

*657-708 MAMRE ROAD
KEMPS CREEK, NSW*

DRAWING LIST:

DRAWING NO.	DRAWING TITLE
C013362.00-DA 100	DRAWING LIST & GENERAL NOTES
C013362.00-DA 150	STAGING PLAN
C013362.00-DA 200	EROSION & SEDIMENT CONTROL PLAN - STAGE 1
C013362.00-DA 210	EROSION & SEDIMENT CONTROL PLAN - STAGE 2
C013362.00-DA 250	EROSION & SEDIMENT CONTROL DETAILS
C013362.00-DA 300	BULK EARTHWORKS PLAN

C013362.00-DA 400	STORMWATER CATCHMENT PLAN
C013362.00-DA 401	STAGE 1 WORKS PLAN
C013362.00-DA 410	CIVIL WORKS KEY PLAN
C013362.00-DA 411	CIVIL WORKS PLAN - SHEET 1
C013362.00-DA 412	CIVIL WORKS PLAN - SHEET 2
C013362.00-DA 413	CIVIL WORKS PLAN - SHEET 3
C013362.00-DA 414	CIVIL WORKS PLAN - SHEET 4
C013362.00-DA 415	CIVIL WORKS PLAN - SHEET 5
C013362.00-DA 416	CIVIL WORKS PLAN - SHEET 6
C013362.00-DA 417	CIVIL WORKS PLAN - SHEET 7
C013362.00-DA 418	CIVIL WORKS PLAN - SHEET 8
C013362.00-DA 419	CIVIL WORKS PLAN - SHEET 9
C013362.00-DA 420	OVERALL STORMWATER MANAGEMENT PLAN
C013362.00-DA 450	STORMWATER DRAINAGE DETAILS - SHEET 1
C013362.00-DA 460	STORMWATER DRAINAGE DETAILS - SHEET 2

C013362.00-DA 500	ROADWORKS DETAILS
C013362.00-DA 601	ROAD LONG SECTIONS - SHEET 1
C013362.00-DA 602	ROAD LONG SECTIONS - SHEET 2
C013362.00-DA 603	ROAD LONG SECTIONS - SHEET 3
C013362.00-DA 604	ROAD LONG SECTIONS - SHEET 4

C013362.00-DA 700 SOUTHERN LINK ROAD ALIGNMENT PLAN

GENERAL NOTES:

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER 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.
- G2 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- G3 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION.
- G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G5 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- G6 ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

EROSION CONTROL NOTES

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH DRAINS, V-DRAINS AND SILT FENCES SHALL BE COMPLETED DIRECTLY FOLLOWING THE COMPLETION OF THE EARTHWORKS.

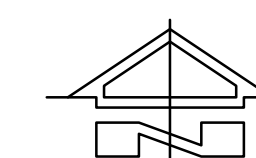
1. SILT FENCES AND SILT FENCE RETURNS SHALL BE ERRECTED CONVEX TO THE CONTOUR TO POND WATER.
2. HAY BALE BARRIERS AND GEOBAG FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
3. ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
4. CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
6. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION.
7. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE END OF THE DEFECTS LIABILITY PERIOD.
8. ALL EARTHWORKS AREAS SHALL BE ROLLED ON A REGULAR BASIS TO SEAL THE EARTHWORKS.
9. ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS. THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200MM.
10. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
11. AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.
12. ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED TO THE SATISFACTION OF THE SITE MANAGER TO PREVENT WIND AND WATER EROSION.
13. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED AND SIGN POSTED, FENCED OFF OR OTHERWISE APPROPRIATELY PROTECTED AGAINST ANY SUCH DISTURBANCE.
14. ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS APPROVED FOR SUCH USE BY THE SITE MANAGER. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PROTECTED FROM EROSION AND CONTAMINATION OF THE SURROUNDING AREA BY USE OF THE MEASURES APPROVED IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
15. ACCESS AND EXIT AREAS SHALL INCLUDE SHAKE-DOWN OR OTHER METHODS APPROVED BY THE SITE MANAGER FOR THE REMOVAL OF SOIL MATERIALS FORM MOTOR VEHICLES.
16. THE CONTRACTOR IS TO ENSURE RUNOFF FROM ALL AREAS WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISCHARGED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
17. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROWNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SYMP.

ELECTRONIC INFORMATION NOTES:

1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.

SURVEY NOTE:

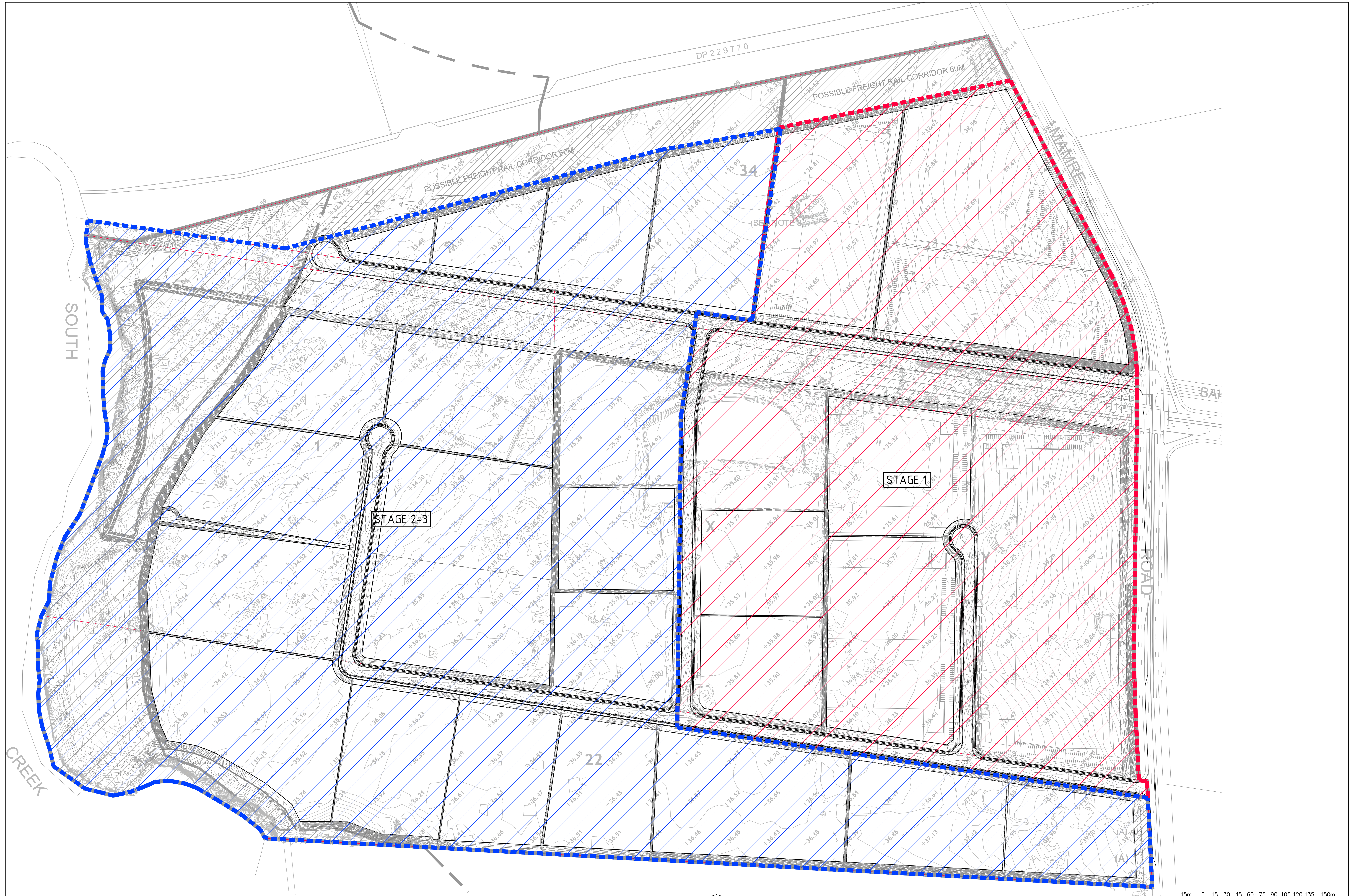
EXISTING SITE LEVELS AND DETAILS BASED ON A PLAN OF SURVEY FROM MONTEATH & POWYS SURVEYORS . COORDINATES BASED ON MGA COORDINATES AS NOMINATED ON SURVEY DRAWING.



LOCALITY PLAN
NOT TO SCALE

FOR DEVELOPMENT APPLICATION

[illegible]



FOR DEVELOPMENT APPLICATION

STAGING PLAN
SCALE 1:1500

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

ISSUED FOR DEVELOPMENT APPLICATION 14.05.19 D				ISSUED FOR DEVELOPMENT APPLICATION 05.03.19 C				ISSUED FOR DEVELOPMENT APPLICATION 17.10.18 B				ISSUED FOR DEVELOPMENT APPLICATION 15.10.18 A			
AMENDMENTS				DATE				ISSUE				AMENDMENTS			
				DATE				ISSUE							

ALTIS PROPERTY PARTNERS		FRASERS PROPERTY		PROJECT MAMRE SOUTH PRECINCT 657 - 708 MAMRE ROAD KEMPS CREEK, 2178, NSW		DESIGNED MW		CHECKED MW		DATE APRIL '18		SCALE AS SHOWN		CADD REF C013362.00-DA150		CLIENT Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Mullumbidgee, Victoria 3600 Tel: (03) 9051-7899 Fax: (03) 9041-3701 email: mail@costinroe.com.au ©		Costin Roe Consulting		DRAWING TITLE STAGING PLAN		DRAWING No C013362.00-DA150		ISSUE D	
																		PRECISION COMMUNICATION ACCOUNTABILITY							

PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS
TYPICAL (N.S.O.P.)

-  - SILT FENCE WITH CATCH DRAIN
-  - SILT FENCE ONLY
- - DIVERSION DRAIN

REFER TO DRAWING C10 FOR EROSION CONTROL NOTES

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING
C013362.00-C25.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (32.2mm).

APPROXIMATE AREA OF DISTURBED SITE = 107Ha

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

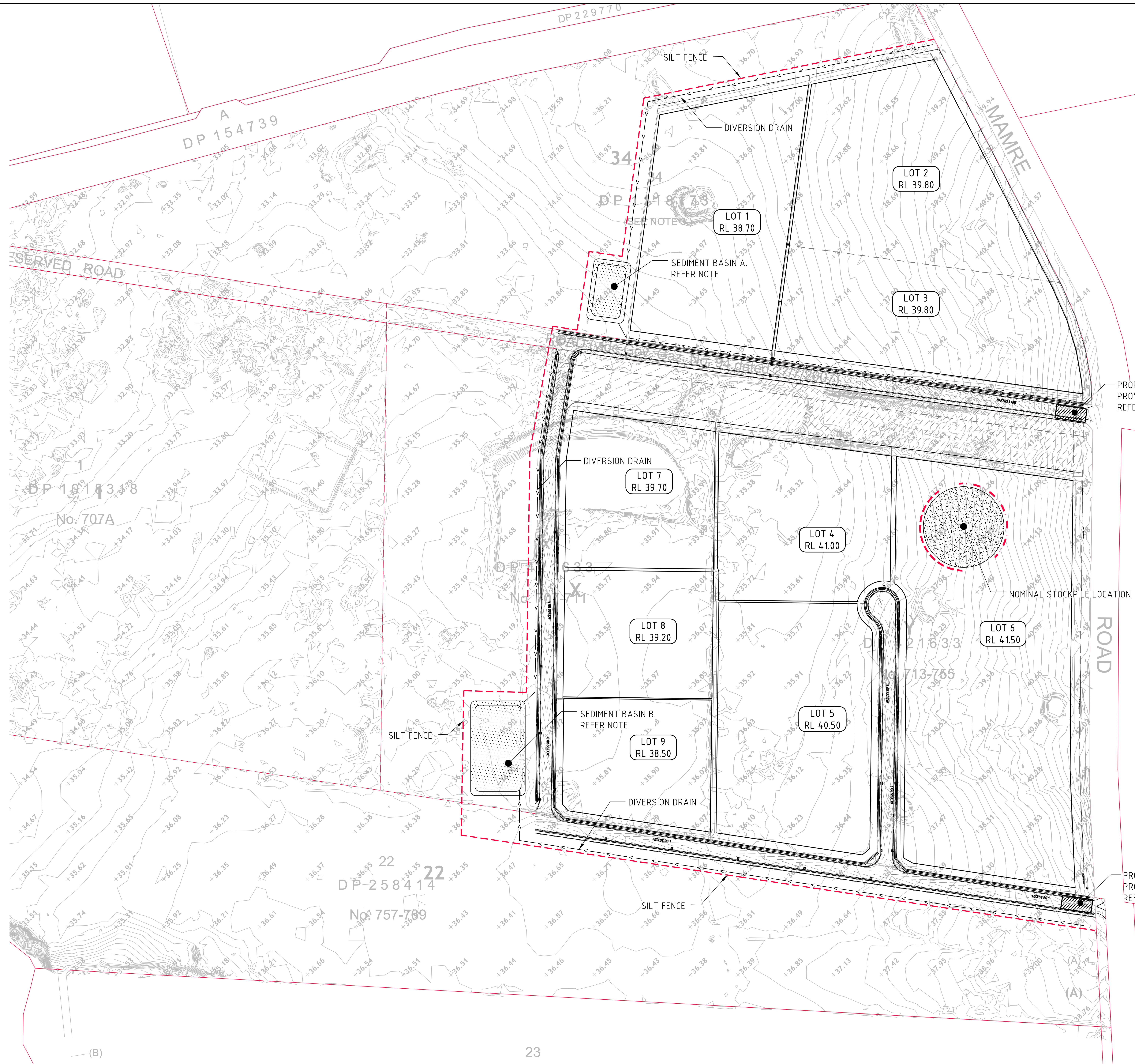
ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF
IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:

1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
 2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
- SOIL TYPE ASSESSED FROM GEOTECHNICAL REPORT.

SEDIMENT BASIN A:	
CATCHMENT AREA	= 12.67Ha
REQUIRED BASIN VOLUME	= 3067m ³
BASE DIMENSION (LxB)	= 30.0m x 55.0m
TOP DIMENSION (LxB)	= 39.0m x 64.0m
MAX SIDE SLOPE	= 1V:3H
DEPTH	= 1.5m
PROVIDED BASIN VOLUME	= 3088m ³

SEDIMENT BASIN B:
CATCHMENT AREA = 30.34Ha
REQUIRED BASIN VOLUME = 7327m³
BASE DIMENSION (LxB) = 48.0m x 90.0m
TOP DIMENSION (LxB) = 57.0m x 99.0m
MAX SIDE SLOPE = 1V:3H
DEPTH = 1.5m
PROVIDED BASIN VOLUME = 7450m³



No. 654-674

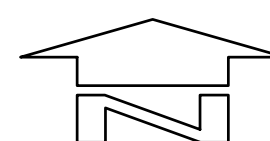
2
DP 587334
No. 676-702

— PROPOSED CONSTRUCTION ENTRY .
PROVIDE STABILISED CONSTRUCTION ENTRY
REFER TO DETAILS ON DA250

BAKERS

ATION

PROPOSED CONSTRUCTION ENTRY .
 PROVIDE STABILISED CONSTRUCTION ENTRY
 REFER TO DETAILS ON DA250



EROSION AND SEDIMENT CONTROL PLAN - STAGE 1 EARTHWORKS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT A0 SHEET SIZE

[illegible]



LEGEND:
PROVIDE 1m RETURNS TO SILT FENCE AT 30m MAX. INTERVALS. TYPICAL (N.S.O.P.)

- SILT FENCE WITH CATCH DRAIN
 - SILT FENCE ONLY
 - DIVERSION DRAIN

EROSION CONTROL NOTES:
REFER TO DRAWING DA100 FOR EROSION CONTROL NOTES

SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C013362.00-C250.

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK'. CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (32.2mm).

APPROXIMATE AREA OF DISTURBED SITE = 107Ha

SEDIMENTATION BASINS TO COLLECT RUN-OFF IN EXTREME RAINFALL EVENTS. COLLECTED RUN-OFF TO BE ASSESSED BY A QUALIFIED LABORATORY FOR DOUSING RATES OF ALUM OR GYPSUM TO ENSURE COAGULATION OF SEDIMENTS PRIOR TO WATER BEING DISCHARGED TO COUNCIL STORMWATER SYSTEM.

EACH BASIN IS TO HAVE A MARKER PLACED AS PER THE DETAIL TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

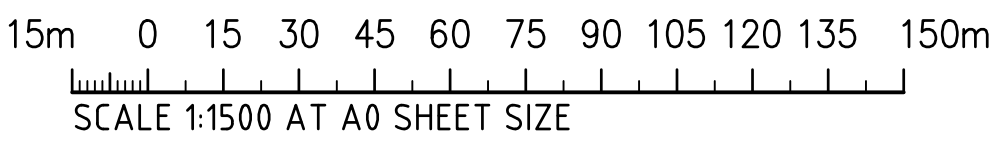
ALLOWANCE TO BE MADE DURING BENCHING OF SITE TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASINS.

NOTES:
1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)
SOIL TYPE ASSESSED FROM GEOTECHNICAL REPORT.

SEDIMENT BASIN:
CATCHMENT AREA = 107Ha
REQUIRED BASIN VOLUME = 25841m³
BASIN DEPTH = 2.0 m
PROVIDED BASIN VOLUME = 31800m³

FOR DEVELOPMENT APPLICATION

EROSION AND SEDIMENT CONTROL PLAN - STAGE 2
SCALE 1:1500



LOT NUMBERS REVISD 14.05.19 C			ISSUED FOR DEVELOPMENT APPLICATION 05.03.19 B			ISSUED FOR DEVELOPMENT APPLICATION 15.10.18 A			AMENDMENTS DATE ISSUE AMENDMENTS DATE ISSUE											
ALTIS PROPERTY PARTNERS			FRASERS PROPERTY			PROJECT MAMRE SOUTH PRECINCT 657 - 708 MAMRE ROAD KEMPS CREEK, 2178, NSW			DESIGNED MC DATE APRIL '18 CHECKED HW SCALE AS SHOWN CADD REF: C013362.00-DA210			Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Maitland, Sydney NSW 2000 Tel: (02) 9051-7699 Fax: (02) 9041-3701 email: mail@costinroe.com.au ©			Costin Roe Consulting			DRAWING TITLE EROSION AND SEDIMENT CONTROL PLAN STAGE 2 DRAWING No C013362.00-DA210		
PRECISION COMMUNICATION ACCOUNTABILITY												SCALE 1:1500 AT A0 SHEET SIZE								

EARTHWORKS VOLUMES

TOPSOIL VOLUME:

CUT = - 230 000 m³

EARTHWORKS VOLUMES:

CUT = - 126 300m³FILL = + 2 514 200 m³ALLOWANCE FOR DETAILED EXCAVATION (1250m³/Ha)= -135 000 m³BALANCE = + 2 252 900 m³ (IMPORT)

EARTHWORK VOLUMES ARE APPROXIMATE ONLY & ARE CALCULATED ASSUMING A MINIMAL TOPSOIL STRIP OF 200mm. NO ALLOWANCE HAS BEEN MADE FOR EROSION AND SEDIMENT CONTROL, BULKING, COMPACTION OF FILLED SOILS.

REFER TO DRAWING DA20 & DA21 FOR EROSION AND SEDIMENT CONTROL PLAN.

THE EXISTING SURFACE IS BASED ON SURVEY & DESIGN INFORMATION PROVIDED. THIS SURVEY IS MOST CURRENT HOWEVER IT MAY NOT ACCURATELY REFLECT ACTUAL GROUND LEVELS OR STOCKPILES ETC ON SITE. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM VOLUMES AND ALLOWANCES FOR EARTHWORKS.

SITE PREPARATION NOTES:

- ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT PSM3276-100L PROVIDED BY PELLIS SULLIVAN MEYNIK DATED 09.04.17
- EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY MONTEATH & POWYS REF# 17/0155 DATED 20.03.17. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
- COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +0mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +0mm/-20mm ELSEWHERE.
- PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
- AREAS TO RECEIVE FILL (THAT ARE NOT ON BENCHING BATTERS) AND AREAS IN CUT SHALL BE PROOF ROLLED TO IDENTIFY ANY SOFT HEAVING MATERIAL. SOFT MATERIAL SHALL BE BOXED OUT AND REMOVED PRIOR TO FILL PLACEMENT. PROOF ROLLING TO BE INSPECTED BY A GEOTECHNICAL ENGINEER OR THE EARTHWORKS DESIGNER. SITE WON FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HALF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HALF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
- IMPORTED FILL SHALL BE COMPACTED IN MAXIMUM 300mm LAYERS AND TO DRY OR HALF DENSITY RATIOS (STANDARD COMPACTION) OF BETWEEN 98% AND 103%. THE PLACEMENT MOISTURE VARIATION OR HALF MOISTURE VARIATION SHALL BE CONTROLLED TO BE BETWEEN 2% DRY AND 2% WET.
- ALL ENGINEERED FILL PARTICLES SHALL BE ABLE TO BE INCORPORATED WITHIN A SINGLE LAYER. FURTHER, LESS THAN 30% OF PARTICLES SHALL BE RETAINED ON THE 37.5 MM SIEVE. ENGINEERED FILL SHALL BE ABLE TO BE TESTED IN ACCORDANCE WITH THE STANDARD COMPACTION METHOD (AS1289.5.4.1) OR HALF TEST METHOD (AS1289.5.7.1). THESE METHODS REQUIRE LESS THAN 20% RETAINED ON THE 37.5 MM SIEVE. WHERE BETWEEN 20% AND 30% OF PARTICLES ARE RETAINED ON THE 37.5 MM SIEVE THE ABOVE TEST METHODS SHALL STILL BE ADOPTED AND TEST REPORTS ANNOTATED APPROPRIATELY. THESE REQUIREMENTS SHOULD BE MET BY THE MATERIAL AFTER PLACEMENT AND COMPACTION.
- ALL THE EARTHWORKS UNDERTAKEN AND THE SUBGRADE CONDITION IN THE CUT AREAS (IN THE STATED PERIOD) ARE DOCUMENTED IN THE REPORTS AND HAVE BEEN UNDERTAKEN IN ACCORDANCE WITH THE SPECIFICATION (E.G. COSTIN ROE SITE PREPARATION NOTES IN DWG C013003.01-EWC10).
- PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
- EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
- MATCH EXISTING LEVELS AT BATTER INTERFACE.
- CONTRACTOR TO MATCH EXISTING LEVELS AT THE INTERFACE OF EARTHWORKS AND EXISTING SURFACE AT BATTER LOCATIONS OR WHERE NO RETAINING WALLS ARE PRESENT. ANY DISCREPANCY BETWEEN DESIGN AND EXISTING LEVELS TO BE REFERRED TO THE ENGINEER FOR DIRECTION OR ADJUSTMENTS TO DESIGN LEVELS.

DEPTH RANGE

No.	FROM DEPTH	TO DEPTH	CLOUR
1	-4.000	-3.500	■
2	-3.500	-3.000	■
3	-3.000	-2.500	■
4	-2.500	-2.000	■
5	-2.000	-1.500	■
6	-1.500	-1.000	■
7	-1.000	-0.500	■
8	-0.500	0.000	■
9	0.000	0.500	■
10	0.500	1.000	■
11	1.000	1.500	■
12	1.500	2.000	■
13	2.000	2.500	■
14	2.500	3.000	■
15	3.000	3.500	■
16	3.500	4.000	■
17	4.000	4.500	■
18	4.500	5.000	■
19	5.000	5.500	■
20	5.500	6.000	■
21	6.000	6.500	■
22	6.500	7.000	■

FOR DEVELOPMENT APPLICATION

SCALE 1:1500 AT A0 SHEET SIZE

PAD NUMBERS REVISED	14.05.19	D
ISSUED FOR DEVELOPMENT APPLICATION	05.03.18	C
ISSUED FOR DEVELOPMENT APPLICATION	15.10.18	B
ISSUED FOR INFORMATION	03.07.18	A
AMENDMENTS	DATE	ISSUE
AMENDMENTS	DATE	ISSUE

ALTIS
PROPERTY PARTNERSCLIENT
FRASERS
PROPERTYPROJECT
MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW

DESIGNED: DRAWN: DATE: CHECKED: HW: DATE: SCALE: AS SHOWN: CAD REF: C013362.00DA30

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Mullumbidgee, Sydney NSW 2000
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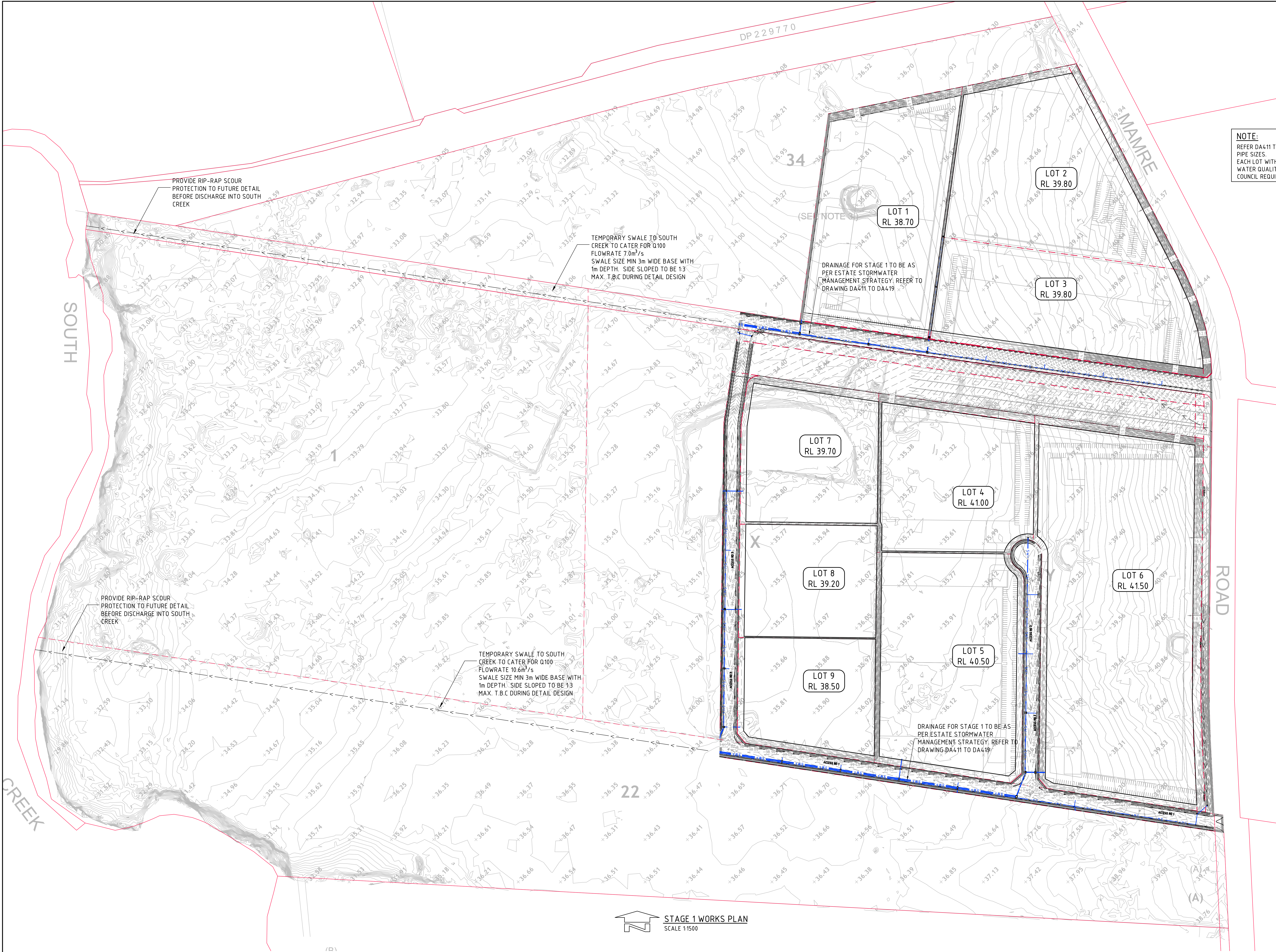
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PRECISION | COMMUNICATION | ACCOUNTABILITY

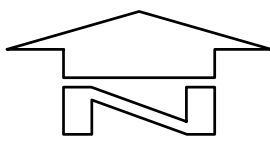
DRAWING TITLE
BULK EARTHWORKS CUT/FILL
PLAN

DRAWING No. C013362.00-DA30

SHEET D



NOTE:
REFER DA411 TO DA419 FOR STAGE DESIGN INCLUDING LEVELS AND PIPE SIZES.
EACH LOT WITHIN STAGE 1 TO PROVIDE ON-SITE DETENTION AND WATER QUALITY DEVICE IN ACCORDANCE WITH PENRITH CITY COUNCIL REQUIREMENTS



STAGE 1 WORKS PLAN
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

SCALE 1:1500 AT A0 SHEET SIZE

LOT NUMBERS REVISED	14.05.19	C
ISSUED FOR DEVELOPMENT APPLICATIONS	17.10.19	B
ISSUED FOR DEVELOPMENT APPLICATIONS	15.10.19	A
AMENDMENTS	DATE	ISSUE
AMENDMENTS	DATE	ISSUE



PROJECT
MAMRE SOUTH PRECINCT
657 - 708 MAMRE ROAD
KEMPS CREEK, 2178, NSW



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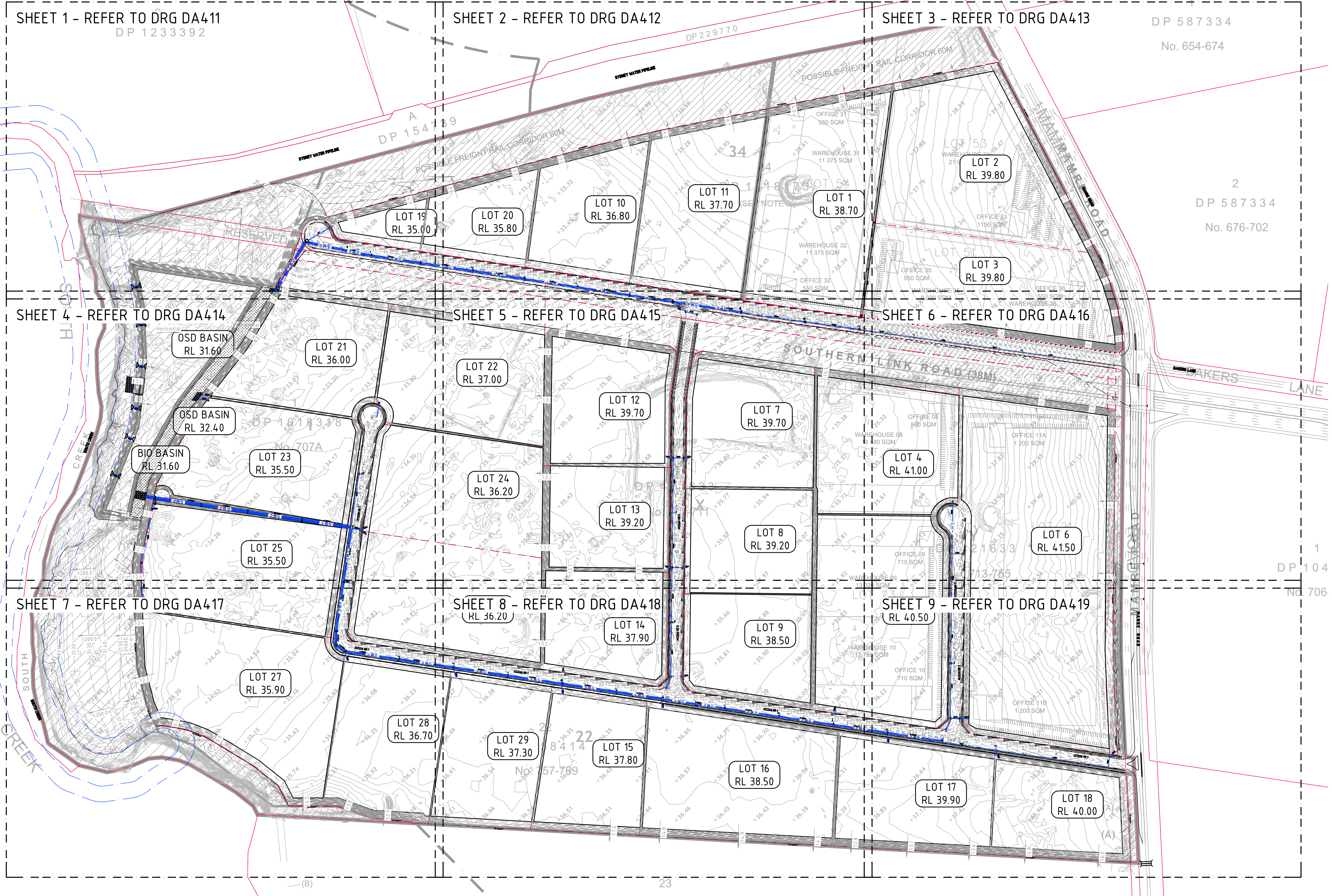
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PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE
STAGE 1 WORKS PLAN

DRAWING NO
C013362.00-DA401

ISSUE

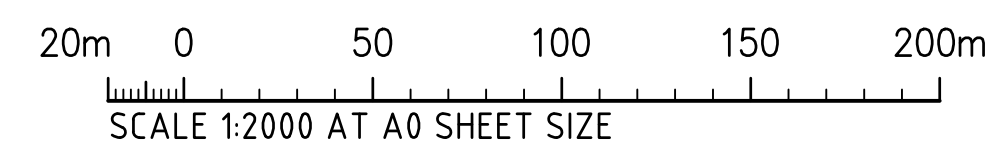


- STORMWATER DRAINAGE NOTES:**
- ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
 - THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
 - ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON CIVIL WORKS PLANS PLANS DA411-DA419.
 - PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
 - EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
 - ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
 - ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
 - PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
 - ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c 32 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
 - IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
 - PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
 - CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HS2 TYPE SUPPORT, AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND OR HAUNCH/SIDE SUPPORT.
 - WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
 - ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
 - ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
 - PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
 - MIN 400 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
 - PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY'; THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
 - PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
 - DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
 - PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

- FINISHED LEVELS PLAN NOTES:**
- LEVELS DATUM IS A.H.D.
 - ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN.
 - THE MAJOR CONTOUR INTERVAL IS 0.5m
 - THE MINOR CONTOUR INTERVAL IS 0.1m.
 - MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
 - MAXIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
 - MAXIMUM RAMP GRADES ARE TO BE 1:12 (8.3%) U.N.O. ON PLAN
 - PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGES GRADE EXCEED 1:20 (5%).
 - PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H.
 - ALL BATTER SLOPE WITH GRADES AT OR EXCEEDING 1V:6H ARE TO BE TURFED IMMEDIATELY OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
 - ALL ACCESS ROADS TO HAVE A CROSSFALL OF 3% AS INDICATED ON PLAN.
 - ALL FOOTPATHS ARE TO FALL AWAY FROM THE BOUNDARY AT 2.5% NOMINAL GRADE.
 - ALL PAVEMENTS ARE TO BE SET AT 50mm BELOW THE FINISHED FLOOR LEVEL OF THE WAREHOUSE AND OFFICE AREAS.

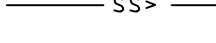
NOTE
EACH LOT IS TO PROVIDE PRIMARY STORMWATER TREATMENT VIA AN APPROVED G.P.T DEVICE BEFORE DISCHARGE INTO ESTATE DRAINAGE SYSTEM

FOR DEVELOPMENT APPLICATION



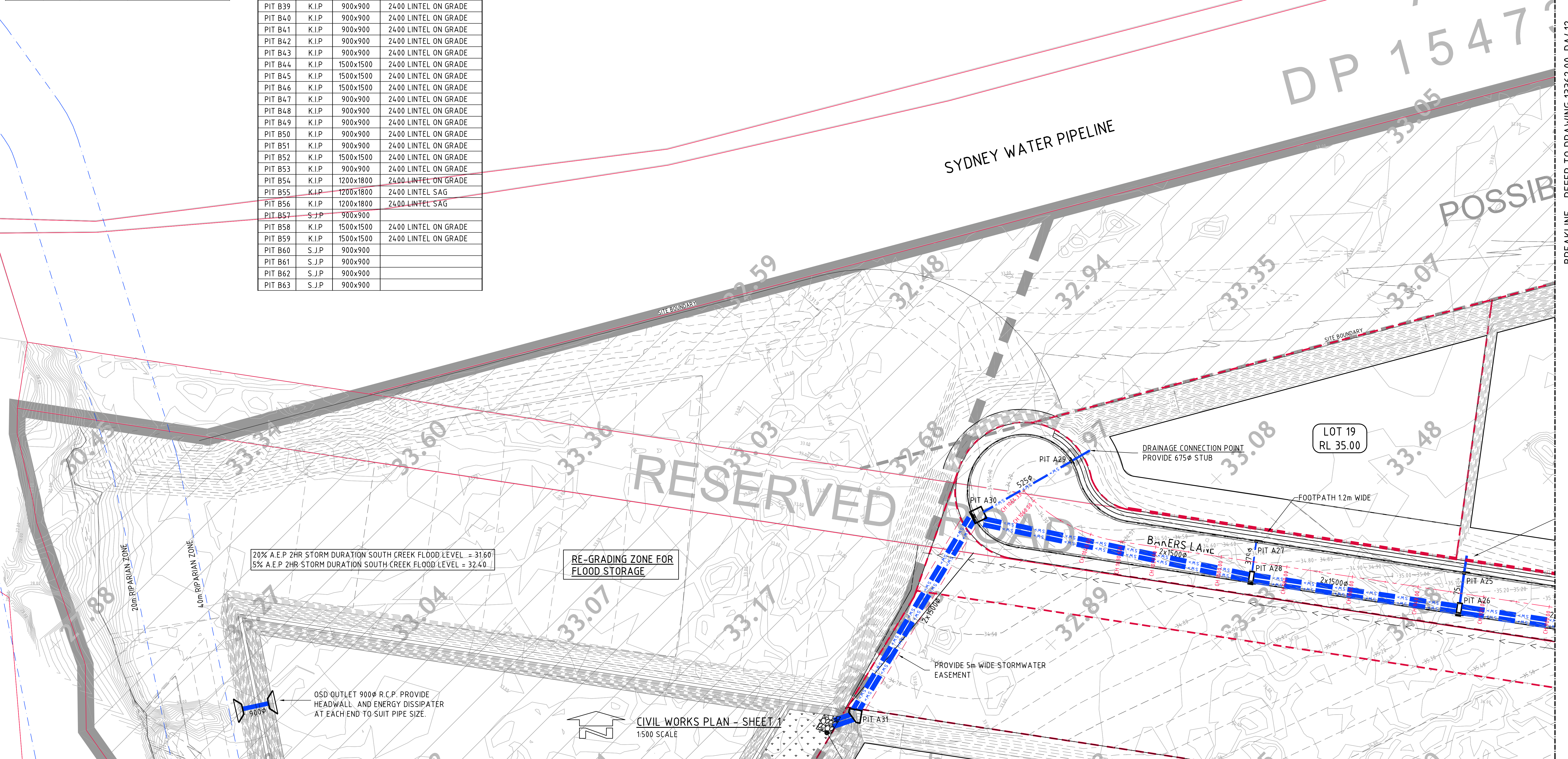
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY MONTEATH & POWYS SURVEYORS
DATED 20.03.17.

- | | |
|---|---|
|  | - SJP, SEALED JUNCTION PIT |
|  | - KIP, KERB INLET PIT |
|  | - FIP, FIELD INLET PIT |
|  | - OVERLAND FLOW DIRECTION |
|  | - PROPOSED DRAINAGE LINE |
|  | - EXISTING DRAINAGE LINE |
|  | - SUBSOIL LINE |
|  | - FINISHED PAVEMENT CONTOUR (MAJOR)
0.5m INTERVALS |
|  | - FINISHED PAVEMENT CONTOUR (MINOR)
0.1m INTERVALS |
|  | - FINISHED PAVEMENT SPOT HEIGHT |

PIT No.	TYPE	SIZE	COMMENT
PIT A1	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A2	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A3	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A4	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A5	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A6	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A7	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A8	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A9	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT A10	K.I.P	1500x1800	2400 LINTEL ON GRADE
PIT A11	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A12	K.I.P	1200x1800	2400 LINTEL ON GRADE
PIT A13	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A14	K.I.P	1200x3000	2400 LINTEL ON GRADE
PIT A15	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A16	K.I.P	1200x3000	2400 LINTEL ON GRADE
PIT A17	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A18	K.I.P	1200x3000	2400 LINTEL ON GRADE
PIT A19	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A20	K.I.P	1200x3000	2400 LINTEL ON GRADE
PIT A21	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A22	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT A23	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A24	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT A25	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A26	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT A27	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A28	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT A29	K.I.P	900x900	2400 LINTEL ON GRADE
PIT A30	K.I.P	3600x3600	2400 LINTEL ON GRADE
PIT A31	S.J.P	3600x3600	
PIT A32	NOT USED		
PIT A33	NOT USED		
PIT A34	S.J.P	900x900	
PIT A35	S.J.P	900x900	
PIT A36	S.J.P	900x900	
PIT A37	K.I.P	900x900	2400 LINTEL SAG
PIT A38	K.I.P	900x900	2400 LINTEL SAG

PIT No.	TYPE	SIZE	COMMENT
PIT B1	S.G.G.P	900x900	
PIT B2	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B3	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B4	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B5	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B6	K.I.P	1600x3600	2400 LINTEL ON GRADE
PIT B7	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B8	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B9	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B10	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B11	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B12	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B13	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B14	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B15	K.I.P	2000x3600	2400 LINTEL ON GRADE
PIT B16	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B17	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B18	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B19	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B20	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B21	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B22	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B23	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B24	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B25	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B26	K.I.P	1200x3900	2400 LINTEL ON GRADE
PIT B27	K.I.P	1200x3900	2400 LINTEL ON GRADE
PIT B28	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B29	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B30	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B31	K.I.P	1200x3600	2400 LINTEL ON GRADE
PIT B32	K.I.P	900x900	2400 LINTEL SAG
PIT B33	K.I.P	3600x4200	2400 LINTEL SAG
PIT B34	S.J.P	900x4200	
PIT B35	S.J.P	900x4200	
PIT B36	S.J.P	900x4200	
PIT B37	S.J.P	900x4200	
PIT B38	S.J.P	900x900	
PIT B39	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B40	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B41	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B42	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B43	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B44	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B45	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B46	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B47	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B48	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B49	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B50	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B51	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B52	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B53	K.I.P	900x900	2400 LINTEL ON GRADE
PIT B54	K.I.P	1200x1800	2400 LINTEL ON GRADE
PIT B55	K.I.P	1200x1800	2400 LINTEL SAG
PIT B56	K.I.P	1200x1800	2400 LINTEL SAG
PIT B57	S.J.P	900x900	
PIT B58	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B59	K.I.P	1500x1500	2400 LINTEL ON GRADE
PIT B60	S.J.P	900x900	
PIT B61	S.J.P	900x900	
PIT B62	S.J.P	900x900	
PIT B63	S.J.P	900x900	

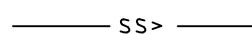


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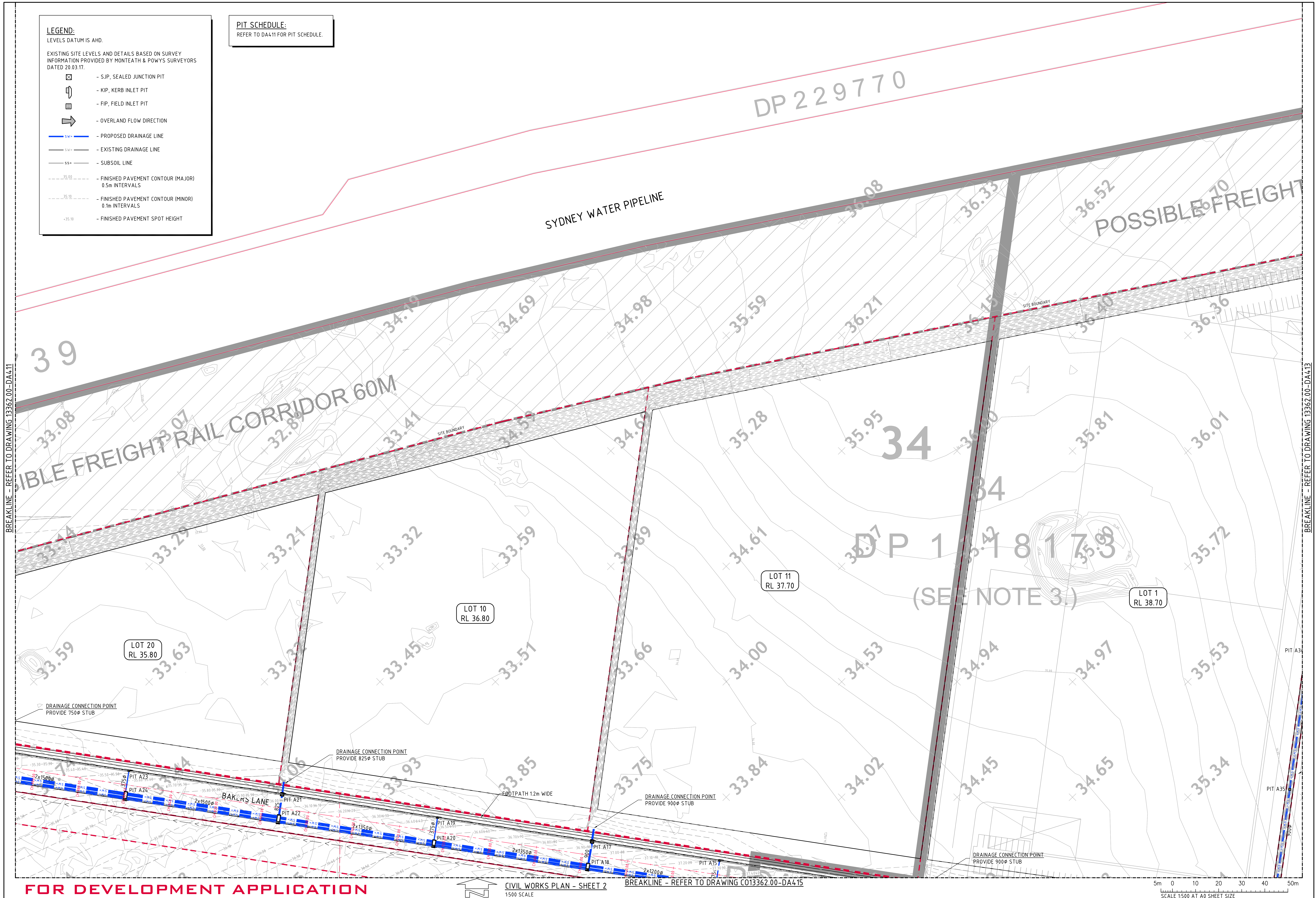
FOR DEVELOPMENT APPLICATION

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EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY MONTEATH & POWYS SURVEYORS
DATED 20.03.17.

-  - SJP, SEALED JUNCTION PIT
-  - KIP, KERB INLET PIT
-  - FIP, FIELD INLET PIT
-  - OVERLAND FLOW DIRECTION
-  - PROPOSED DRAINAGE LINE
-  - EXISTING DRAINAGE LINE
-  - SUBSOIL LINE
-  - FINISHED PAVEMENT CONTOUR (MAJOR)
0.5m INTERVALS
-  - FINISHED PAVEMENT CONTOUR (MINOR)
0.1m INTERVALS
-  - FINISHED PAVEMENT SPOT HEIGHT

PIT SCHEDULE:
REFER TO DA411 FOR PIT SCHEDULE.



FOR DEVELOPMENT APPLICATION

CIVIL WORKS PLAN - SHEET 2
1:500 SCALE

BREAKLINE - REFER TO DRAWING C013362.00-DA415

5m 0 10 20 30 40 50m

SCALE 1:500 AT A0 SHEET SIZE

[illegible]

No. 654-674

Diagram illustrating the vertical alignment of a road cross-section, showing the relationship between the centerline, drainage line, subsoil line, and finished pavement contours.

- Centerline:** Elevation 35.00
- Proposed Drainage Line:** Elevation 35.1
- Existing Drainage Line:** Elevation 35.2
- Subsoil Line:** Elevation 35.3
- Finished Pavement Contour (Major):** Elevation 35.00, 0.5m intervals
- Finished Pavement Contour (Minor):** Elevation 35.10, 0.1m intervals
- Finished Pavement Spot Height:** Elevation 35.10

PIT SCHEDULE:
REFER TO DA411 FOR PIT SCHEDULE.

2

No. 676-702

FOR DEVELOPMENT APPLICATION

CIVIL WORKS PLAN - SHEET 3
1:500 SCALE

BREAKLINE - REFER TO DRAWING C013362.00-DA416

5m 0 10 20 30 40 50m

SCALE 1:500 AT A0 SHEET SIZE

101 NUMBERS REVISED 14.05.19 E ISSUED FOR DEVELOPMENT APPLICATION 29.03.19 D ISSUED FOR DEVELOPMENT APPLICATION 05.03.19 C ISSUED FOR DEVELOPMENT APPLICATION 15.10.18 B ISSUED FOR INFORMATION 03.07.18 A AMENDMENTS DATE ISSUED AMENDMENTS DATE ISSUED AMENDMENTS DATE ISSUED										 CLIENT  PROJECT MAMRE SOUTH PRECINCT 657 - 708 MAMRE ROAD KEMPS CREEK, 2178, NSW  Costin Roe Consulting Pty Ltd. Consulting Engineers 613 952 6648 Level 1, 8 Windmill Street Main Bay, Sydney NSW 2000 Tel: (02) 9521-7899 Fax: (02) 9541-3721 email: mail@costinroe.com.au DRAWING TITLE CIVIL WORKS PLAN SHEET 3									
DESIGNED DRAWN DATE CHECKED SIZE SCALE CAD REF. HSE HSE HSE HSE HSE HSE 03/13/22 03-04/13										PRECISION COMMUNICATION ACCOUNTABILITY DRAWING NO. C013362.00-DA413 ISSUE F									

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MONTEATH & POWYS SURVEYORS DATED 20.03.17.

- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- FIP, FIELD INLET PIT
- OVERLAND FLOW DIRECTION
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- SUBSOIL LINE
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- FINISHED PAVEMENT SPOT HEIGHT

PIT SCHEDULE:

REFER TO DA411 FOR PIT SCHEDULE.

BREAKLINE - REFER TO DRAWING C013362.00-DA411

OSD BASIN
STORAGE CAPACITY = 37000m³
OSD MAX DEPTH = 15m
BIO-RETENTION SURFACE AREA = 4500 m²
BIO-RETENTION MAX DEPTH 0.6m
SAT. HYDRAULIC CONDUCTIVITY = 100mm/hr
FILTER DEPTH = 500mm
EXTENDED DETENTION = 300mm

STORMWATER OUTLET INTO BIO-RETENTION BASIN. PROVIDE 7m x 5m RIP RAP ENERGY DISSIPATER

OSD OUTLET 900Ø R.C.P. PROVIDE HEADWALL AND ENERGY DISSIPATER AT EACH END TO SUIT PIPE SIZE.

OSD BASIN
RL 31.60

OSD OUTLET 900Ø R.C.P. PROVIDE HEADWALL AND ENERGY DISSIPATER AT EACH END TO SUIT PIPE SIZE.

BIO-RETENTION OVERFLOW BUND 300mm ABOVE BIO-BASIN FSL

OSD BASIN
RL 32.40

OSD OUTLET 900Ø R.C.P. PROVIDE HEADWALL AND ENERGY DISSIPATER AT EACH END TO SUIT PIPE SIZE.

BIO BASIN
RL 31.60

SOUTH CREEK

OSD OUTLET 900Ø R.C.P. PROVIDE HEADWALL AND ENERGY DISSIPATER AT EACH END TO SUIT PIPE SIZE.

BIO-RETENTION AREA 4500m²

STORMWATER OUTLET INTO BIO-RETENTION BASIN. PROVIDE 14m x 10m RIP RAP ENERGY DISSIPATER

TURNING HEAD 10m RADIUS

PROVIDE 5m WIDE STORMWATER EASEMENT

5m WIDE ACCESS TRAIL. 200 DGS40 & 2 COAT SPRAY SEAL. PROVIDE KERB ONLY EACH SIDE OF TRACK. CARE TO BE TAKEN DURING COMPACTION OVER PIPE WITH LOW COVER

PROVIDE 3m WIDE STORMWATER EASEMENT THROUGH LOT 44

CIVIL WORKS PLAN - SHEET 4

1:500 SCALE

BREAKLINE - REFER TO DRAWING C013362.00-DA417

BREAKLINE - REFER TO DRAWING 13362.00-DA415

FOR DEVELOPMENT APPLICATION

LOT NUMBERS REVISED	14.05.19	D
ISSUED FOR DEVELOPMENT APPLICATION	05.03.19	C
ISSUED FOR DEVELOPMENT APPLICATION	15.10.18	B
ISSUED FOR INFORMATION	03.07.18	A
AMENDMENTS	DATE	ISSUE
AMENDMENTS	DATE	ISSUE
AMENDMENTS	DATE	ISSUE



PROJECT						
MAMRE SOUTH PRECINCT						
657 - 708 MAMRE ROAD						
KEMPS CREEK, 2178, NSW						
DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	MC	APRIL '18	MW	A0	AS SHOWN	C013362.00-DA414

Costin Roe Consulting Pty Ltd.
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email: mail@costinroe.com.au

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE	CIVIL WORKS PLAN
SHEET 4	
DRAWING No	C013362.00-DA414
ISSUE	D

