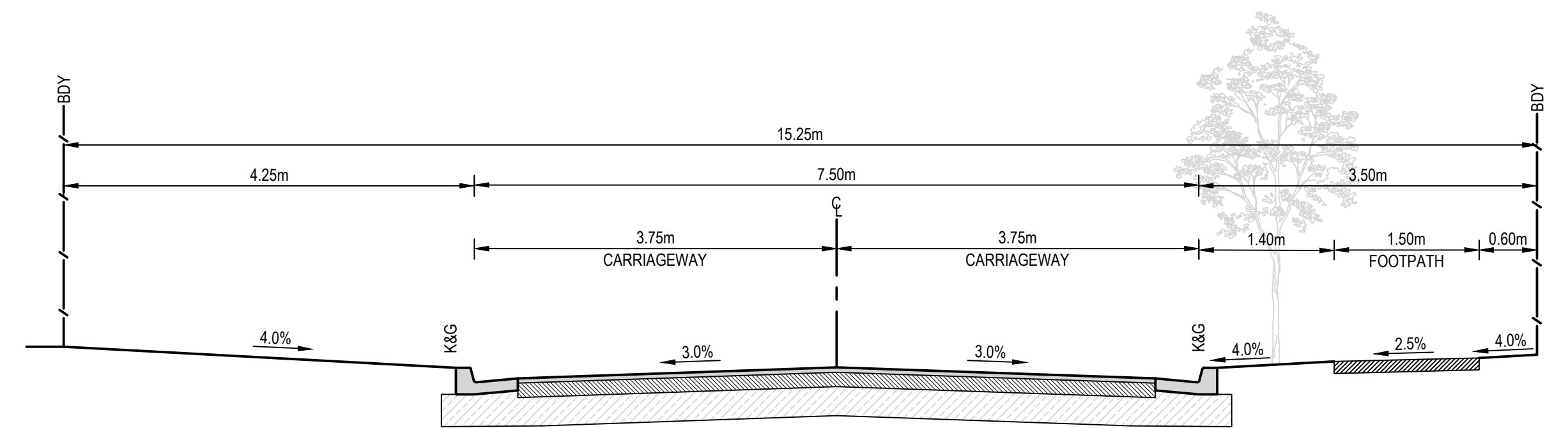
ROAD 01 & ROAD 02
SCALE 1:50



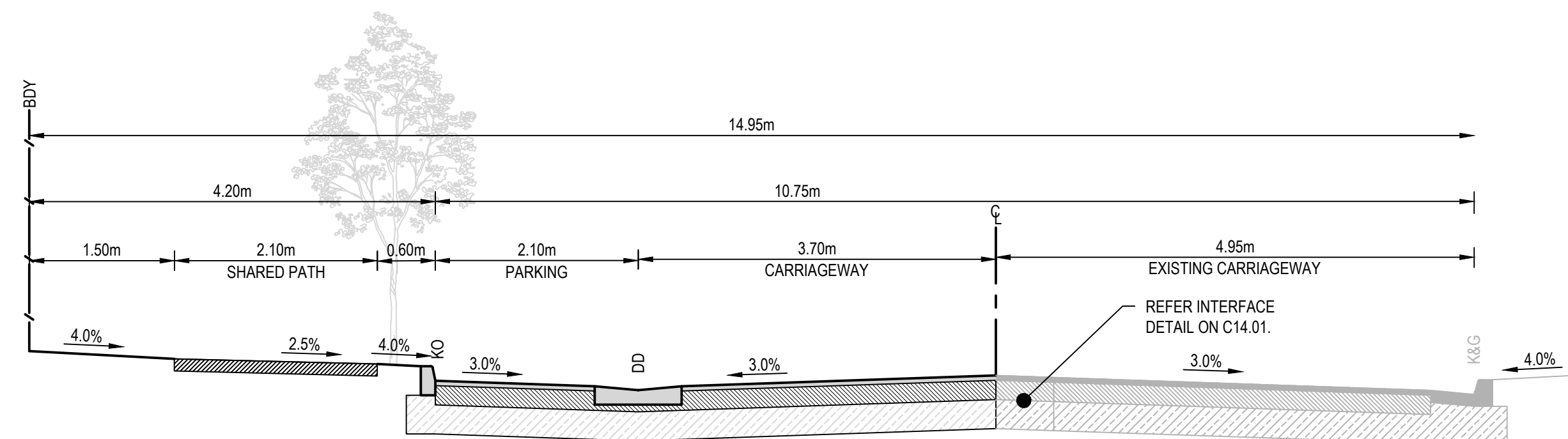
PHEASANT PLACE
SCALE 1:50



LORIKEET GROVE - (CH 0.00 - 22.56)
SCALE 1:50



LORIKEET GROVE (CH 28.86 - 97.70)
SCALE 1:50



WARRIEWOOD ROAD
SCALE 1:50


REV	DATE	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION				
			DRN	DES	IVERIF	APPD

Client



SEKISUI HOUSE


Scale



SCALE 1:50 @A1

North

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ABN: 71 624 801 690
Phone: 02 9922 6135

Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
ROAD TYPICAL CROSS SECTIONS

Scale
AS SHOWN

Date
01/07/2024

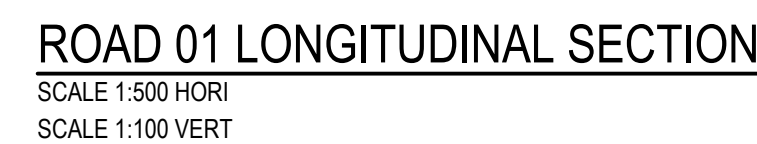
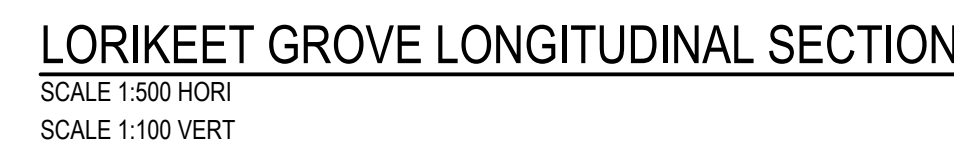
Size
A1

Datum
MGA2020

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FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number
220122-00-DA-C06.01

Revision
1



Client



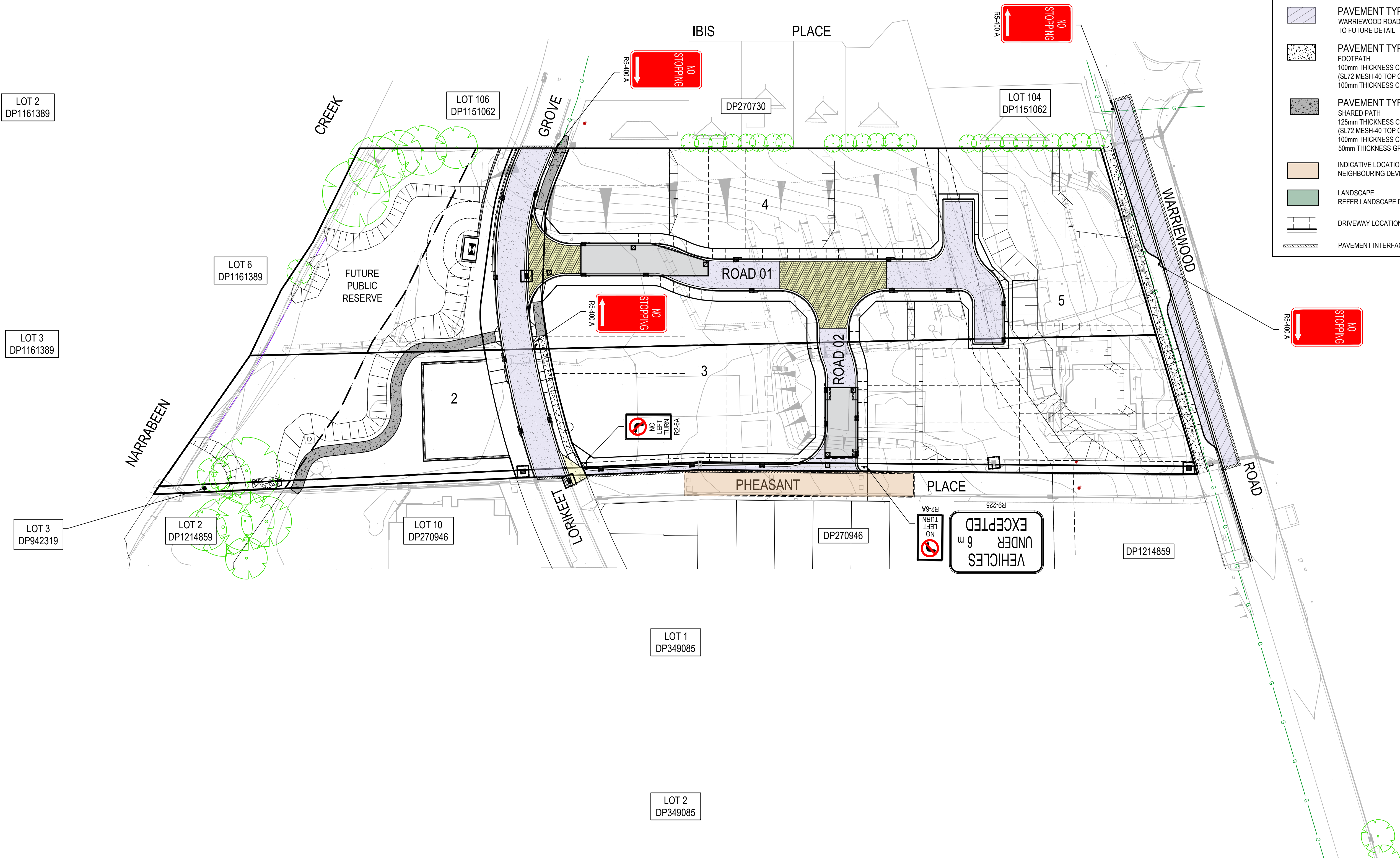
SEKISUI HOUSE



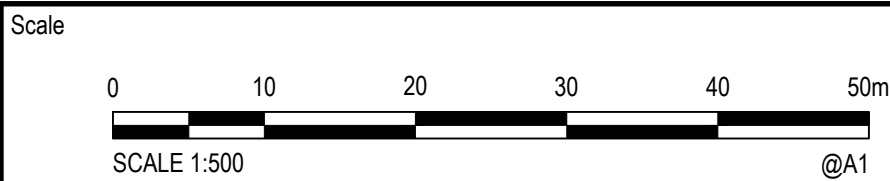
Project 53A & 53B WARRIEWOOD ROAD WARRIEWOOD NSW 2102 CIVIL ENGINEERING WORKS	Scale AS SHOWN	Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION	
	Date R.I.P		
Title ROAD LONGITUDINAL SECTIONS	Size A1	Project Number/Drawing Number 220122-00-DA-C07.01	Revision 1
	Datum MGA2020		

PAVEMENT LEGEND

- PAVEMENT TYPE 1
LOCAL ROAD
TO FUTURE DETAIL
- PAVEMENT TYPE 2
OSD TANK
TO FUTURE DETAIL
- PAVEMENT TYPE 3
STAMPED AC ON LOCAL ROAD PAVEMENT
STREET PRINT BRITISH COBBLE PATTERN,
SANDSTONE COLOUR
TO FUTURE DETAIL
- PAVEMENT TYPE 4
WARRIEWOOD ROAD
TO FUTURE DETAIL
- PAVEMENT TYPE 5
FOOTPATH
100mm THICKNESS CONCRETE
(SL72 MESH-40 TOP COVER) ON
100mm THICKNESS COMPACTED DGB 20
- PAVEMENT TYPE 6
SHARED PATH
125mm THICKNESS CONCRETE
(SL72 MESH-40 TOP COVER) ON
100mm THICKNESS COMPACTED DGB 20
50mm THICKNESS GRANULAR BEDDING
- INDICATIVE LOCATION OF OSD TANK ON
NEIGHBOURING DEVELOPMENT
- LANDSCAPE
REFER LANDSCAPE DRAWINGS FOR DETAILS
- DRIVEWAY LOCATION (FUTURE)
- PAVEMENT INTERFACE DETAIL



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	5/08/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC



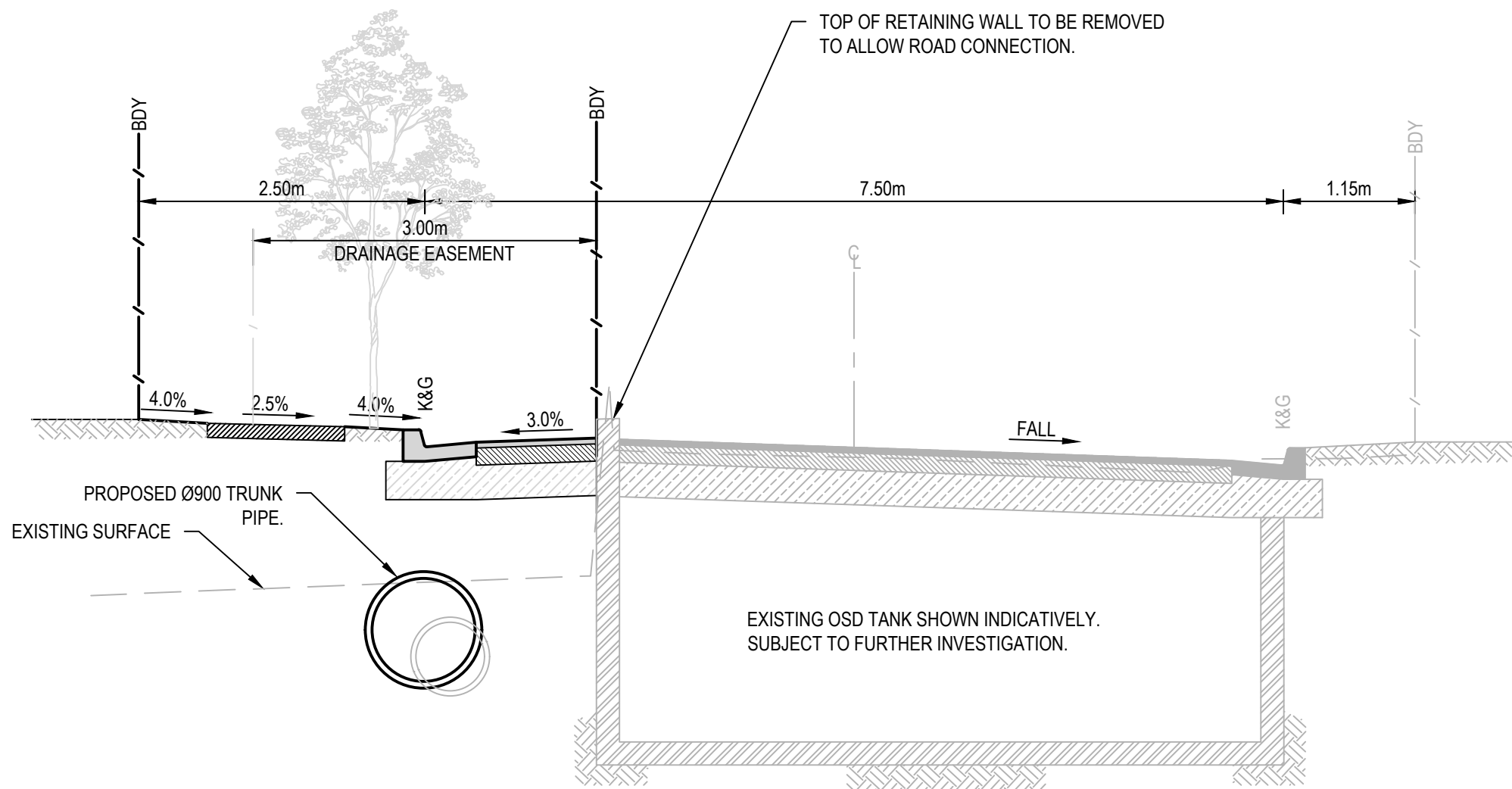
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enspire

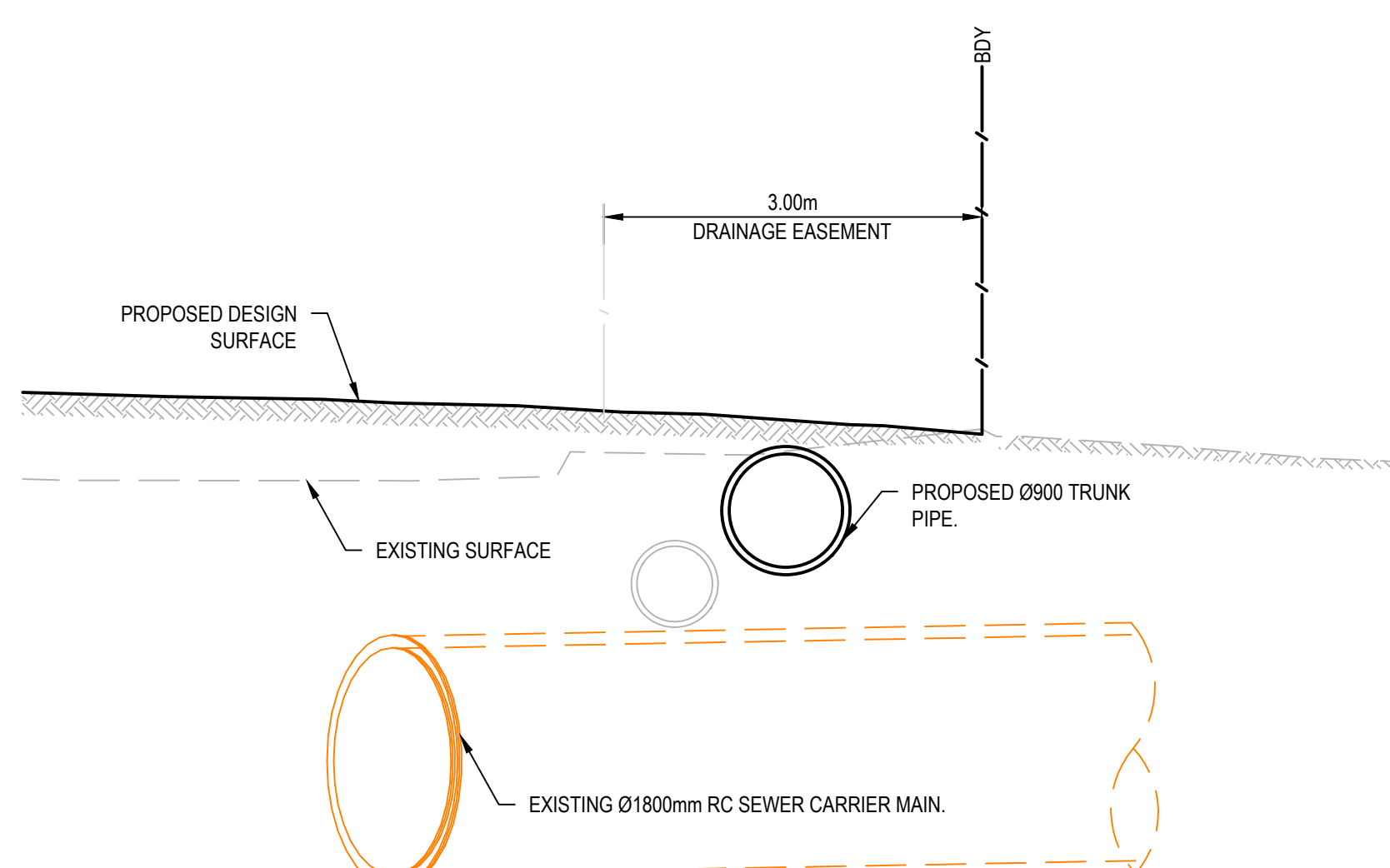
Enspire Solutions Pty Ltd
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ABN: 71 624 801 690
Phone: 02 9922 6135

Project 53A & 53B WARRIEWOOD ROAD WARRIEWOOD NSW 2102 CIVIL ENGINEERING WORKS	Scale 1:500 Date 01/07/2024 Size A1 Datum MGA2020
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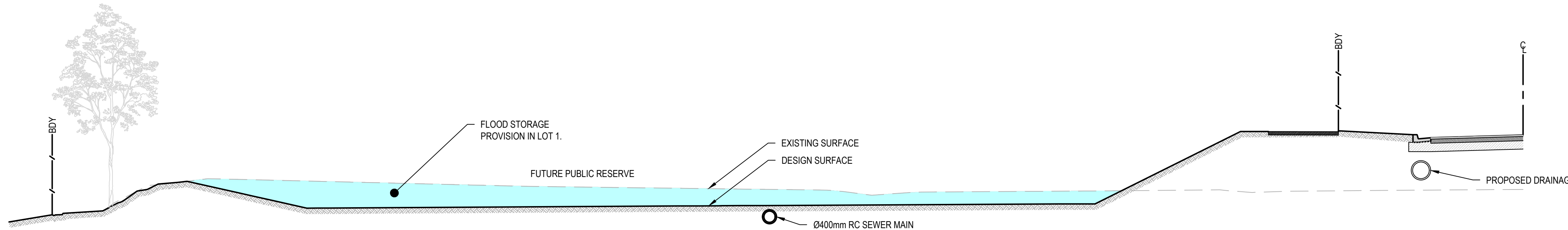
Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION	Project Number/Drawing Number 220122-00-DA-C11.01	Revision 2
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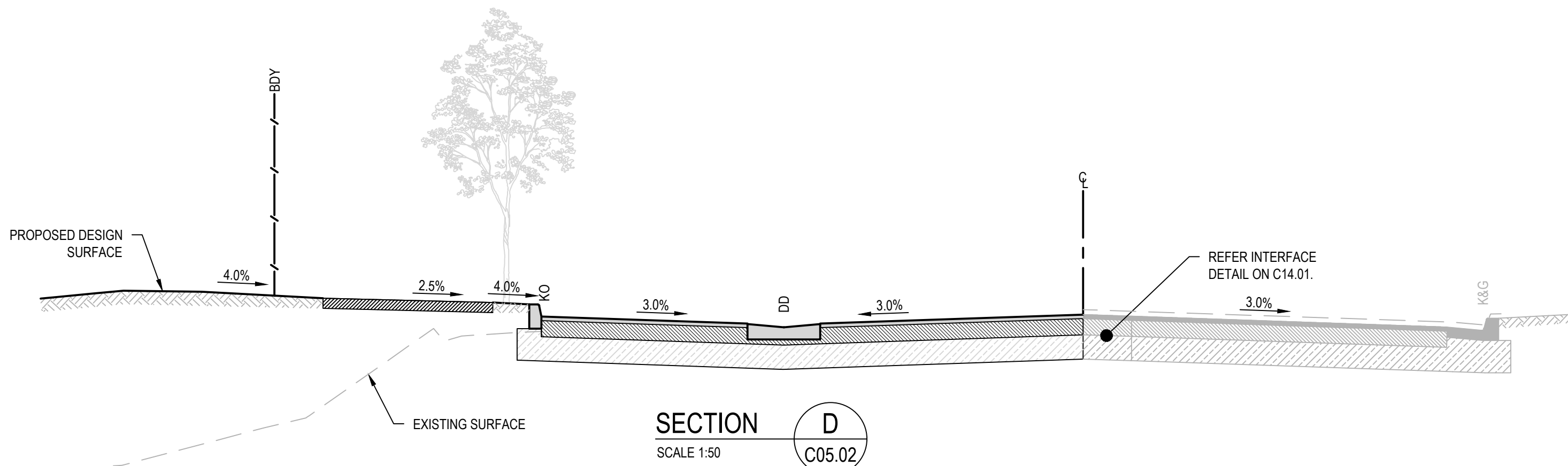
SECTION A
SCALE 1:50
C05.02



SECTION B
SCALE 1:50
C05.02



SECTION C
SCALE 1:100
-



SECTION D
SCALE 1:50
C05.02


REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	5/08/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

Client



SEKISUI HOUSE


Scale



SCALE 1:50 @A1

North

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Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

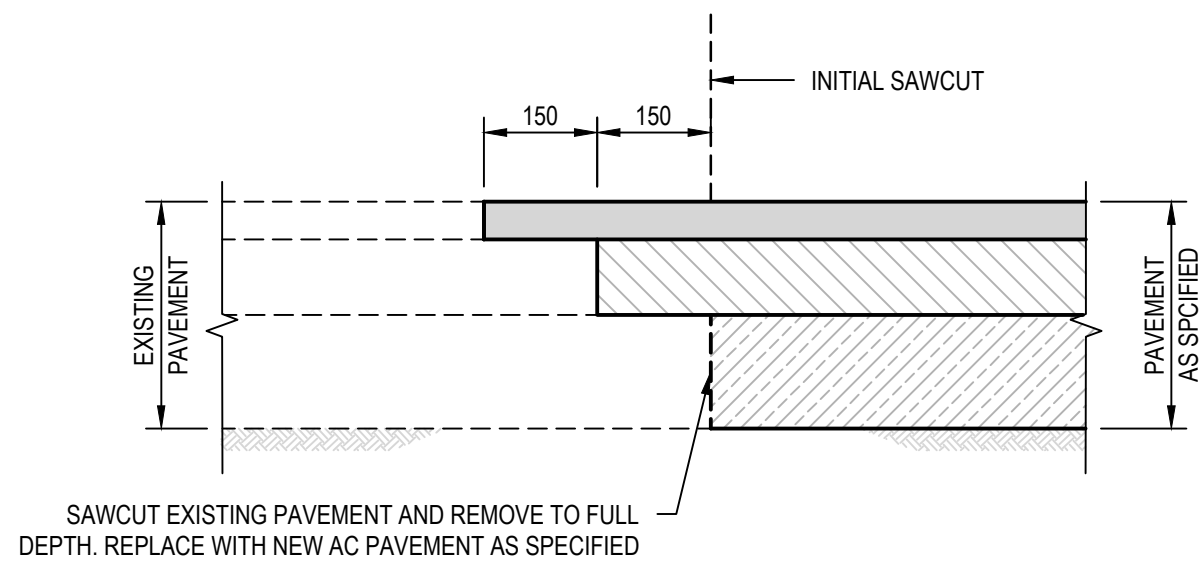
Title
SITE SECTIONS

Scale
AS SHOWN
Date
01/07/2024

Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

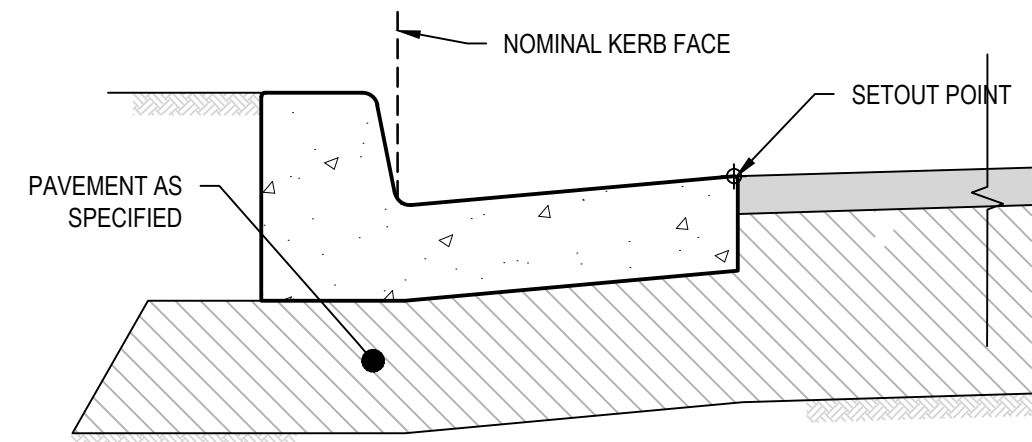
Project Number/Drawing Number
220122-00-DA-C13.01

Revision
2

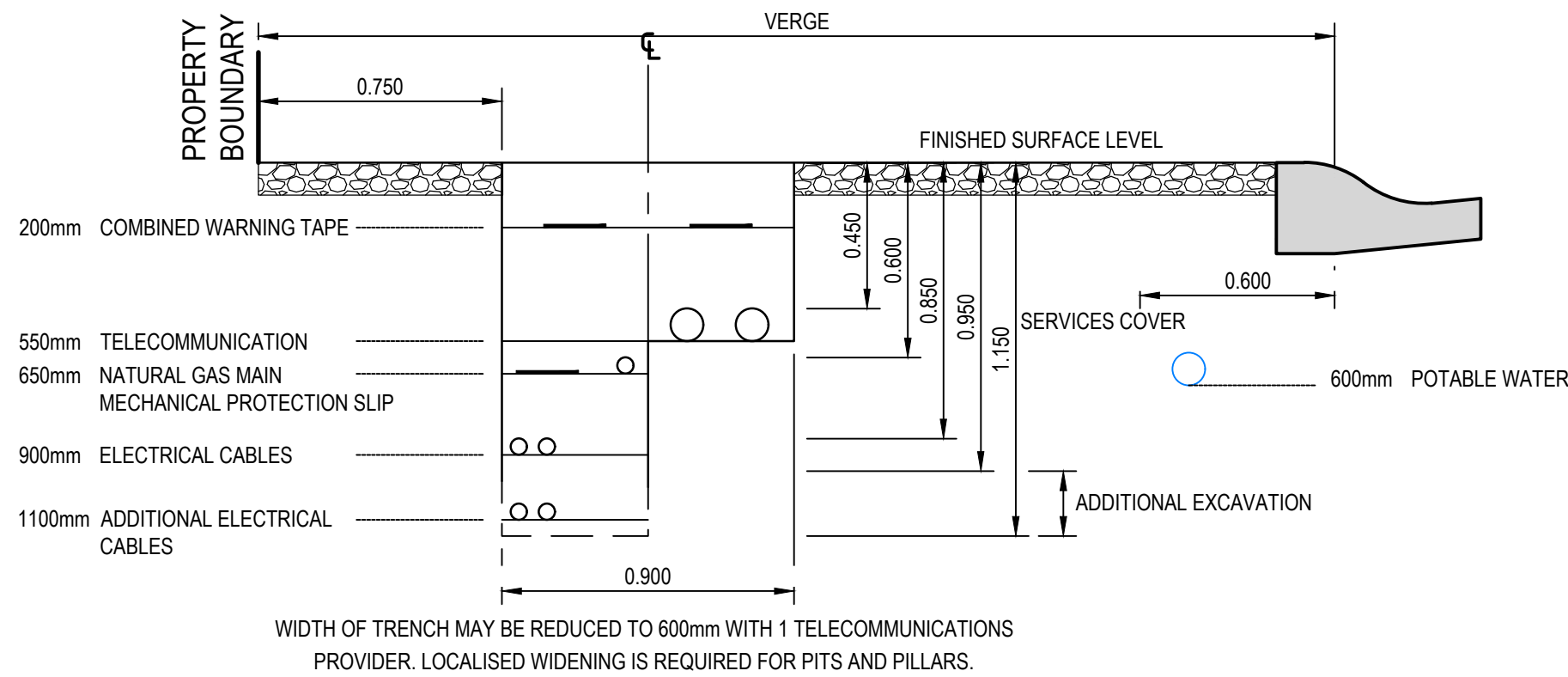


FLEXIBLE PAVEMENT INTERFACE DETAIL
NEW TO EXISTING
SCALE 1:10

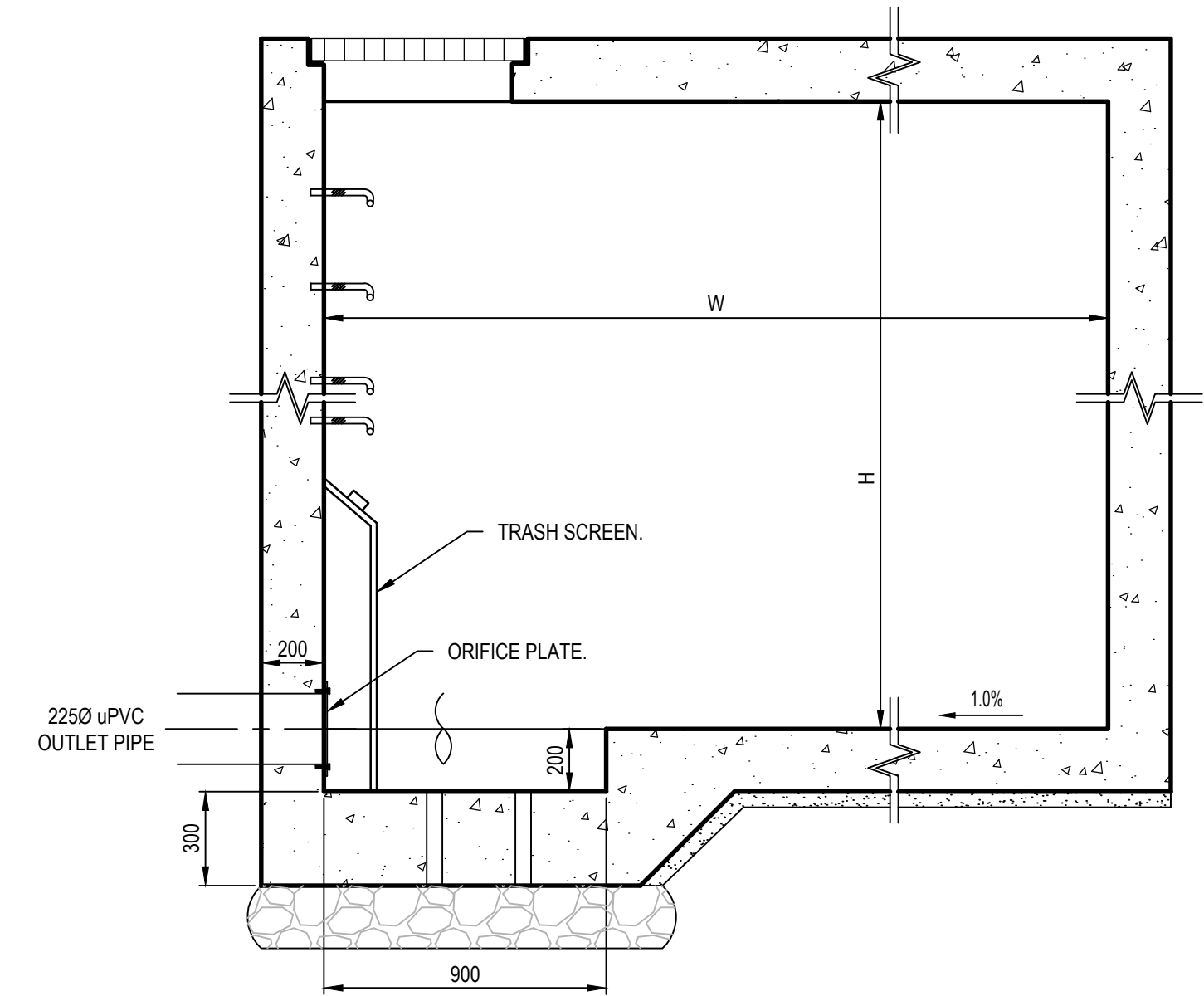
NOTE:
TACK COAT EXISTING PAVEMENT BASE AND AC INTERFACE
PRIOR TO PLACEMENT OF NEW AC WEARING COURSE.



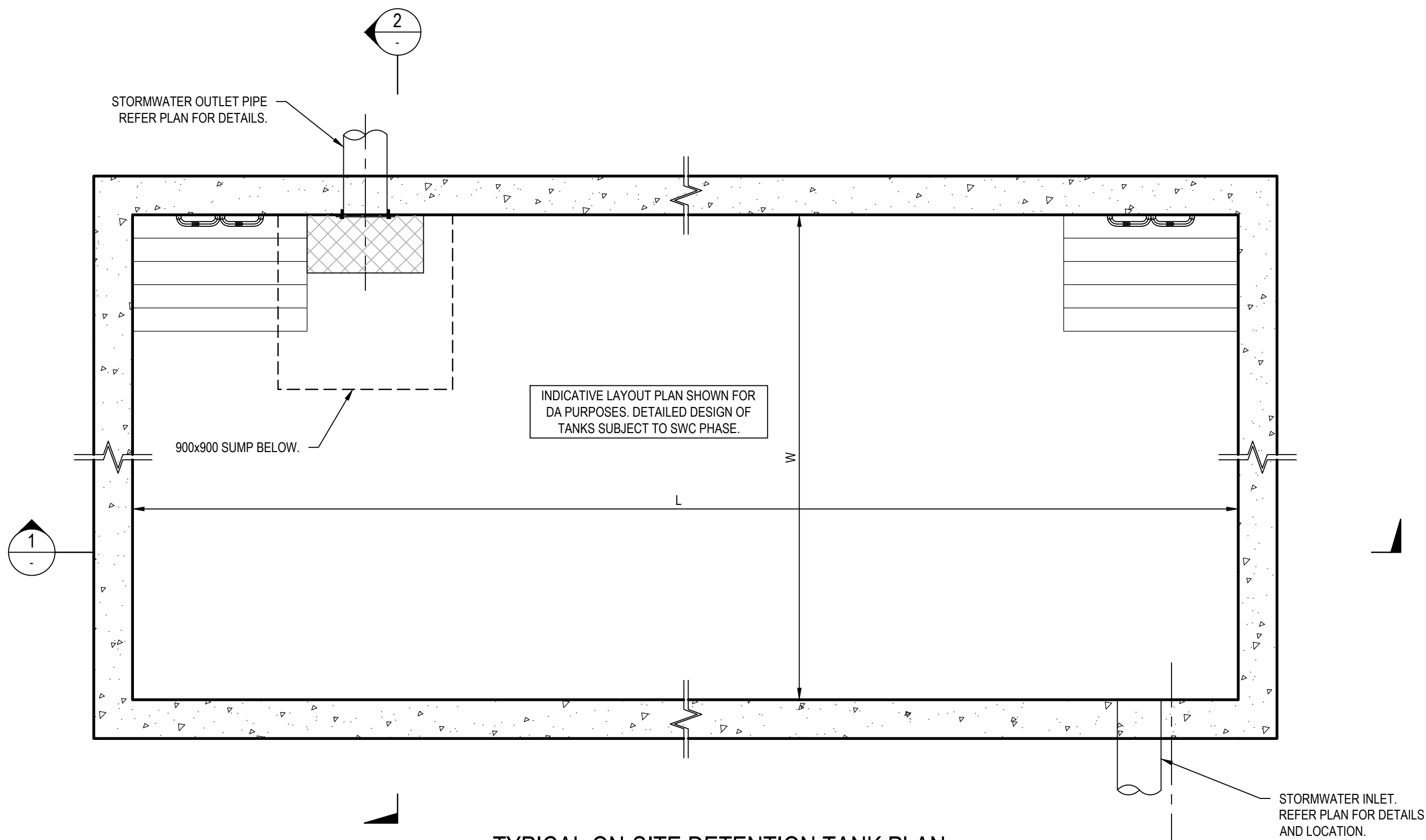
KERB SETOUT DETAIL
SCALE 1:10



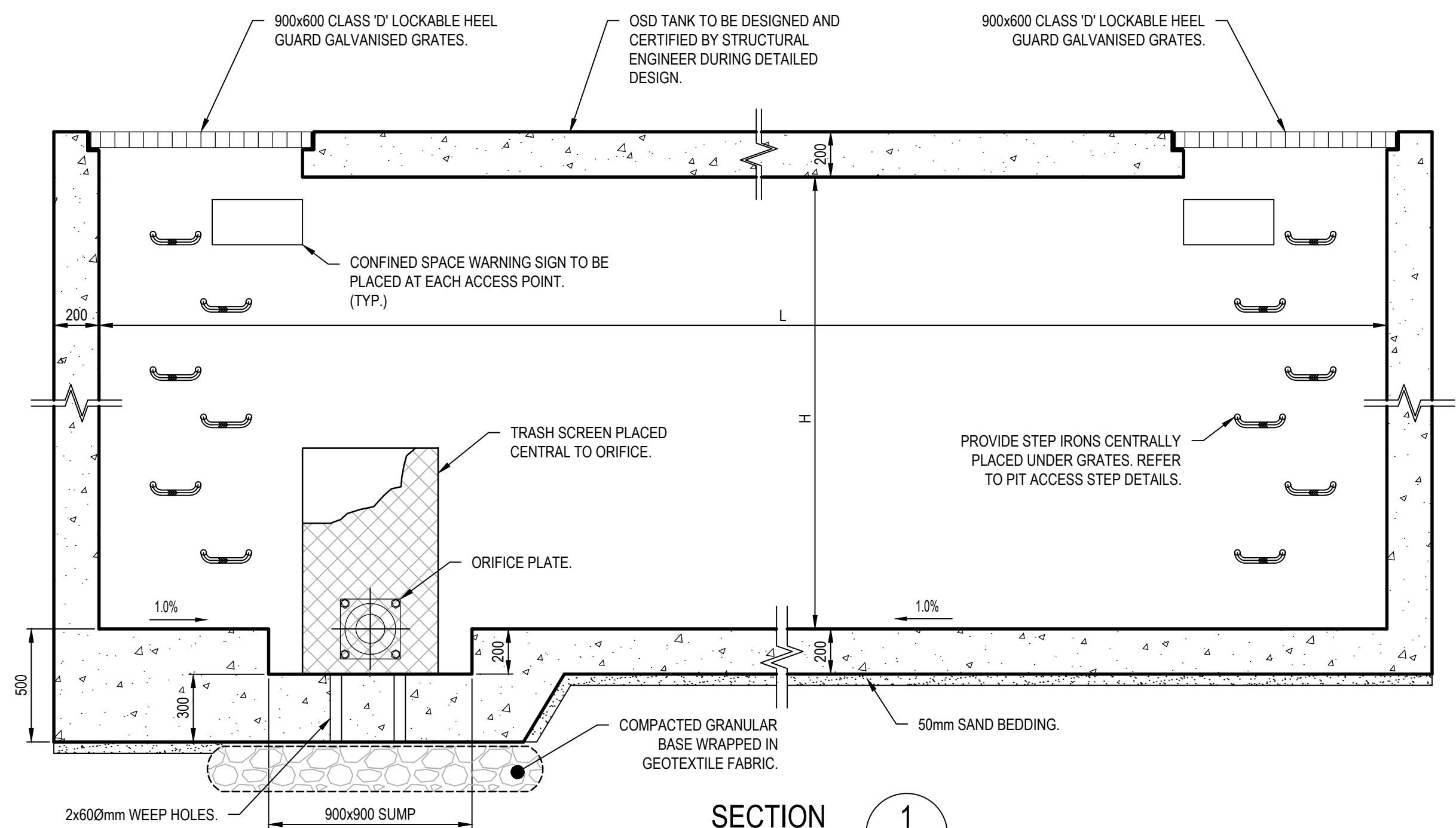
TYPICAL SERVICES TRENCH DETAIL
SCALE 1:20
DETAIL BASED OFF "NSW STREETS OPENING CONFERENCE
- GUIDE TO CODES AND PRACTICES FOR STREETS
OPENING", 7TH EDITION 2009.



SECTION 2
SCALE 1:20



TYPICAL ON-SITE DETENTION TANK PLAN
SCALE 1:20



SECTION 1
SCALE 1:20

REV.	DATE	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION				

Client

SEKISUI HOUSE

Scale

0 200 400 600 800 1000mm
SCALE 1:10 @A1
0 0.5 1 1.5 2m
SCALE 1:20 @A1

North

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Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Scale
AS SHOWN
Date
01/07/2024

Title
SITWORKS DETAILS

Size
A1
Datum
MGA2020

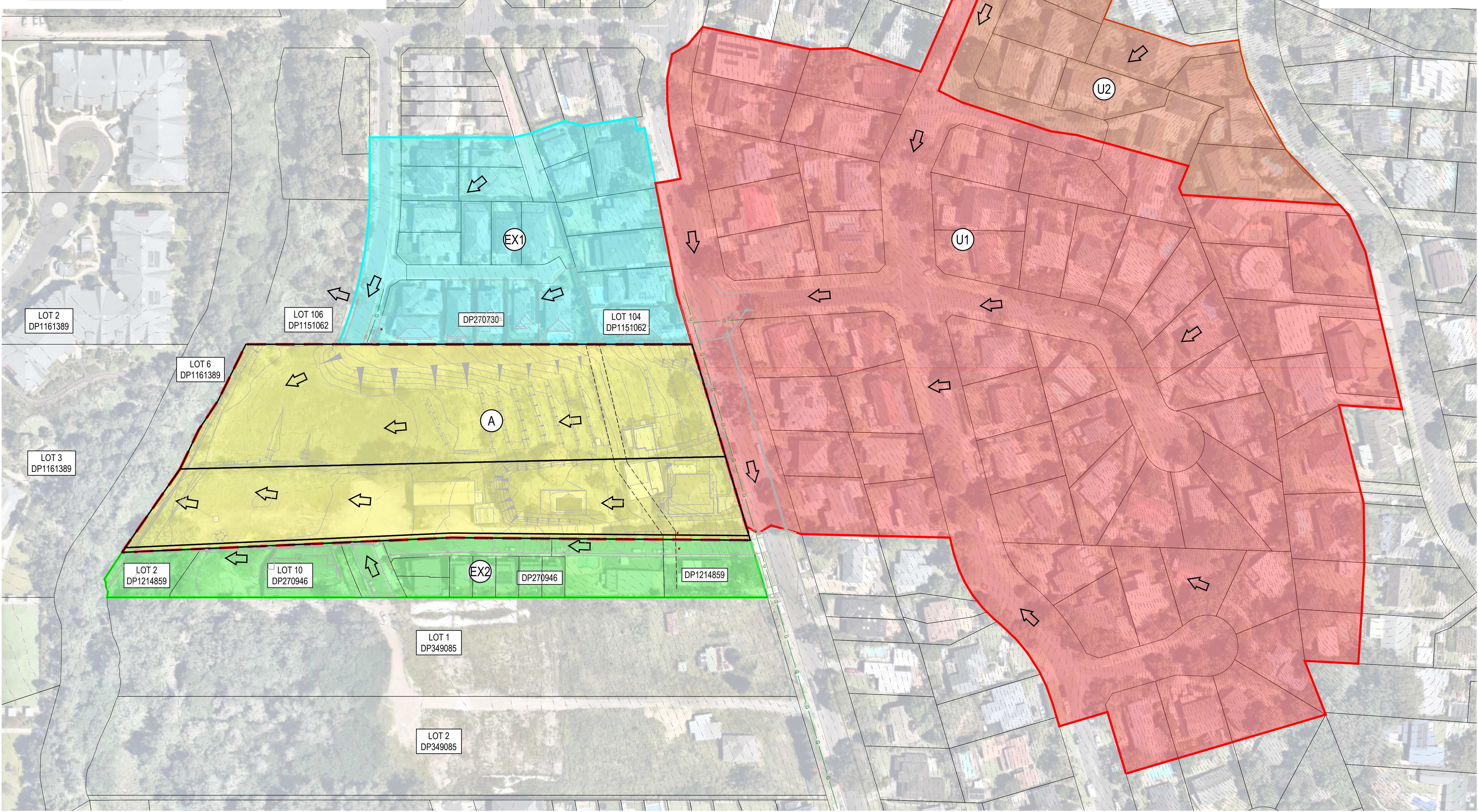
Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number
220122-00-DA-C14.01

Revision
1

PRE DEVELOPMENT CATCHMENT BREAKDOWN			
CATCHMENT LABEL	AREA(ha)	DESCRIPTION	
A	1.650	SITE CATCHMENT CURRENTLY DRAINS WEST TO NARRABEEN CREEK.	
EX1	1.022	EXISTING URBAN RESIDENTIAL CATCHMENT. DRAINS TO NARRABEEN CREEK VIA EXISTING PIT AND PIPE NETWORK IN LORIKEET GROVE.	
EX2	0.557	EXISTING URBAN RESIDENTIAL CATCHMENT. DRAINS TO NARRABEEN CREEK VIA EXISTING PIT AND PIPE NETWORK LOCATED ON NORTHERN BDY. PORTION OF CATCHMENT DRAINS VIA EXISTING OSD / WQ TANK IN PHEASANT PLACE.	
U1	5.568	EXISTING URBAN RESIDENTIAL CATCHMENT DRAINS TO NARRABEEN CREEK VIA TRUNK STORMWATER LINE ALONG PHEASANT PLACE (MINOR - PIPED). MAJOR STORMS BYPASS PIT IN WARRIWOOD ROAD.	
U2	0.734	EXISTING URBAN RESIDENTIAL CATCHMENT DRAINS TO NARRABEEN CREEK VIA INTERLOTMENT STORMWATER LINE AT 49 & 51 ALAMEDA WAY (MINOR - PIPED) & DRAINS TO NARRABEEN CREEK VIA TRUNK STORMWATER LINE ALONG PHEASANT PLACE & DOWNSTREAM WARRIWOOD ROAD (MAJOR - OVERLAND).	
TOTAL	9.531		

LEGEND	
—	SITE EXTENT
—	CATCHMENT BOUNDARY
A	CATCHMENT LABEL
➡	CATCHMENT FLOW DIRECTION

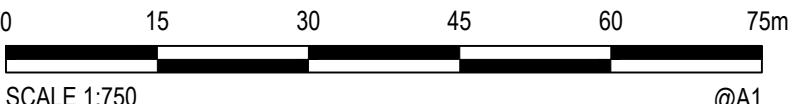


REV.	DATE	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC
1	28/06/2024	ISSUED FOR DEVELOPMENT APPLICATION				
REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.

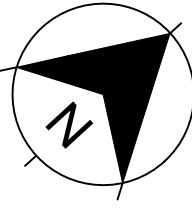
Client


SEKISUI HOUSE

Scale


SCALE 1:750 @A1

North



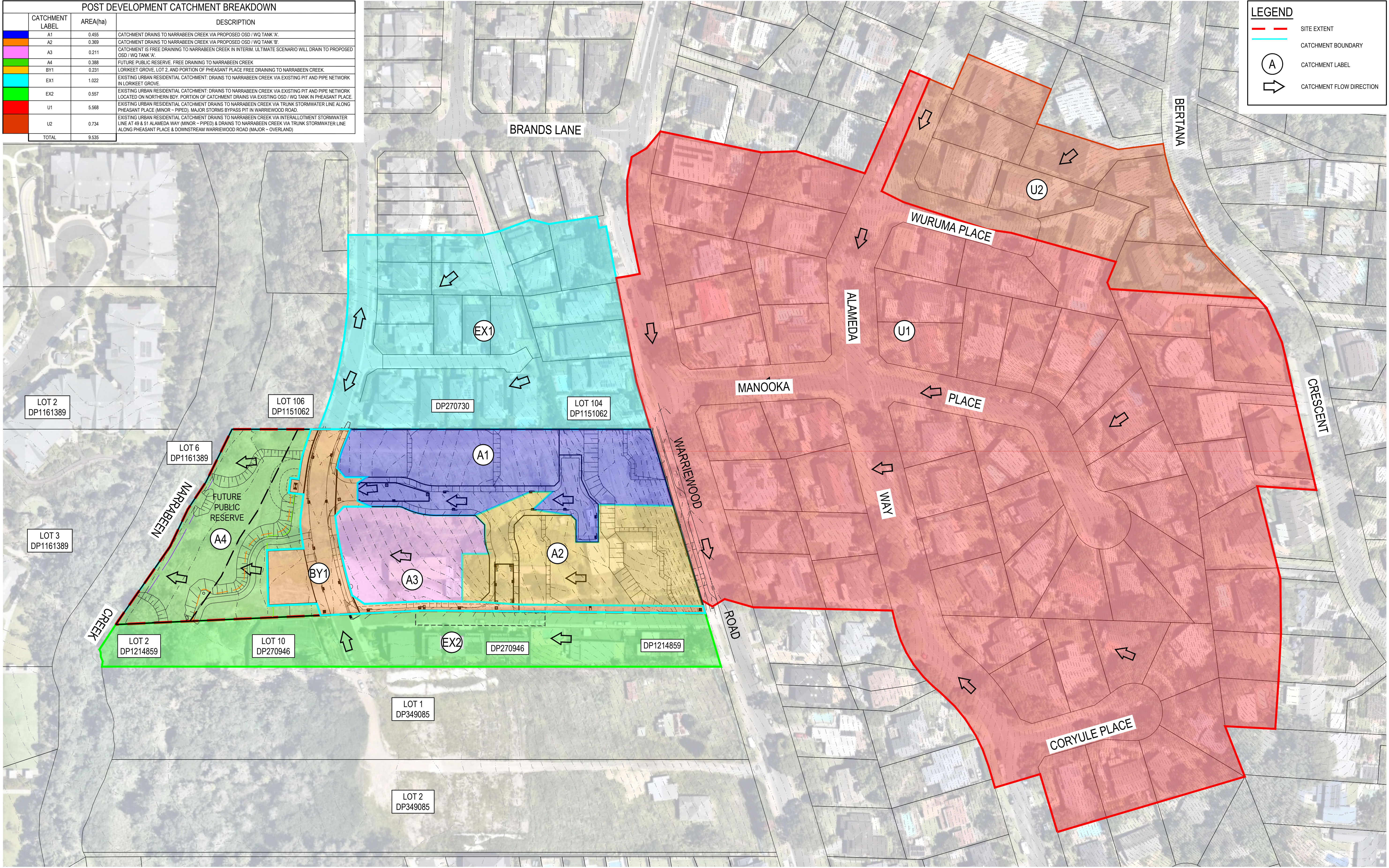
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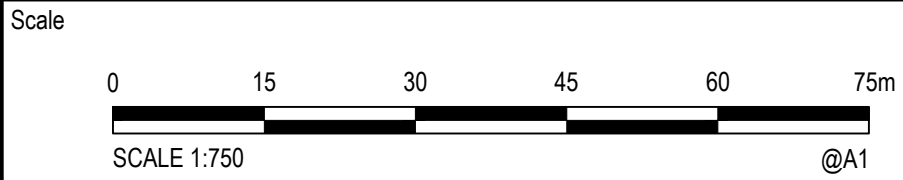
Project	53A & 53B WARRIWOOD ROAD WARRIWOOD NSW 2102 CIVIL ENGINEERING WORKS
Title	PRE-DEVELOPMENT CATCHMENT PLAN
Scale	1:500
Date	28/06/2024
Size	A1
Datum	MGA2020

Status	FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION	
Project Number/Drawing Number	220122-00-DA-C20.01	Revision
		1

POST DEVELOPMENT CATCHMENT BREAKDOWN			
CATCHMENT LABEL	AREA(ha)	DESCRIPTION	
A1	0.455	CATCHMENT DRAINS TO NARRABEEN CREEK VIA PROPOSED OSD / WQ TANK 'K'.	
A2	0.369	CATCHMENT DRAINS TO NARRABEEN CREEK VIA PROPOSED OSD / WQ TANK 'B'.	
A3	0.211	CATCHMENT IS FREE DRAINING TO NARRABEEN CREEK IN INTERIM. ULTIMATE SCENARIO WILL DRAIN TO PROPOSED OSD / WQ TANK 'A'.	
A4	0.388	FUTURE PUBLIC RESERVE. FREE DRAINING TO NARRABEEN CREEK	
BY1	0.231	LORIKEET GROVE. LOT 2, AND PORTION OF PHEASANT PLACE FREE DRAINING TO NARRABEEN CREEK.	
EX1	1.022	EXISTING URBAN RESIDENTIAL CATCHMENT. DRAINS TO NARRABEEN CREEK VIA EXISTING PIT AND PIPE NETWORK IN LORIKEET GROVE.	
EX2	0.557	EXISTING URBAN RESIDENTIAL CATCHMENT. DRAINS TO NARRABEEN CREEK VIA EXISTING PIT AND PIPE NETWORK LOCATED ON NORTHERN BDY. PORTION OF CATCHMENT DRAINS VIA EXISTING OSD / WQ TANK IN PHEASANT PLACE.	
U1	5.568	EXISTING URBAN RESIDENTIAL CATCHMENT DRAINS TO NARRABEEN CREEK VIA TRUNK STORMWATER LINE ALONG PHEASANT PLACE (MINOR - PIPED). MAJOR STORMS BYPASS PIT IN WARRIEWOOD ROAD.	
U2	0.734	EXISTING URBAN RESIDENTIAL CATCHMENT DRAINS TO NARRABEEN CREEK VIA INTERALLOTMENT STORMWATER LINE AT 49 & 51 ALAMEDA WAY (MINOR - PIPED) & DRAINS TO NARRABEEN CREEK VIA TRUNK STORMWATER LINE ALONG PHEASANT PLACE & DOWNSTREAM WARRIEWOOD ROAD (MAJOR - OVERLAND).	
TOTAL	9.535		



REV.	DATE	ISSUED FOR DEVELOPMENT APPLICATION	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION					



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Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
POST-DEVELOPMENT CATCHMENT PLAN

Scale
1:500

Date
01/07/2024

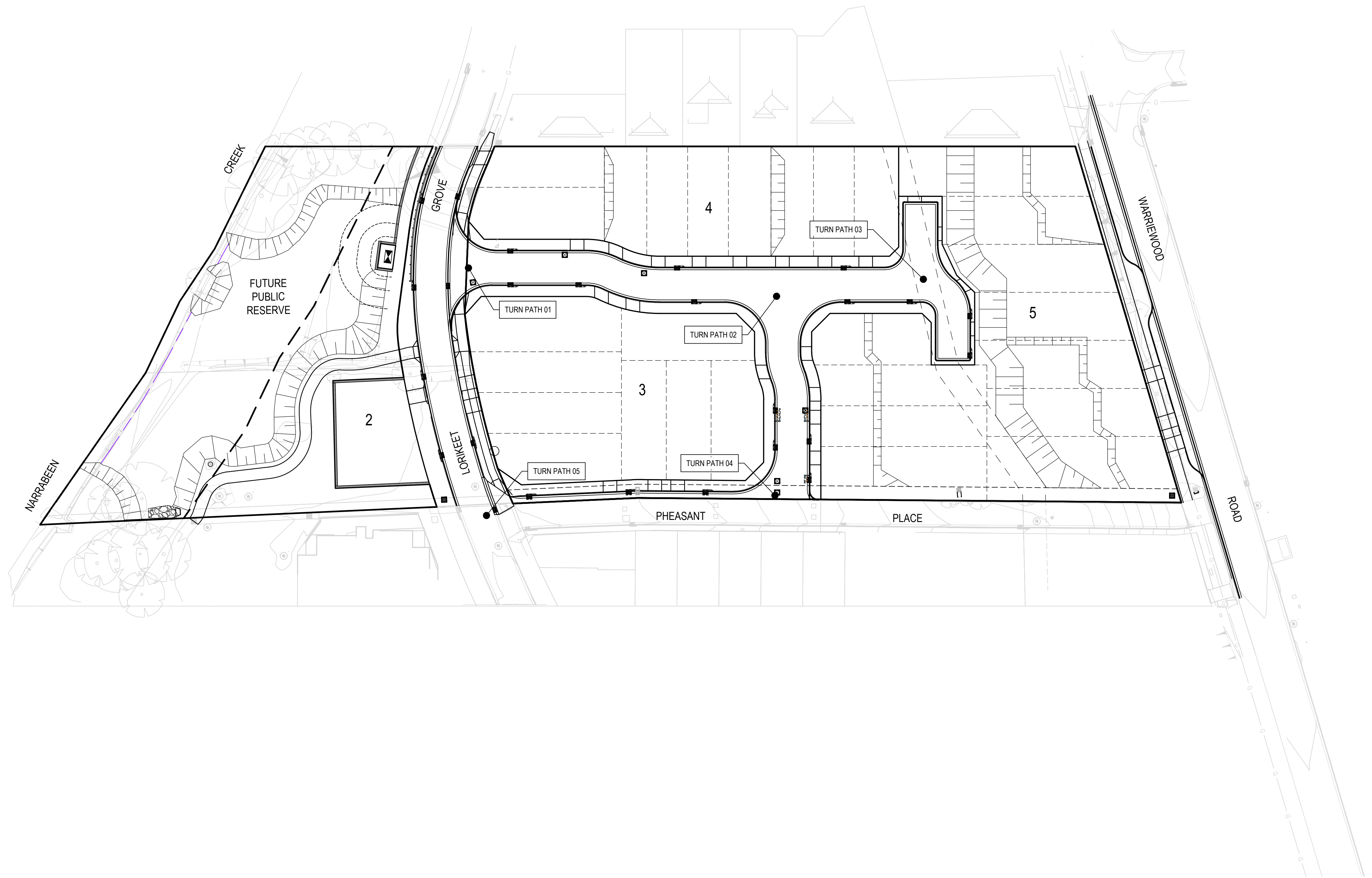
Size
A1

Datum
MGA2020

Status
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Project Number/Drawing Number
220122-00-DA-C21.01

Revision
1




REV.	DATE	DESCRIPTION	SS	TPB	RLE	MC
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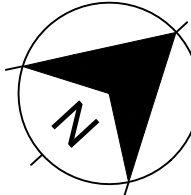
Client


SEKISUI HOUSE

Scale


SCALE 1:500 @A1

North



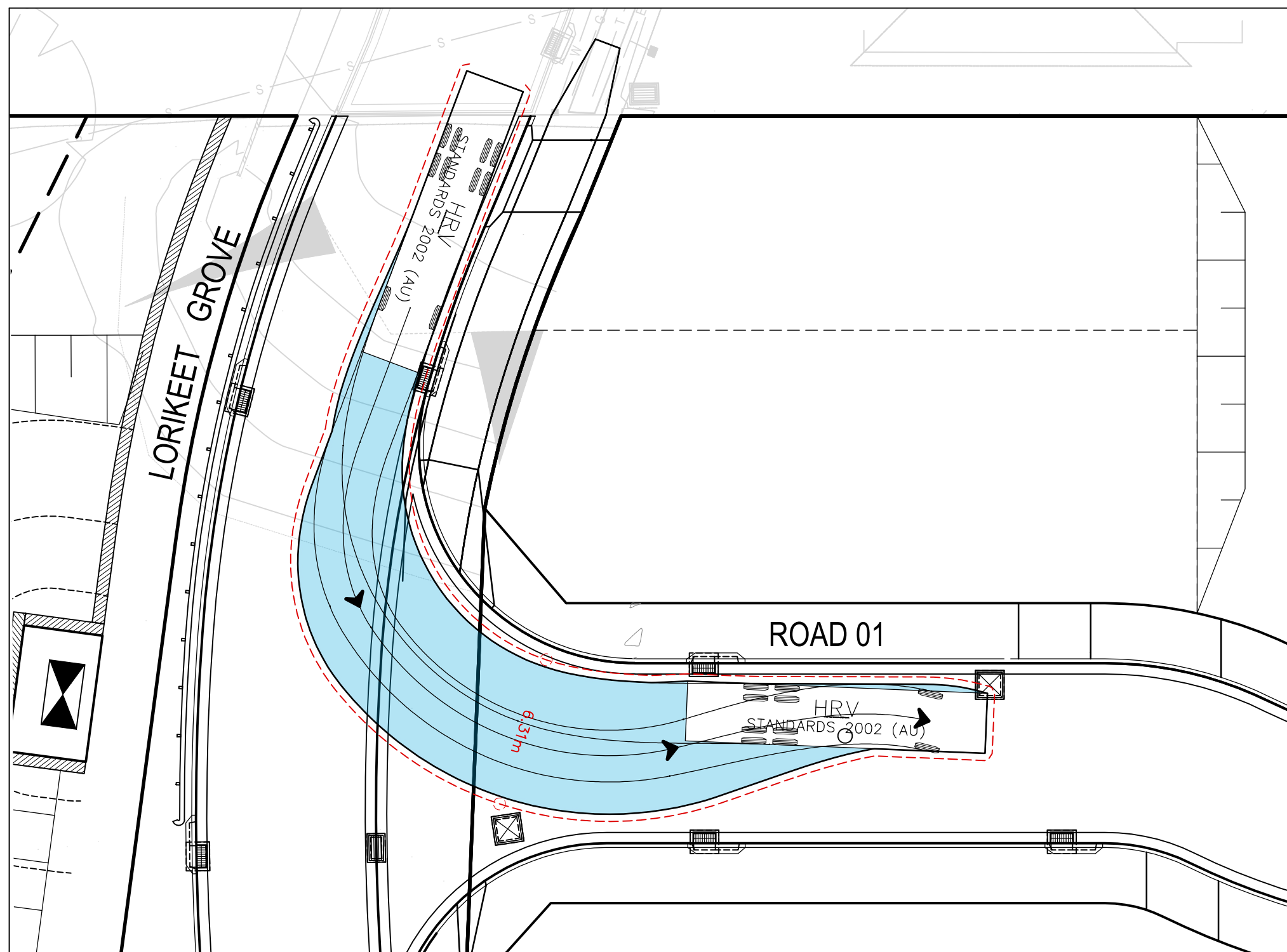
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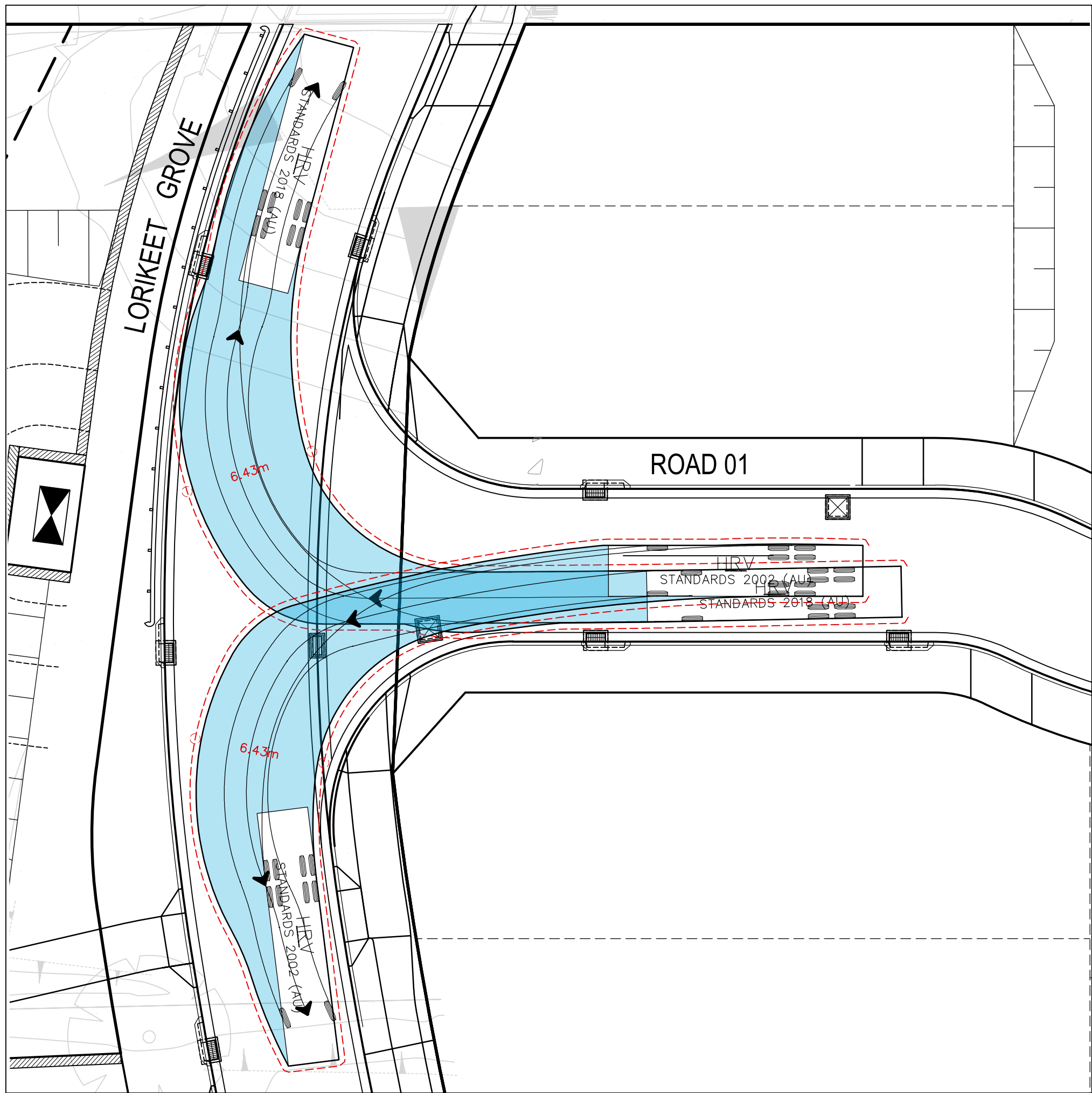
Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
TURNING PATH PLAN
SHEET 01

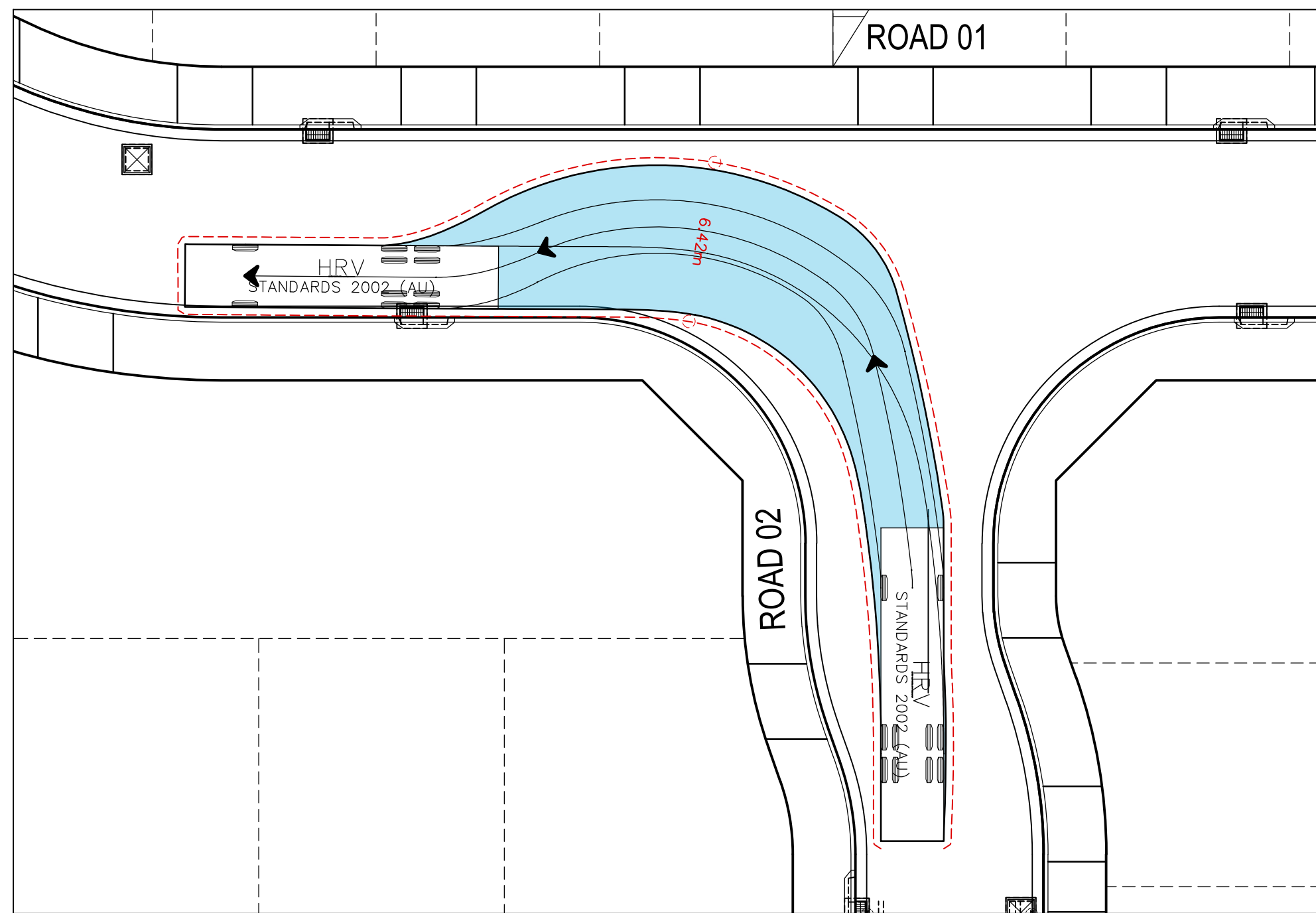
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Date 01/07/2024		
Size A1		
Datum MGA2020	Project Number/Drawing Number 220122-00-DA-C22.01	Revision 1



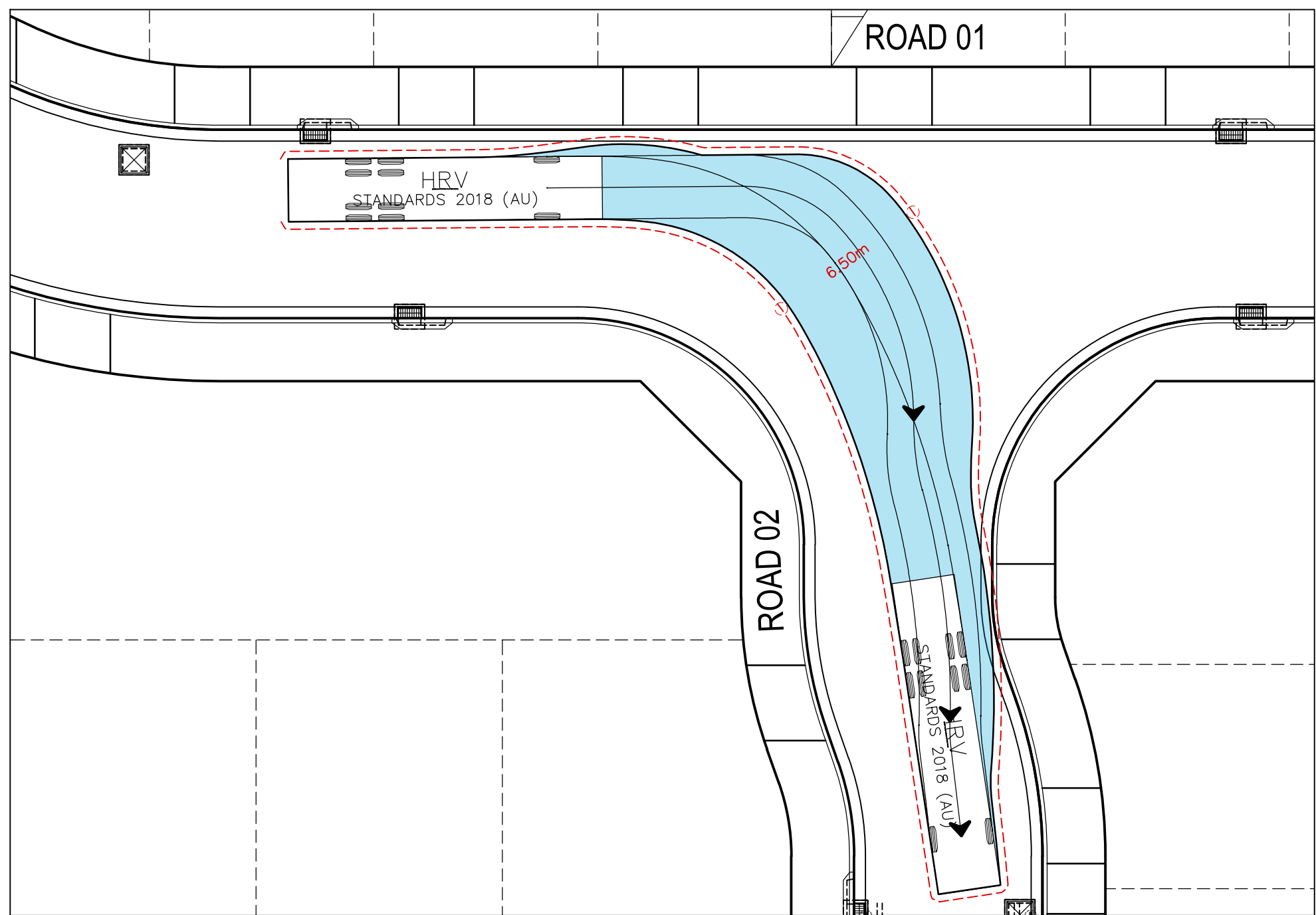
TURN PATH 01 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



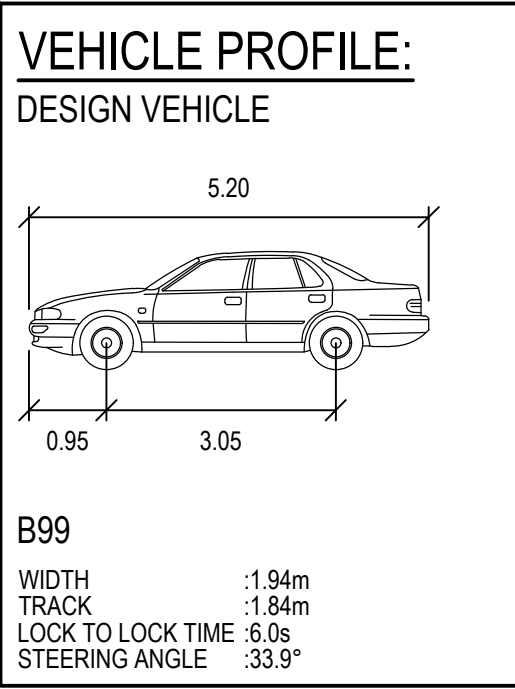
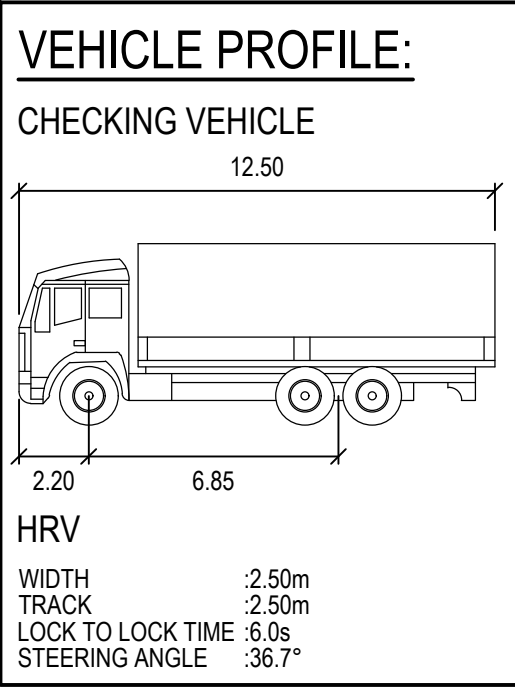
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SCALE 1:200



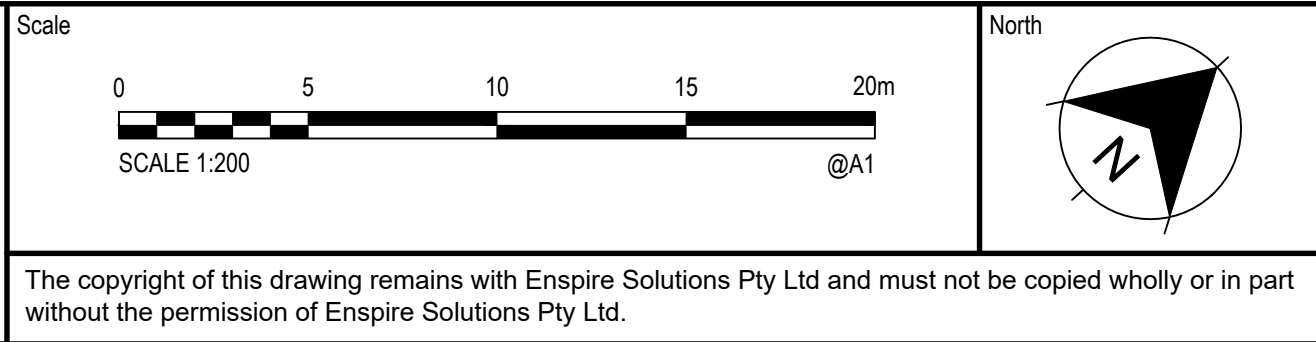
TURN PATH 02 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



TURN PATH 02 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200

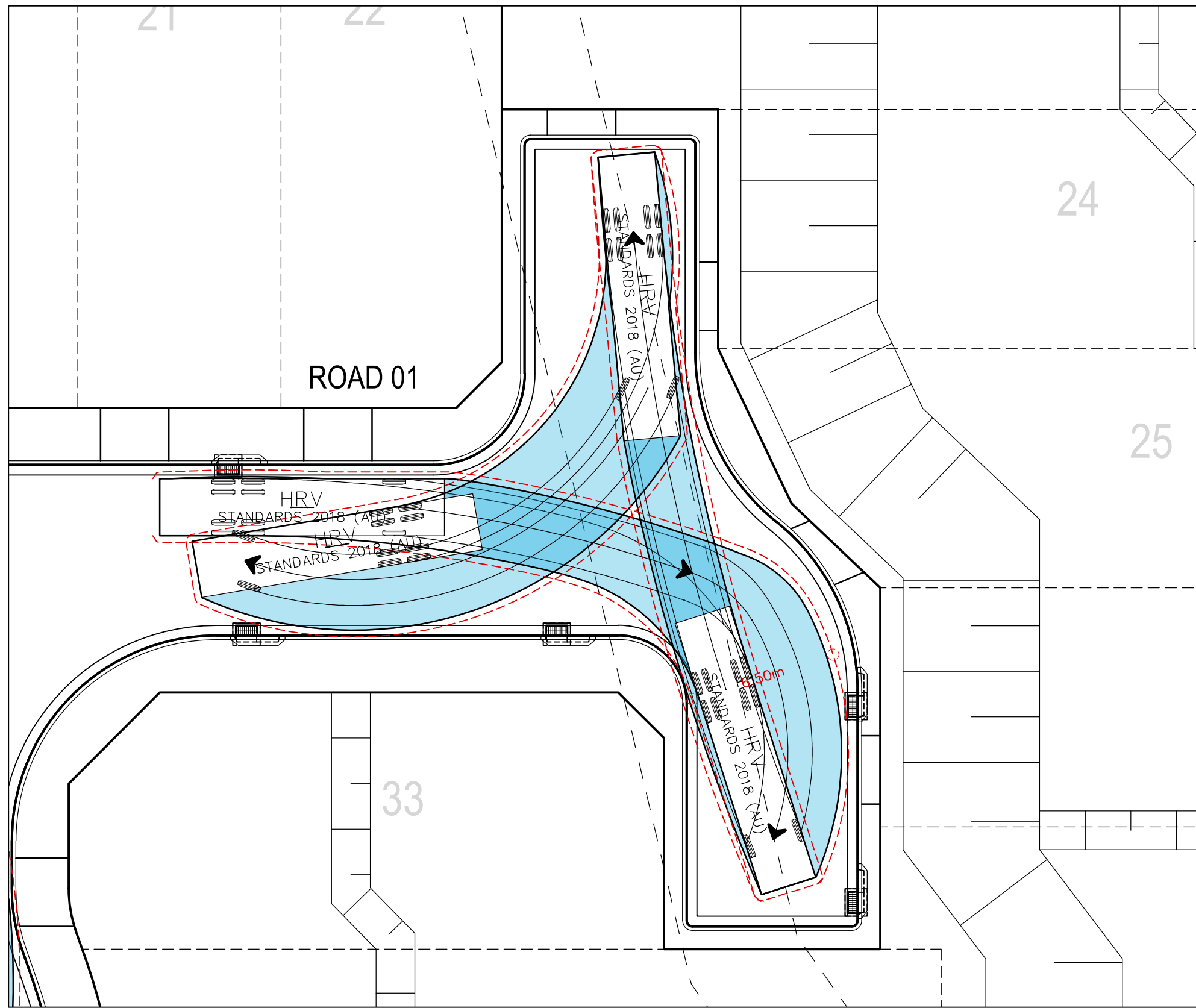


REV	DATE	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

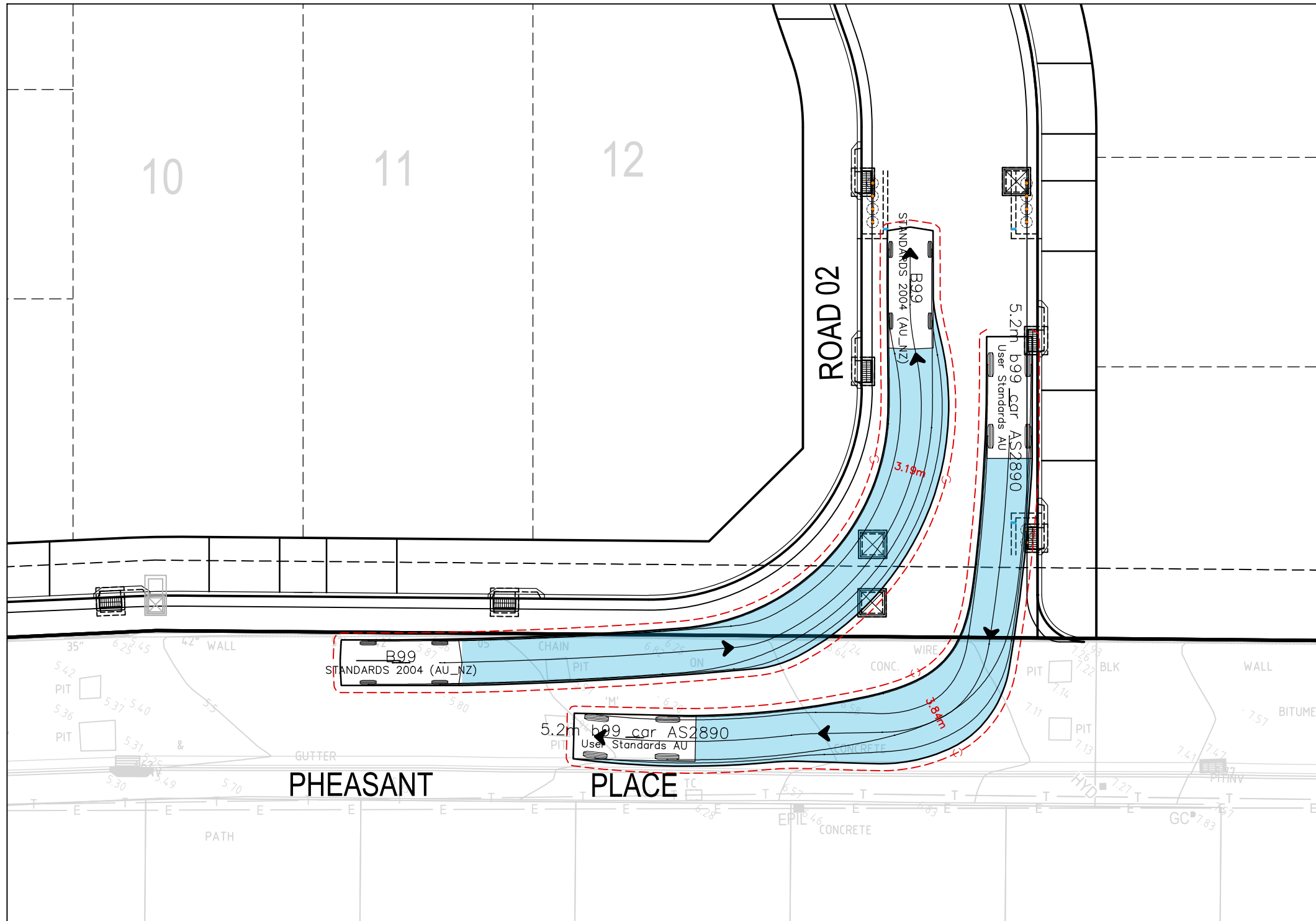


Project 53A & 53B WARRIWOOD ROAD WARRIWOOD NSW 2102 CIVIL ENGINEERING WORKS	Scale 1:200 Date 01/07/2024 Size A1 Datum MGA2020
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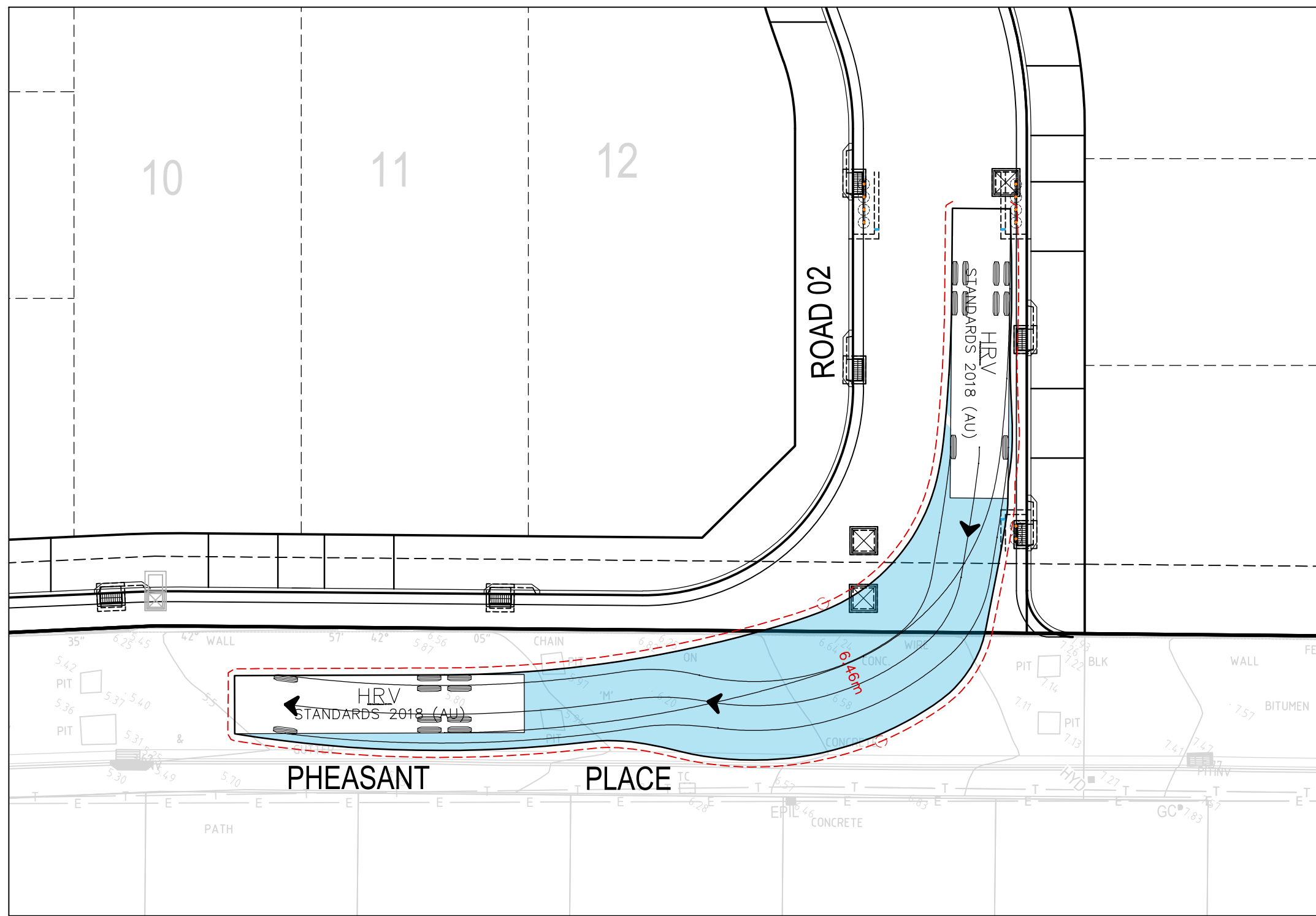
Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION	Project Number/Drawing Number 220122-00-DA-C22.02	Revision 1
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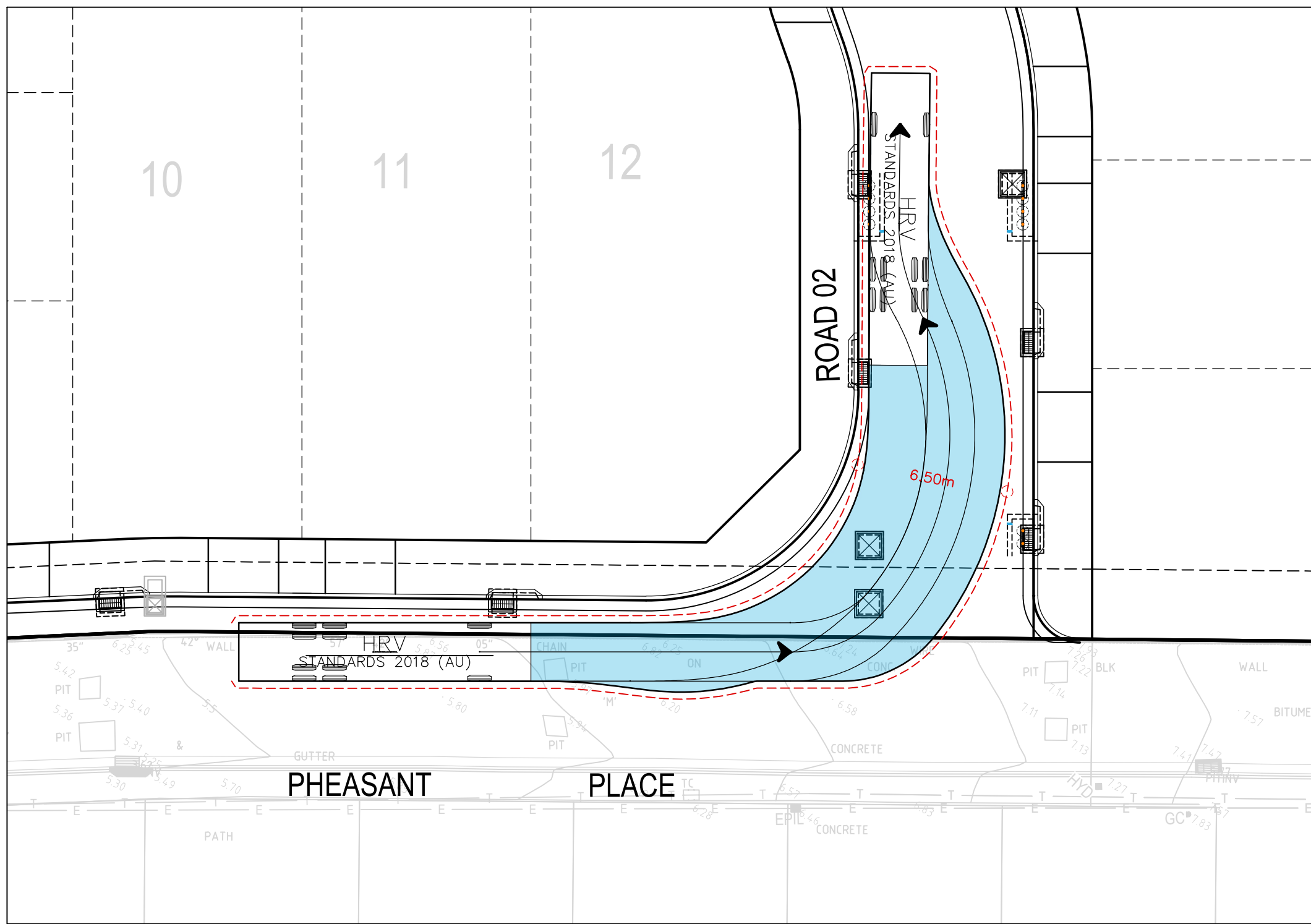
TURN PATH 03 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



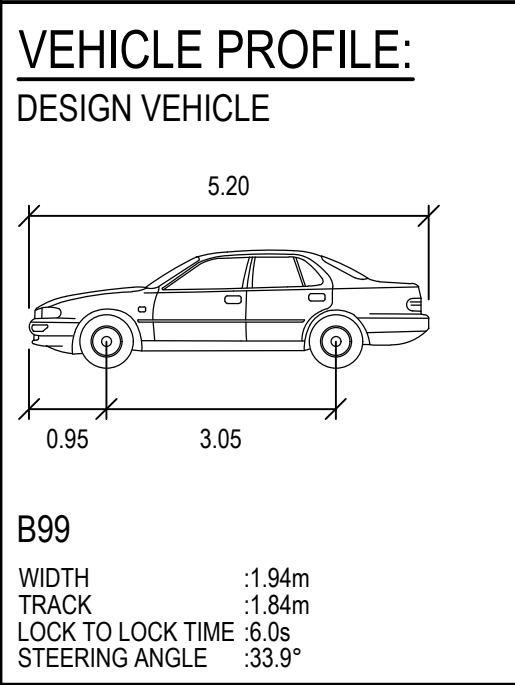
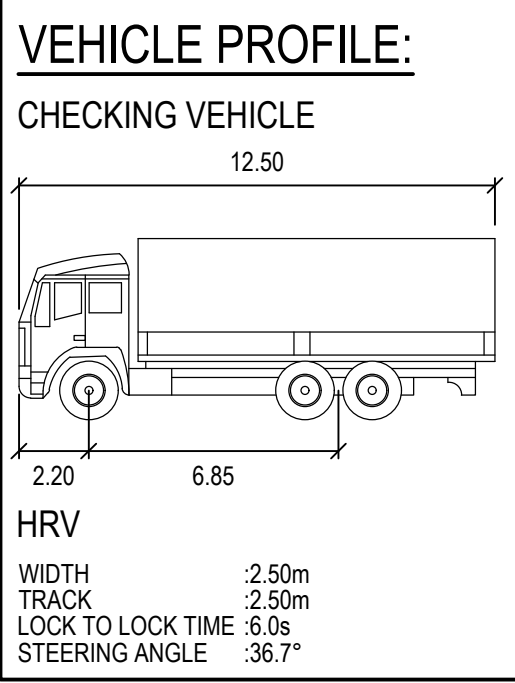
TURN PATH 04 -5.2m B99 CAR
SCALE 1:200



TURN PATH 04 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



TURN PATH 04 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



REV.	DATE	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

Client

SEKISUI HOUSE

Scale

North

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Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
TURNING PATH PLAN

SHEET 03

Scale
1:200

Date
01/07/2024

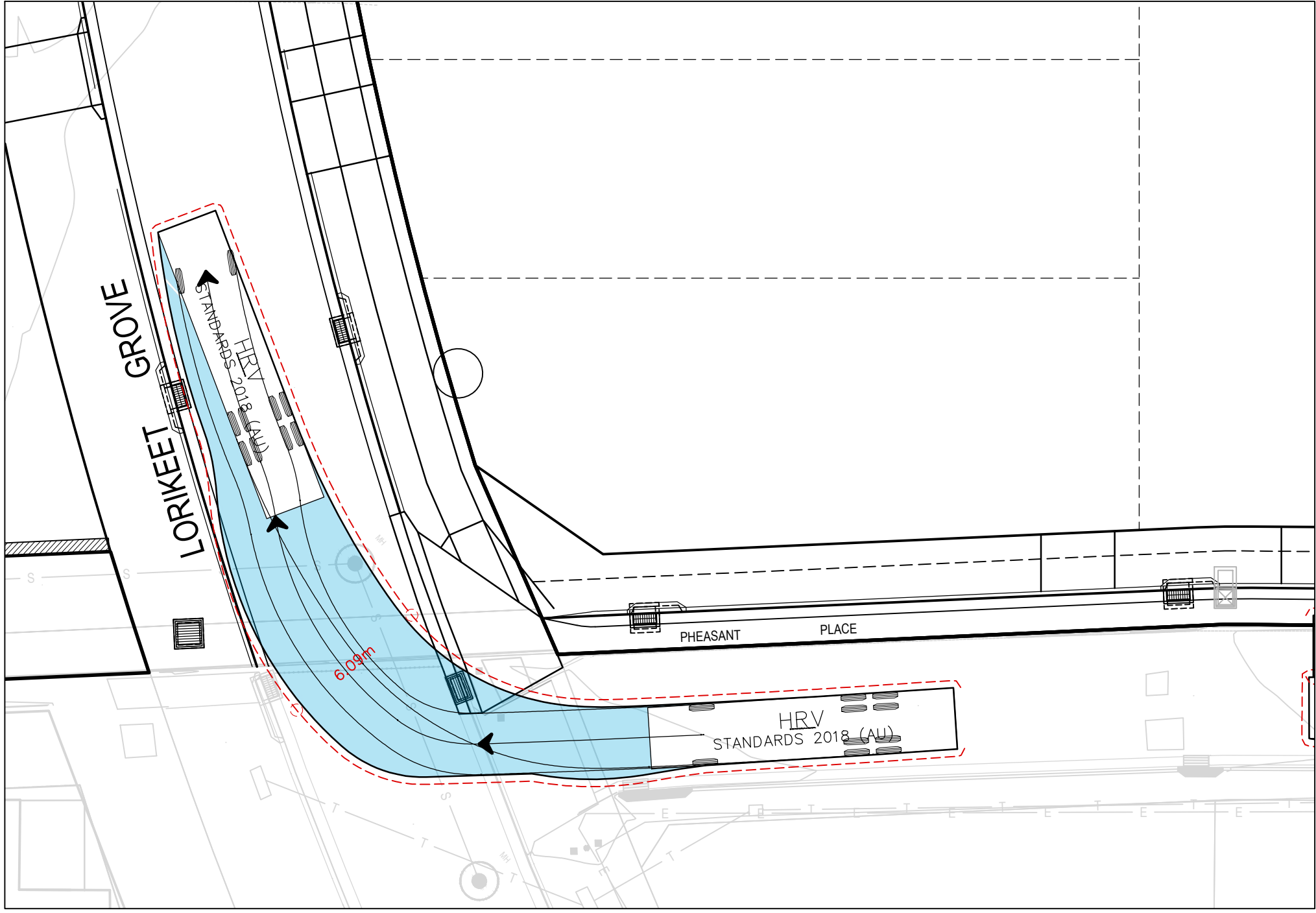
Size
A1

Datum
MGA2020

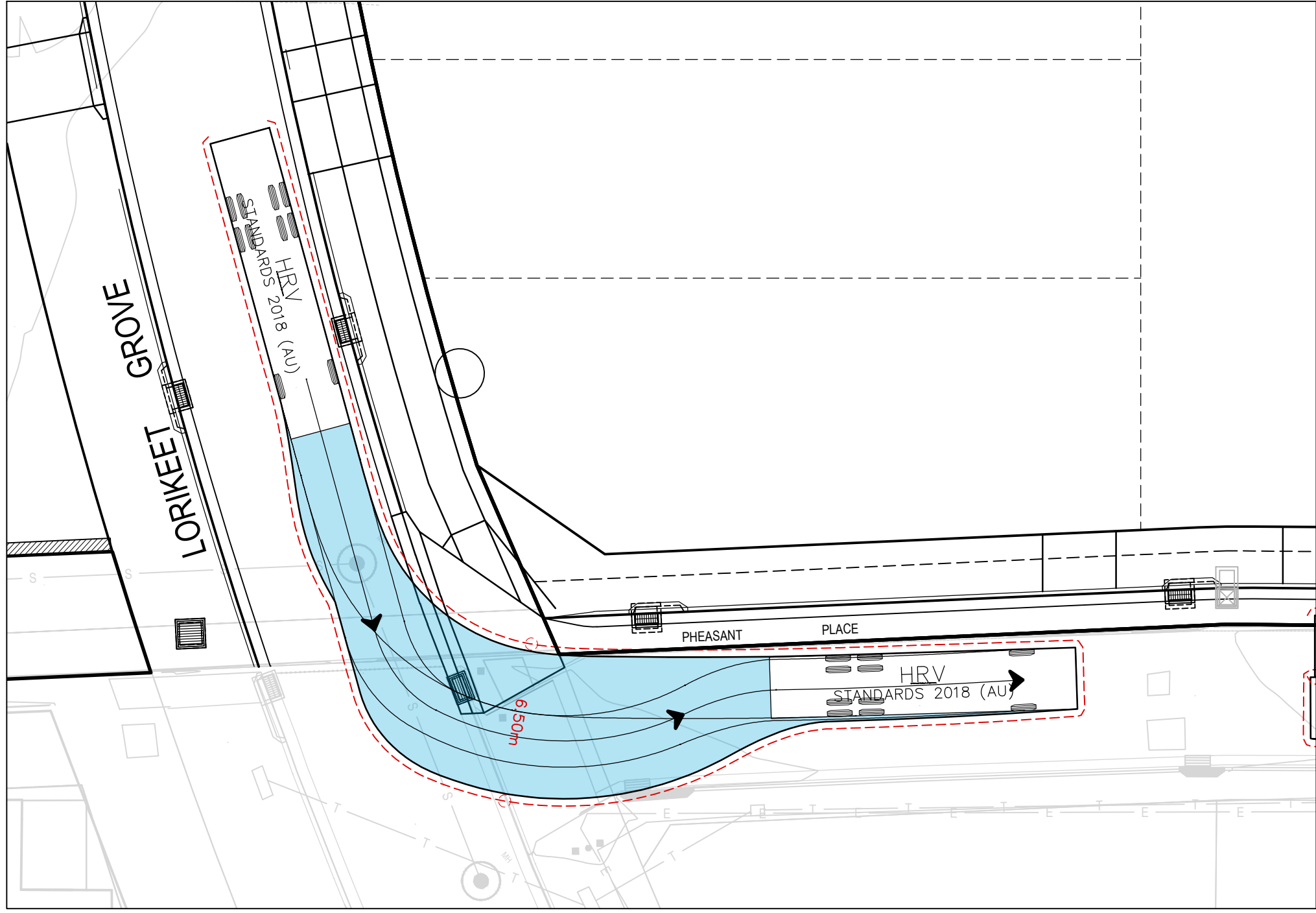
Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number
220122-00-DA-C22.03

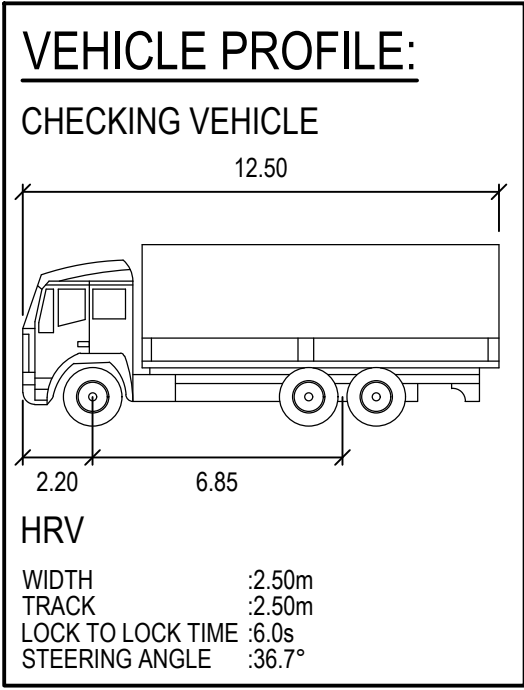
Revision
1



TURN PATH 05 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



TURN PATH 05 -12.5m HEAVY RIGID VEHICLE
SCALE 1:200



REV.	DATE	DESCRIPTION	SS	TPB	RLE	MC
1	1/07/2024	ISSUED FOR DEVELOPMENT APPLICATION	SS	TPB	RLE	MC

Client

SEKISUI HOUSE

Scale

North

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Phone: 02 9922 6135

Project
53A & 53B WARRIEWOOD ROAD
WARRIEWOOD NSW 2102
CIVIL ENGINEERING WORKS

Title
TURNING PATH PLAN
SHEET 04

Scale 1:200	Status FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION
Date 01/07/2024	Revision 1
Size A1	Project Number/Drawing Number 220122-00-DA-C22.04
Datum MGA2020	