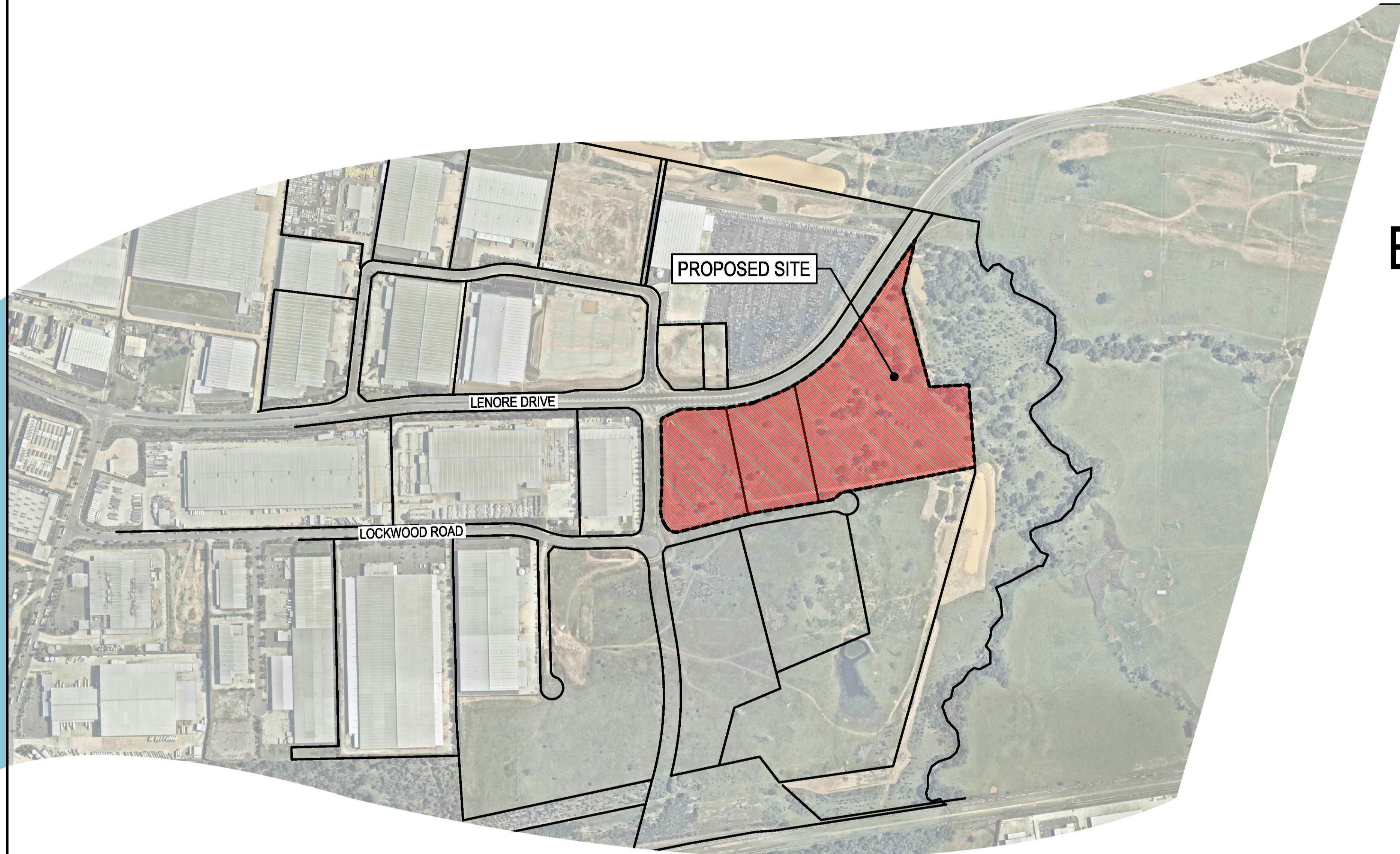


FITZPATRICK INVESTMENTS PTY LTD



# ERSKINE PARK INDUSTRIAL ESTATE STORMWATER MANAGEMENT & PAD SITE BULK EARTHWORKS DEVELOPMENT APPLICATION

**DRAWING SCHEDULE**

DRAWING NO.	DESCRIPTION
190050-03-DA-C01.01	COVERSHEET, LOCALITY PLAN & DRAWING SCHEDULE
190050-03-DA-C01.11	SPECIFICATION NOTES & LEGENDS
190050-03-DA-C01.21	GENERAL ARRANGEMENT PLAN
190050-03-DA-C03.01	SEDIMENTATION & EROSION CONTROL PLAN - SHEET 01
190050-03-DA-C03.02	SEDIMENTATION & EROSION CONTROL PLAN - SHEET 02
190050-03-DA-C03.03	SEDIMENTATION & EROSION CONTROL PLAN - SHEET 03
190050-03-DA-C03.21	SEDIMENTATION & EROSION CONTROL DETAIL
190050-03-DA-C04.01	BULK EARTHWORKS PLAN
190050-03-DA-C04.21	BULK EARTHWORKS SECTION - SHEET 01
190050-03-DA-C04.22	BULK EARTHWORKS SECTION - SHEET 02
190050-03-DA-C05.01	SITWORKS & CONCEPT STORMWATER MANAGEMENT PLAN - SHEET 01
190050-03-DA-C05.02	SITWORKS & CONCEPT STORMWATER MANAGEMENT PLAN - SHEET 02
190050-03-DA-C05.03	SITWORKS & CONCEPT STORMWATER MANAGEMENT PLAN - SHEET 03
190050-03-DA-C13.01	TYPICAL SITE SECTION DETAILS
190050-03-DA-C14.01	SITWORK DETAILS
190050-03-DA-C20.01	STORMWATER CATCHMENT PLAN - PRE DEVELOPMENT
190050-03-DA-C20.02	STORMWATER CATCHMENT PLAN - POST DEVELOPMENT
190050-03-DA-C24.01	OVERLAND CATCHDRAIN LONGITUDINAL SECTION

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

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SCALE 1:5000 @A1

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Scale 1:5000  
Date 31/10/2019  
Size A1  
Datum A.H.D.

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

Project Number/Drawing Number  
**190050-03-DA-C01.01**

Revision  
**2**

**SURVEY**

- THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN SUPPLIED BY FIZPATRICK INVESTMENTS 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.
- SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE DESIGN ENGINEER.
- 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**

- ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW. IF CONFLICT ARISE, PENRITH CITY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE PENRITH CITY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE.
- 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.
- 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).
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH PENRITH CITY COUNCIL STANDARDS.
- PENRITH CITY COUNCIL STANDARD DETAILS TO BE USED WHERE POSSIBLE.
- UTILITY ADJUSTMENTS AT DEVELOPERS EXPENSE.

**ACCESS AND SAFETY**

- THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING TRAFFIC CONTROL.
- THE CONTRACTOR SHALL PROVIDE TRAFFIC MANAGEMENT PLANS FOR THE PROPOSED WORKS COMPLETED BY A SUITABLY QUALIFIED PERSON AND APPROVED BY COUNCIL / REGULATORY AUTHORITY. WORK IS NOT TO COMMENCE ON SITE PRIOR TO APPROVAL OF TRAFFIC MANAGEMENT SCHEME.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.
- WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.
- THE CONTRACTOR SHALL ENSURE PUBLIC ACCESS EXTERNAL TO THE SITE IS IN ACCORDANCE WITH COUNCILS REQUIREMENTS.

**EROSION AND SEDIMENT CONTROL**

**GENERAL INSTRUCTIONS**

- 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.
- THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
  - LOCAL AUTHORITY REQUIREMENTS
  - EPA REQUIREMENTS
  - NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
- MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
- WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- 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**

- 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:
  - INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
  - CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
  - INSTALL SEDIMENT BASIN AS SHOWN ON PLAN. INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
  - 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.

**EROSION CONTROL**

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

**SEDIMENT CONTROL**

- 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.
- 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.
- 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.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
- ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
- ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
  - PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
  - ENSURING THAT NOTHING IS NAILED TO THEM
  - PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
    - 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, WHICH EVER IS THE GREATER
    - 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
    - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

**OTHER MATTERS**

- PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
- ENSURING THAT NOTHING IS NAILED TO THEM
- PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
  - 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, WHICH EVER IS THE GREATER
  - 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
  - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

**SITWORKS**

- ALL WORKS TO BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS, SPECIFICATIONS AND AUSTRALIAN STANDARDS. CONFLICTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO THE DESIGN ENGINEER.
- 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.
- THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED.
- RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION ON COMPLETION OF WORKS.
- 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.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- 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.
- 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.
- THESE PLANS SHALL BE READ IN CONJUNCTION WITH ALL APPROVED DRAWINGS AND SPECIFICATIONS PREPARED BY OTHER PROJECT CONSULTANTS.
- 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).
- 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.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.
- THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING TRAFFIC CONTROL.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO ALL BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.
- WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.
- 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.
- ALL VARIATIONS TO SPECIFIED PRODUCTS OR DESIGNS SHALL BE REFERRED TO THE DESIGN ENGINEER IN WRITING FOR APPROVAL.
- ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
  - PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
  - ENSURING THAT NOTHING IS NAILED TO THEM
  - PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
    - 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, WHICH EVER IS THE GREATER
    - 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
    - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.
- 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.

**EARTHWORKS**

- 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 DESIGNING CIVIL & STRUCTURAL ENGINEERS, THAT THE METHODOLOGY APPROVED AT THE TIME OF THE GEOTECHNICAL ENGINEERS VISIT WAS MAINTAINED DURING ALL THE BULK EARTHWORKS PROCESS.
- STRIP TOPSOIL, ORGANIC MATTER AND RUBBLE FROM CONSTRUCTION AREA TO EXPOSE NATURALLY OCCURRING MATERIAL AND STOCKPILE ON SITE AS DIRECTED BY THE SUPERINTENDENT.
- 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.
- 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.
- 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.

LOCATION	COMPACTION REQUIREMENT
UNDER BUILDINGS SLABS	100% SMDD
LANDSCAPED AREAS	95% SMDD
ROADS & PAVED AREAS	100% SMDD
- FOR NON COHESIVE MATERIAL, COMPACT TO NOT LESS THAN
 

UNDER ROAD	80% DENSITY
OTHER AREA	75% DENSITY
- 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).
- 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 AS1398.
- WHERE TEST RESULTS ARE BELOW THE SPECIFIED COMPACTION, RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION STANDARD IS ACHIEVED.
- ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND U.N.O. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXCAVATION IN WET OR HARD GROUND.
- 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 MICRON SIEVE (<25%).
  - PLASTICITY INDEX BETWEEN 2-15% AND CBR>8.
  - FREE FROM ORGANIC AND PERISHABLE MATTER.
- REFER TO THE SITE SPECIFIC GEOTECHNICAL REPORT FOR GENERAL REQUIREMENTS ON SITE PREPARATION AND RE-USE OF EXISTING SITE MATERIAL AS ENGINEERED FILL.
- 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.
- 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.
- 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.

**STORMWATER DRAINAGE**

- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (2003) AND AS/NZS 3500 3.2 (2003).
- PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC (CLASS S4) WITH SOLVENT WELDED JOINTS.
- PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE MIN CLASS 2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.
- ALL PIPES ARE TO BE LAID AT (min) 1.0% GRADE (UNO)
- EQUIVALENT STRENGTH FRG PIPES MAY BE USED TO DESIGN ENGINEER AND SUPERINTENDENTS APPROVAL.
- ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.
- PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.
- ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
- ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE
- ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.
- WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 (2007) TO DETERMINE THE APPROPRIATE PIPE CLASS. PROPOSED PIPE CLASS SHALL BE REVIEWED BY THE DESIGN ENGINEER PRIOR TO INSTALLATION.
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- PRECAST PITS MAY BE USED SUBJECT TO WRITTEN APPROVAL BY THE DESIGN ENGINEER.
- 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.
- COVERS**
  - 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.
  - ALL COVERS AND GRATES TO BE POSITIONED IN A FRAME AND MANUFACTURED AS A UNIT.
  - ALL COVERS AND GRATES TO BE FITTED WITH POSITIVE COVER LIFTING KEYS.
  - 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. UNLESS DETAILED OR SPECIFIED OTHERWISE COVERS AND GRATES TO BE CLASS "D" IN VEHICULAR PAVEMENTS AND CLASS "B" ELSEWHERE.
- 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.
- Ø100mm SUB-SOIL DRAINAGE LINES SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT (AT min. 1% LONGITUDINAL GRADE) AND PROVIDED IN THE FOLLOWING LOCATIONS:
  - ADJACENT ALL TRAFFICKED AND CARPARK PAVEMENT AREAS (BEHIND KERBS);
  - ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS;
  - BEHIND RETAINING WALLS (IN ACCORDANCE WITH DRAWINGS);
  - BELOW ALL TRAFFICABLE DISH DRAINS;
  - ALL OTHER AREAS SHOWN ON THE DRAWINGS.
- 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.
- 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.
- 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.
- ALL RECTANGULAR HOLLOW SECTIONS (RHS) SPECIFIED AS STORMWATER CONDUITS TO BE HOT DIPPED GALVANISED AND HAVE (MINIMUM) 5mm WALL THICKNESS.
- ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.
- 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.

**STORMWATER DRAINAGE (CONT.)**

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



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Scale

North

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Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SPECIFICATION NOTES & LEGEND

Scale  
N.T.S

Date  
31/10/2019

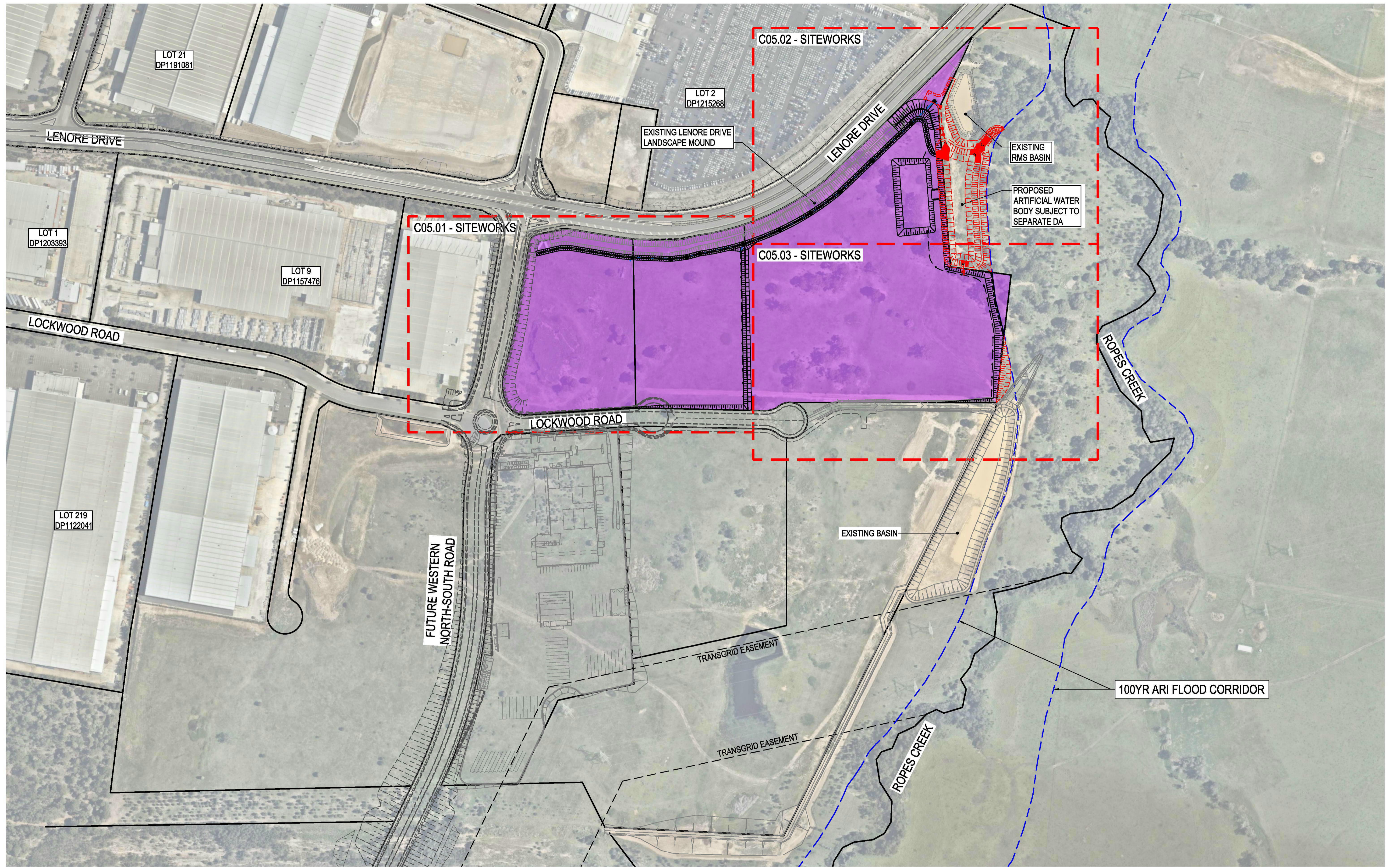
Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
190050-03-DA-C01.11

Revision  
2



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:2000 @A1

North

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205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
GENERAL ARRANGEMENT PLAN

Scale  
1:2000

Date  
31/10/2019

Size  
A1

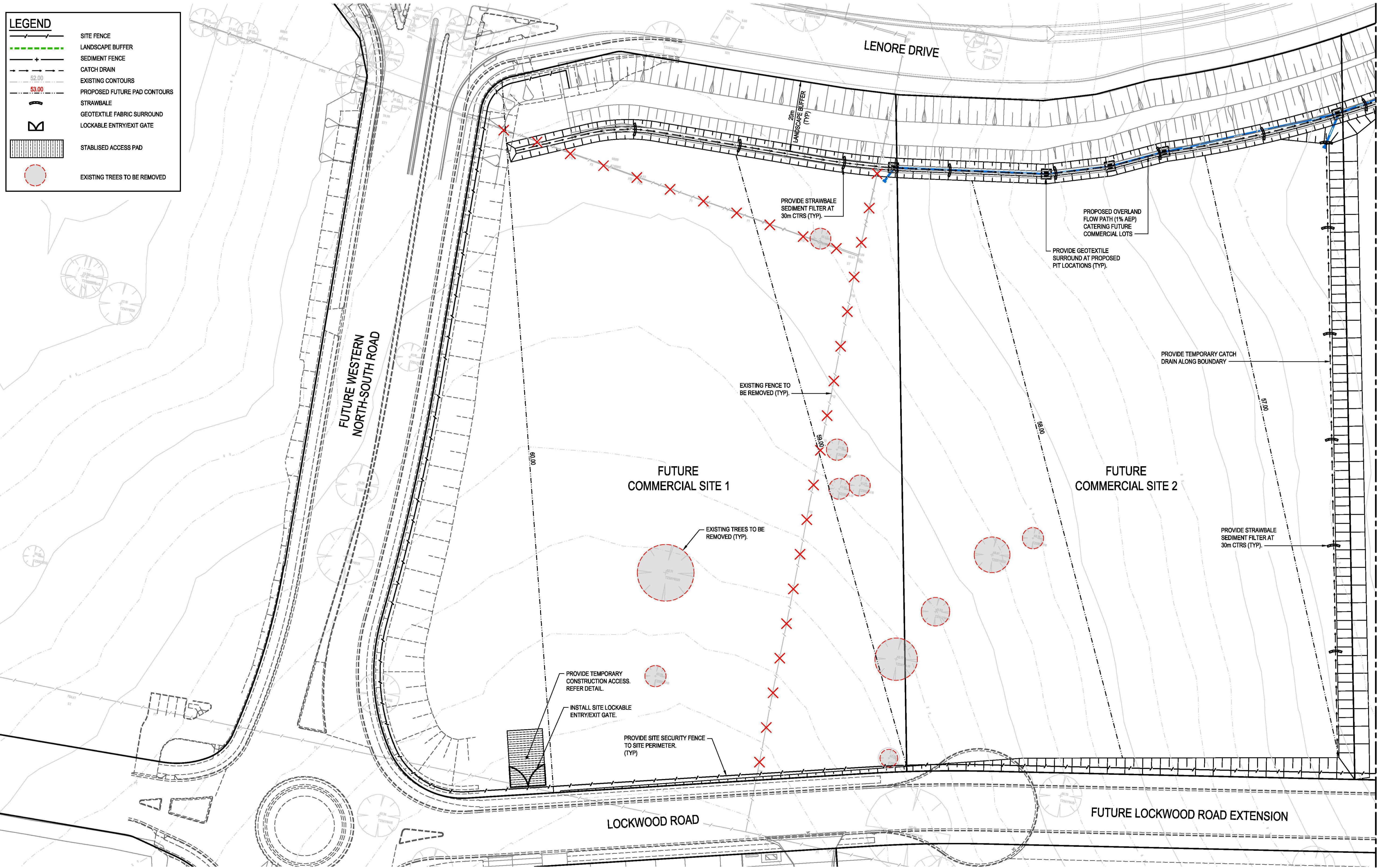
Datum  
A.H.D

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

Project Number/Drawing Number  
190050-03-DA-C01.21

Revision  
2

LEGEND	
	SITE FENCE
	LANDSCAPE BUFFER
	SEDIMENT FENCE
	CATCH DRAIN
	EXISTING CONTOURS
	PROPOSED FUTURE PAD CONTOURS
	STRAWBALE
	GEOTEXTILE FABRIC SURROUND
	LOCKABLE ENTRY/EXIT GATE
	STABILISED ACCESS PAD
	EXISTING TREES TO BE REMOVED



REFER DRG C03.02 FOR CONTINUATION

REFER DRG C03.03 FOR CONTINUATION

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SEDIMENTATION & EROSION CONTROL PLAN

SHEET 01

Scale  
1:500

Date  
31/10/2019

Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C03.01**

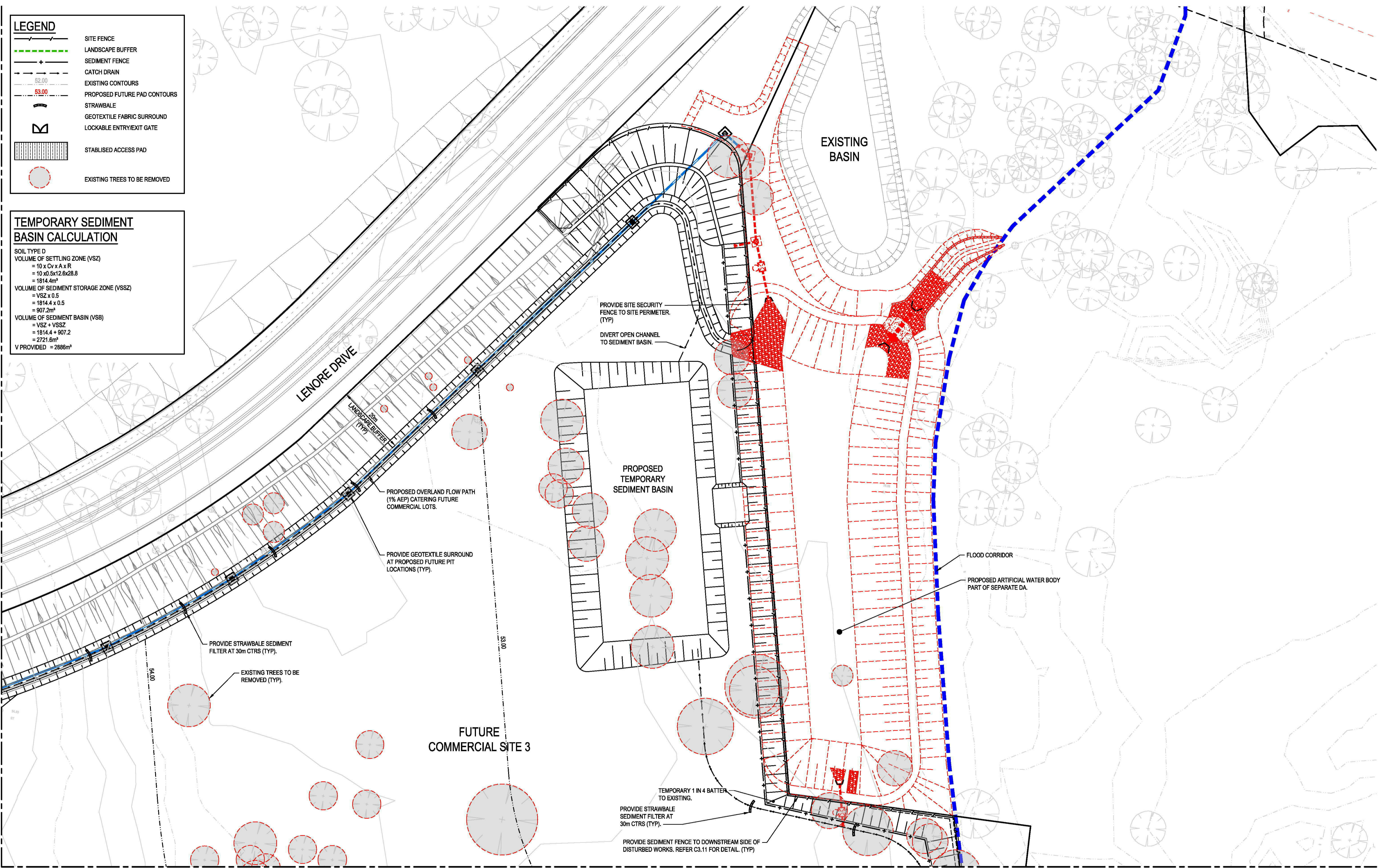
Revision  
**2**

DATE PLOTTED: 6 November 2019 11:44 AM BY: CATLIN BEHETS

LEGEND	
	SITE FENCE
	LANDSCAPE BUFFER
	SEDIMENT FENCE
	CATCH DRAIN
	EXISTING CONTOURS
	PROPOSED FUTURE PAD CONTOURS
	STRAWBALE
	GEOTEXTILE FABRIC SURROUND
	LOCKABLE ENTRY/EXIT GATE
	STABILISED ACCESS PAD
	EXISTING TREES TO BE REMOVED

TEMPORARY SEDIMENT BASIN CALCULATION	
SOIL TYPE D	
VOLUME OF SETTLING ZONE (VSZ)	
= 10 x Cv x A x R	
= 10 x 0.5 x 12.6 x 28.8	
= 1814.4m³	
VOLUME OF SEDIMENT STORAGE ZONE (VSSZ)	
= VSZ x 0.5	
= 1814.4 x 0.5	
= 907.2m³	
VOLUME OF SEDIMENT BASIN (VSB)	
= VSZ + VSSZ	
= 1814.4 + 907.2	
= 2721.6m³	
V PROVIDED = 2886m³	

REFER DRG C03.01 FOR CONTINUATION



REFER DRG C03.03 FOR CONTINUATION

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SEDIMENTATION & EROSION CONTROL

SHEET 02

Scale  
1:500

Date  
31/10/2019

Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C03.02**

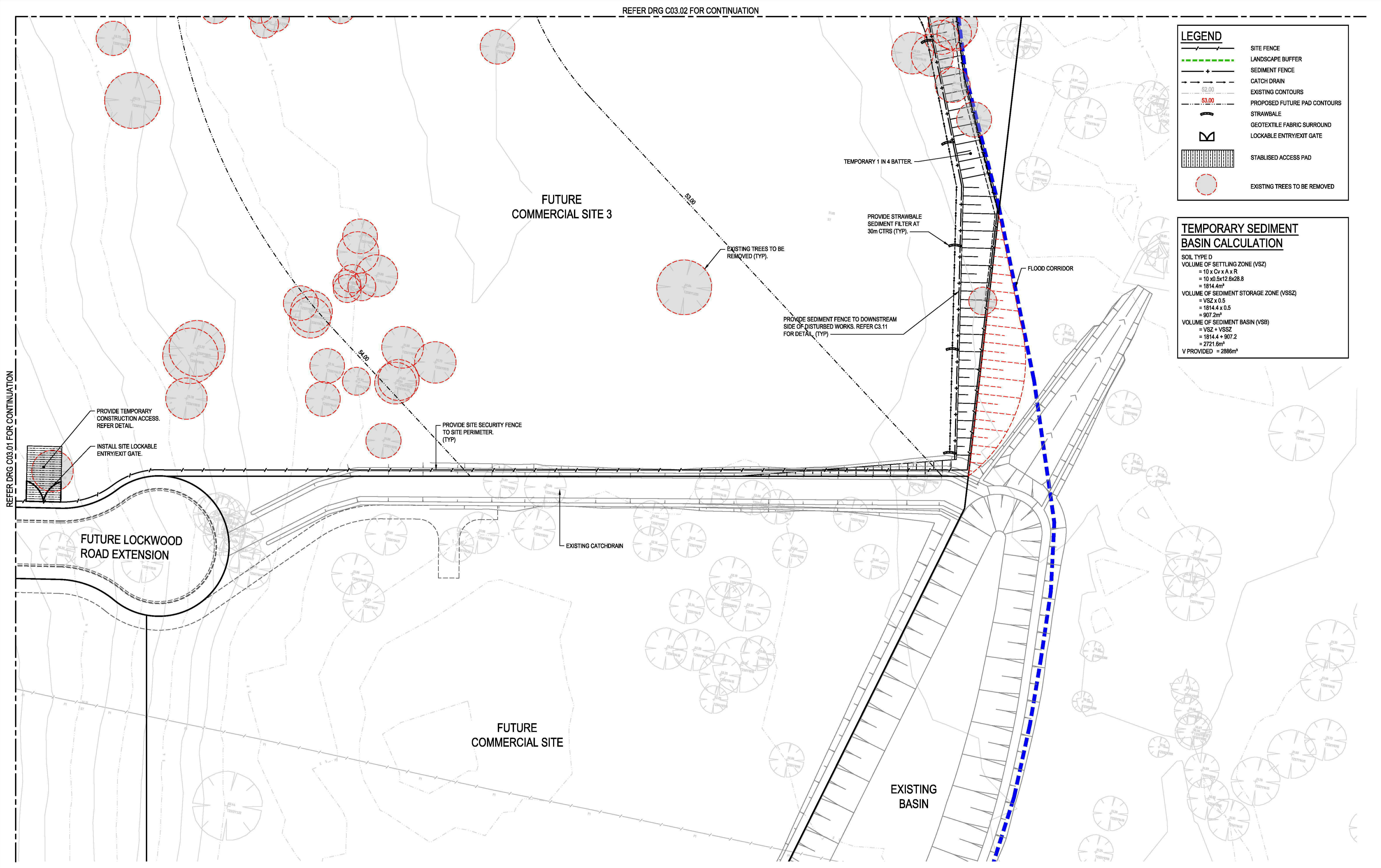
Revision  
**2**

REFER DRG C03.02 FOR CONTINUATION

REFER DRG C03.01 FOR CONTINUATION

LEGEND	
	SITE FENCE
	LANDSCAPE BUFFER
	SEDIMENT FENCE
	CATCH DRAIN
	EXISTING CONTOURS
	PROPOSED FUTURE PAD CONTOURS
	STRAWBALE
	GEOTEXTILE FABRIC SURROUND
	LOCKABLE ENTRY/EXIT GATE
	STABILISED ACCESS PAD
	EXISTING TREES TO BE REMOVED

TEMPORARY SEDIMENT BASIN CALCULATION	
SOIL TYPE D	
VOLUME OF SETTLING ZONE (VSZ)	
= 10 x Cv x A x R	
= 10 x 0.5 x 12.6 x 28.8	
= 1814.4m³	
VOLUME OF SEDIMENT STORAGE ZONE (VSSZ)	
= VSZ x 0.5	
= 1814.4 x 0.5	
= 907.2m³	
VOLUME OF SEDIMENT BASIN (VSB)	
= VSZ + VSSZ	
= 1814.4 + 907.2	
= 2721.6m³	
V PROVIDED = 2886m³	



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SEDIMENTATION & EROSION CONTROL

SHEET 03

Scale  
1:500

Date  
31/10/2019

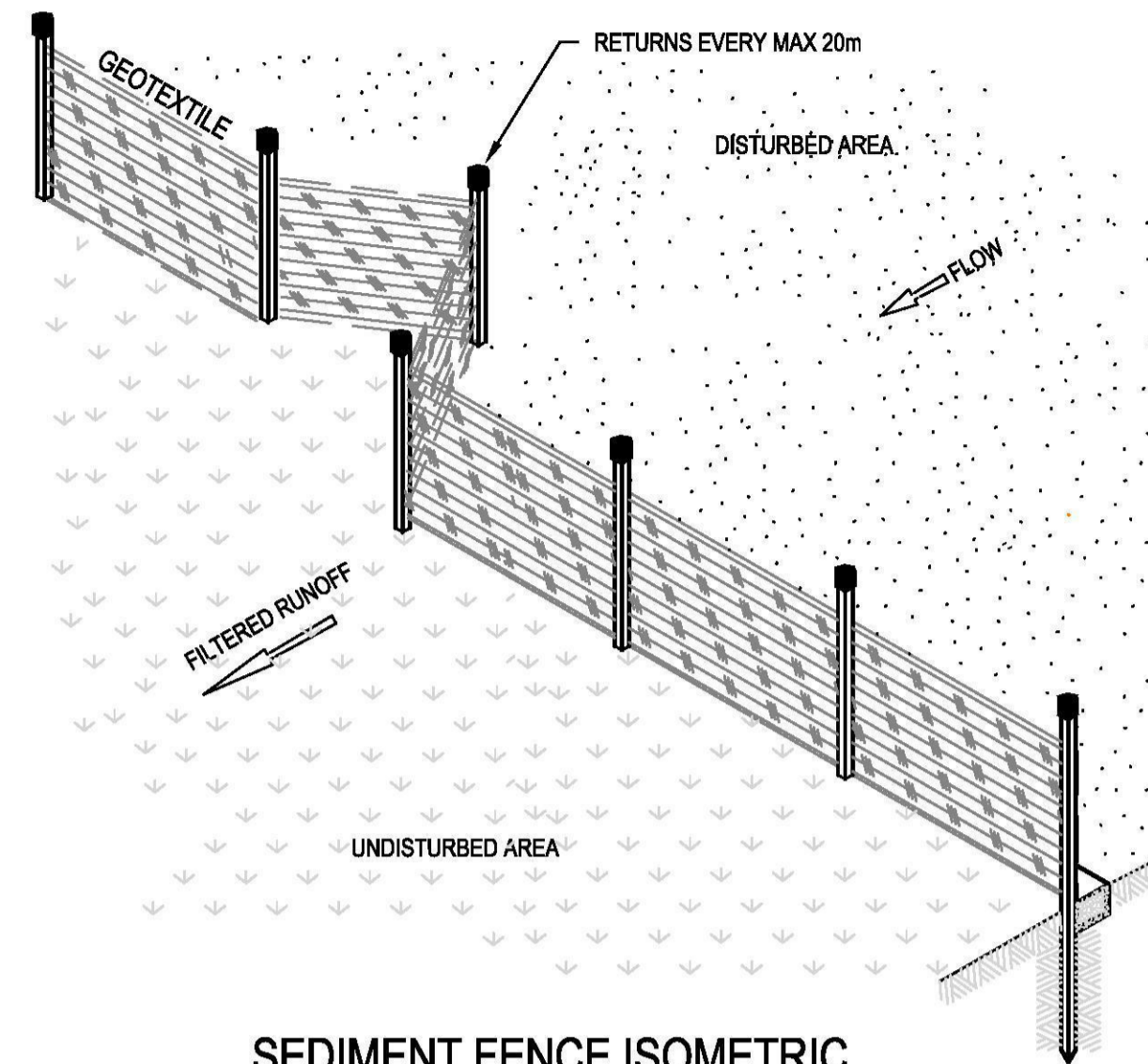
Size  
A1

Datum  
A.H.D

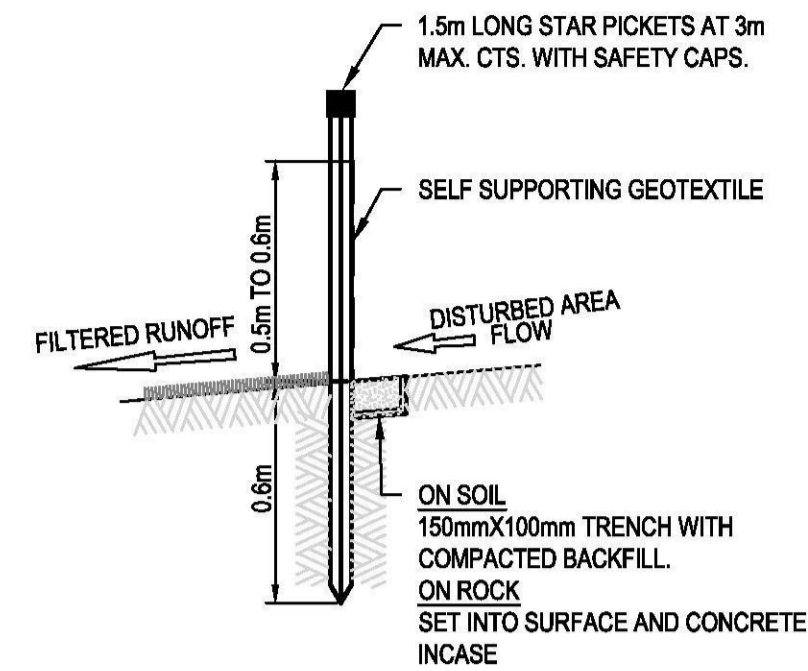
Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-03-DA-C03.03**

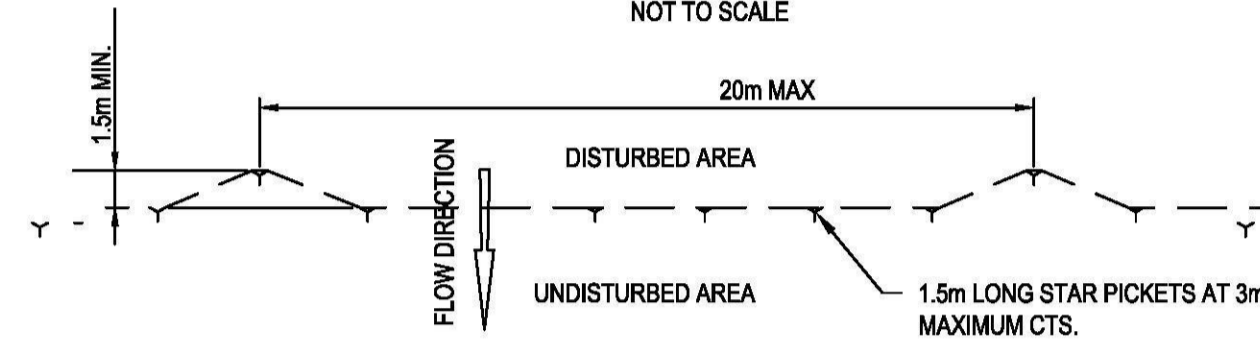
Revision  
**2**



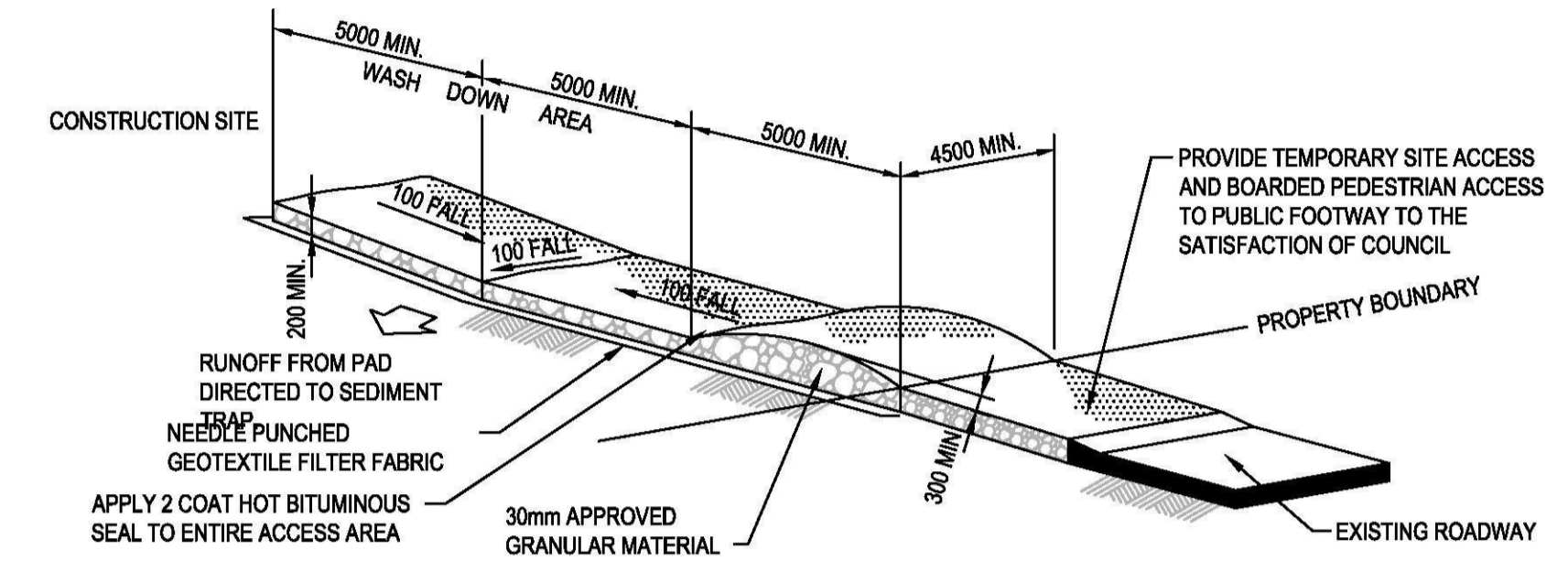
**SEDIMENT FENCE ISOMETRIC**  
NOT TO SCALE



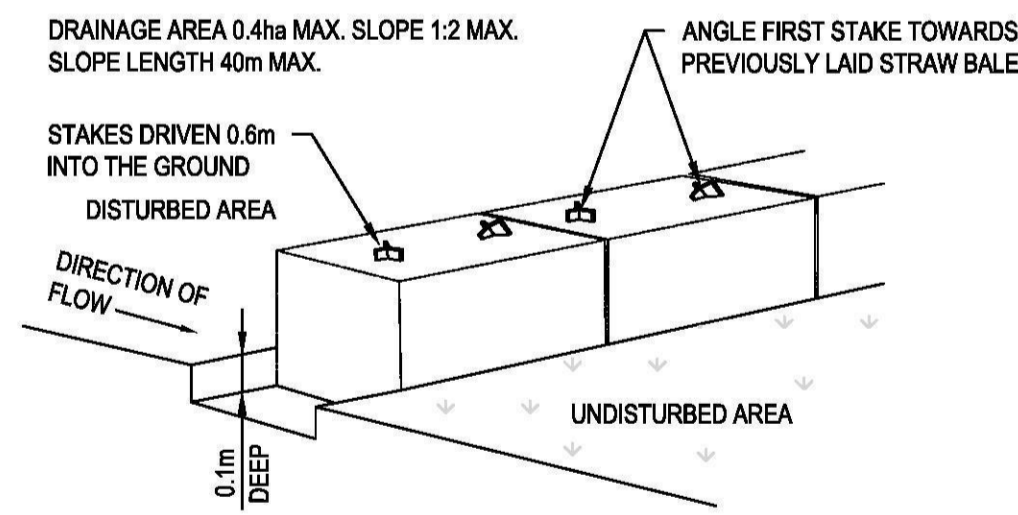
**SEDIMENT FENCE SECTION**  
NOT TO SCALE



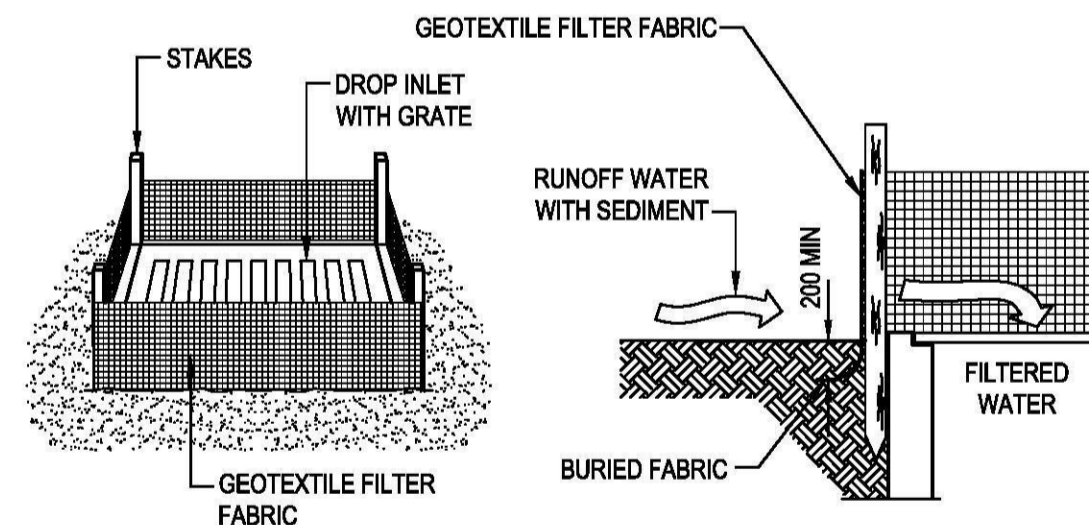
**SEDIMENT FENCE PLAN**  
NOT TO SCALE



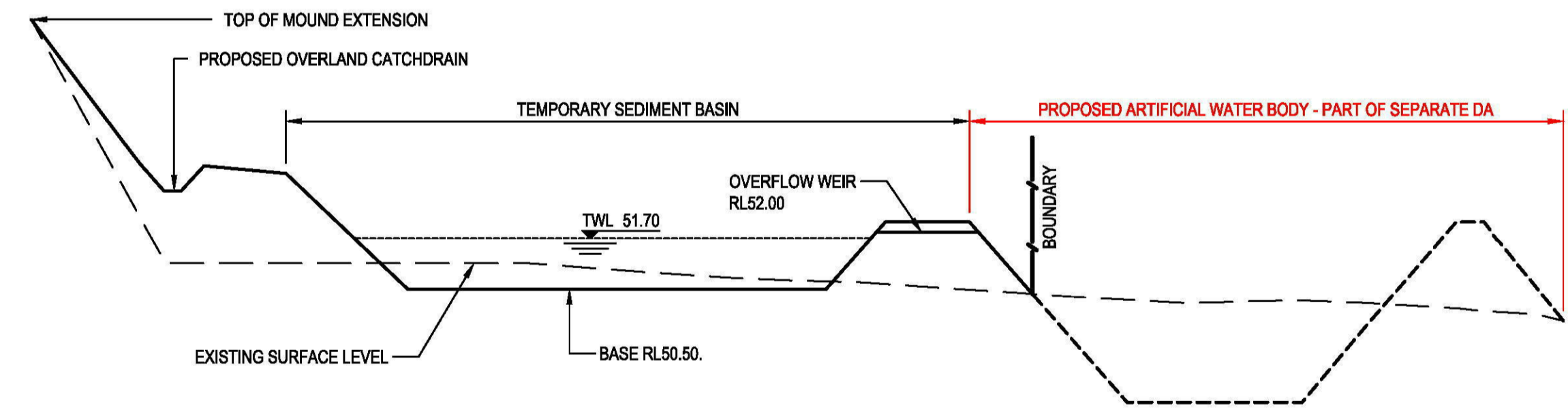
**STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA**  
NOT TO SCALE



**STRAW BALE SEDIMENT FILTER**  
NOT TO SCALE



**SEDIMENT TRAP FOR DROP INLET (GEOTEXTILE FILTER FABRIC)**  
NOT TO SCALE



**TEMPORARY SEDIMENT BASIN**  
NOT TO SCALE

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

North

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ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SEDIMENTATION & EROSION CONTROL  
DETAIL

Scale  
N.T.S

Date  
31/10/2019

Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C03.21**

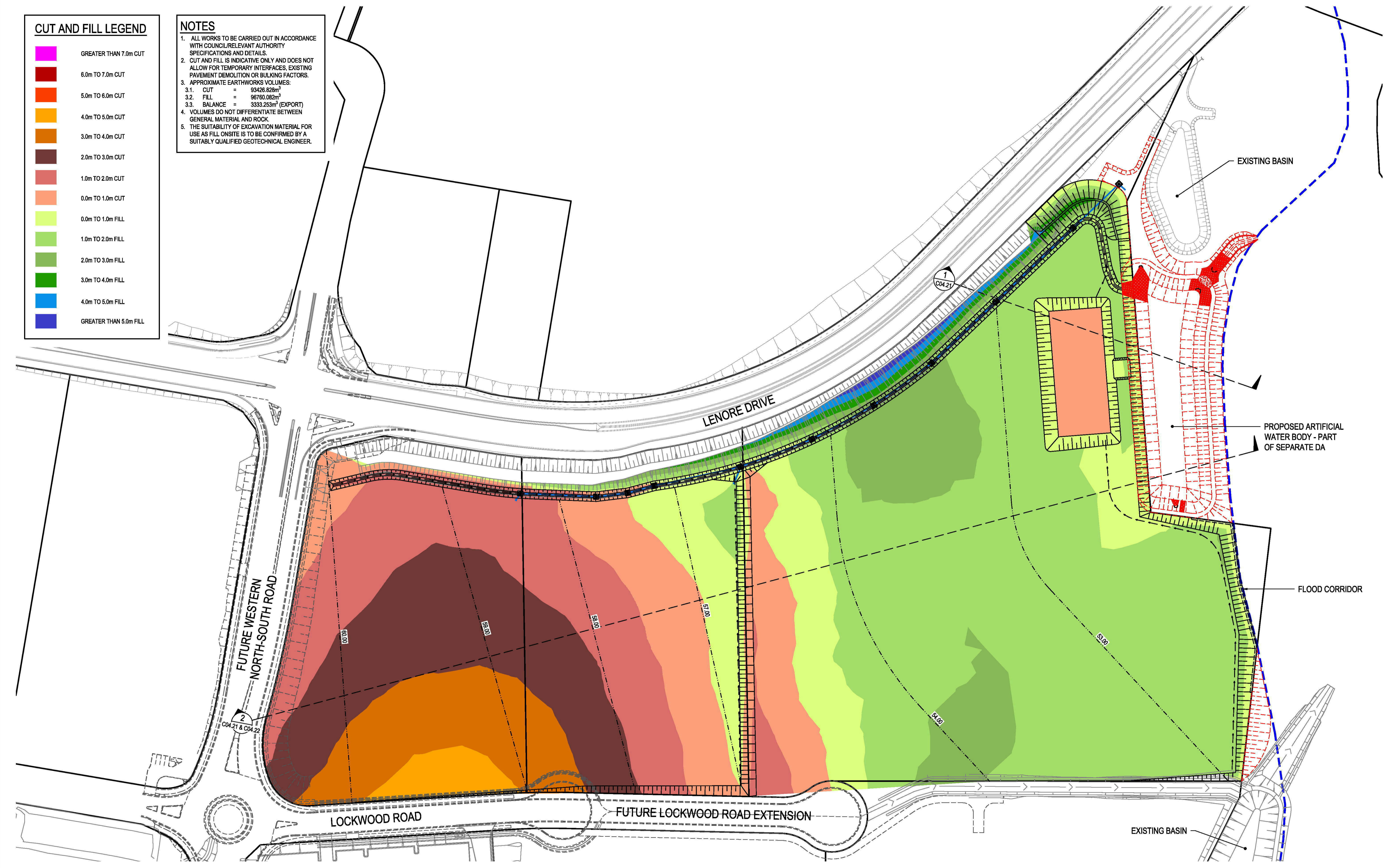
Revision  
**2**

**CUT AND FILL LEGEND**

	GREATER THAN 7.0m CUT
	6.0m TO 7.0m CUT
	5.0m TO 6.0m CUT
	4.0m TO 5.0m CUT
	3.0m TO 4.0m CUT
	2.0m TO 3.0m CUT
	1.0m TO 2.0m CUT
	0.0m TO 1.0m CUT
	0.0m TO 1.0m FILL
	1.0m TO 2.0m FILL
	2.0m TO 3.0m FILL
	3.0m TO 4.0m FILL
	4.0m TO 5.0m FILL
	GREATER THAN 5.0m FILL

**NOTES**

- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL/RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
- CUT AND FILL IS INDICATIVE ONLY AND DOES NOT ALLOW FOR TEMPORARY INTERFACES, EXISTING PAVEMENT DEMOLITION OR BULKING FACTORS.
- APPROXIMATE EARTHWORKS VOLUMES:
  - CUT = 93426.828m<sup>3</sup>
  - FILL = 96760.082m<sup>3</sup>
  - BALANCE = 3333.253m<sup>3</sup> (EXPORT)
- VOLUMES DO NOT DIFFERENTIATE BETWEEN GENERAL MATERIAL AND ROCK.
- THE SUITABILITY OF EXCAVATION MATERIAL FOR USE AS FILL ONSITE IS TO BE CONFIRMED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER.




REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client



Scale



SCALE 1:1000 A1

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
BULK EARTHWORKS PLAN

Scale  
1:1000

Date  
31/10/2019

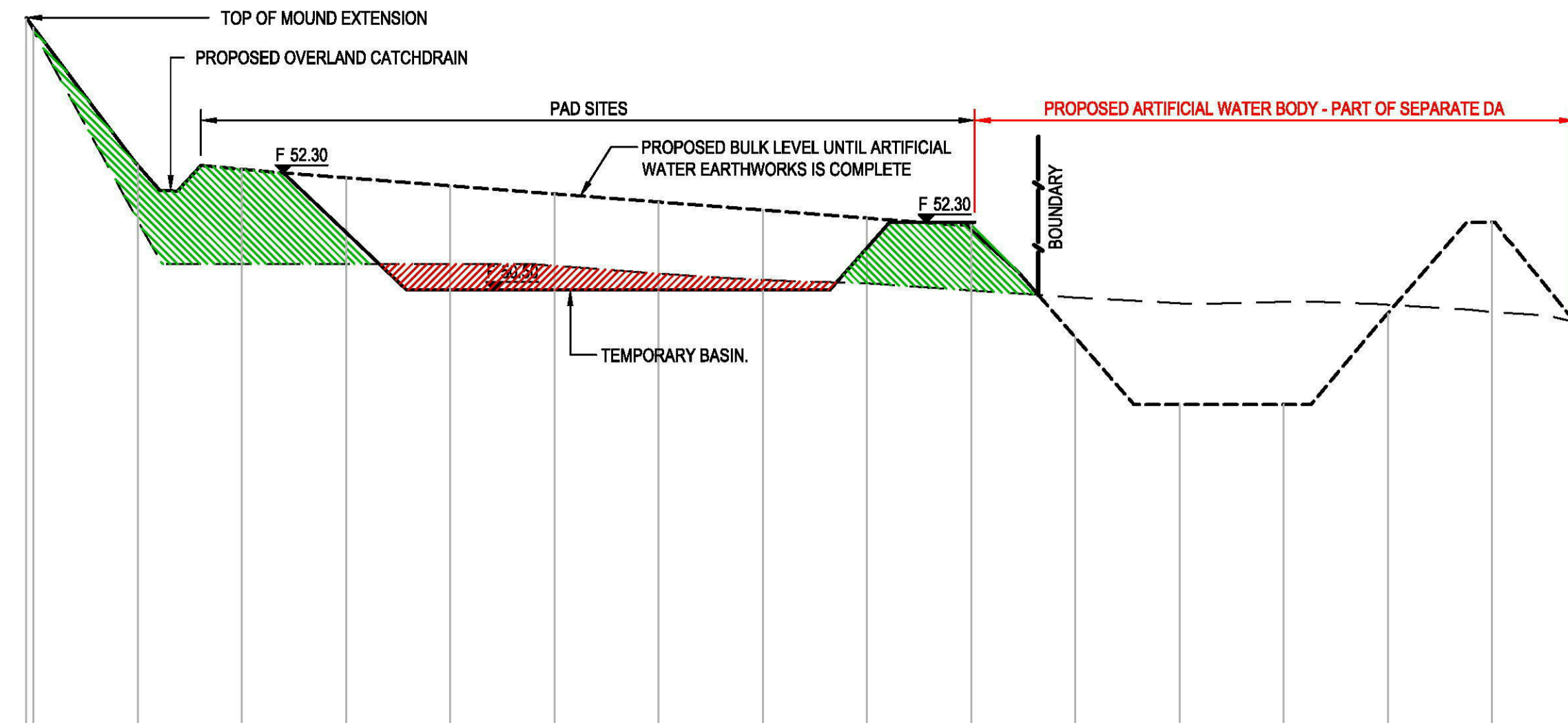
Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C04.01**

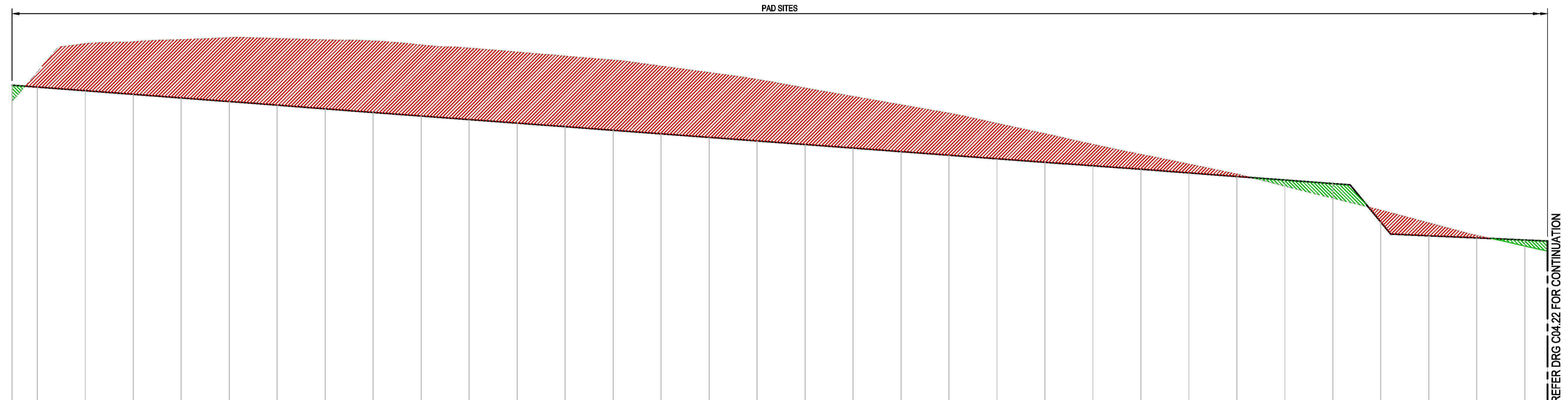
Revision  
**2**



DATUM RL 42.0

DESIGN SURFACE	55.22	56.03	53.39	53.32	53.15	53.00	52.84	52.89	52.53	52.38	52.28	50.09	48.90	48.80	50.95	52.30	50.38
EXISTING SURFACE	55.22	55.97	52.33	51.50	51.50	51.50	51.46	51.31	51.19	51.13	50.99	50.85	50.74	48.90	50.72	50.57	50.38
CHAINAGE	19.28	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00	160.00	167.98

**BULK SECTION 01**  
 HORIZONTAL SCALE 1:500@A1  
 VERTICAL SCALE 1:100@A1



DATUM RL 47.0

DESIGN SURFACE	60.69	60.61	60.48	60.31	60.16	60.01	59.88	59.71	59.55	59.41	59.28	59.11	58.96	58.81	58.66	58.52	58.37	58.22	58.07	57.92	57.78	57.63	57.48	57.34	57.19	57.04	56.89	56.74	56.59	56.44	56.29	56.14	55.99	55.84	55.69	55.54	55.39	55.24	55.09	54.94	54.79	54.64	54.49	54.34	54.19	54.04	53.89	53.74	53.59	53.44	53.29	53.14	52.99	52.84	52.69	52.54	52.39	52.24	52.09	51.94	51.79	51.64	51.49	51.34	51.19	51.04	50.89	50.74	50.59	50.44	50.29	50.14	50.00
EXISTING SURFACE	60.02	61.24	62.42	62.49	62.59	62.67	62.63	62.58	62.53	62.36	62.23	62.07	61.90	61.73	61.48	61.21	60.93	60.57	60.22	59.87	59.52	59.10	58.67	58.22	57.81	57.40	56.99	56.49	55.99	55.48	54.95	54.44	53.99	53.78	53.57	53.36	53.15	52.94	52.73	52.52	52.31	52.10	51.89	51.68	51.47	51.26	51.05	50.84	50.63	50.42	50.21	50.00																					
CHAINAGE	14.74	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	120.00	130.00	140.00	150.00	160.00	170.00	180.00	190.00	200.00	210.00	220.00	230.00	240.00	250.00	260.00	270.00	280.00	290.00	300.00	310.00	320.00	330.00	334.74																																							

**BULK SECTION 02**  
 HORIZONTAL SCALE 1:500@A1  
 VERTICAL SCALE 1:100@A1

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

North

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 205/275 Alfred Street N, North Sydney NSW 2060  
 ABN: 71 624 801 690  
 Phone: 02 9922 6135

Project  
 ERSKINE PARK INDUSTRIAL ESTATE  
 STORMWATER MANAGEMENT & PAD SITE BULK  
 EARTHWORKS -DEVELOPMENT APPLICATION

Title  
 BULK EARTHWORKS SECTION

SHEET 01

Scale  
 AS SHOWN

Date  
 31/10/2019

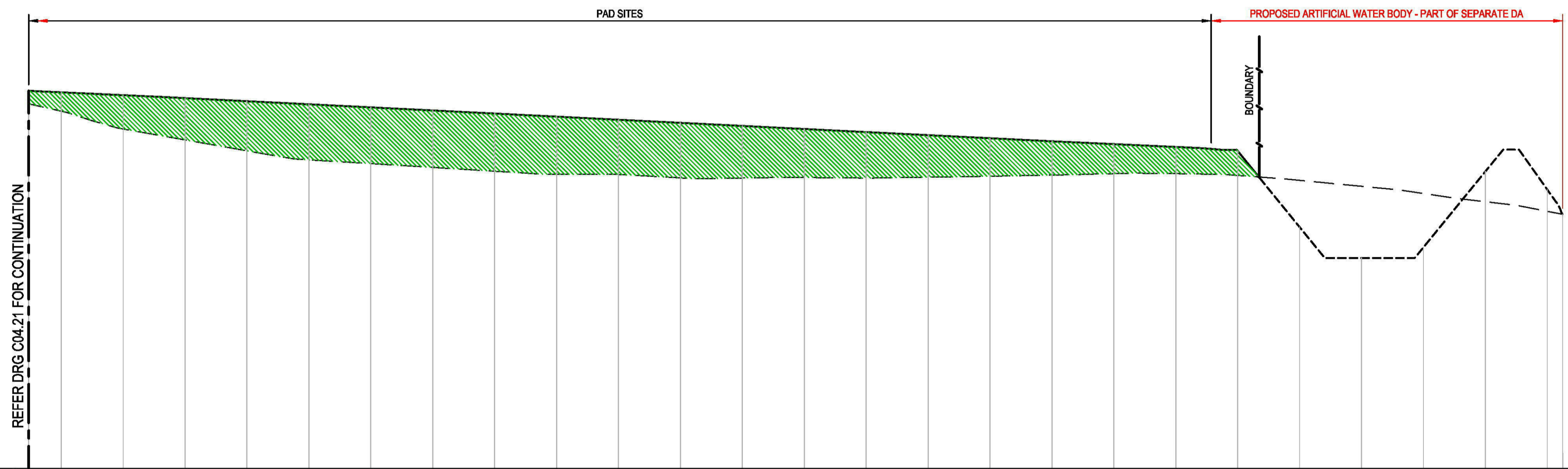
Size  
 A1

Datum  
 A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C04.21**

Revision  
**2**



DATUM RL 42.0

	334.74	340.00	350.00	360.00	370.00	380.00	390.00	400.00	410.00	420.00	430.00	440.00	450.00	460.00	470.00	480.00	490.00	500.00	510.00	520.00	530.00	540.00	550.00	560.00	570.00	580.00	590.00	592.47
DESIGN SURFACE	54.20	54.15	54.08	53.98	53.88	53.76	53.68	53.56	53.46	53.36	53.26	53.16	53.06	52.97	52.87	52.77	52.67	52.57	52.48	52.39	52.26	49.80	48.80	49.15	51.89	51.01	50.21	
EXISTING SURFACE	53.78	53.54	52.97	52.61	52.26	51.97	51.85	51.73	51.60	51.50	51.50	51.39	51.38	51.40	51.38	51.41	51.44	51.46	51.52	51.53	51.47	51.31	51.12	50.88	50.62	50.31	50.21	
CHAINAGE	334.74	340.00	350.00	360.00	370.00	380.00	390.00	400.00	410.00	420.00	430.00	440.00	450.00	460.00	470.00	480.00	490.00	500.00	510.00	520.00	530.00	540.00	550.00	560.00	570.00	580.00	590.00	592.47

**BULK SECTION 02 (CONT.)**

HORIZONTAL SCALE 1:500@A1  
VERTICAL SCALE 1:100@A1

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE: H:1:500 V:1:100 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

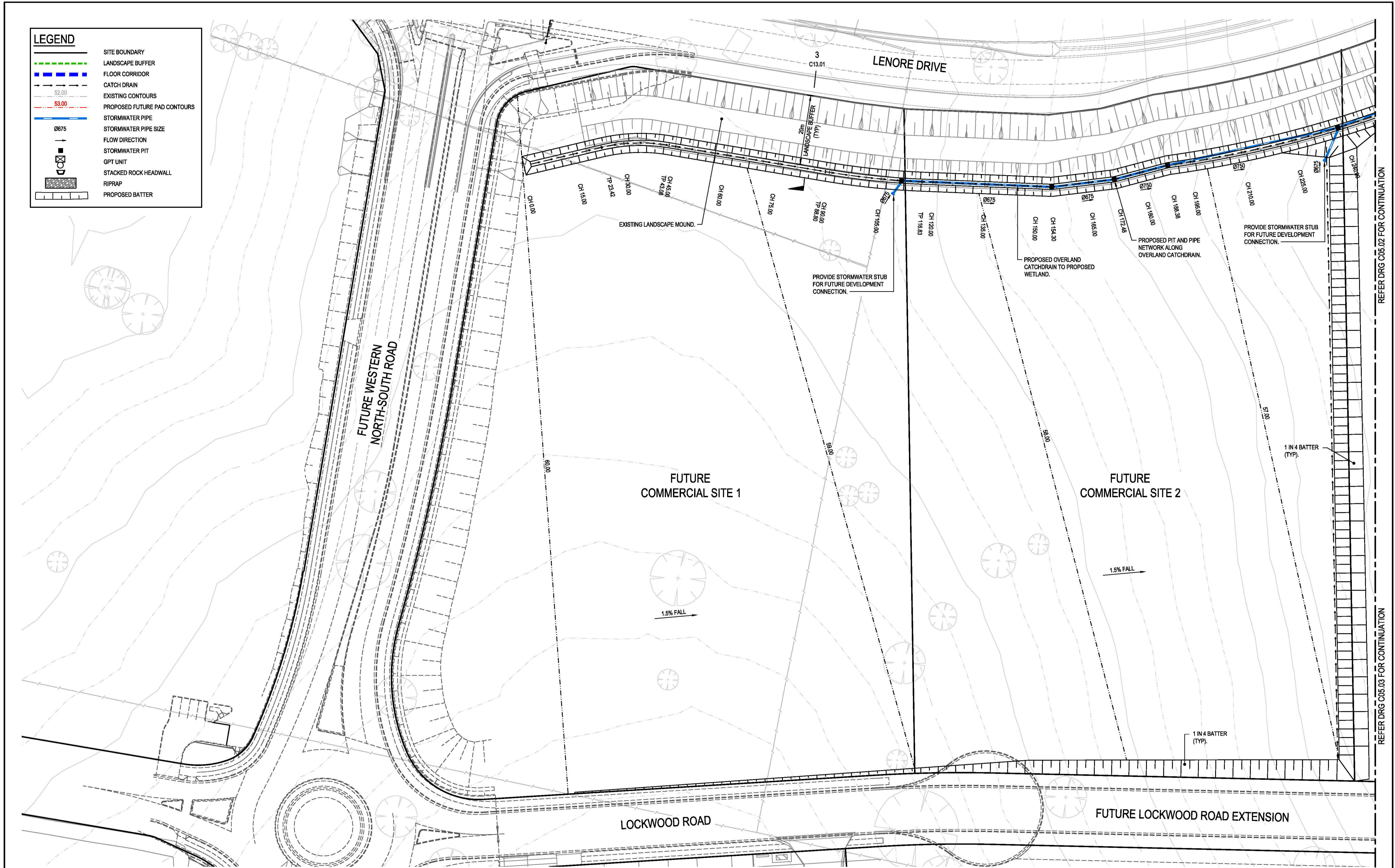
Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
BULK EARTHWORKS SECTION

SHEET 02

Scale AS SHOWN	Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION
Date 31/10/2019	Project Number/Drawing Number 190050-03-DA-C04.22
Size A1	Revision 2
Datum A.H.D	

LEGEND	
	SITE BOUNDARY
	LANDSCAPE BUFFER
	FLOOR CORRIDOR
	CATCH DRAIN
	EXISTING CONTOURS
	PROPOSED FUTURE PAD CONTOURS
	STORMWATER PIPE
	STORMWATER PIPE SIZE
	FLOW DIRECTION
	STORMWATER PIT
	GPT UNIT
	STACKED ROCK HEADWALL
	RIPRAP
	PROPOSED BATTER



REFER DRG C05.02 FOR CONTINUATION

REFER DRG C05.03 FOR CONTINUATION

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SITWORKS & CONCEPT STORMWATER  
MANAGEMENT PLAN  
SHEET 01

Scale  
1:500

Date  
31/10/2019

Size  
A1

Datum  
A.H.D.

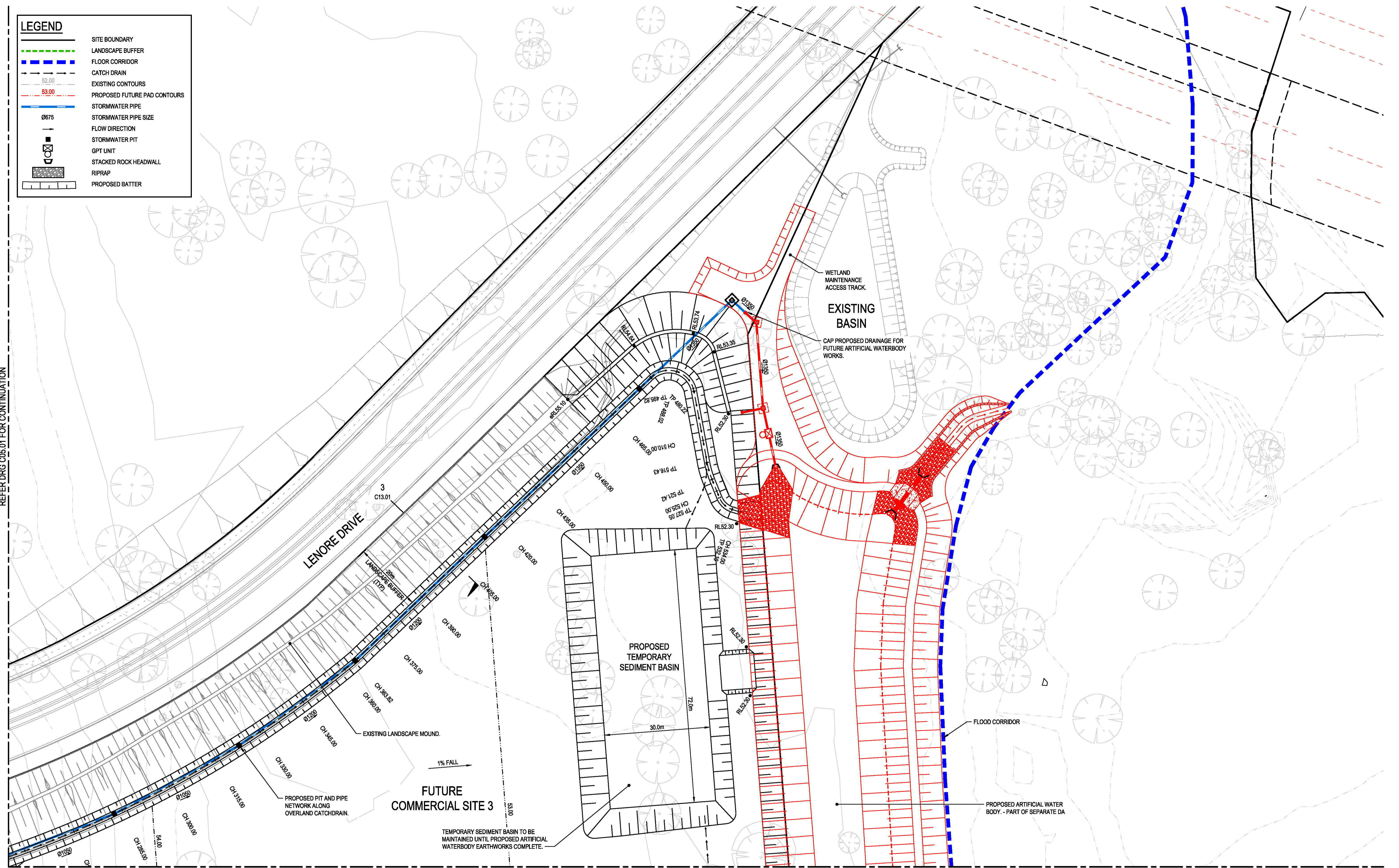
Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-03-DA-C05.01**

Revision  
**2**

LEGEND	
	SITE BOUNDARY
	LANDSCAPE BUFFER
	FLOOR CORRIDOR
	CATCH DRAIN
	EXISTING CONTOURS
	PROPOSED FUTURE PAD CONTOURS
	STORMWATER PIPE
	STORMWATER PIPE SIZE
	FLOW DIRECTION
	STORMWATER PIT
	GPT UNIT
	STACKED ROCK HEADWALL
	RIPRAP
	PROPOSED BATTER

REFER DRG C05.01 FOR CONTINUATION



REFER DRG C05.03 FOR CONTINUATION

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SITWORKS & CONCEPT STORMWATER  
MANAGEMENT PLAN  
SHEET 02

Scale  
1:500

Date  
31/10/2019

Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C05.02**

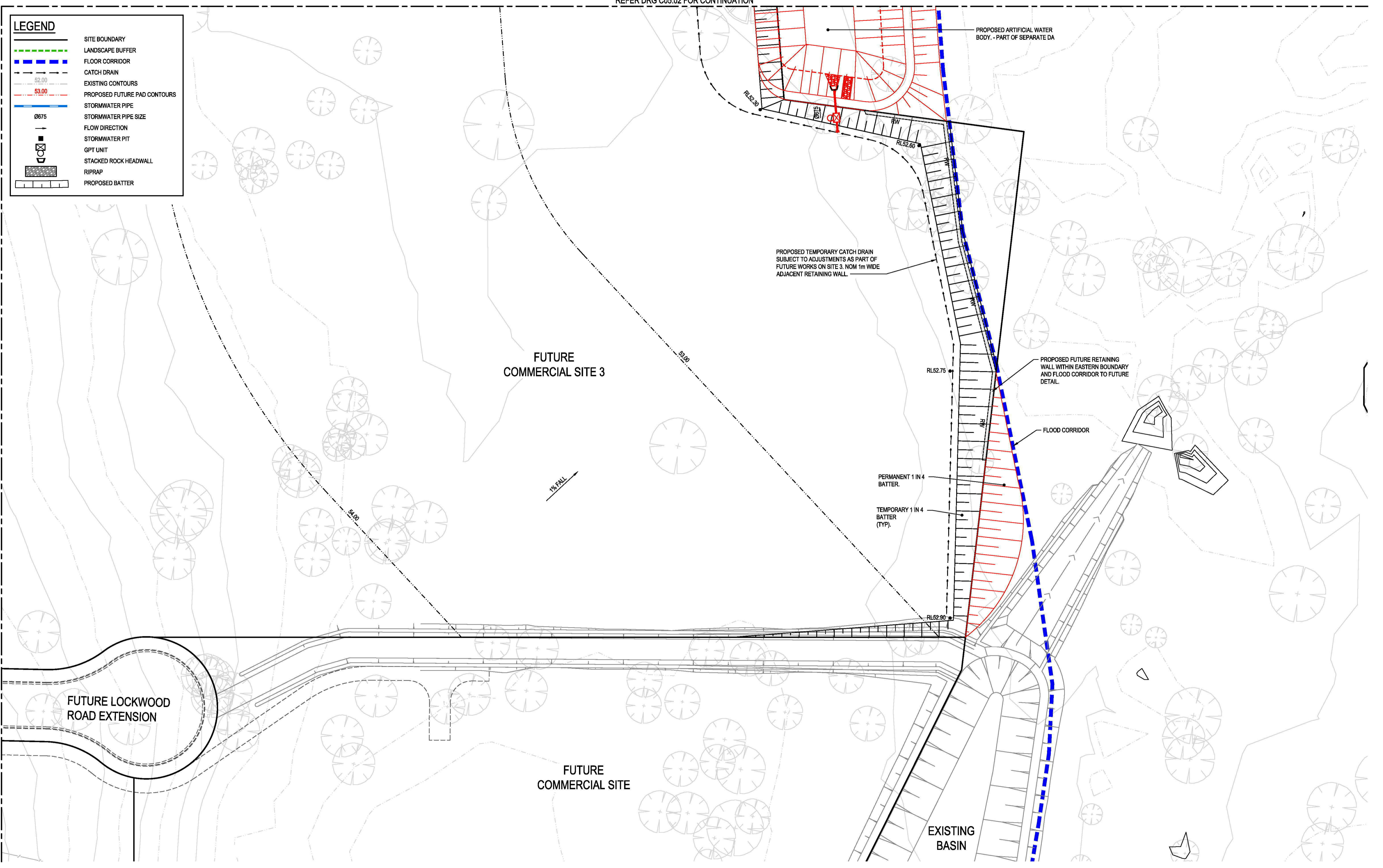
Revision  
**2**

REFER DRG C05.02 FOR CONTINUATION

**LEGEND**

- SITE BOUNDARY
- LANDSCAPE BUFFER
- FLOOR CORRIDOR
- CATCH DRAIN
- EXISTING CONTOURS
- PROPOSED FUTURE PAD CONTOURS
- STORMWATER PIPE
- STORMWATER PIPE SIZE
- FLOW DIRECTION
- STORMWATER PIT
- GPT UNIT
- STACKED ROCK HEADWALL
- RIPRAP
- PROPOSED BATTER

REFER DRG C05.01 FOR CONTINUATION



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd  
205/275 Alfred Street N, North Sydney NSW 2060  
ABN: 71 624 801 690  
Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
SITWORKS & CONCEPT STORMWATER  
MANAGEMENT PLAN  
SHEET 03

Scale  
1:500

Date  
31/10/2019

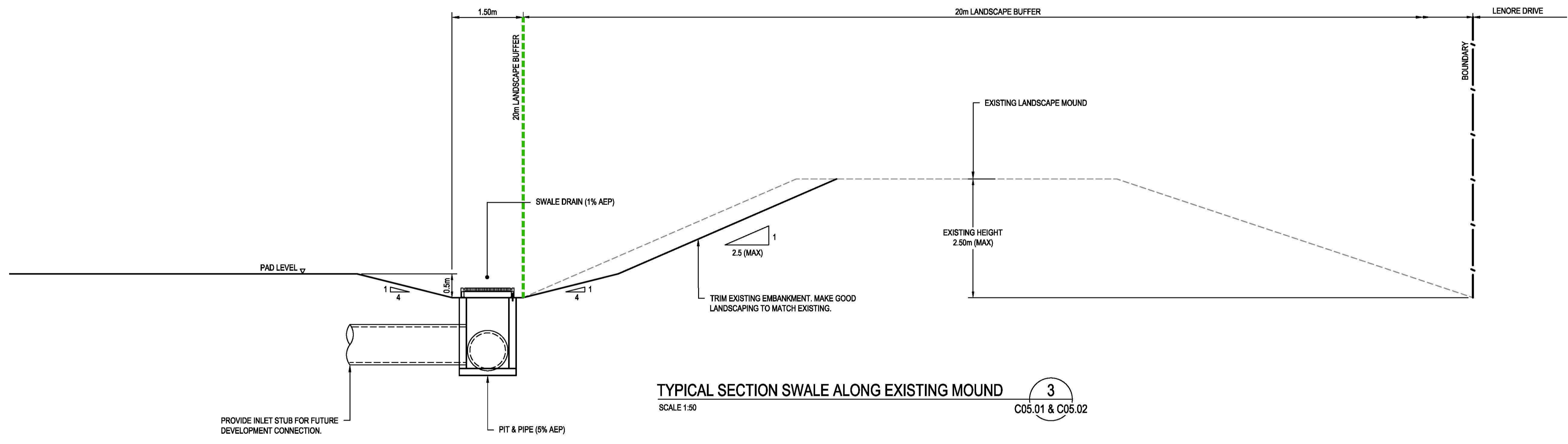
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Datum  
A.H.D.

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

Project Number/Drawing Number  
**190050-03-DA-C05.03**

Revision  
**2**



TYPICAL SECTION SWALE ALONG EXISTING MOUND  
SCALE 1:50  
C05.01 & C05.02

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:50  
A1

North

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Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
TYPICAL SITE SECTIONS DETAIL

Scale  
1:50

Date  
31/10/2019

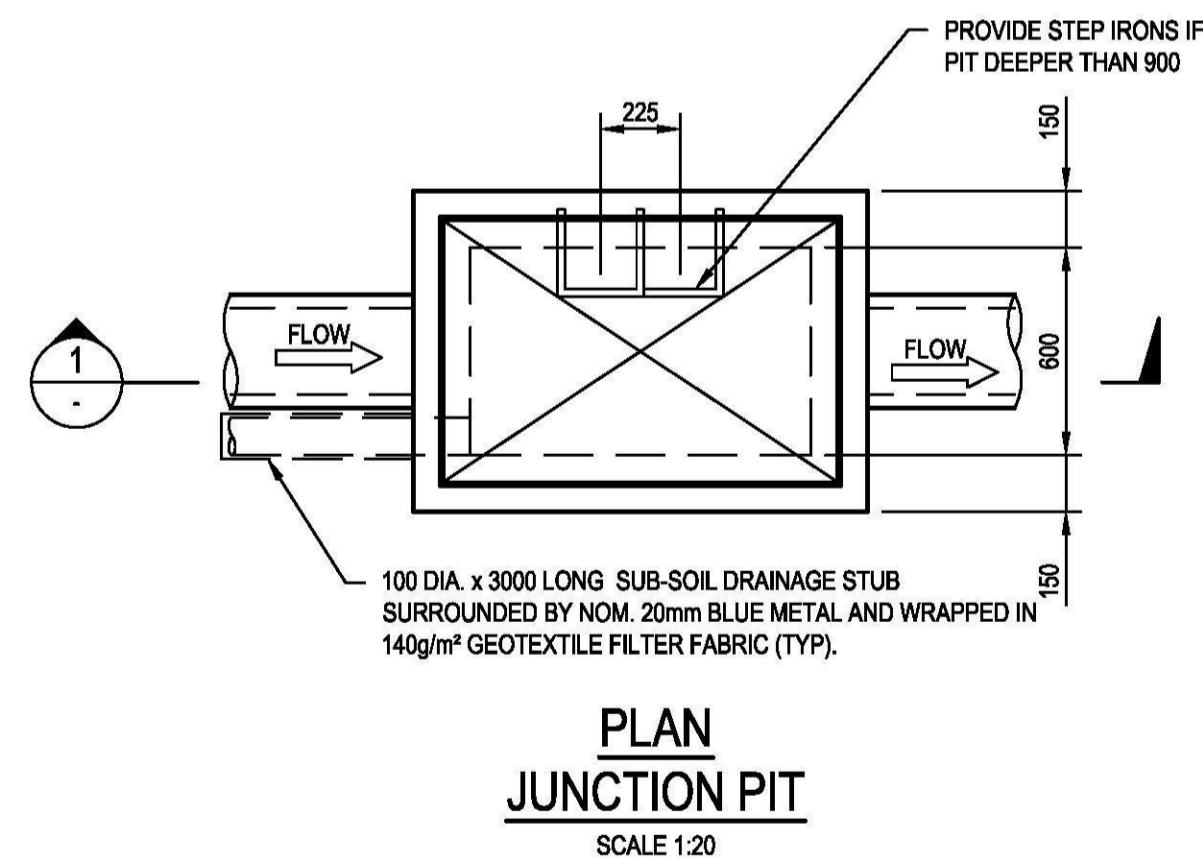
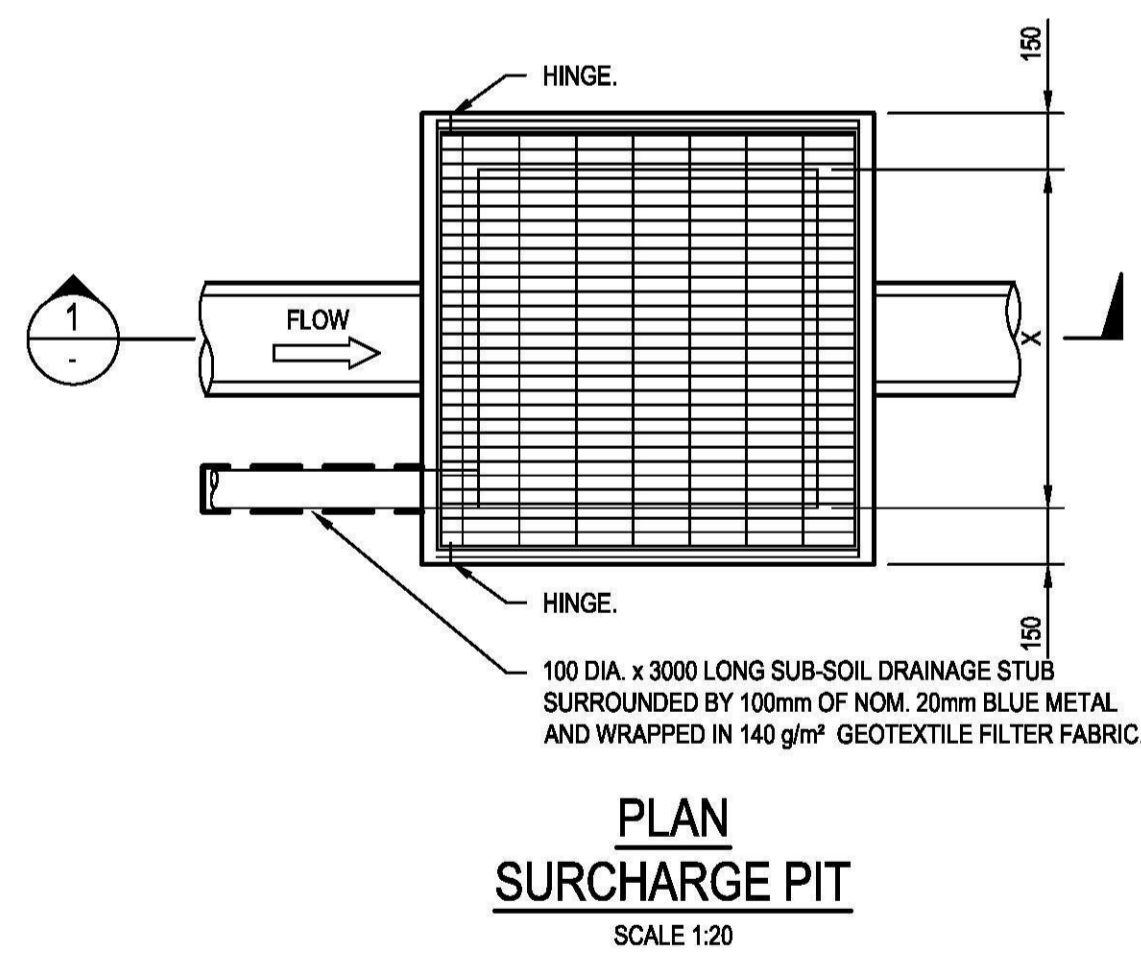
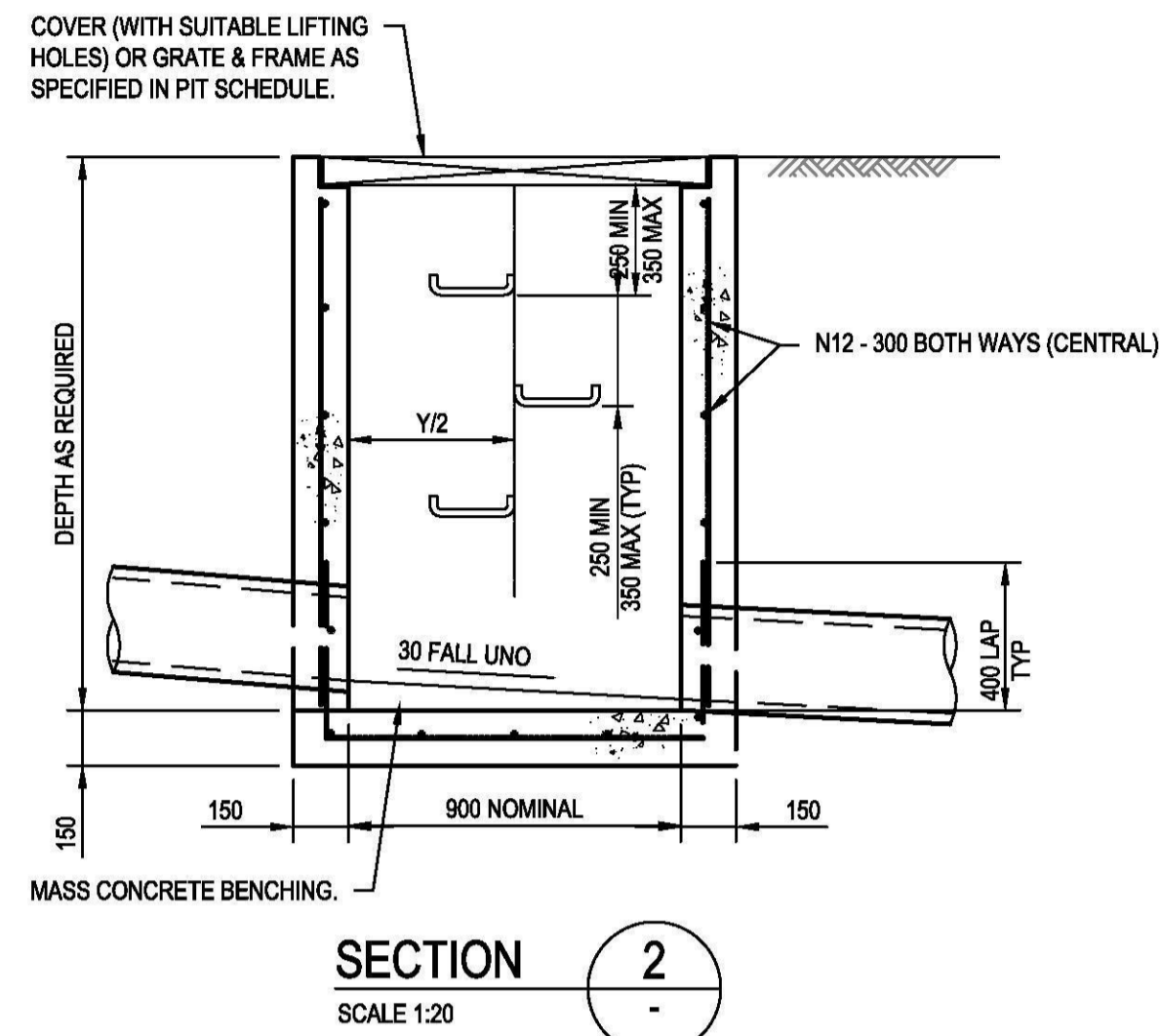
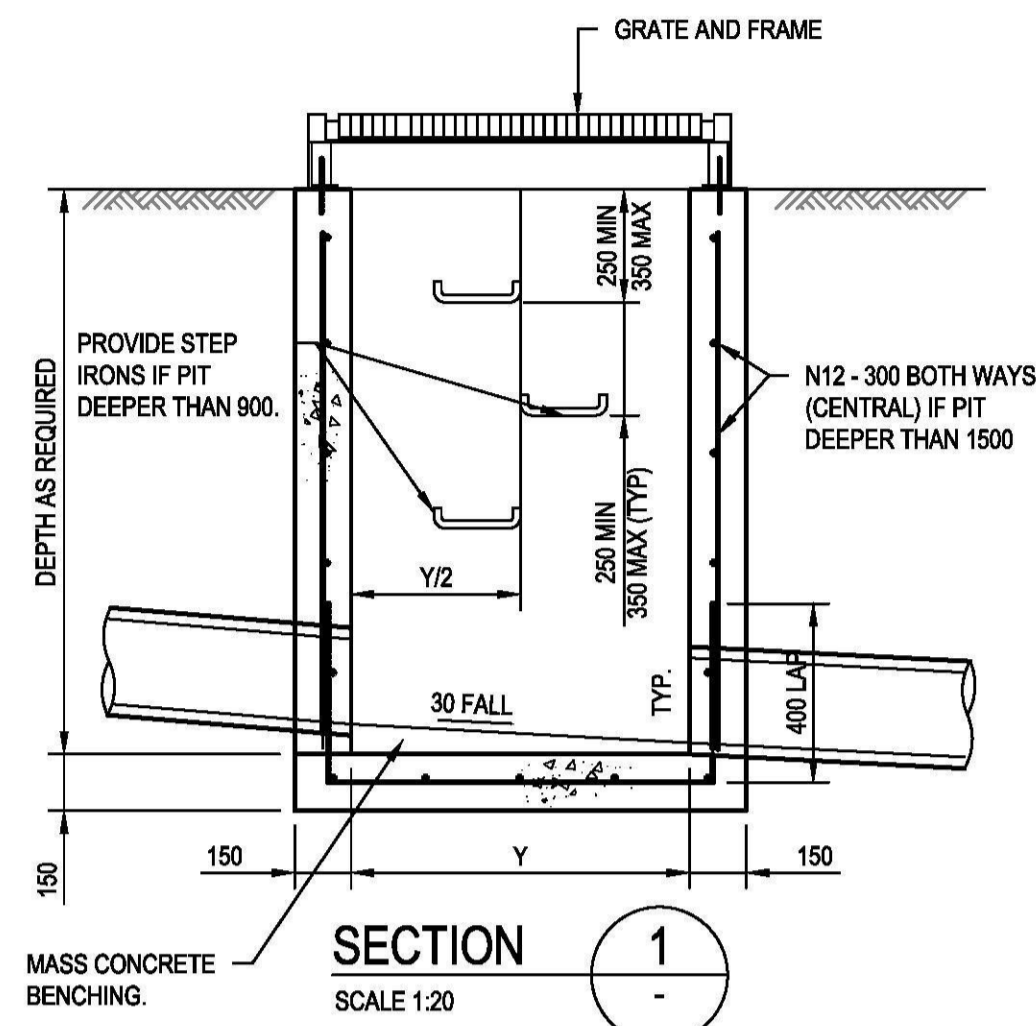
Size  
A1

Datum  
A.H.D

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

Project Number/Drawing Number  
190050-03-DA-C13.01

Revision  
2



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:20 @A1

North

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Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Scale  
1:20

Date  
31/10/2019

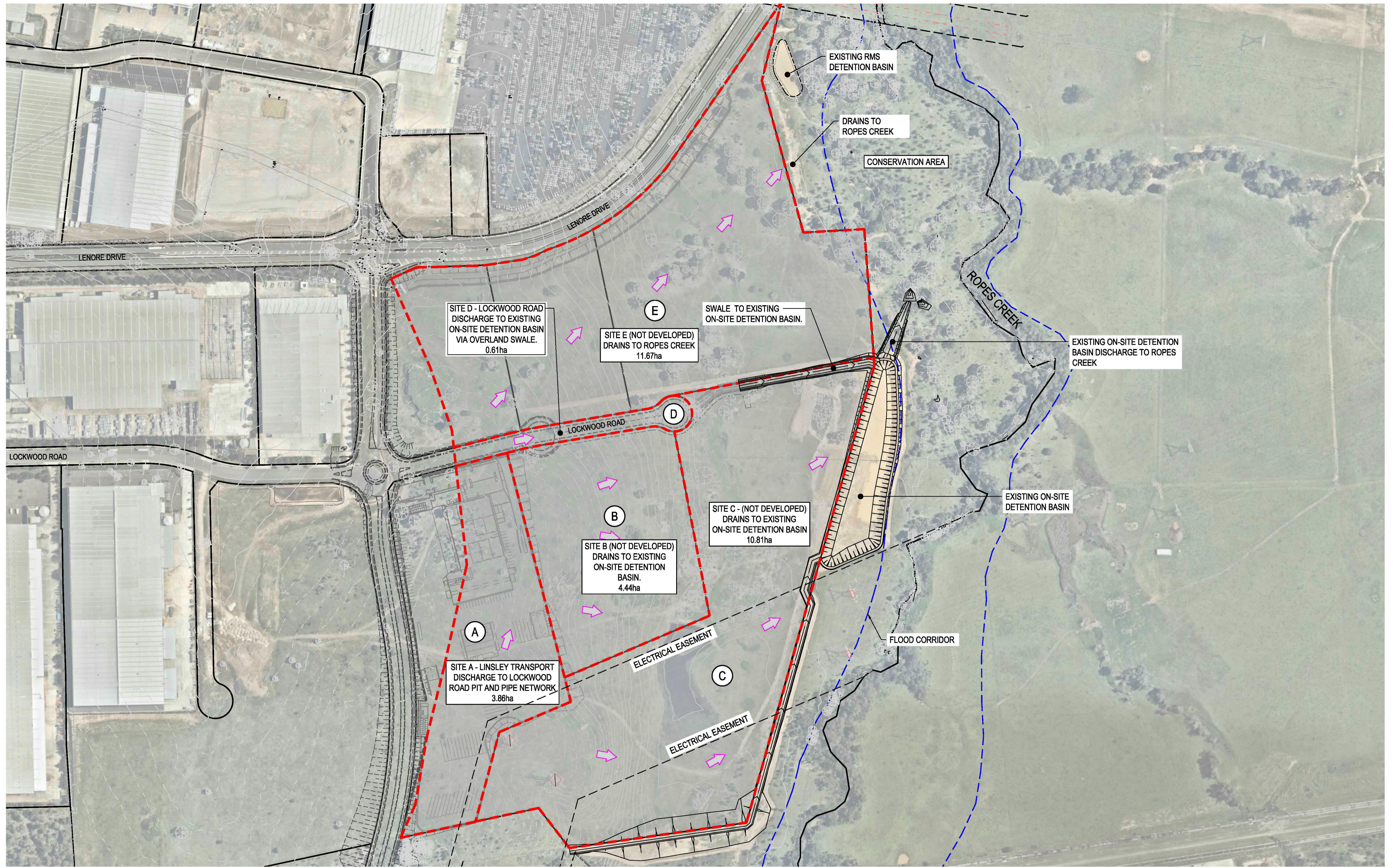
Size  
A1

Datum  
A.H.D.

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

Project Number/Drawing Number  
**190050-03-DA-C14.01**

Revision  
**2**



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

North

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Phone: 02 9922 6135

Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
STORMWATER CATCHMENT PLAN  
PRE-DEVELOPMENT

Scale 1:2000	Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION
Date 31/10/2019	Project Number/Drawing Number 190050-03-DA-C20.01
Size A1	Revision 2
Datum A.H.D	



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

SCALE 1:2000 @A1

North

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Project  
ERSKINE PARK INDUSTRIAL ESTATE  
STORMWATER MANAGEMENT & PAD SITE BULK  
EARTHWORKS -DEVELOPMENT APPLICATION

Title  
STORMWATER CATCHMENT PLAN  
POST-DEVELOPMENT

Scale  
1:2000

Date  
31/10/2019

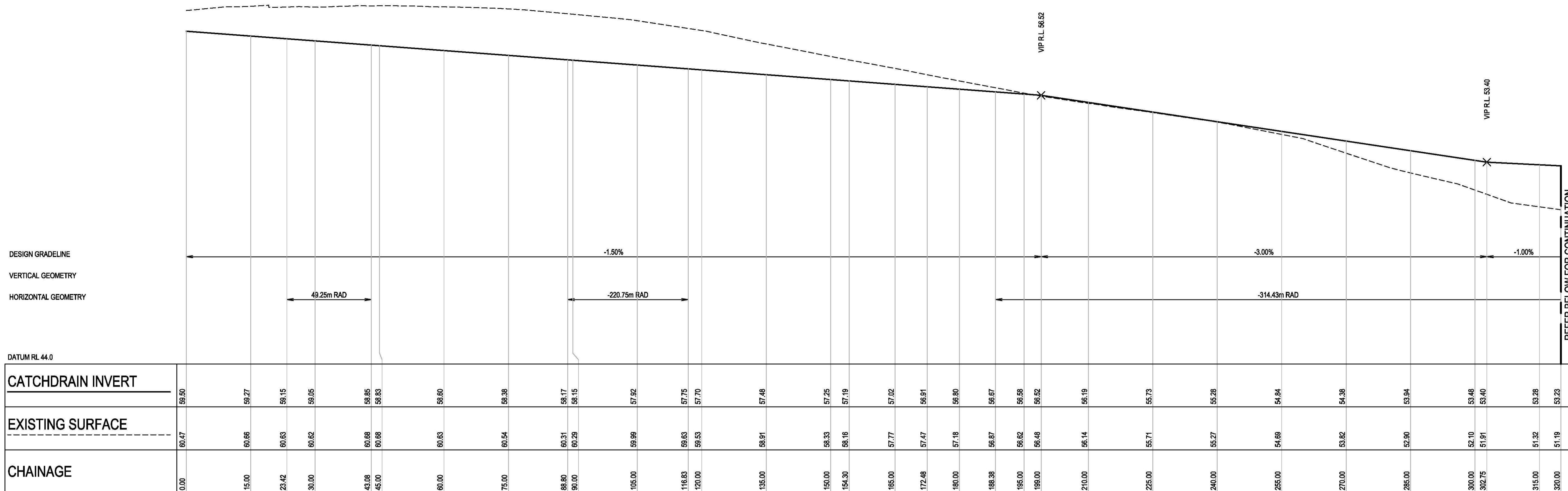
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A1

Datum  
A.H.D

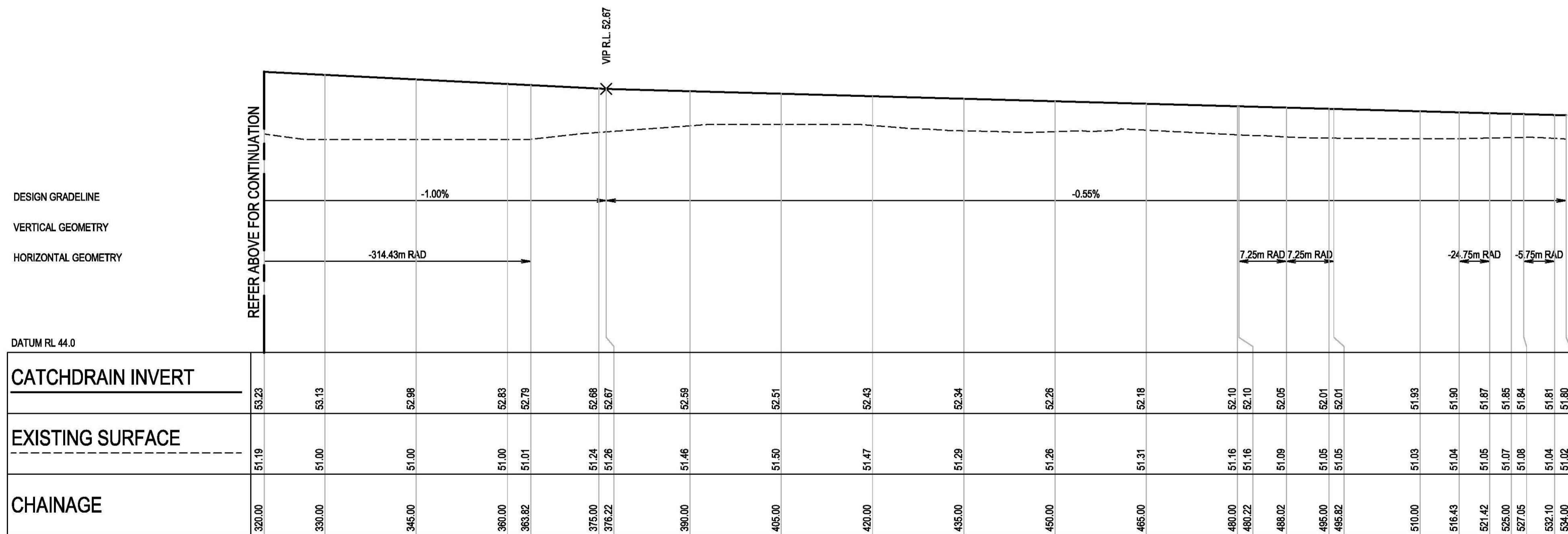
Status  
**FOR APPROVAL**  
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number  
**190050-03-DA-C20.02**

Revision  
**2**



**PROPOSED OVERLAND CATCHDRAIN LONGITUDINAL SECTION**  
 HORIZONTAL SCALE 1:500@A1  
 VERTICAL SCALE 1:100@A1



**PROPOSED OVERLAND CATCHDRAIN LONGITUDINAL SECTION**  
 HORIZONTAL SCALE 1:500@A1  
 VERTICAL SCALE 1:100@A1

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	6/11/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH
1	31/10/2019	ISSUED FOR DEVELOPMENT APPLICATION	RT	RT	MKH	MKH

Client

Scale

North

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Project  
 ERSKINE PARK INDUSTRIAL ESTATE  
 STORMWATER MANAGEMENT & PAD SITE BULK  
 EARTHWORKS -DEVELOPMENT APPLICATION

Title  
 OVERLAND CATCHDRAIN LONGITUDINAL SECTION

Scale  
 AS SHOWN

Date  
 31/10/2019

Size  
 A1

Datum  
 A.H.D

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

Project Number/Drawing Number  
**190050-03-DA-C24.01**

Revision  
**2**