

FITZPATRICK INVESTMENTS PTY LTD

# ERSKINE PARK INDUSTRIAL ESTATE LOCKWOOD ROAD, ERSKINE PARK LOTS 2, 3, 4 AND 5 DEVELOPMENT APPLICATION

DRAWING SCHEDULE

DRAWING NUMBER	DESCRIPTION
190050-05-DA2-C01.01	COVER SHEET AND DRAWING SCHEDULE
190050-05-DA2-C01.21	GENERAL NOTES
190050-05-DA2-C01.41	GENERAL ARRANGEMENT PLAN
190050-05-DA2-C04.01	BULK EARTHWORKS PLAN
190050-05-DA2-C05.01	SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
190050-05-DA2-C05.02	SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
190050-05-DA2-C11.01	PAVEMENT, SIGNAGE AND LINE MARKING PLAN - SHEET 01
190050-05-DA2-C11.02	PAVEMENT, SIGNAGE AND LINE MARKING PLAN - SHEET 02
190050-05-DA2-C14.01	SITEWORKS DETAILS
190050-05-DA2-C20.01	PRE-DEVELOPMENT STORMWATER CATCHMENT PLAN
190050-05-DA2-C20.21	POST-DEVELOPMENT STORMWATER CATCHMENT PLAN
190050-05-DA2-C22.01	TURNING PATH PLAN - SHEET 01
190050-05-DA2-C23.01	SAFETY IN DESIGN

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
4	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

Scale

SCALE 1:5000 @A1

North

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Scale 1:5000	Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION
Date 19/04/2021	Project Number/Drawing Number <b>190050-05-DA2-C01.01</b>
Size A1	Revision <b>4</b>
Datum MGA2020	



1. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN SUPPLIED BY REGISTERED SURVEYORS TO PROVIDE A BASIS FOR DESIGN. REFER SURVEY DRAWINGS 10848 DETAIL SURVEY 10954\_DET\_1.A REV A PRODUCED BY ICD ASIA PACIFIC PTY LTD FOR DETAILS.
1. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE DESIGN ENGINEER.
2. 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.

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH PENRITH CITY COUNCIL STANDARDS.
2. PENRITH CITY COUNCIL STANDARD DETAILS TO BE USED WHERE POSSIBLE.
3. UTILITY ADJUSTMENTS AT DEVELOPERS EXPENSE.
4. CONDUITS TO BE PLACED WHERE REQUIRED BY THE RELEVANT AUTHORITIES.
5. SUBSOIL DRAINAGE LINES AND FLUSHING POINTS AT MAXIMUM 60m CENTRE SHALL BE INSTALLED BEHIND ALL KERBS.
6. A MINIMUM OF 3m OF SUBSOIL LINE SHALL BE LAID INTO UPSTREAM SIDE OF ALL DRAINAGE PITTS.
7. LOT NUMBERS AND STREET NAMES MUST BE STENCILED ON THE FACE OF KERB OR IN ALTERNATIVE LOCATIONS DIRECTED BY THE PCA. THE STENCIL MEDIUM MUST BE OF GOOD QUALITY UV STABILISED PAINT AND APPLIED TO THE KERB THUSLY:
  - 7.1. LOT NUMBERS - WHITE NUMBER IN 'BRUNSWICK GREEN' BACKGROUND LOCATED ON THE PROLONGATION OF BOTH COMMON BOUNDARIES OF EACH LOT.
  - 7.2. STREET NAMES - WHITE LETTERING ON 'BRUNSWICK GREEN' BACKGROUND AT KERB AND GUTTER TANGENT POINTS.
8. PIT LIDTELS MUST BE LABELED WITH PERMANENT STENCILED SIGNS IN ACCORDANCE WITH COUNCIL'S CURRENT ENGINEERING DESIGN SPECIFICATIONS.

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL LEVELS ARE IN METERS (m). UNO. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (MGA2020).

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 AS DOCUMENTED OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT.
  - a. LOCAL AUTHORITY REQUIREMENTS
  - b. EPA REQUIREMENTS
  - c. NSW DEPARTMENT OF HOUSING 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 IN THE FOLLOWING SEQUENCE:
  - a. INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
  - b. CONSTRUCT UTILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
  - c. INSTALL SEDIMENT BASIN AS SHOWN ON PLAN
  - d. INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
  - e. UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE

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 DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
11. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:

- a. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
- b. ENSURING THAT NOTHING IS NAILED TO THEM
- c. PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
  - (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTLETTED EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
  - (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
  - (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

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 DESIGN ENGINEER.
3. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES DURING CONSTRUCTION IN ACCORDANCE WITH RMS AND LOCAL AUTHORITY REGULATIONS AND REQUIREMENTS.
4. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED.
5. RESTORE ALL PAVED, COVERED, GRASSSED 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, GRASSSED 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 METERS (m). UNO. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
12. IN CASE OF DOUBT OR DISCREPANCY REFER TO THE DESIGN ENGINEER AND 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. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
  - A. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
  - B. ENSURING THAT NOTHING IS NAILED TO THEM
  - C. PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
    - C.a. ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICHEVER IS THE GREATER
    - C.b. A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL. LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
    - C.c. CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.
20. 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. AT THE COMMENCEMENT OF THE CUT AND FILLING OPERATIONS FOR BUILDING 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 DESIGNING CIVIL & STRUCTURAL ENGINEERS, 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 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.

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

6. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH ASI289 E.1. OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY IN ACCORDANCE WITH ASI289 E.5.1.1.1:

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

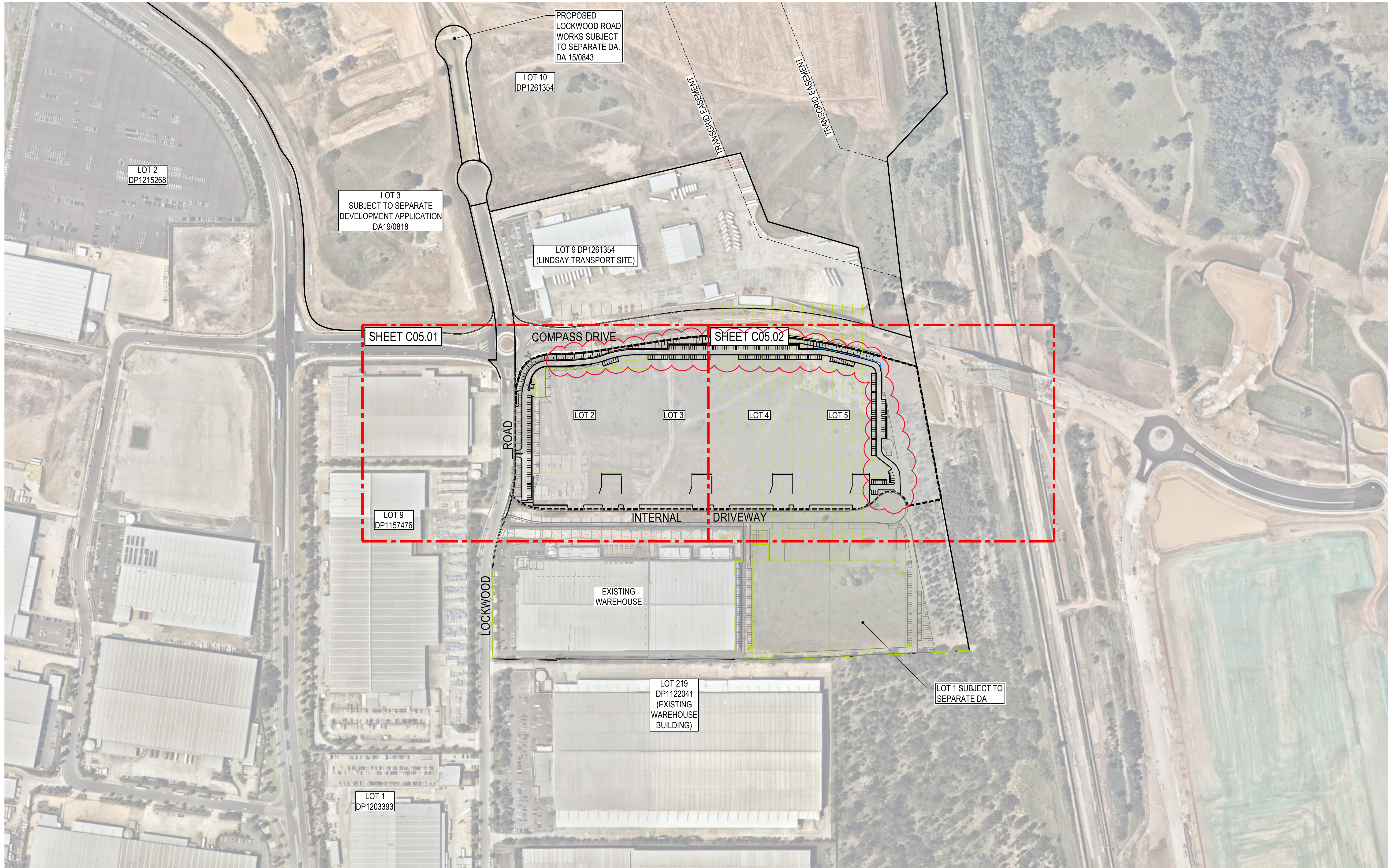
7. FOR NON COHESIVE MATERIAL, COMPACT TO NOT LESS THAN  
UNDER ROAD                      80% DENSITY  
OTHER AREA                      75% DENSITY
8. THE CONTRACTOR IS TO ALLOW FOR COMPACTION TESTING BY NATA REGISTERED LABORATORY FOR PLATFORMS AND FILL LAYERS IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 - FOR TYPE I OPERATIONS (MINIMUM 3 TESTS PER LAYER).
9. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN:  
A. 1 TEST PER 200m<sup>2</sup> OF FILL PLACED PER 300mm LAYER OF FILL  
B. 3 TESTS PER VISIT  
C. 1 TEST PER 1000m<sup>2</sup> OF EXPOSED SUBGRADE  
D. TESTING SHALL BE "LEVEL 1" UNDERTAKEN IN ACCORDANCE WITH ASI338.

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. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC (CLASS SN4) WITH SOLVENT WELDED JOINTS.
3. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE MIN CLASS 2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
4. ALL PIPES ARE TO BE LAID AT (min) 0.5% GRADE (UNO)
5. EQUIVALENT STRENGTH FRC PIPES MAY BE USED TO DESIGN ENGINEER AND SUPERINTENDENTS APPROVAL.
6. ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.
7. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.
8. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
9. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE
10. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
11. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 TO DETERMINE THE APPROPRIATE PIPE CLASS. PROPOSED PIPE CLASS SHALL BE REVIEWED BY THE DESIGN ENGINEER PRIOR TO INSTALLATION.
12. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
13. PRECAST PITS MAY BE USED SUBJECT TO WRITTEN APPROVAL BY THE DESIGN ENGINEER.
14. 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.
15. COVERS
  - A. USE HOT DIPPED GALVANISED GRATES AND CONCRETE FILL 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 SUPERINTENDENTS 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 UPPERMOST 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.
16. NOTE THAT THE PIT COVER LEVEL NOMINATED IN GUTTERS ARE TO THE INVERT OF THE GUTTER WHICH ARE 40mm LOWER THAN THE PAVEMENT LEVEL AT LIP OF GUTTER.
17. Ø100mm SUB-SOIL DRAINAGE LINES SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT (AT min. 0.5% LONGITUDINAL GRADE) AND PROVIDED IN THE FOLLOWING LOCATIONS:
  - A. ADJACENT ADJ. TRAFFICED 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.
18. THE CONTRACTOR SHALL INSTALL FLUSHING POINTS TO ALL SUBSOIL DRAINAGE LINES AND DOWNPIPE LINES AS SPECIFIED ON DRAWINGS, AT MAXIMUM 60m CENTRES AND AT ALL UPSTREAM ENDPOINTS.
19. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE PIPE WRAPPED IN A NONWOVEN GEOTEXTILE FABRIC, TO THE UPSTREAM SIDE OF STORMWATER PITS, LAID IN STORMWATER PIPE TRENCHES AND CONNECTED TO THE DRAINAGE PIT.
21. 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.
20. ALL RECTANGULAR HOLLOW SECTIONS (RHS) SPECIFIED AS STORMWATER CONDUITS TO BE HOT DIPPED GALVANISED AND HAVE (MINIMUM) 5mm WALL THICKNESS.
21. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.
22. ELECTRICAL PITS ARE TO DRAIN TO THE NEAREST STORMWATER PIT WITH VERMIN PROOF NON-RETURN FLAP VALVES AS REQUIRED. THE CONTRACTOR IS TO CONFIRM WITH THE ELECTRICAL DESIGNER AS PART OF THE TENDER.

23. 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.
23. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
24. 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.
25. ANY VARIATION TO SPECIFIED PRODUCTS OR DETAILS SHALL BE REFERRED TO THE DESIGN ENGINEER FOR APPROVAL. DOWN PITS.

[illegible]





REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
5	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
4	5/08/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

**Fitzpatrick Investments**

Scale

0 50 100 150 200m

SCALE 1:2000 @A1

North

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**enspire**

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Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
GENERAL ARRANGEMENT PLAN

Scale  
1:2000

Date  
19/04/2021

Size  
A1

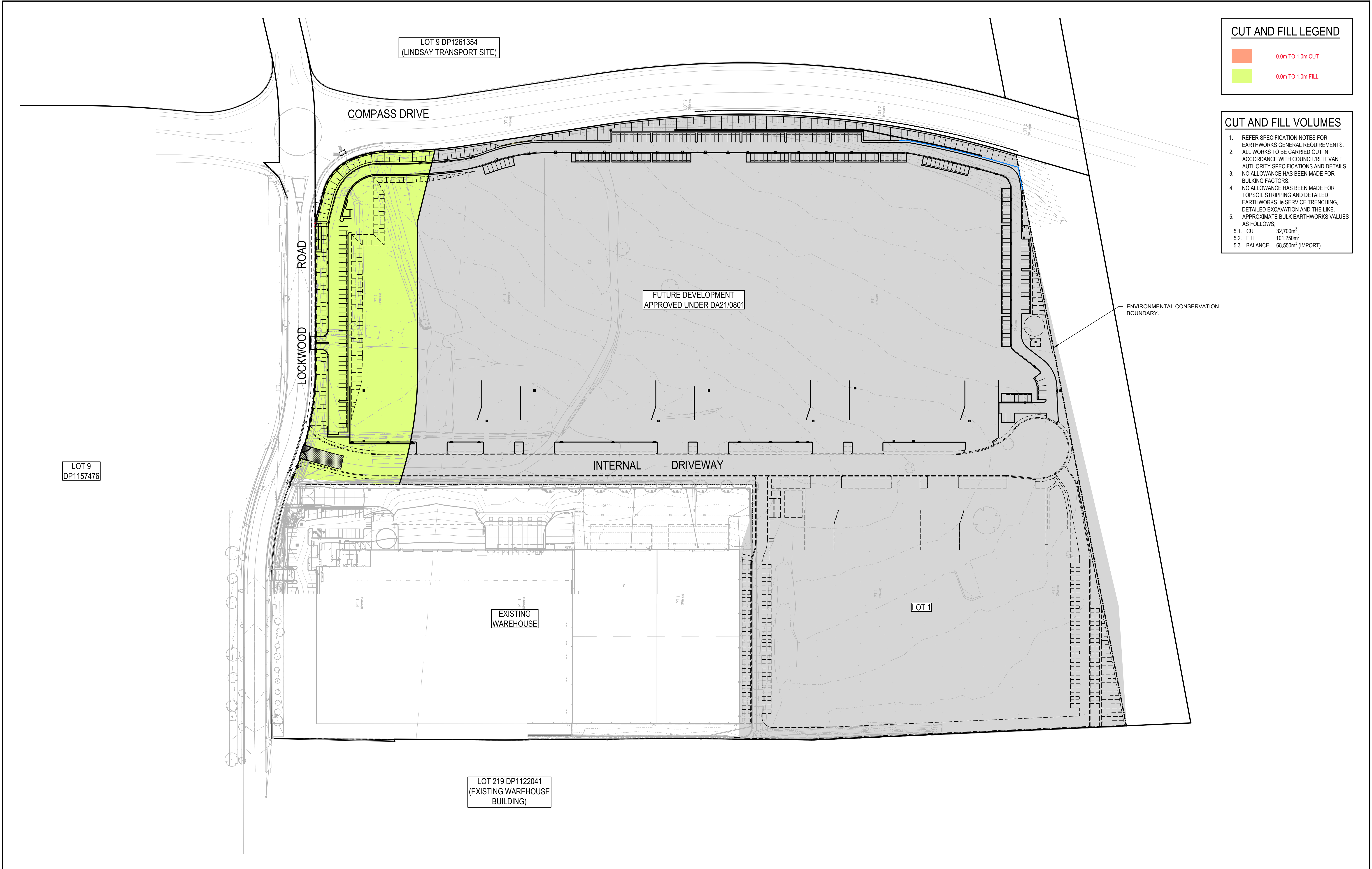
Datum  
MGA2020

Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-05-DA2-C01.41**

Revision  
**5**





**CUT AND FILL LEGEND**

0.0m TO 1.0m CUT

0.0m TO 1.0m FILL

**CUT AND FILL VOLUMES**

1. REFER SPECIFICATION NOTES FOR EARTHWORKS GENERAL REQUIREMENTS.

2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL/RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.

3. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS.





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

5. APPROXIMATE BULK EARTHWORKS VALUES AS FOLLOWS;

5.1. CUT 32,700m<sup>3</sup>

5.2. FILL 101,250m<sup>3</sup>

5.3. BALANCE 68,550m<sup>3</sup> (IMPORT)

										Client																																																		Project ERSKINE PARK INDUSTRIAL ESTATE LOCKWOOD ROAD, ERSKINE PARK LOTS 2, 3, 4 AND 5										Scale 1:1000 Date 20/10/2022										Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												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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										Title BULK EARTHWORKS PLAN										Size A1 Datum MGA2020										Project Number/Drawing Number <b>190050-05-DA2-C04.01</b>										Revision 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63.30

CONTOUR

BATTER

RW

BLOCKWORK RETAINING WALL

RW

CONTIGUOUS PILE RETAINING WALL

K&G

KERB AND GUTTER

DD

DISH DRAIN

LBK

LAYBACK

FFL 98.00

FINISHED FLOOR LEVEL

● F

FINISHED LEVEL

< < <

SWALE DRAIN

375

PIPE SIZE

STORMWATER DRAINAGE LINE

FLOW DIRECTION

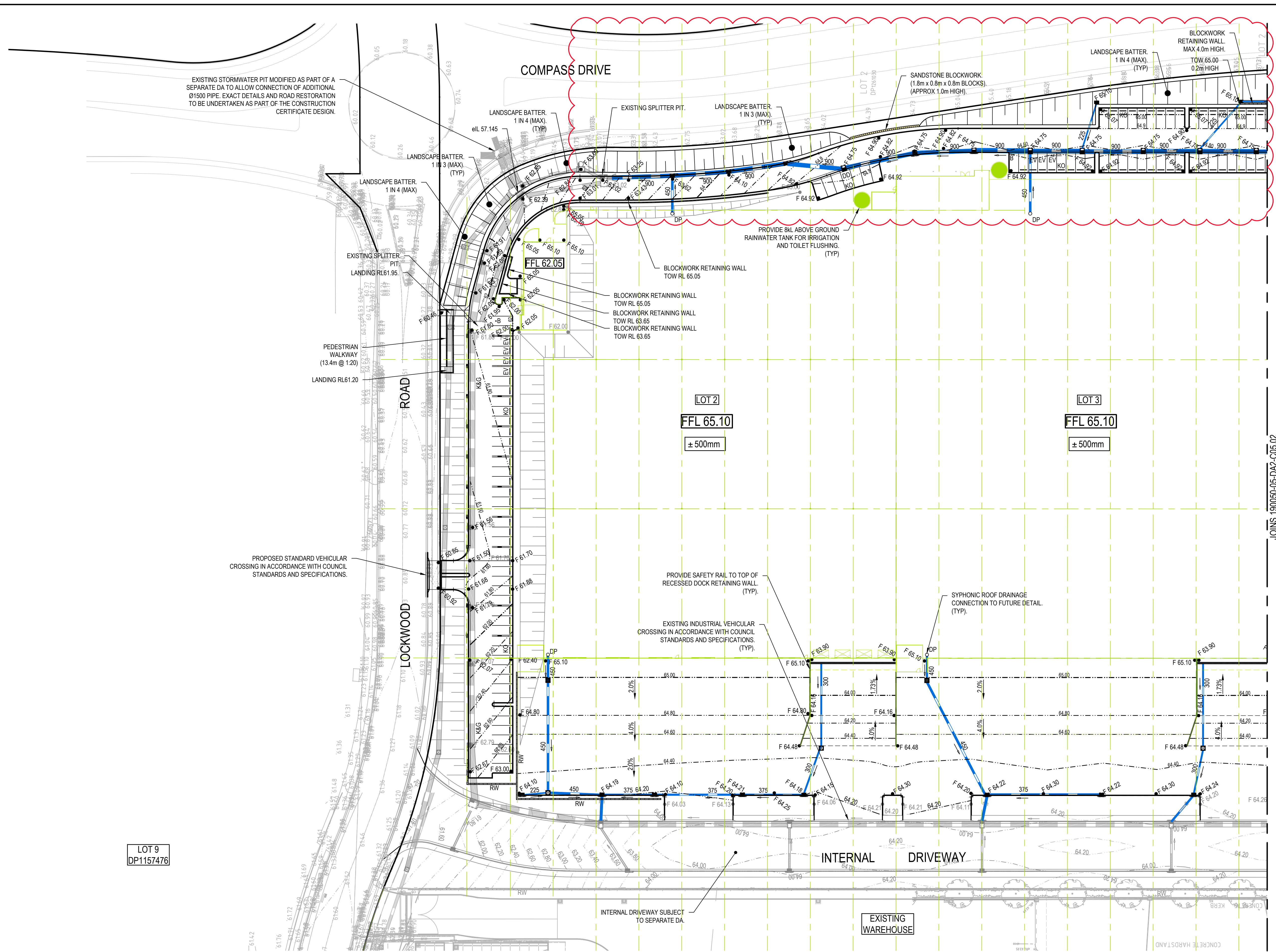
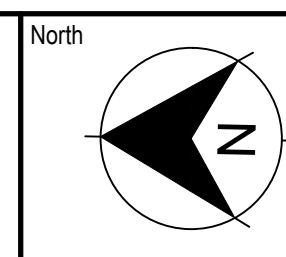
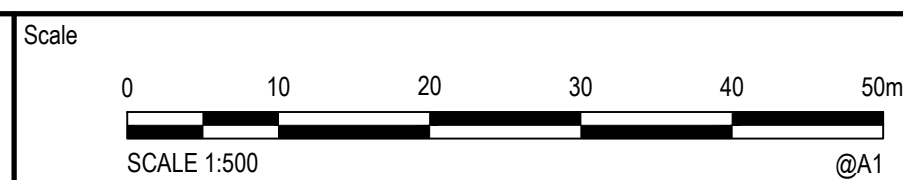
KERB INLET PIT

SURFACE INLET PIT/JUNCTION PIT

GTD

GRADED TRENCH DRAIN

EROSION AND SEDIMENTATION CONTROL DETAILS CONSTRUCTED  
UNDER SEPARATE APPROVAL FOR BULK EARTHWORKS, PRIVATE ROAD  
AND LOT 1.  
REFER ENSPIRE DRG. 190050-05-DA1-C03.01 TO C03.31 FOR DETAILS

[illegible]

 **enspire**

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

Project
ERSKINE PARK INDUSTRIAL ESTATE LOCKWOOD ROAD, ERSKINE PARK LOTS 2, 3, 4 AND 5
Title
SITEWORKS AND STORMWATER MANAGEMENT PLAN
SHEET 01

Scale	1:500
Date	19/04/2021
Size	A1
Datum	MGA2020

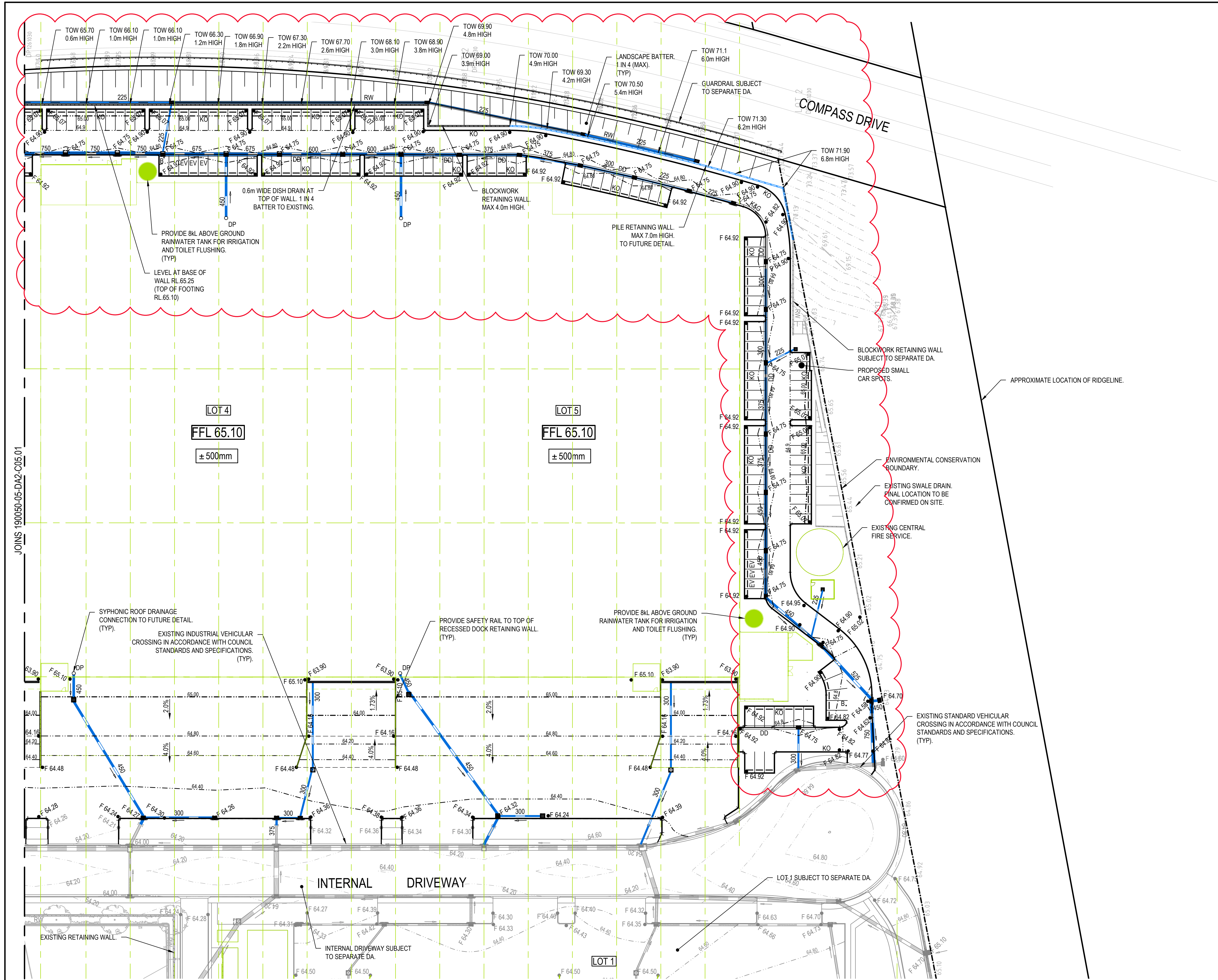
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<div>FOR APPROVAL</div> <div>NOT TO BE USED FOR CONSTRUCTION</div>	
Project Number/Drawing Number	Revision
190050-05-DA2-C05.01	5

CAD File: P:\190050 ErskinePark\ID-Civil\05-Grady Crescent\Drawings\6-DACC\02-DA2\190050-05-DA2-C05.01-C05.02 SITEWORKS AND STORMWATER MANAGEMENT.dwg

JOINS 190050-05-DA2-C05.02

DATE PLOTTED: 19 October 2022 4:44 PM BY : CAITLIN BEHETS





**LEGEND**

63.30

RW

RW

K&G

DD

LBK

F 98.00

F

< < < <

375

GTD

SITE BOUNDARY

CONTOUR

BATTER

BLOCKWORK RETAINING WALL

CONTIGUOUS PILE RETAINING WALL

KERB AND GUTTER

DISH DRAIN

LAYBACK

FINISHED FLOOR LEVEL

FINISHED LEVEL

SWALE DRAIN

PIPE SIZE  
STORMWATER DRAINAGE LINE  
FLOW DIRECTION

KERB INLET PIT

SURFACE INLET PIT/JUNCTION PIT

GRATED TRENCH DRAIN

**NOTE**

EROSION AND SEDIMENTATION CONTROL DETAILS CONSTRUCTED UNDER SEPARATE APPROVAL FOR BULK EARTHWORKS, PRIVATE ROAD AND LOT 1.  
REFER ENSPIRE DRG. 190050-05-DA1-C03.01 TO C03.31 FOR DETAILS

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
4	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

Fitzpatrick Investments

Scale

0

10

20

30

40

50m

SCALE 1:500

@A1

North

Z

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ensfire

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
SITEWORKS AND STORMWATER MANAGEMENT PLAN

SHEET 02

Scale  
1:500

Date  
19/04/2021

Size  
A1

Datum  
MGA2020

Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-05-DA2-C05.02**

Revision  
**4**



**LEGEND**

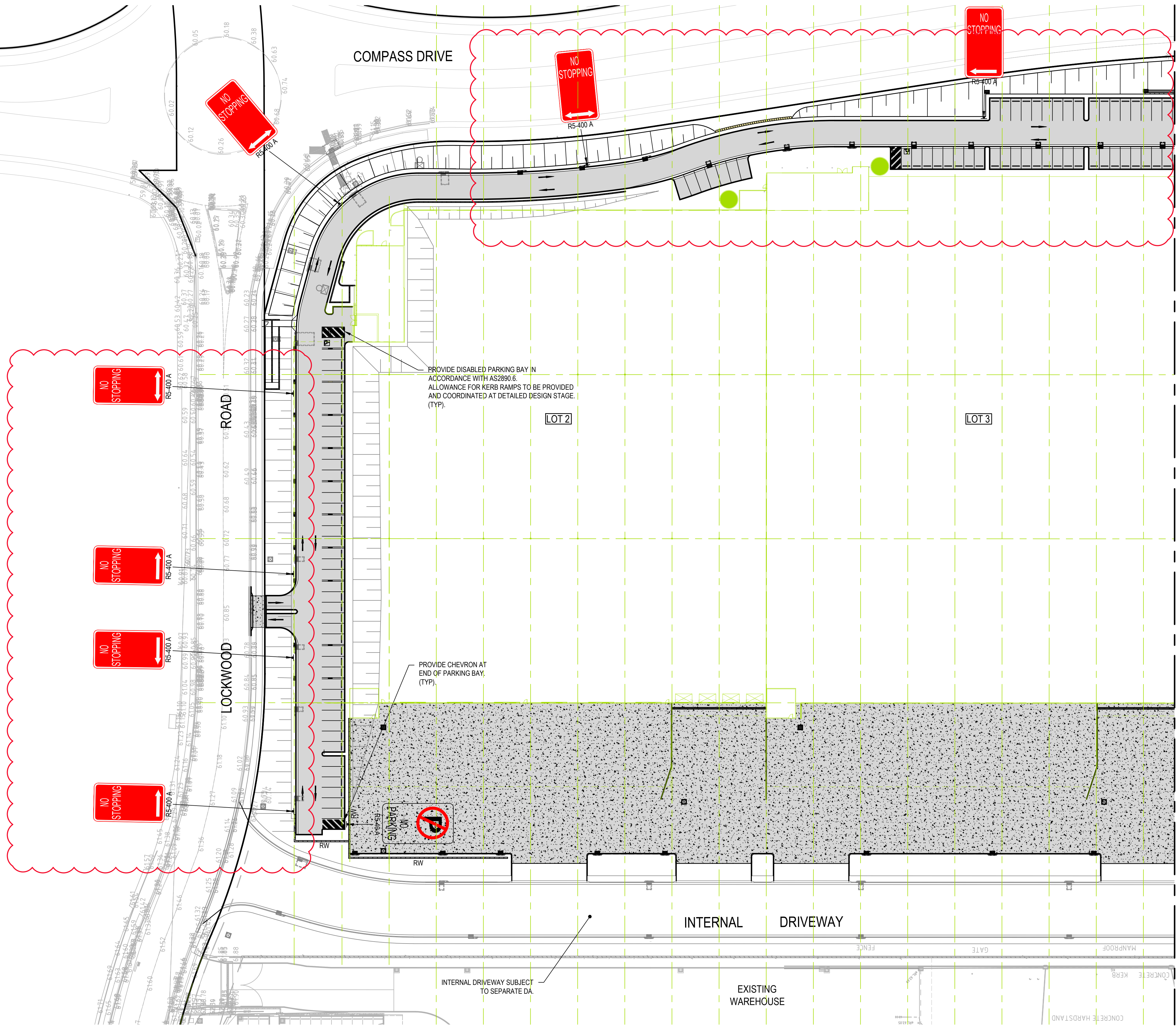
LOCAL ROAD

COLLECTOR ROAD

FOOTPATH

CONCRETE HARDSTAND

NOTE:  
REFER DRG: C14.01 FOR PAVEMENT DETAILS



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
5	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
4	5/08/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

**Fitzpatrick Investments**

Scale

0 10 20 30 40 50m

SCALE 1:500 @A1

North

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

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
PAVEMENT, SIGNAGE AND LINEMARKING PLAN

SHEET 01

Scale  
1:500

Date  
19/04/2021

Size  
A1

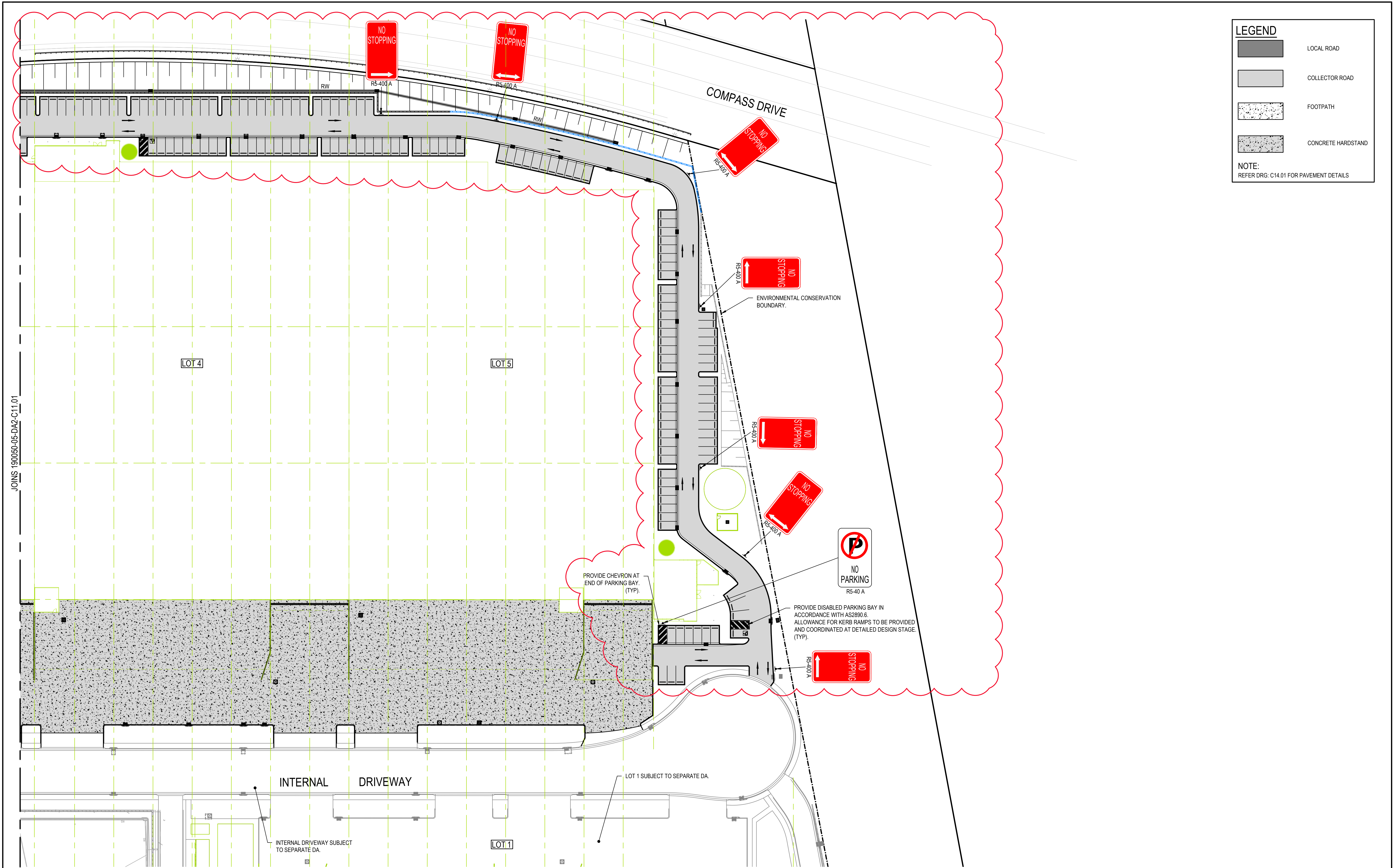
Datum  
MGA2020

Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-05-DA2-C11.01**

Revision  
**5**





**LEGEND**

	LOCAL ROAD
	COLLECTOR ROAD
	FOOTPATH
	CONCRETE HARDSTAND

**NOTE:**  
REFER DRG: C14.01 FOR PAVEMENT DETAILS

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
4	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

**Fitzpatrick Investments**

Scale

0 10 20 30 40 50m

SCALE 1:500 @A1

North

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
PAVEMENT, SIGNAGE AND LINEMARKING PLAN

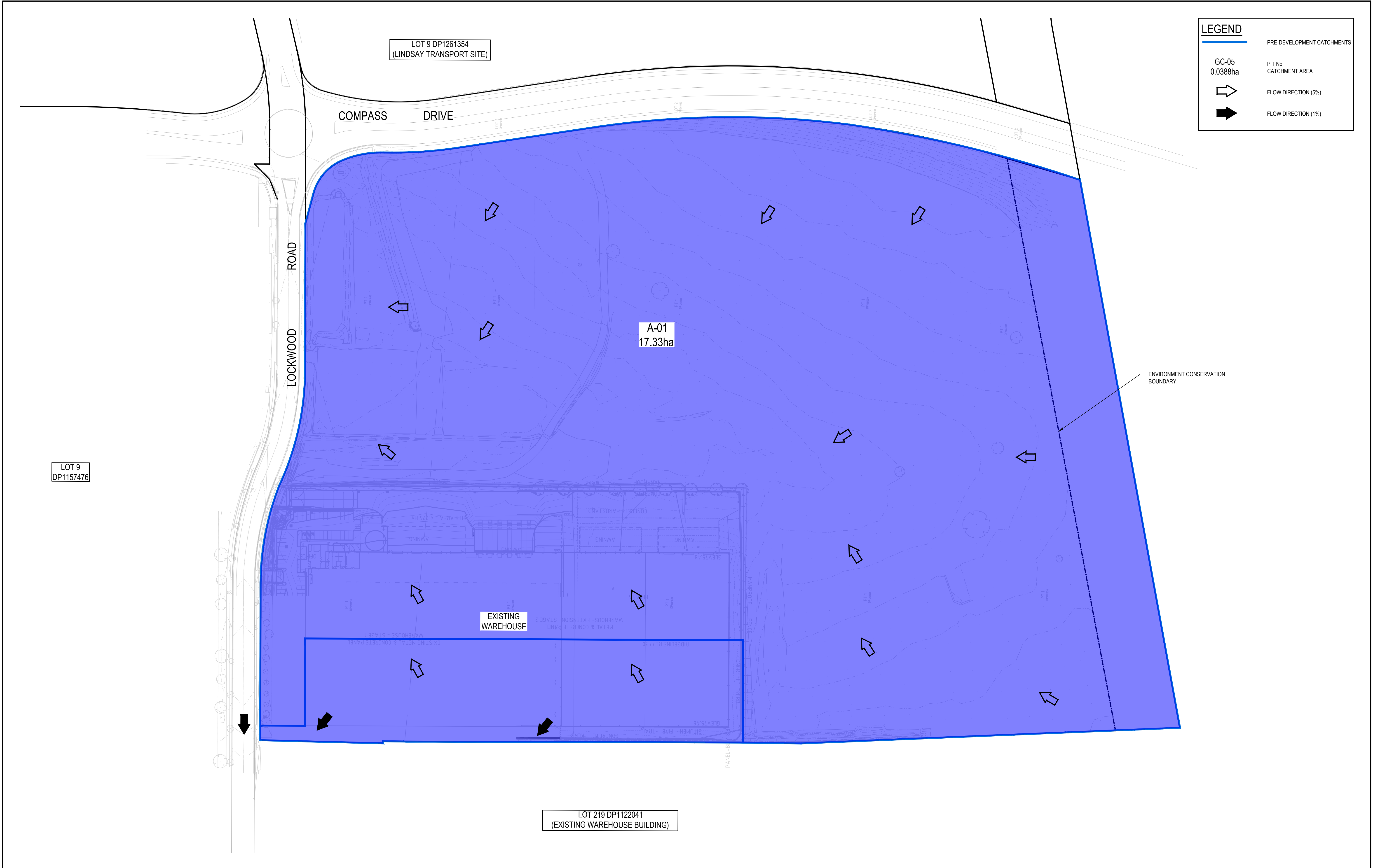
SHEET 02

Scale 1:500	Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION
Date 19/04/2021	Project Number/Drawing Number <b>190050-05-DA2-C11.02</b>
Size A1	Revision <b>4</b>
Datum MGA2020	









Client				Scale				North				Project				Scale				Status			
Fitzpatrick Investments				0 20 40 60 80 100m SCALE 1:1000 @A1				enspire				ERSKINE PARK INDUSTRIAL ESTATE LOCKWOOD ROAD, ERSKINE PARK LOTS 2, 3, 4 AND 5				1:1000				FOR APPROVAL			
The copyright of this drawing remains with Enspire Solutions Pty Ltd and must not be copied wholly or in part without the permission of Enspire Solutions Pty Ltd.				Enspire Solutions Pty Ltd Level 4, 153 Walker Street, North Sydney NSW 2060 ABN: 71 624 801 690 Phone: 02 9922 6135				Project Number/Drawing Number				Revision				Date				NOT TO BE USED FOR CONSTRUCTION			
REV. DATE DESCRIPTION DRN. DES. VERIF. APPD.				Title				Size				190050-05-DA2-C20.01				A1				4			
				PRE-DEVELOPMENT STORMWATER CATCHMENT PLAN				Datum				MGA2020											





REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
5	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
4	5/08/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
3	30/06/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	FR	MKH	MKH	MKH
2	22/03/2022	AMENDMENTS TO ADDRESS COUNCIL COMMENTS - DA ISSUE	MDH	MKH	MKH	MKH
1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

**Fitzpatrick Investments**

Scale

0 20 40 60 80 100m

SCALE 1:1000 @A1

North

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
POST-DEVELOPMENT STORMWATER  
CATCHMENT PLAN

Scale  
1:1000

Date  
19/04/2021

Size  
A1

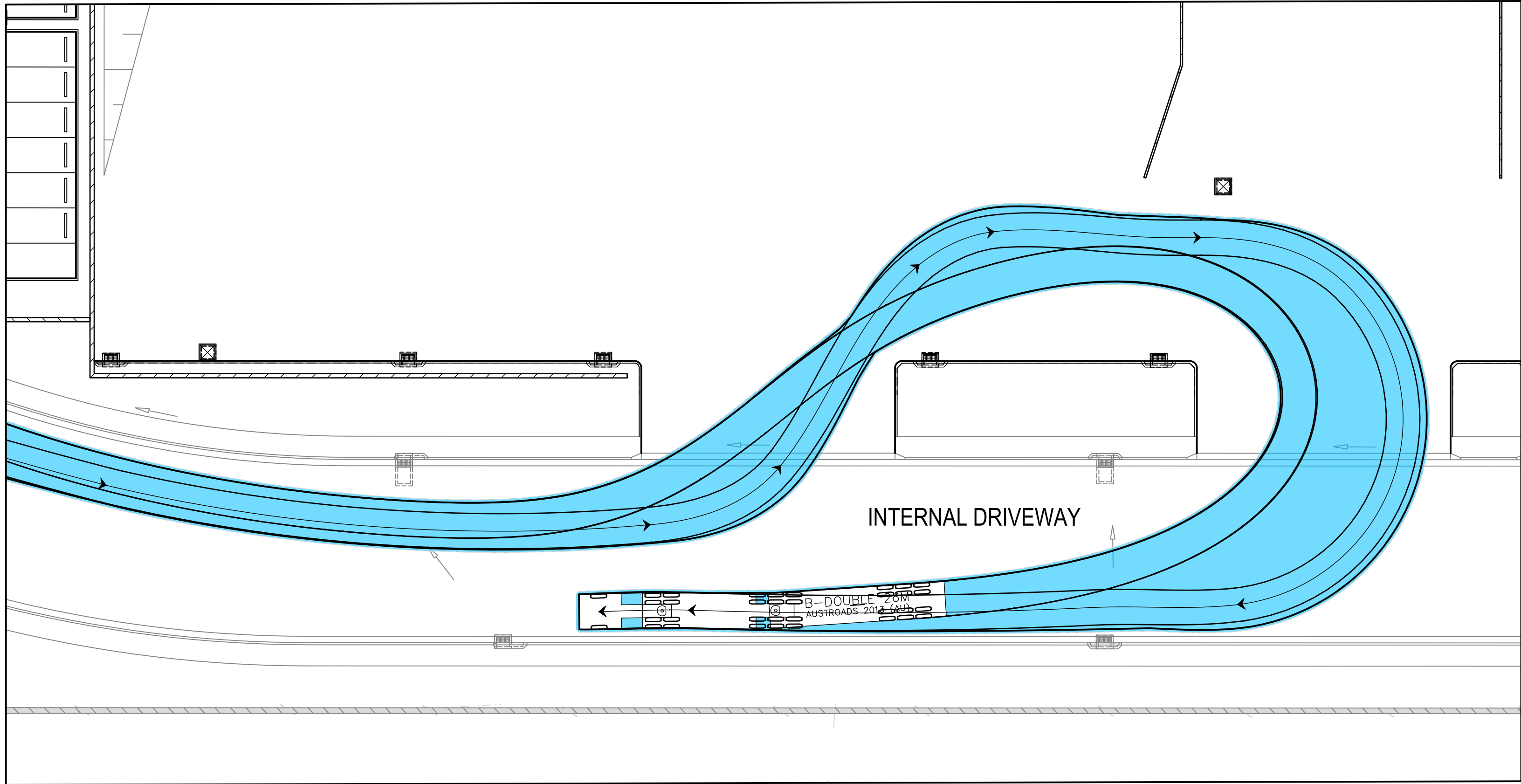
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MGA2020

Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-05-DA2-C20.21**

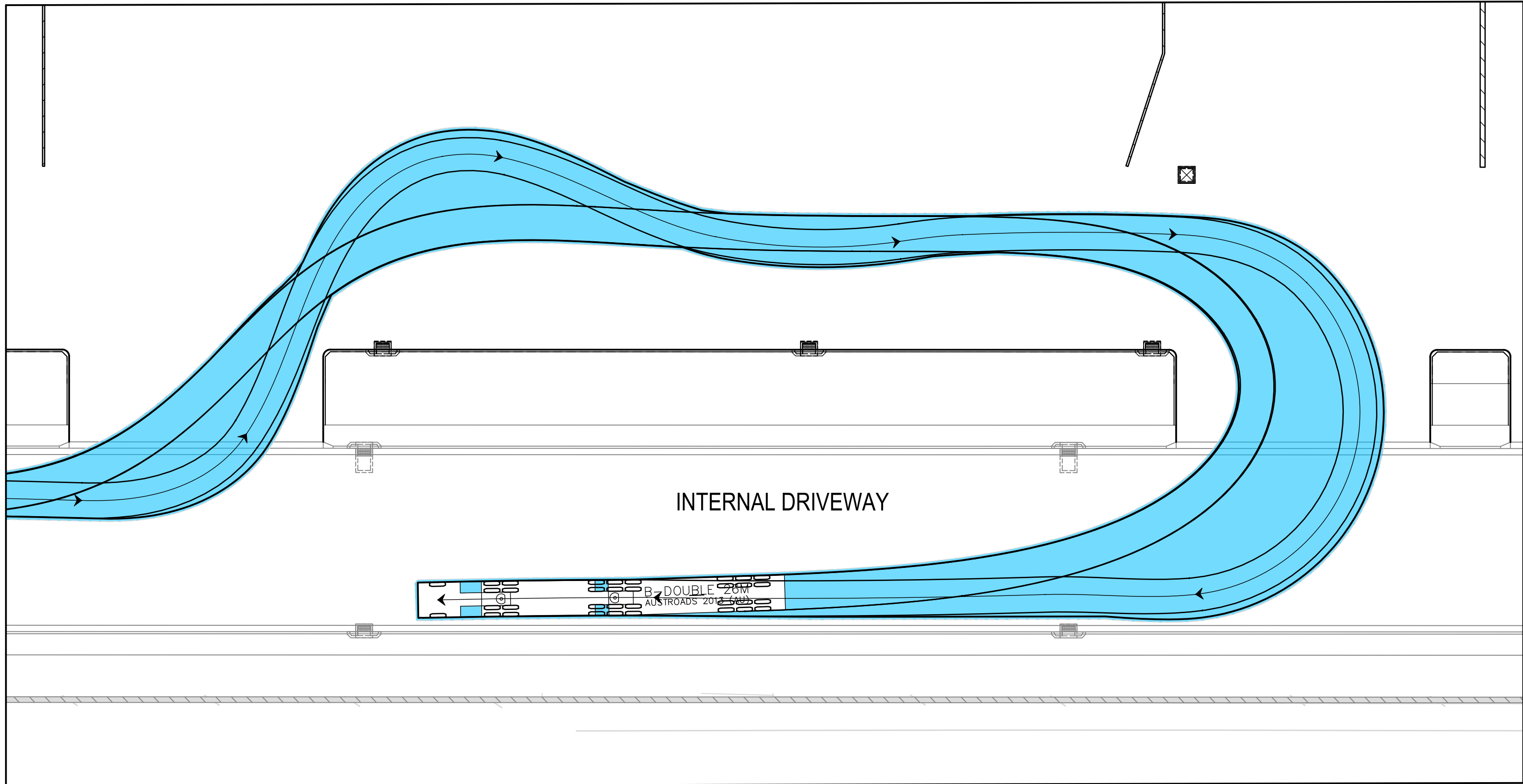
Revision  
**5**





LOT 2 ACCESS TURN PATH

SCALE 1:250  
26m B-DOUBLE



LOT 3 ACCESS TURN PATH

SCALE 1:250  
26m B-DOUBLE

VEHICLE PROFILE

B-DOUBLE (26m)

OVERALL LENGTH	26.00m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.540m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	23.400m
TRAVELLING SPEED	15 km/h

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
4	20/10/2022	ISSUED FOR DEVELOPMENT APPLICATION	CB	MKH	MKH	MKH
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1	22/10/2021	ISSUED FOR DEVELOPMENT APPLICATION	MDH	DL	MKH	MKH

Client

Scale

SCALE 1:250 @A1

North

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
LOCKWOOD ROAD, ERSKINE PARK  
LOTS 2, 3, 4 AND 5

Title  
TURNING PATH PLAN

SHEET 01

Scale  
1:250

Date  
19/04/2021

Size  
A1

Datum  
MGA2020

Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-05-DA2-C22.01**

Revision  
**4**



## INTRODUCTION

THIS SAFETY IN DESIGN REPORT HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK HEALTH AND SAFETY ACT 2011 AND THE WORK HEALTH AND SAFETY REGULATION PART 6.2 CLAUSE 295. UNDER THE WORK HEALTH AND SAFETY ACT DESIGNERS HAVE THE RESPONSIBILITY TO ENSURE THEIR DESIGN ELIMINATES OR MINIMISES RISKS TO HEALTH AND SAFETY AND GIVE ADEQUATE INFORMATION TO PEOPLE COMMISSIONING THE DESIGN AND UNDERTAKING CONSTRUCTION, OPERATION AND MAINTENANCE ACTIVITIES BASED ON THE DESIGN.

THIS REPORT SPECIFICALLY POTENTIAL HEALTH AND SAFETY RISKS AND HAZARDS ASSOCIATED WITH THE DESIGN ELEMENTS IDENTIFIED IN THIS DRAWING PACKAGE TO RELEVANT PERSONNEL DURING THE DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE PROCESS AND ASSESSES THEIR LIKELIHOOD AND CONSEQUENCES. THIS REPORT PROPOSES ACTIONS AND STRATEGIES AGAINST RISKS IDENTIFIED TO ACHIEVE EFFECTIVE MITIGATION OF THE RISKS AND HAZARDS, AND ASSESSES RESIDUAL RISKS BASED ON CONTROL MEASURES BEING IMPLEMENTED. ANY SAFETY ISSUES UNRESOLVED THROUGH DESIGN ARE ALSO IDENTIFIED FOR THEIR APPROPRIATE MANAGEMENT.

THE INFORMATION CONTAINED IN THIS SAFETY IN DESIGN REPORT HAS BEEN PREPARED PRIOR TO THE COMMENCEMENT OF THE WORK ON SITE. IT DOES NOT TAKE ACCOUNT OF ANY MATTERS OR INFORMATION WHICH MAY COME TO LIGHT AFTER THAT TIME. WHEN A DESIGN IS ALTERED, AN ADDITIONAL REVIEW MUST BE CONDUCTED TO ENSURE NEW RISKS HAVE BEEN CAPTURED DUE TO MODIFICATION OF THE DESIGN. ADDITIONALLY, CLIENTS ARE REQUIRED TO INFORM ENSPIRE OF ANY EXISTING RISKS AND HAZARDS IN THE AREA WHERE CONSTRUCTION WILL TAKE PLACE.

THE RISKS IDENTIFIED IN THIS SAFETY IN DESIGN REPORT ARE PROJECT AND DESIGN SPECIFIC RISKS WHICH WOULD NOT BE EASILY RECOGNIZED BY A REASONABLY COMPETENT STAKEHOLDER. IT DOES NOT ADDRESS THE COMMON-PLACE HAZARDS OF HAZARDS WHERE KNOWN SOLUTIONS APPLY, AND WHICH ARE ASSOCIATED WITH CONSTRUCTION, OPERATION AND MAINTENANCE GENERALLY. THESE COMMON-PLACE HAZARDS MUST BE CONTROLLED BY THE APPLICATION OF NORMAL GOOD MANAGEMENT PRACTICES.

THIS DESIGN REPORT ASSUMES THAT DURING CONSTRUCTION, OPERATION AND MAINTENANCE OF THE DEVELOPMENT, THE PRINCIPAL WILL ENGAGE EXPERIENCED AND COMPETENT PERSONNEL AS PART OF THE RESPECTIVE TENDER EVALUATION PROCESS. IT IS THE HEAD CONTRACTOR'S OBLIGATION TO PREPARE AND IMPLEMENT SITE SPECIFIC WORK HEALTH AND SAFETY MANAGEMENT PLANS TO MITIGATE COMMON RISKS ASSOCIATED WITH GENERAL CONSTRUCTION AND OPERATION ACTIVITIES IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY ACT 2011.

## PROPOSED WORKS

THE SCOPE OF THE MAIN ACTIVITIES INVOLVED IN THESE WORKS ARE:

- DESIGN OF ROADS, STORMWATER INFRASTRUCTURE AND SERVICES;
- CONSTRUCTION OF ROADS, STORMWATER INFRASTRUCTURE AND SERVICES;
- SITE VISITS AND INSPECTIONS;
- POST CONSTRUCTION OPERATION AND MAINTENANCE.

## INFORMATION TRANSFER

SAFETY IN DESIGN RELIES ON EFFECTIVE DOCUMENTATION AND COMMUNICATION BETWEEN EVERYONE INVOLVED IN THE LIFE CYCLE OF THE DESIGN ELEMENTS. IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY REGULATION 2017, THE DESIGNER MUST PROVIDE A COPY OF THIS SAFETY IN DESIGN REPORT TO THE PRINCIPAL CONTRACTOR IN PARALLEL WITH THE COMPLETED DESIGN DOCUMENTATION AND ENSURE THAT THE FOLLOWING ACTIONS ARE UNDERTAKEN:

- ONSITE SAFETY INDUCTIONS, INCLUDING HAZARDS IDENTIFIED IN THIS REPORT, SHOULD BE CONDUCTED FOR ALL STAFF;
- SAFETY MANAGEMENT PLANS SHOULD BE PREPARED FOR THE HAZARDS IDENTIFIED IN THIS REPORT;
- THERE SHOULD BE NO VARIATION ON DESIGN REQUIREMENTS WITHOUT CONSULTATION WITH THE ORIGINAL DESIGNERS;
- ONSITE MANAGEMENT OF CONTRACTORS TO ENSURE THAT HAZARDS THAT ARISE THROUGH STARTING/COMPLETION OF JOBS DOES NOT OCCUR; AND
- THIS DESIGN MAY INTERFACE WITH OTHER PLANS AND ACCOUNT SHOULD BE TAKEN OF ANY INTERFACE ISSUES.

IT IS RECOMMENDED THAT THIS SAFETY IN DESIGN REPORT BE PASSED ONTO ANY PARTICIPANT IN THE PROJECT WHO MAY EXTEND THE DESIGN OR FURTHER DEVELOP THE DESIGN.

## SAFE DESIGN PROCESS

A SAFE DESIGN PROCESS SHOULD BE ENGAGED EARLY IN THE DEVELOPMENT OF THE DESIGN TO IDENTIFY ALL CONCEIVABLE RISKS AND HAZARDS THAT MAY AFFECT THE FUNDAMENTALS OF THE DESIGN AND AVOID UNNECESSARY REWORK. IT SHOULD BE IMPLEMENTED THROUGH A STRUCTURED APPROACH ACROSS EACH PHASE OF THE DESIGN PROCESS.

DELIVERY OF SAFE DESIGN FOR EACH DESIGN PHASE OF THE PROJECT HAS BEEN CARRIED OUT FOLLOWING THE STEPS BELOW:

- STEP 1: PRELIMINARY RISK IDENTIFICATION
- THE DESIGNER/DESIGN TEAM TO CONDUCT A PRELIMINARY ASSESSMENT AND IDENTIFY ANY POTENTIAL RISKS RELEVANT TO THE SCOPE OF DESIGN WORKS. WITH PROJECTS INVOLVING MULTIPLE DISCIPLINES, THE DESIGNER/DESIGN TEAM TO ATTEND SAFETY IN DESIGN WORKSHOP AND IDENTIFY RISKS IN CONSULTATION WITH OTHER KEY PROJECT STAKEHOLDERS.
- STEP 2: RISK ASSESSMENT AND MITIGATION
- THE DESIGNER/DESIGN TEAM TO ASSESS THE LIKELIHOOD AND SEVERITY OF EACH HAZARD AND DEVELOP CONTROLS AND MEASURES TO ELIMINATE OR MINIMISE THE CONSEQUENCES OF THE HAZARD.
- STEP 3: VERIFICATION
- ENGINEER TO PERFORM INTERNAL VERIFICATION ON THE SAFE DESIGN RISK REGISTER PRIOR TO ISSUING TO THE CONTRACTOR AND CLIENT.
- STEP 4: REVIEW DESIGN
- THE DESIGNER/DESIGN TEAM TO IDENTIFY ANY ALTERATIONS IN DESIGN AND REVIEW AND UPDATE RISK REGISTER ACCORDINGLY.

ORGANISATION	PROJECT ROLE	MAIN CONTACT	CONTACT DETAILS
FITZPATRICK INVESTMENTS PTY LTD	DEVELOPMENT PROPONENT	PHILIP GRECH	<p>TEL: (02) 8117 5284</p> <p>EMAIL: philipg@fitzpatrickproperty.com.au</p> <p>ADD: 22-24 JUNCTION STREET FOREST LODGE NSW 2037</p>
ENSPIRE SOLUTIONS	CIVIL DESIGN CONSULTANT	MICHAEL HODGES	<p>TEL: 9922 6135</p> <p>EMAIL: michael.hodges@enspiresolutions.com.au</p> <p>ADD: LEVEL 4, 153 WALKER STREET NORTH SYDNEY NSW 2060</p>

LEVEL	MEASURE	CRITERIA
1	RARE	WOULD ONLY OCCUR IN HIGHLY EXCEPTIONAL CIRCUMSTANCES THAT ARE UNLIKELY TO EXIST IN ANY PHASE OF THE DEVELOPMENT'S LIFECYCLE PERIOD. EXTREMELY REMOTE CHANCE OF OCCURRENCE IN DEVELOPMENT'S LIFECYCLE PERIOD. 'ONCE IN A LIFETIME' EVENT.
2	UNLIKELY	NOT LIKELY TO OCCUR IN THE DEVELOPMENT'S LIFECYCLE PERIOD. A SMALL, BUT REMOTE CHANCE OF OCCURRENCE DUE TO CIRCUMSTANCES / SITUATIONS THAT COULD ARISE.
3	POSSIBLE	LIKELY TO OCCUR AT LEAST ONCE BUT NOT EXPECTED TO OCCUR MUCH MORE THAN THIS IN THE DEVELOPMENT'S LIFECYCLE PERIOD.
4	LIKELY	LIKELY TO OCCUR MORE THAN ONCE IN THE DEVELOPMENT'S LIFECYCLE PERIOD BUT NOT AN 'EVERYDAY' OCCURRENCE. PRECONDITIONS WILL ARISE AT TIMES THROUGHOUT THE PERIOD.
5	ALMOST CERTAIN	WILL OCCUR. CIRCUMSTANCES OR SITUATIONS ARE LIKELY TO ARISE OFTEN THROUGHOUT THE DEVELOPMENT'S LIFECYCLE PERIOD WHICH PROVIDES THE OPPORTUNITY FOR CRYSTALLISATION OF RISK. EXPECT FREQUENT, REGULAR OCCURRENCES.

LEVEL	MEASURE	CRITERIA
1	INSIGNIFICANT	NO INJURIES; NO ENVIRONMENTAL IMPACT.
2	MINOR	FIRST AID; ENVIRONMENTAL RELEASE IMMEDIATELY CONTAINED.
3	MODERATE	MEDICAL TREATMENT; ENVIRONMENTAL RELEASE NOT IMMEDIATELY CONTAINED WITH NO DETRIMENTAL EFFECTS.
4	MAJOR	LOST TIME AND/OR LONG-TERM INJURY/ILLNESS; ENVIRONMENTAL RELEASE NOT IMMEDIATELY CONTAINED WITH TOXIC EFFECTS.
5	CATASTROPHIC	FATALITY; RELEASE TO THE ENVIRONMENT WITH LONG TERM OR PERMANENT TOXIC EFFECTS.

CONSEQUENCE	CATASTROPHIC	(5)	HIGH	VERY HIGH	VERY HIGH	VERY HIGH	VERY HIGH
	MAJOR	(4)	HIGH	HIGH	VERY HIGH	VERY HIGH	VERY HIGH
	MODERATE	(3)	MODERATE	MODERATE	HIGH	HIGH	VERY HIGH
	MINOR	(2)	LOW	LOW	MODERATE	HIGH	VERY HIGH
	INSIGNIFICANT	(1)	LOW	LOW	LOW	MODERATE	HIGH
		RARE (1)	UNLIKELY (2)	POSSIBLE (3)	LIKELY (4)	ALMOST CERTAIN (5)	
		LIKELIHOOD					

ITEM	ACTIVITY	HAZARD	STAGE	INITIAL RISK			DESIGN ACTION	RESIDUAL RISK			PERSON RESPONSIBLE FOR CONTROLS	STATUS
				LIKELIHOOD	CONSEQUENCE	RISK LEVEL		LIKELIHOOD	CONSEQUENCE	RISK LEVEL		
1	SEDIMENT BASIN OPERATION	FALLING INTO BASIN WHICH HOLDS WATER	CONSTRUCTION	2	5	VERY HIGH	- PROVIDE MAN-PROOF FENCE TO PERIMETER. - MAINTAIN WATER LEVELS IN BASIN. - MINIMISE PERMANENT WATER DEPTH.	2	3	MODERATE	CONTRACTOR	ACTION ASSIGNED
2	TREE REMOVAL	- FALL FROM HEIGHT - CRUSH INJURY FROM FALLING TREE	CONSTRUCTION	2	5	VERY HIGH	- CERTIFIED ARBORIST USING BEST PRACTICES RESPONSIBLE FOR TREE REMOVAL.	2	3	MODERATE	CONTRACTOR	ACTION ASSIGNED
3	PIPE TRENCHING	FALL INTO DEEP EXCAVATIONS	CONSTRUCTION	1	4	HIGH	- PROVIDE SAFETY BARRIERS - PROVIDE BENCHING	1	2	LOW	CONTRACTOR	ACTION ASSIGNED
4	RETAINING WALL CONSTRUCTION	CRUSHING INJURY	CONSTRUCTION	2	5	VERY HIGH	- APPROPRIATE RETAINING WALL SYSTEM SPECIFIED TO MINIMISE HANDLING. - RETAINED HEIGHT ASSUMES NO LATERAL RESTRAINT AT LOW SIDE OF WALL PRIOR TO FORMATION OF FINISHED SURFACE LEVEL.	1	3	MODERATE	CONTRACTOR	ACTION ASSIGNED
5	WORKING ADJACENT TO EXISTING LOCKWOOD ROAD AND COMPASS DRIVE	COLLISION WITH ONGOING TRAFFIC	CONSTRUCTION	3	5	VERY HIGH	- APPLY WORK BARRICADES/TRAFFIC MANAGEMENT CONTROLS AT LOCKWOOD ROAD INTERSECTION WITH DISTRIBUTION DRIVE. - WHEN AVAILABLE, WORK DURING LOW TRAFFIC TIMES. - CONTRACTOR TO OBTAIN AND CARRY OUT APPROVED TRAFFIC MANAGEMENT CONTROLS AS NOTED IN ENSPIRE'S GENERAL NOTES AND LEGENDS 190050-05-DA-C01.21. - INSTALL TRAFFIC BARRIER TO COMPASS DRIVE (WEST SIDE).	1	4	HIGH	CONTRACTOR	ACTION ASSIGNED

[illegible]