

PROPOSED DEVELOPMENT

FIFTEENTH A VENUE, WEST HOXTON, NSW

CIVIL WORKS DRAWINGS

LIST OF DRAWINGS – SITE WORKS

DRAWING NO.	DRAWING TITLE
C011995.00-DA10	DRAWING LIST & GENERAL NOTES
C011995.00-DA20	EROSION AND SEDIMENT CONTROL PLAN
C011995.00-DA25	EROSION AND SEDIMENT CONTROL DETAILS
C011995.00-DA30	BULK EARTHWORKS PLAN
C011995.00-DA35	BULK EARTHWORKS SECTIONS
C011995.00-DA40	CONCEPT CIVIL WORKS PLAN
C011995.00-DA45	CONCEPT CIVIL WORKS DETAILS – SHEET 1
C011995.00-DA46	CONCEPT CIVIL WORKS DETAILS – SHEET 2

LIST OF DRAWINGS – ROAD WORKS

DRAWING NO.	DRAWING TITLE
C011995.00-SK03	ROUNDABOUT FUNCTIONAL LAYOUT PLAN
C011995.00-SK04	ROUNDABOUT TURNING PATHS 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.

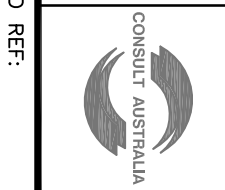
ELECTRONIC INFORMATION NOTES:

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.



SITE LOCATION PLAN
N.T.S

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	19.06.15	D	ARCHITECT		CLIENT		PROJECT	PROPOSED DEVELOPMENT		Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Malah Bay, Sydney NSW 2000 Tel: (02) 8601-7080 Fax: (02) 8601-2931 costin_roe@costinroe.com.au ©		DRAWING TITLE DRAWING LIST AND GENERAL NOTES
	18.05.15	C										
	18.03.15	B										
	25.02.15	A										
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE							

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 RECTED CONVEX TO THE CONTIGUOUS TO POND WATER.
 2. HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOP OF BATTER, PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP SOIL.
 3. ALL TEMPORARY EARTH BERRS, 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 BIND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS. THE HEIGHT OF THE BIND SHALL BE A MINIMUM OF 200MM.
 10. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND MULCHED 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 CONTRACT ADMINISTRATOR 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 CONTRACT ADMINISTRATOR. 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 CONTRACT ADMINISTRATOR FOR THE REMOVAL OF SOIL MATERIALS FROM 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 DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES.
 17. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES, CROVNS AND DRAINS ON ALL EXCAVATIONS AND EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT ALL TIMES.
 18. WATER SHALL NOT BE ALLOWED TO POND ON THE WORKS UNLESS SUCH PONDING IS PART OF AN APPROVED ESCP / SWMP.
 18. THE CONTRACTOR SHALL INCORPORATE THE MEASURES ON THIS PLAN WITHIN THE CONTRACTORS CONSTRUCTION MANAGEMENT PLAN.

SEDIMENTATION BASIN NOTE:

SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER- THE BLUE BOOK.
CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 80th PERCENTILE INTENSITY (24.4mm).

APPROXIMATE AREA OF SITE = 3.8ha

REQUIRED SETTLING ZONE VOLUME = 464m³
REQUIRED SEDIMENT STORAGE ZONE VOLUME = 232m³
TOTAL REQUIRED BASIN VOLUME = 695m³

SEDIMENTATION BASIN DIMENSIONS:
BASE DIMENSIONS (L X B) = 44.5m x 11.5m
TOP DIMENSIONS (L X B) = 50.5m x 17.5m
MAX SIDE SLOPE = 1V:3H
DEPTH = 1.0m
TOTAL VOLUME PROVIDED = 716m³

SEDIMENTATION BASIN TO BE CONSTRUCTED TO DIMENSIONS AS SPECIFIED ABOVE AND TO BE FENCED.

SEDIMENTATION BASIN 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.

BASIN IS TO HAVE SEDIMENT MARKER PLACED AS PER DETAIL ON DRG D425 TO INDICATE WHEN SEDIMENT IS TO BE REMOVED. REMOVED SEDIMENT IS TO BE CLASSED AND DEWATERED PRIOR TO REMOVAL FROM SITE.

ALLOWANCE IS TO BE MADE DURING BENCHING OF SITE & THROUGHOUT THE DURATION OF WORK TO ENSURE RUN-OFF IS DIRECTED TO SEDIMENTATION BASIN.

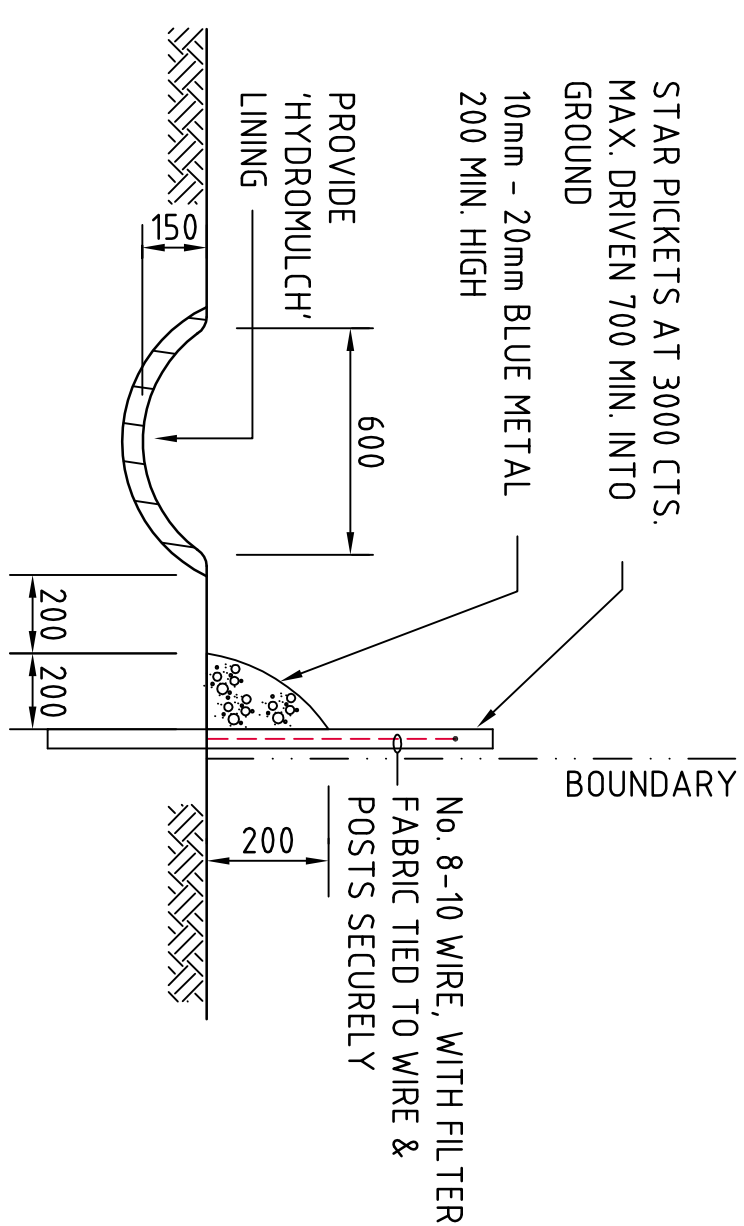
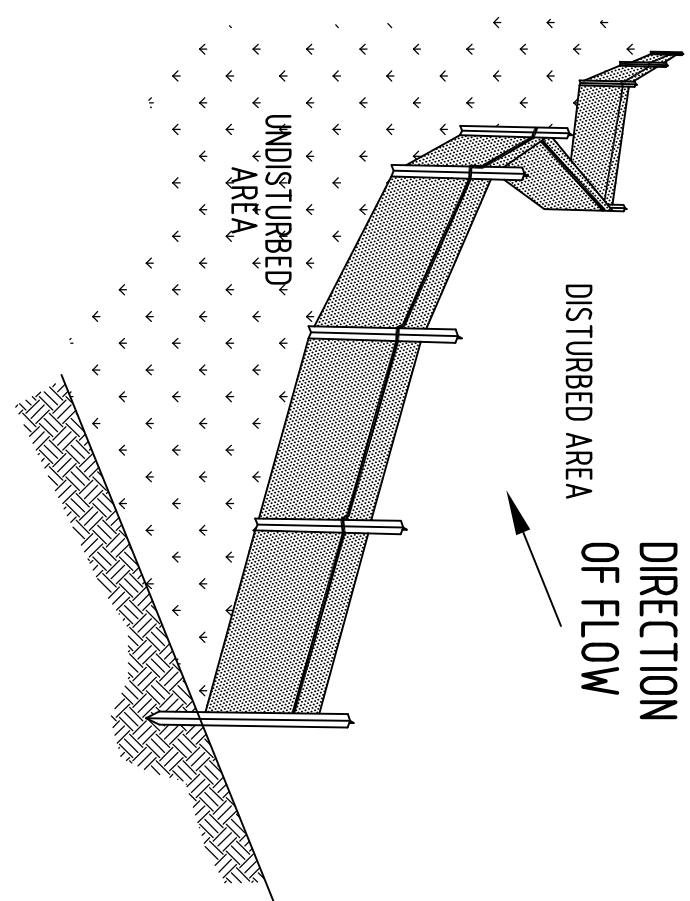
LEGEND:

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

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

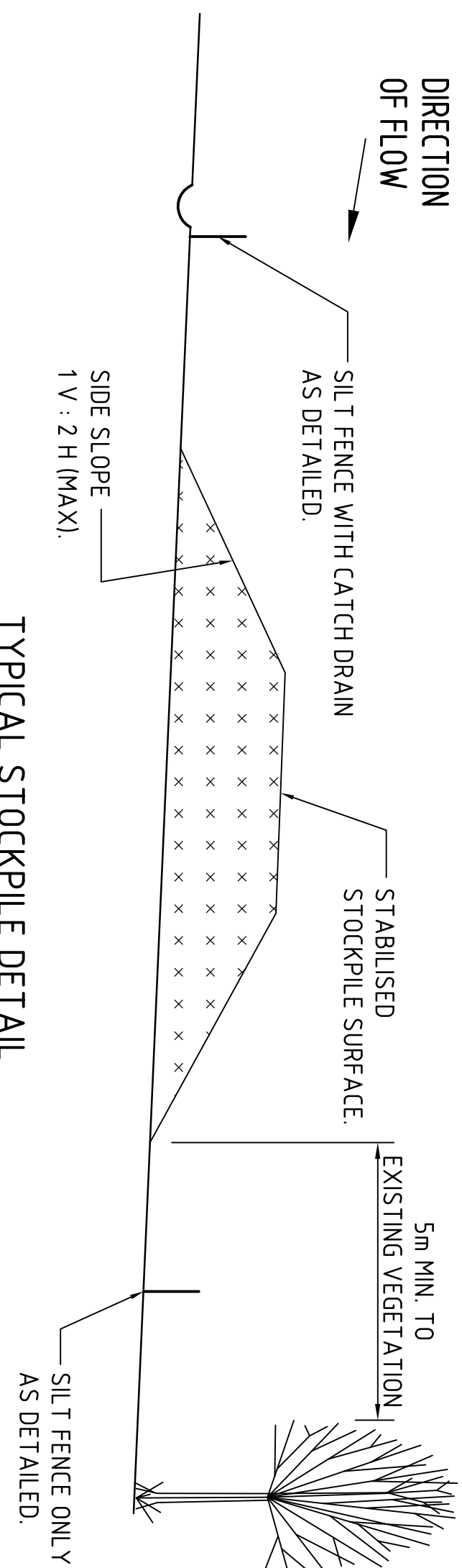
FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION				ARCHITECT			
19.06.15				D			
ISSUED FOR INFORMATION				18.05.15			
C				B			
ISSUED FOR INFORMATION				18.03.15			
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ISSUED FOR INFORMATION				25.02.15			
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TYPICAL SILT FENCE DETAIL

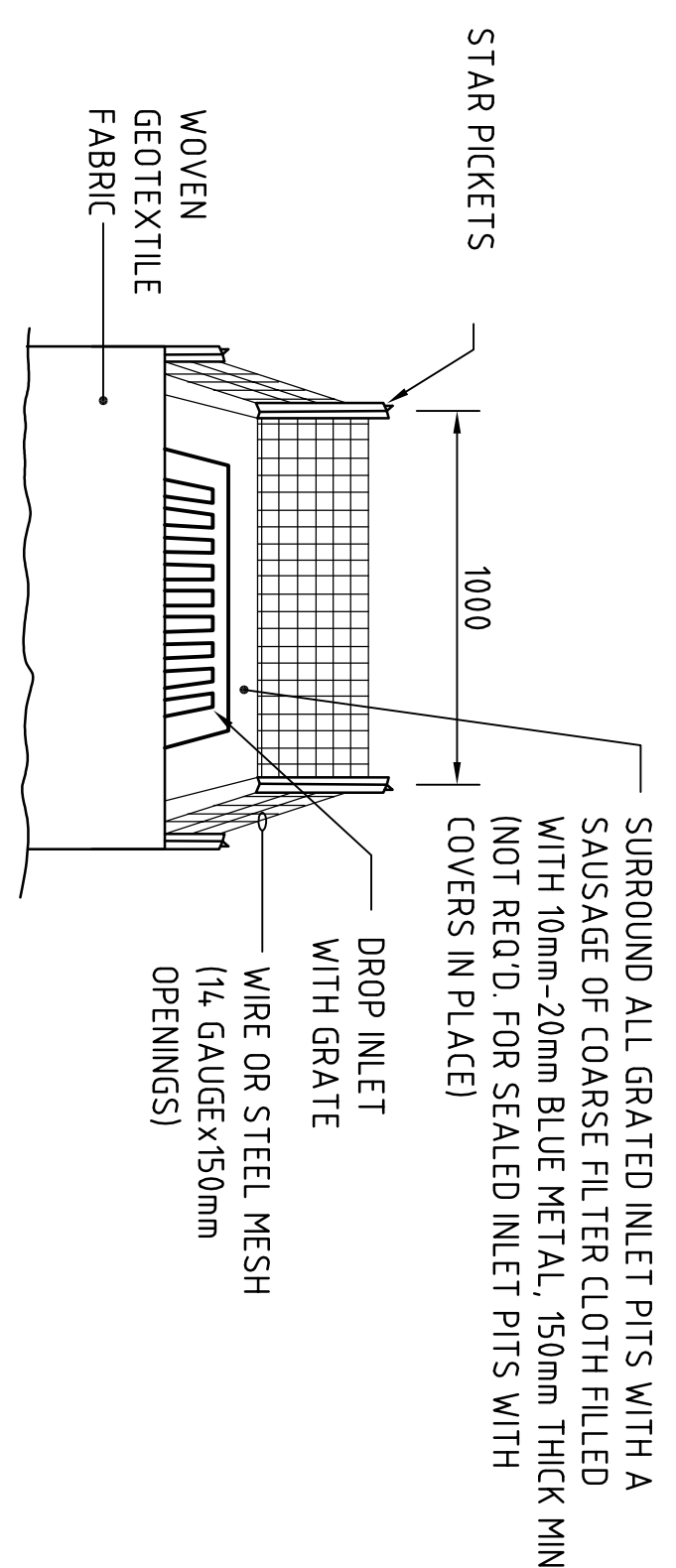
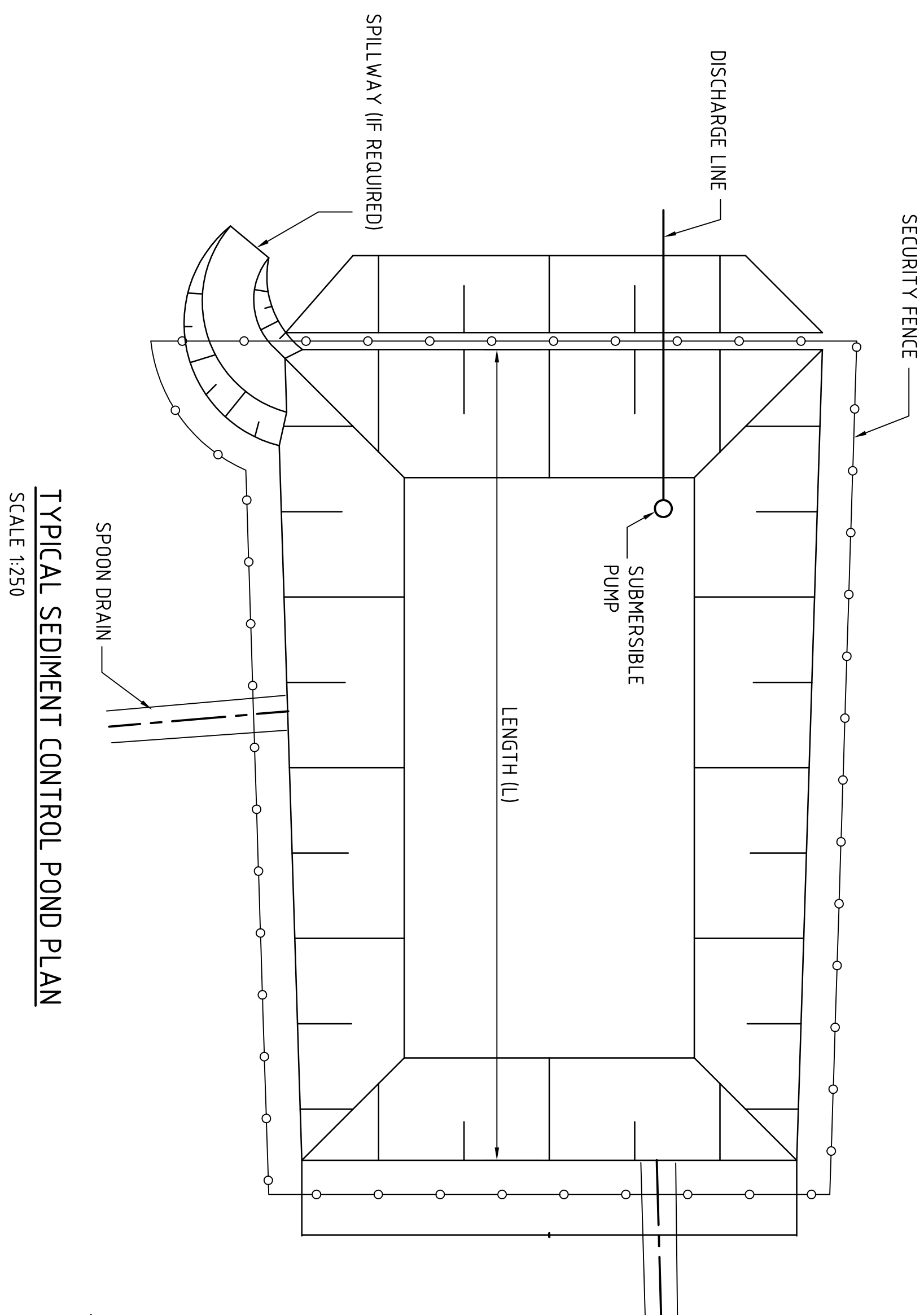
N.T.S.
PROVIDE 1m RETURNS AT 30m INTERVALS
TYPICAL



TYPICAL STOCKPILE DETAIL
N.T.S.

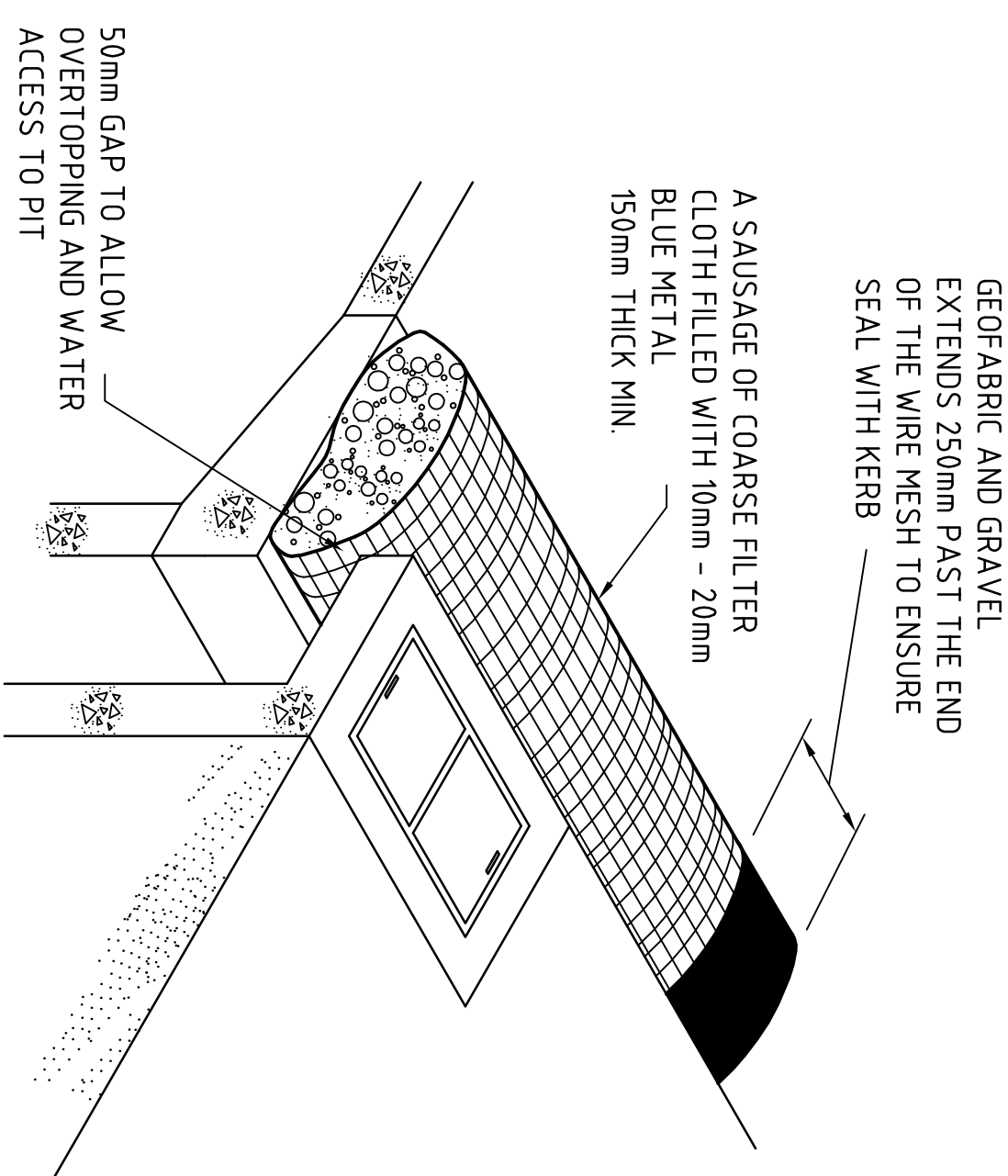
STOCKPILE NOTES

1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AT A LOW, FLAT ELONGATED MOUND, SIDE SLOPE TO BE 1 V, 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOP-SOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/ha.
5. CONSTRUCT SILT FENCE WITH A CATCH GRASS ON TOP-SOIL TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWN-SLOPE.

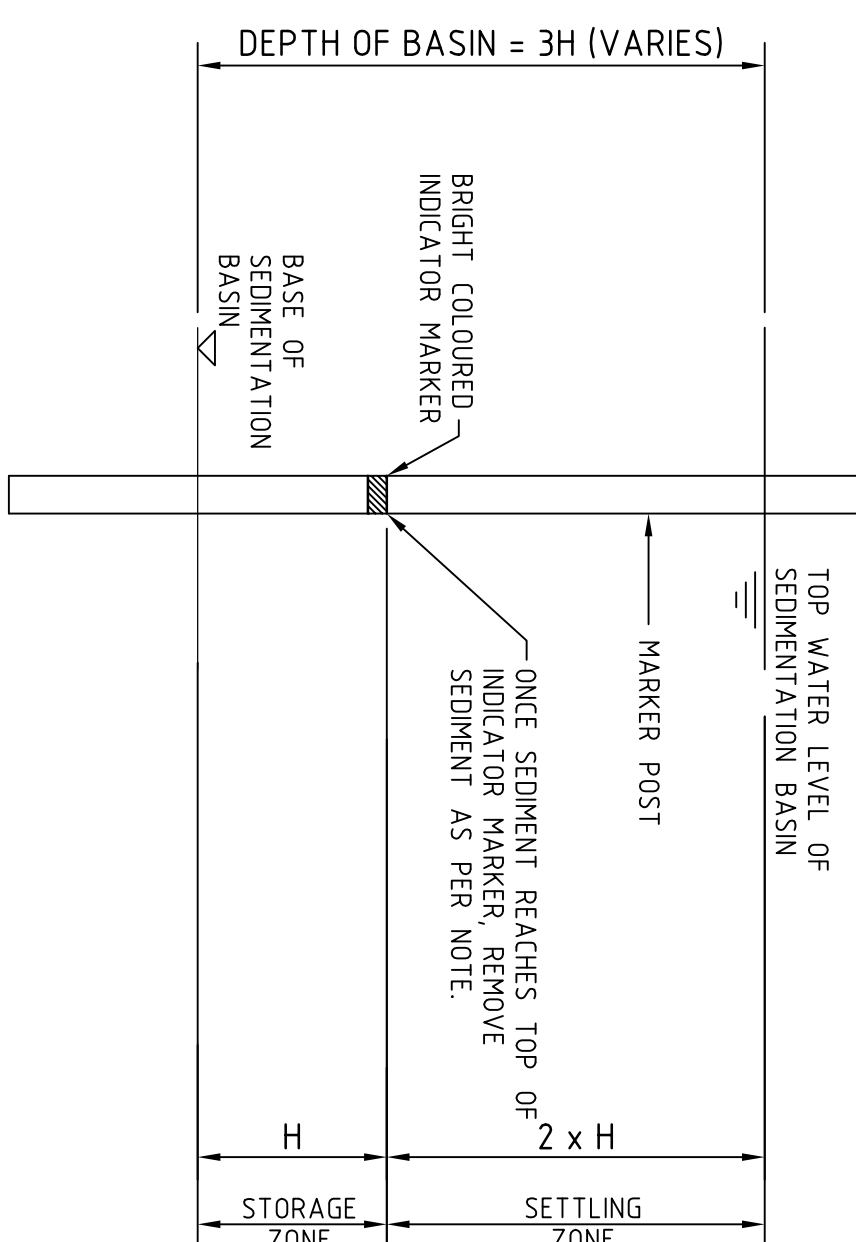


GRADED INLET PIT FILTER DETAIL

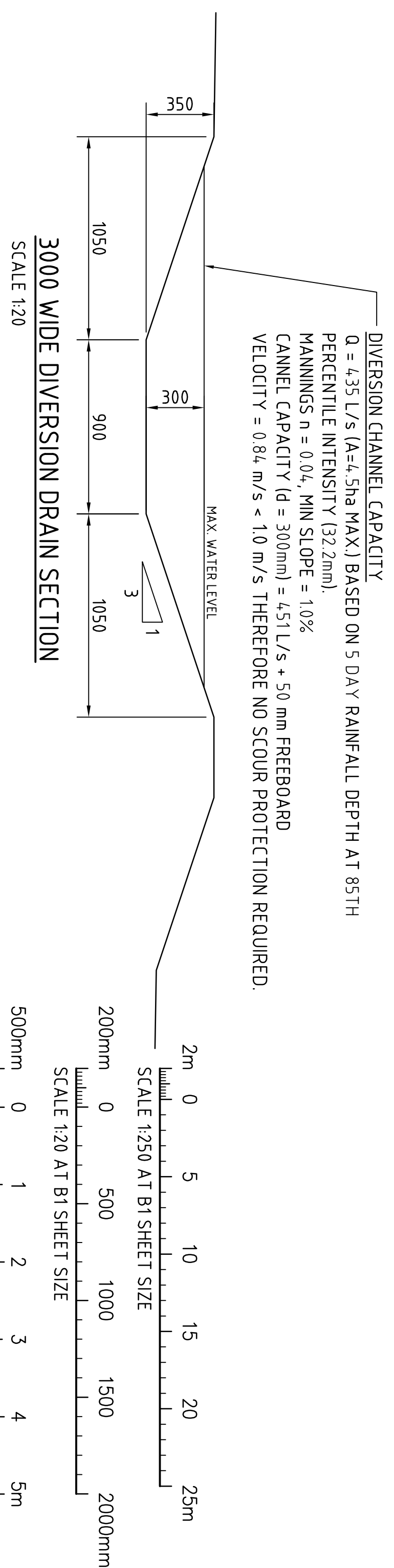
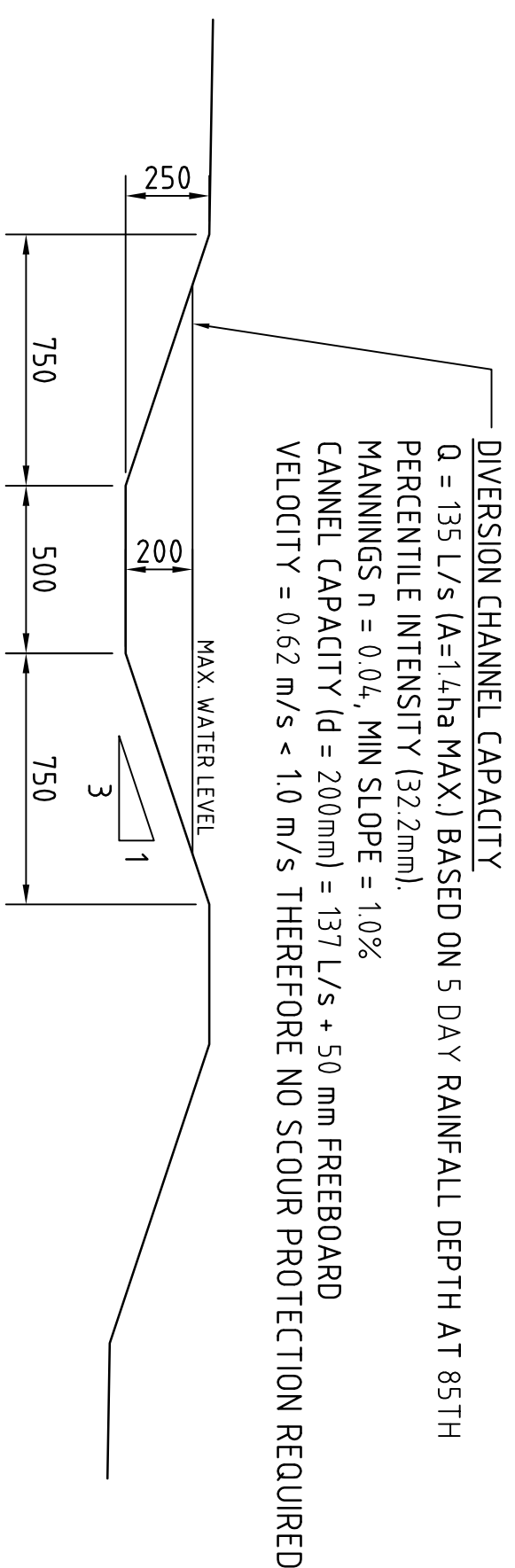
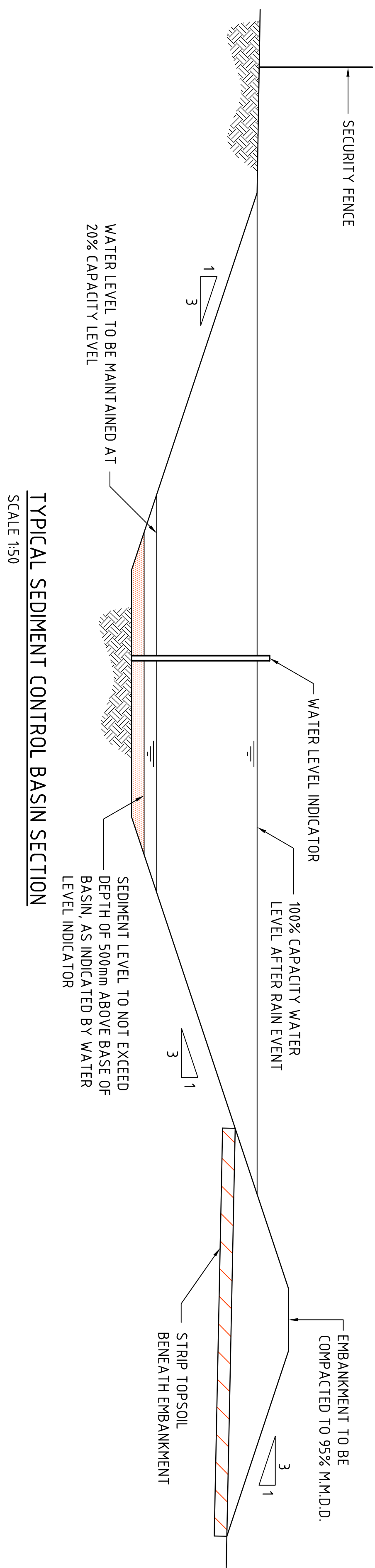
NOTE: ADOPT ABOVE DETAILS AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE & TO PITS ON THE ROAD ADJACENT TO SITE BOUNDARY.



KERB INLET PIT CONTROL



SEDIMENT STORAGE MARKER



FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION		19.06.15	D			ARCHITECT  LFA PROJECTS PTY LIMITED 10/100-100/100 WESTERN SYDNEY ARCHITECTS 10/100-100/100 WESTERN SYDNEY ARCHITECTS 10/100-100/100
ISSUED FOR INFORMATION		18.05.15	C			
ISSUED FOR INFORMATION		18.03.15	B			
ISSUED FOR INFORMATION		25.02.15	A			
AMENDMENTS		DATE	ISSUE	AMENDMENTS		
CLIENT  Western Sydney Parklands Trust LEVEL 4, 10 VALENTINE AVE PARAMATTA NSW 7150						
PROJECT PROPOSED DEVELOPMENT FIFTEENTH AVENUE WEST HOCKTOWN NSW  COSTIN ROE CONSULTING Level 1, 6 Mandrill Street Wahia Bay Sydney NSW 2000 Tel: (02) 9591-7999 Fax: (02) 9591-7970 email: mail@costinroe.com.au @						
DRAWING No C011995.00 - DA25						
ISSUE P						

SITE PREPARATION NOTES:

1. ALL EARTHWORKS SHALL BE COMPLETED GENERALLY IN ACCORDANCE WITH THE GUIDELINES SPECIFIED BY THE GEOTECHNICAL REPORT 14.76222023-001-R-REV A PROVIDED BY GOLDER ASSOCIATES DATED 21.07.14.
2. EXISTING LEVELS ARE BASED ON INFORMATION PROVIDED BY TOTAL SURVEYING SOLUTIONS TITLED 15060_A DATED 09.02.15.
3. STRIP ANY TOP SOIL OR DELETERIOUS MATERIAL AND DISPOSE OF FROM SITE OR STORE AS DIRECTED.
4. COMPLETE CUT TO FILL EARTHWORKS TO ACHIEVE THE REQUIRED LEVELS AS INDICATED ON THE DRAWINGS WITHIN A TOLERANCE OF +10mm/-10mm THROUGH BUILDING PADS/PAVEMENTS AND +10mm/-20mm ELSEWHERE.
5. PREPARE STEEP BATTERS TO RECEIVE FILL BY CONSTRUCTING BENCHING TO FACILITATE FILL PLACEMENT AND COMPACTION.
6. AREAS TO RECEIVE FILL THAT ARE NOT ON BENCHMARKED 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.
7. SITE WON FILL TO BE PLACED IN MAXIMUM 300mm LOOSE LAYERS AND COMPACTED TO 100% STANDARD AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
8. IMPORTED FILL SHALL BE PLACED IN MAXIMUM 300mm LOOSE LAYERS AND COMPACTED TO 100% STANDARD AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
9. MAXIMUM PARTICLE SIZE TO BE THE SMALLER OF 150mm OR HALF THE (LOOSE) LAYER THICKNESS AND/OR TWO THIRDS THE LAYER THICKNESS AFTER COMPACTION.
10. ALL EARTHWORKS SHALL BE COMPLETED UNDER LEVEL 1 CONTROL IN ACCORDANCE WITH AS 3798-2007.
11. PRIOR TO ANY EARTHWORKS, EROSION CONTROL AS OUTLINED IN THE EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE COMPLETED.
12. EXISTING ROCK, IF ANY, SHALL BE REMOVED BY HEAVY ROCK BREAKING OR RIPPING.
13. MATCH EXISTING LEVELS AT BATTER INTERFACE.
14. 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.

EARTHWORKS VOLUMES

VOLUMES:

CUT	= -30 800 m³
FILL	= +53 500 m³
DETAILED EXCAVATION (1200m³/Ha)	= -4,300 m³
BALANCE	= +18 400 m³ (IMPORT)

EARTHWORK VOLUMES ARE APPROXIMATE ONLY & ARE CALCULATED ASSUMING 100mm TOPSOIL STRIP. NO ALLOWANCE HAS BEEN MADE FOR EROSION AND SEDIMENT CONTROL, BULKING, COMPACTION OF FILLED SOILS.

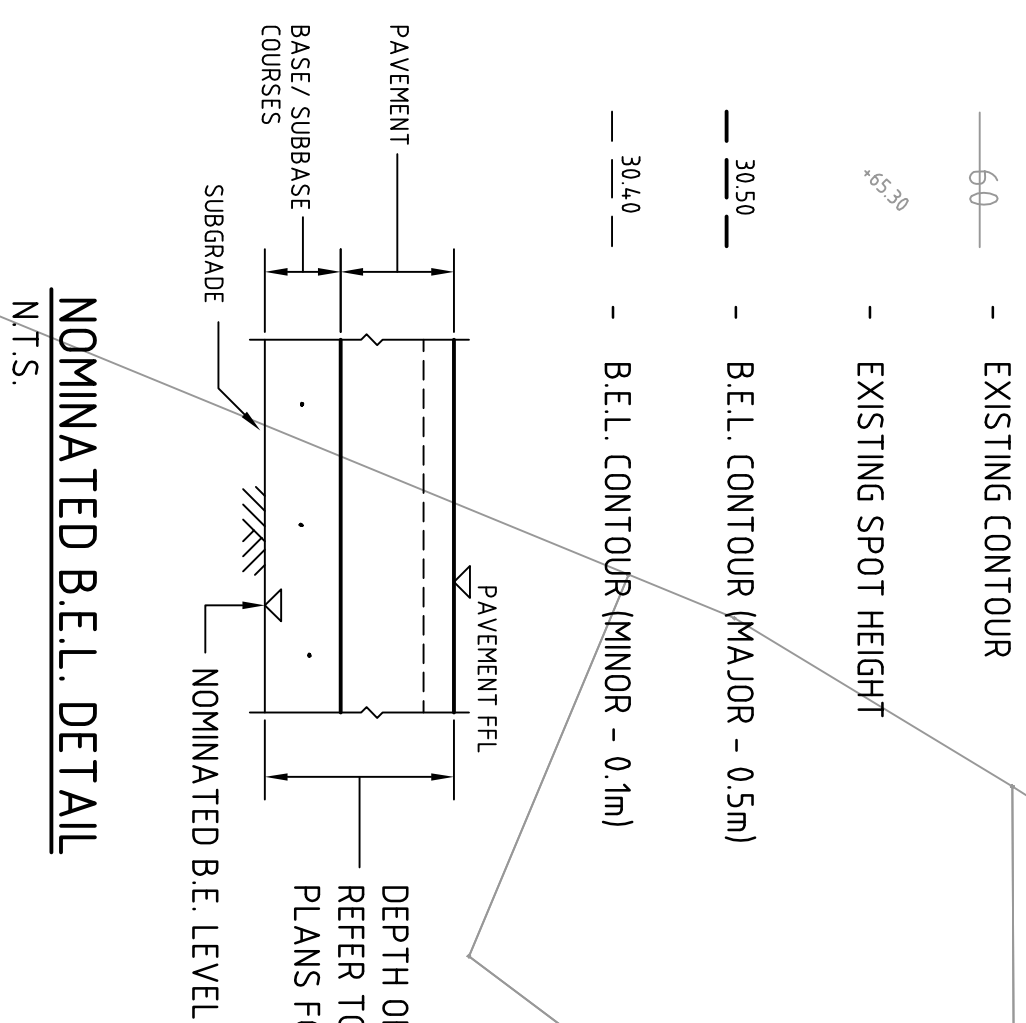
REFER TO DRAWING DA20 FOR EROSION AND SEDIMENT CONTROL PLAN.

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.

LEGEND

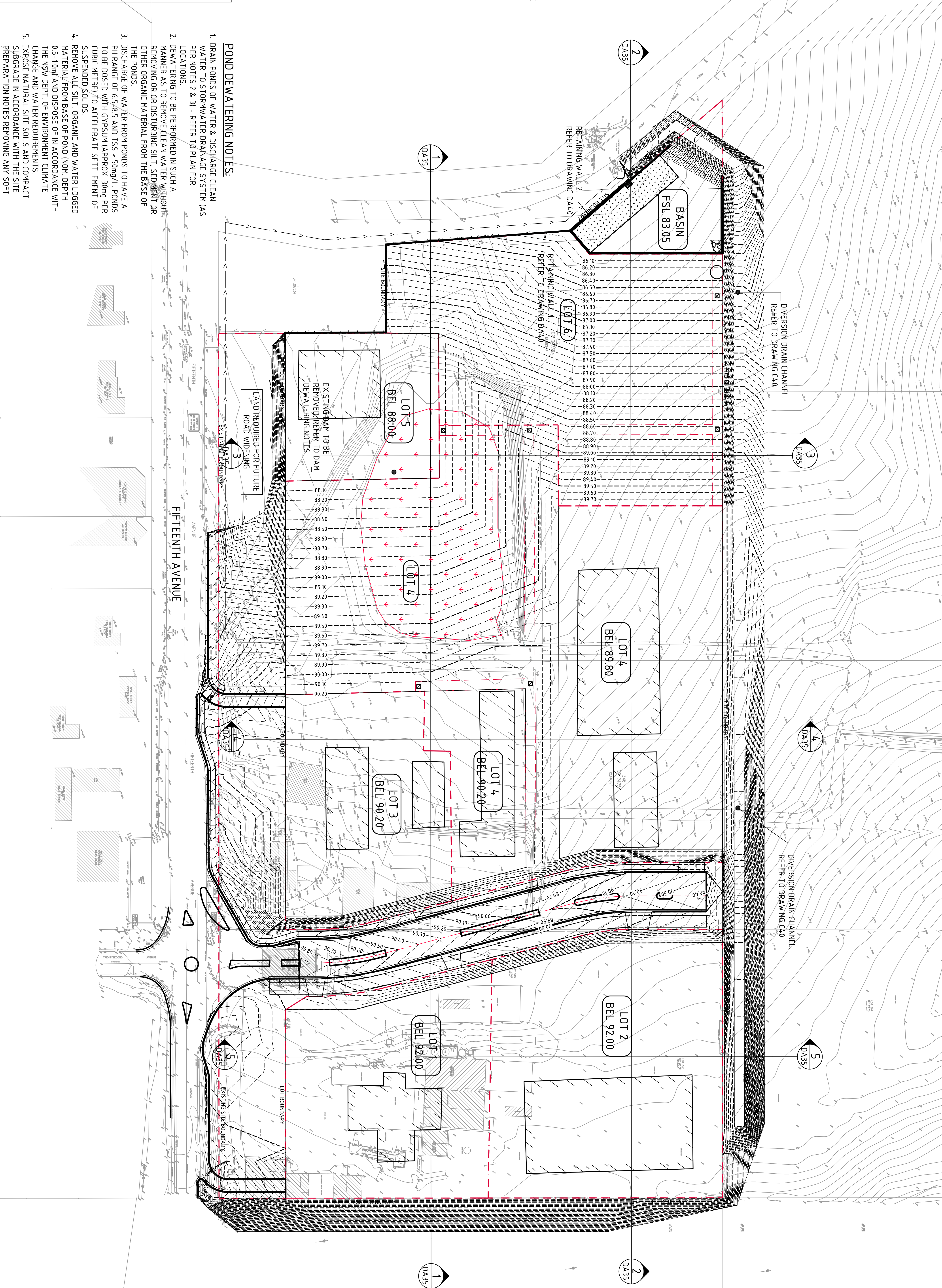
LEVELS DATUM IS AND

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY TOTAL SURVEYING SOLUTIONS REF #:
15060_A DATED 09.02.15.



POND DEWATERING NOTES:

1. DRAIN PONDS OF WATER & DISCHARGE CLEAN WATER TO STORMWATER DRAINAGE SYSTEM (AS PER NOTES 2 & 3) - REFER TO PLAN FOR LOCATIONS.
2. DEWATERING TO BE PERFORMED IN SUCH A MANNER AS TO REMOVE CLEAN WATER WITHOUT REMOVING OR OR DISTURBING SILT, SEDIMENT OR OTHER ORGANIC MATERIAL FROM THE BASE OF THE PONDS.
3. DISCHARGE OF WATER FROM PONDS TO HAVE A PH RANGE OF 6.5-8.5 AND TSS < 50mg/L. PONDS TO BE DOSED WITH GYPSUM (APPROX. 30mg PER CUBIC METRE) TO ACCELERATE SETTLEMENT OF SUSPENDED SOLIDS.
4. REMOVE ALL SILT, ORGANIC AND WATER LOGGED MATERIAL FROM BASE OF POND (NOM. DEPTH 0.5-1.0m) AND DISPOSE OF IN ACCORDANCE WITH THE NSW DEPT. OF ENVIRONMENT CLIMATE CHANGE AND WATER REQUIREMENTS.
5. EXPOSE NATURAL SITE SOILS AND COMPACT SUBGRADE IN ACCORDANCE WITH THE SITE PREPARATION NOTES REMOVING ANY SOFT ZONES AS REQ'D.
6. PLACE AND COMPACT FILL AS PER SITE PREPARATION NOTES.



FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION		19.06.15	D	ARCHITECT	
ISSUED FOR INFORMATION		18.05.15	C	CLIENT	
ISSUED FOR INFORMATION		18.03.15	B	PROJECT	
ISSUED FOR INFORMATION		25.02.15	A	DESIGNED BY	
AMENDMENTS		DATE	ISSUE	AMENDMENTS	
L&P LAND & PROPERTY LIMITED		WESTERN SYDNEY PARKLANDS TRUST			
PROPOSED DEVELOPMENT		FIFTEENTH AVENUE			
DESIGNED BY		DATE	CHECKED BY	SCALE	QAO REF:
MATHS BAY, SYDNEY NSW 2000		18.03.15	BT	AS SHOWN	GP1995-000-39
Costin Roe Consulting Engineers Pty Ltd		Value in Engineering and Management			
Level 1, 8 Windmill Street		DRAWING TITLE			
Multi Bay, Sydney NSW 2000		BULK EARTHWORKS PLAN			
email: mail@costinroe.com.au		DRAWING No			
		C011995-00- DA30			
		ISSUE			
		D			

FINISHED LEVELS PLAN NOTES

1. LEVELS DATUMS IS A/H.D.
2. ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN.
3. THE MAJOR CONTOUR INTERVAL IS 0.5m
4. THE MINOR CONTOUR INTERVAL IS 0.1m.
5. MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
6. MINIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
7. MAXIMUM RAAP GRADES ARE TO BE 1:12 (8.3%) U.N.O. ON PLAN
8. PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGES GRADE EXCEED 1:20 (5%).
9. PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H.
10. ALL BATTER SLOPE WITH GRADES AT OR EXCEEDING 1V:6H ARE TO BE TURED IMMEDIATELY OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
11. ALL FOOTPATHS ARE TO FALL AWAY FROM THE BOUNDARY AT 2.5% NOMINAL GRADE.

STORMWATER DRAINAGE NOTES:

1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD ASS500 320003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
2. THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR AIR STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 10 YEAR AIR STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLAN D04.0
4. PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø75 OR GREATER SHALL BE CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø30 TO BE uPVC GRADE S1 AND PIPE CLASS INDICATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTORS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. 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 25 MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. 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 FAULTS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
13. ALL SUBSOL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAPE Laid IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE.
14. FLY SUBSOL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UP-STREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOL LINES AT ALL PAVEMENT, LANDSCAPED INTERFACES TO REAS OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER AND AS SHOWN ON PLAN).
15. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
16. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
17. MIN. 600 COVER TO PIPE OVERTHE BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
18. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY'. THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY'. UNDO.
19. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
20. PIPE LENGTHS NOMINATED ON PLAN OR LONGER SECTIONS ARE MEASURED FROM CENTER OF PIPS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY TOTAL SURVEYING SOLUTIONS REF#
15060_A DATED 09.02.15.

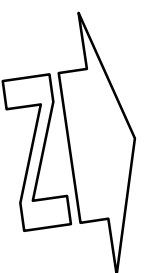
-
- The diagram illustrates a road cross-section with the following features and symbols:
- Symbol:** A box with an 'X' inside, representing a sealed junction pit.
 - Symbol:** A downward-pointing arrow, representing a kerb inlet pit.
 - Symbol:** A line with 'S+V' above it, representing a drainage line.
 - Symbol:** A line with 'S+V' above it, representing a subsol line.
 - Symbol:** A downward-pointing arrow, representing an overland flow path.
 - Symbol:** A line with 'S+V' above it, representing a spot height.
 - Symbol:** A line with 'S+V' above it, representing a finished pavement spot height.
 - Symbol:** A line with 'S+V' above it, representing a finished pavement contour (major).
 - Symbol:** A line with 'S+V' above it, representing a finished pavement contour (minor).
 - Symbol:** A line with 'S+V' above it, representing an existing surface spot height.
 - Symbol:** A line with 'S+V' above it, representing an existing surface contour.
- The elevations for each feature are as follows:
- Sealed Junction Pit: 5.00
 - Kerb Inlet Pit: 4.65
 - Drainage Line: 5.00
 - Subsol Line: 5.00
 - Overland Flow Path: 5.00
 - Spot Height: 5.00
 - Finished Pavement Spot Height: 5.00
 - Finished Pavement Contour (Major): 5.00
 - Finished Pavement Contour (Minor): 5.00
 - Existing Surface Spot Height: 5.00
 - Existing Surface Contour: 5.00

PIT No.	TYPE	SIZE (LxB)	COMMENT
PIT 1	KIP	900x600	2400 INTEL
PIT 2	KIP	900x900	2400 INTEL
PIT 3	KIP	900x900	2400 INTEL
PIT 4	SJP	900x900	
PIT 5	SJP	900x900	
PIT 6	SJP	1200x1200	
PIT 7	SJP	1700x1200	
PIT 8	SJP	900x900	
PIT 9	SJP	900x900	

PIT SCHEDULE

TYPE	SIZE (LXB)	COMMENT
KIP	900x600	2400 UNITEL
KIP	900x900	2400 UNITEL
KIP	900x900	2400 UNITEL
SJP	900x900	
SJP	900x900	
SJP	1200x1200	
SJP	1200x1200	
SJP	900x900	
SJP	900x900	

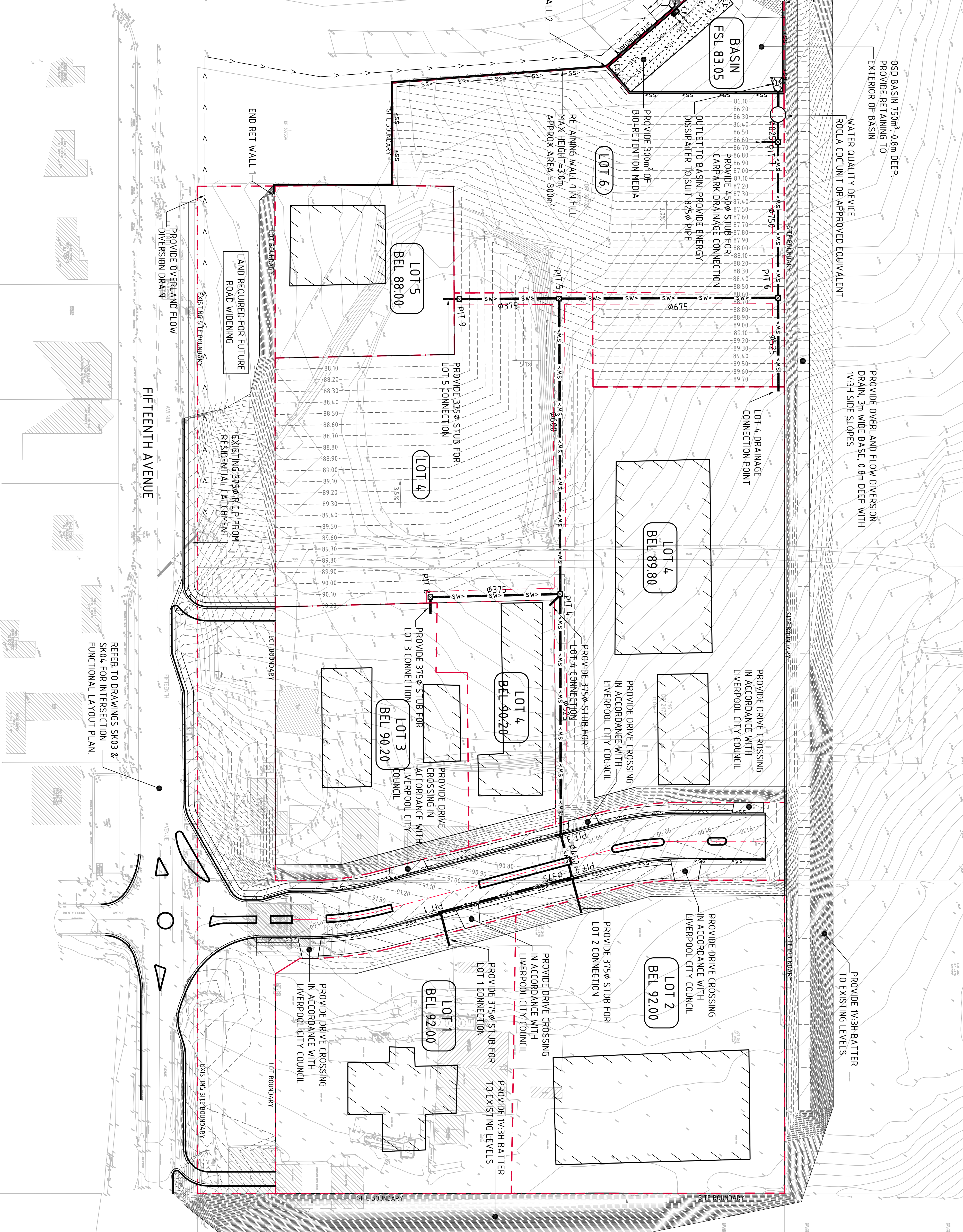
FOR DEVELOPMENT APPLICATION



CONCEPT CIVIL WORKS PLAN

5m 0 10 20 30 40 50m

SCALE 1:5000 AT A0 SHEET SIZE



ISSUED FOR DEVELOPMENT APPLICATION	19.06.15	D	
ISSUED FOR INFORMATION	18.05.15	C	
ISSUED FOR INFORMATION	18.03.15	B	
ISSUED FOR INFORMATION	25.02.15	A	
AMENDMENTS	DATE	ISSUE	AMENDMENTS
	DATE	ISSUE	

LFA

MASTERS PLANNING
URBAN DESIGN
ARCHITECTURE
LANDSCAPE ARCHITECTURE
INTERIORS

LFA (PACIFIC) PTY LIMITED

UNIT 1, FORECLIFF COURT, 3 NEW AVALON ST, FORECLIFF, NSW 2031
PO BOX 596, FORECLIFF NSW 2031
Tel: 02 9371 8622 F: 02 9371 8623
Email: info@lfa.com.au Web: www.lfa.com.au
LFA (PACIFIC) PTY LTD ABN 55 001 500 550
LFA (PACIFIC) PTY LTD, 277/279A ADELAIDE ST, SYDNEY NSW 2000


**Western Sydney
Parklands Trust**
 WESTERN SYDNEY PARKLANDS TRUST
 LEVEL 4, 10 VALENTINE AVE
 PARRAMATTA NSW 2150

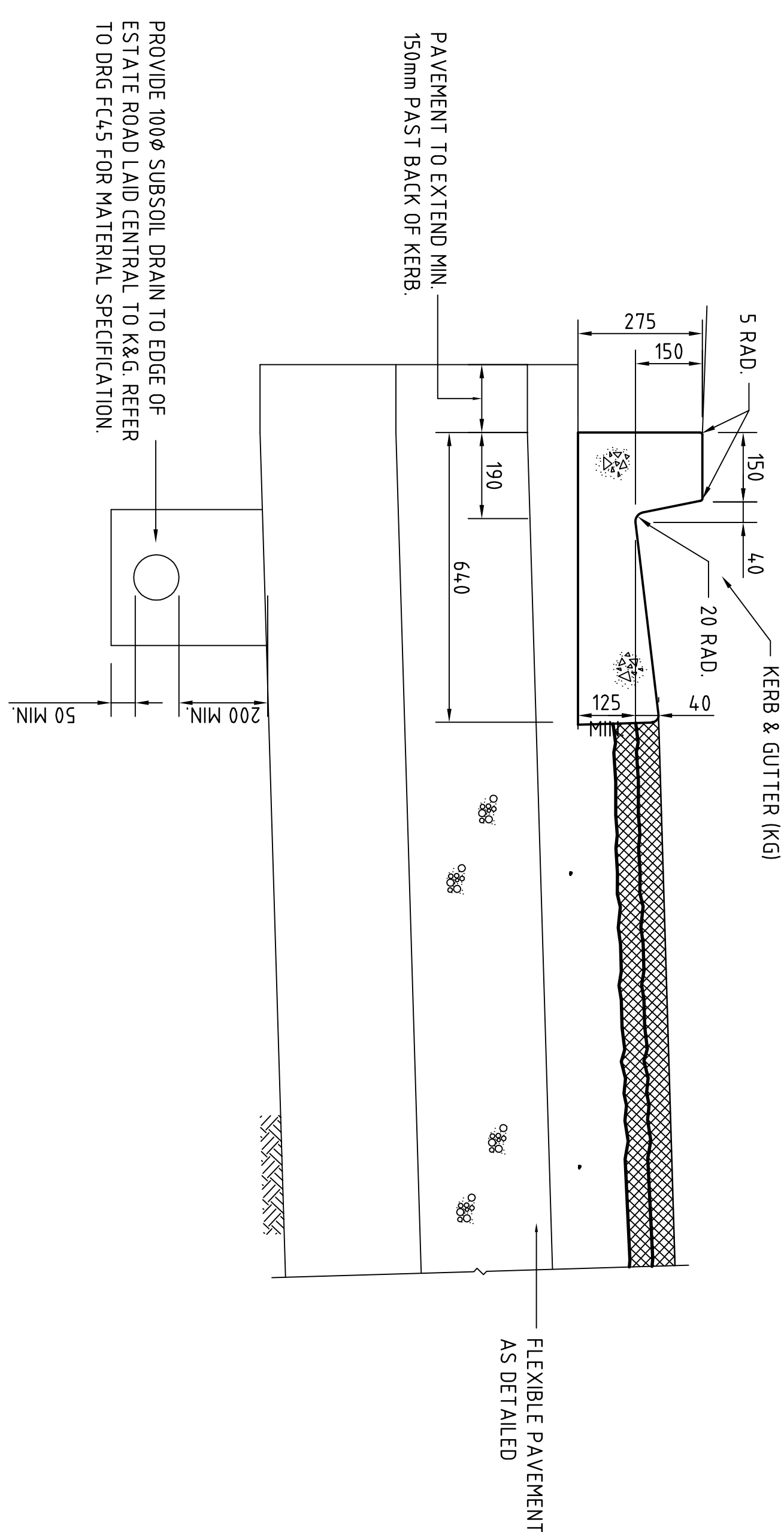
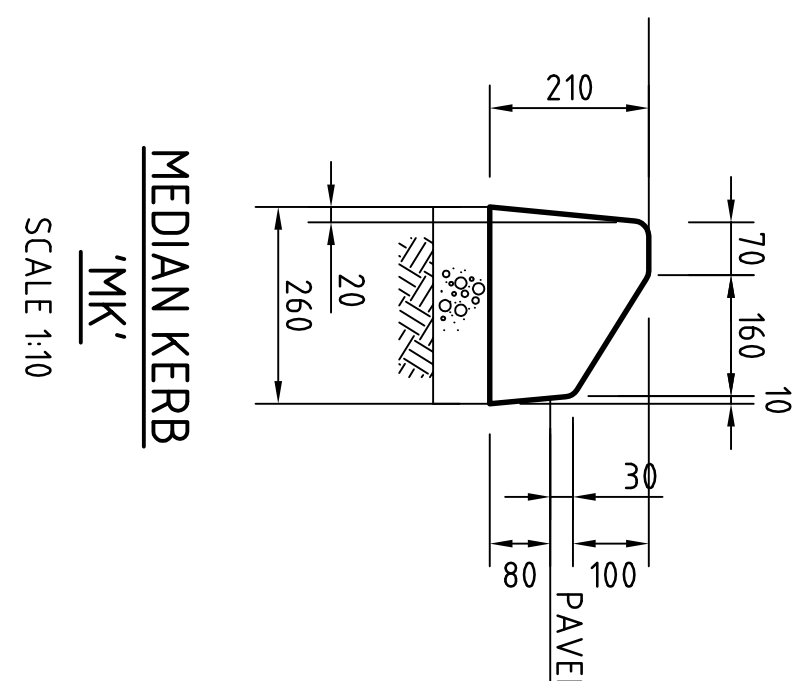
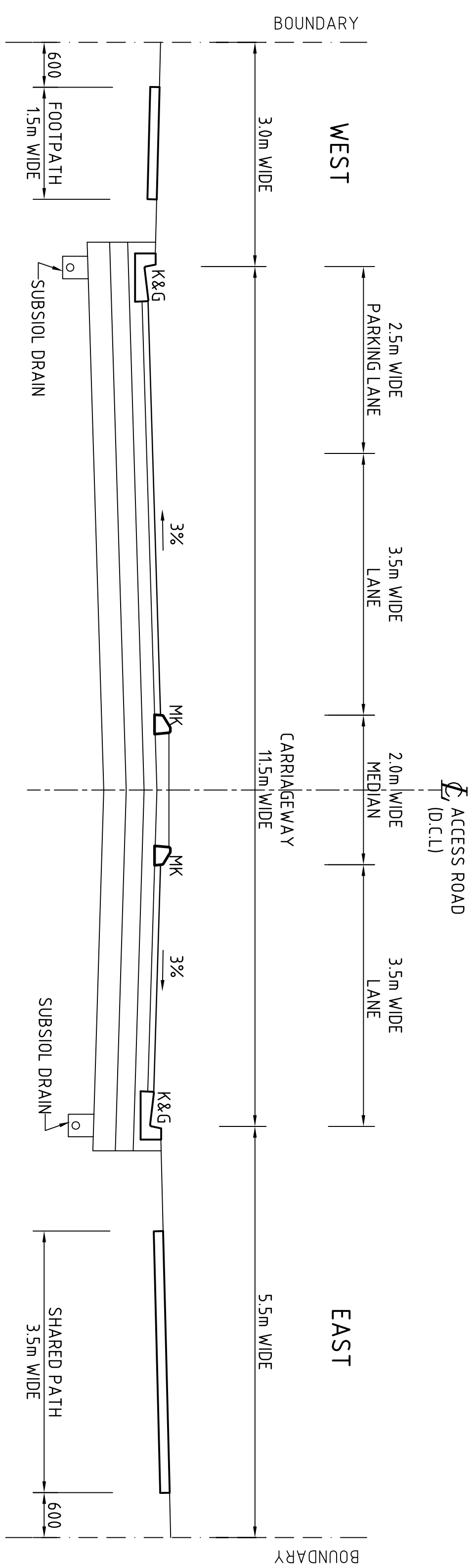
PROJECT		
PROPOSED DEVELOPMENT		
FIFTEENTH AVENUE		
WEST HOXTON NSW		
DESIGNED	DRAWN	
DATE	CHECKED	
SIZE	SCALE	CAD REF:
B1	A3 SHOWN	(0)995-008640

Costin Roe Consulting Pty Ltd.
Consulting Engineers
Level 1, 8 Windmill Street
Waist Bay, Sydney NSW 2000
Tel: (02) 9251-7699 Fax: (02) 9241-3731
email: mail@costinroe.com.au ©

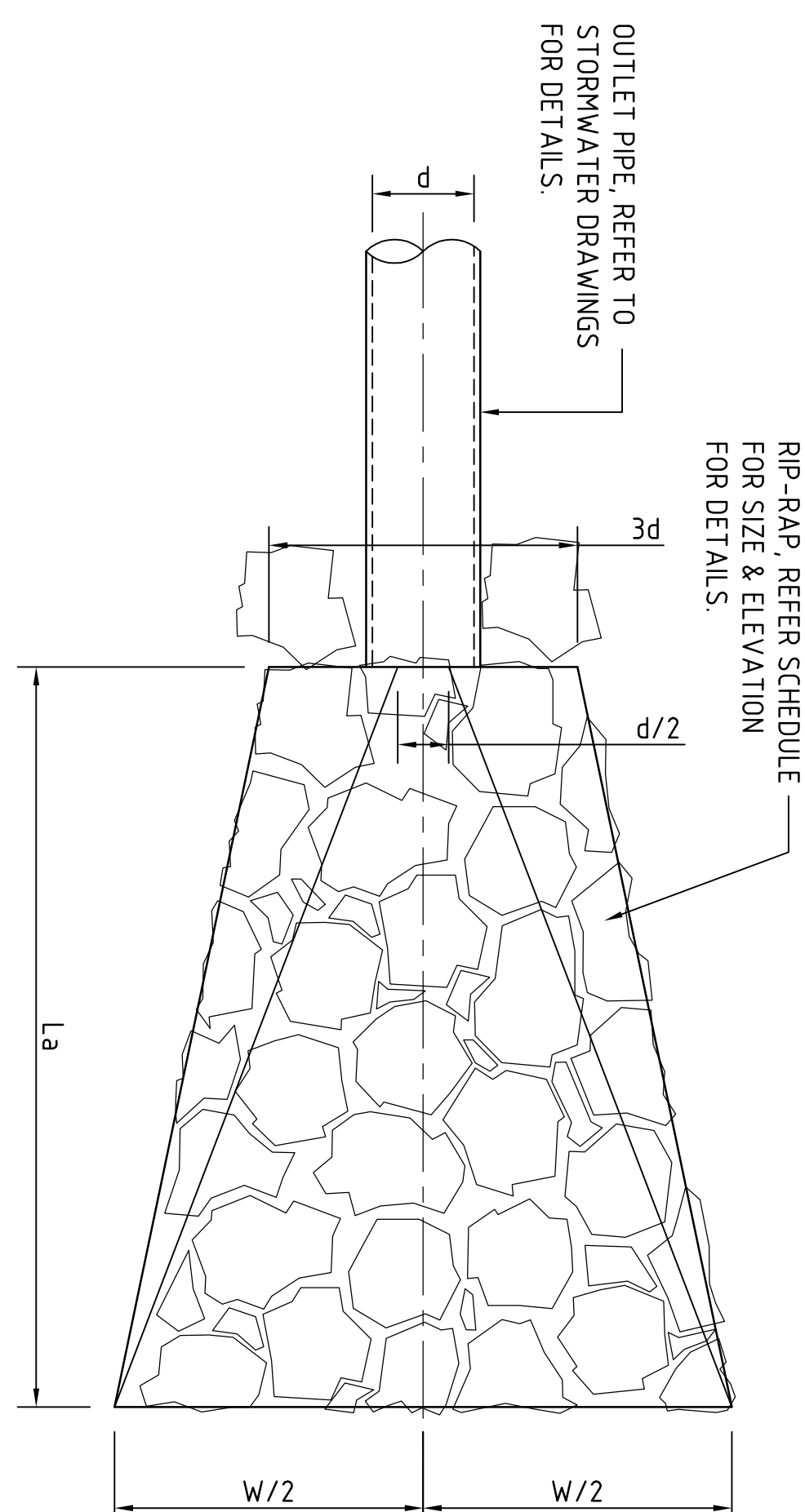
CostinRoe

Value in Engineering

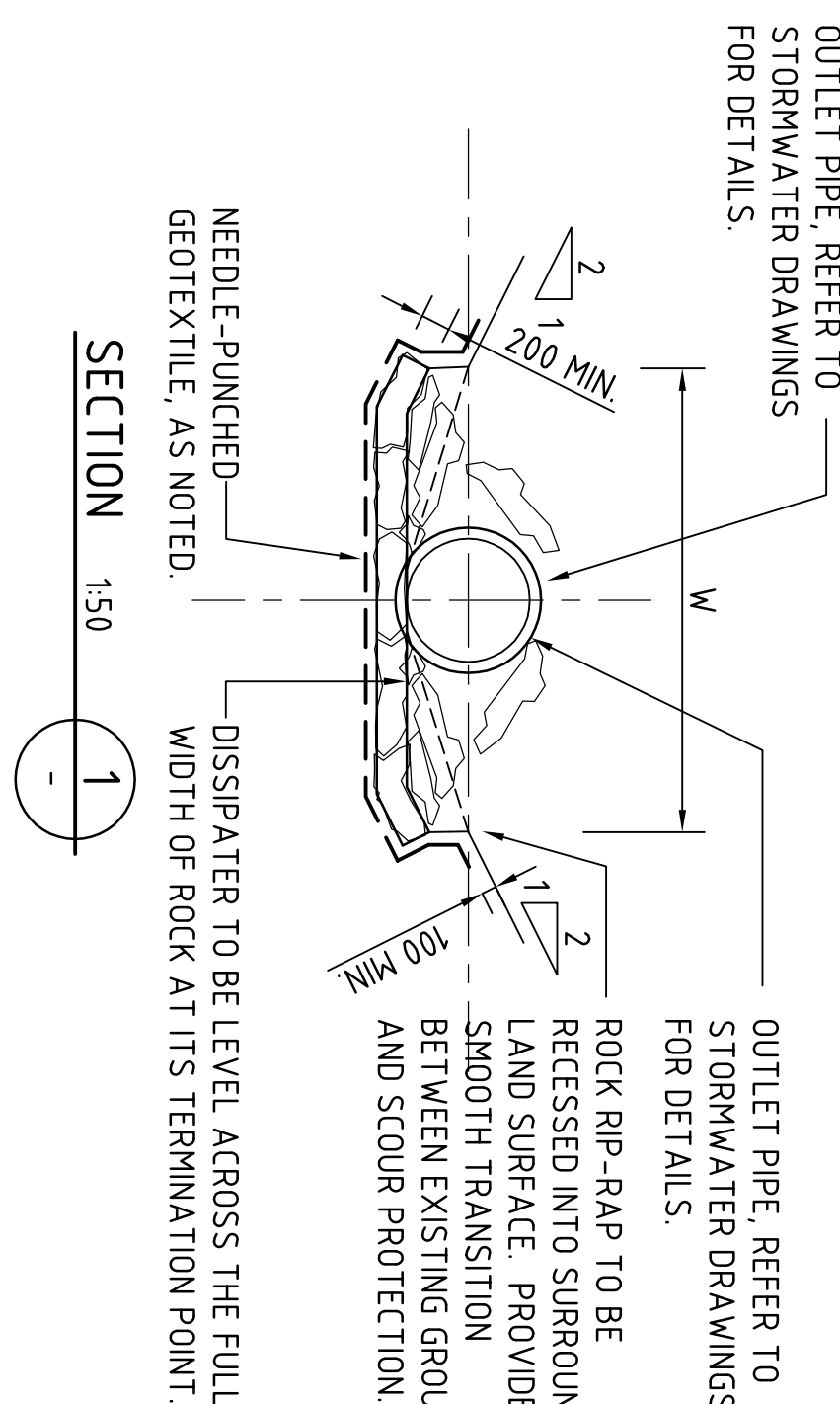
DRAWING TITLE	DRAWING No	ISSUE
CONCEPT CIVIL WORKS PLAN	C011995.00- DA40	P



TYPICAL CROSS SECTION - ACCESS ROAD
SCALE 1:50



PLAN VIEW

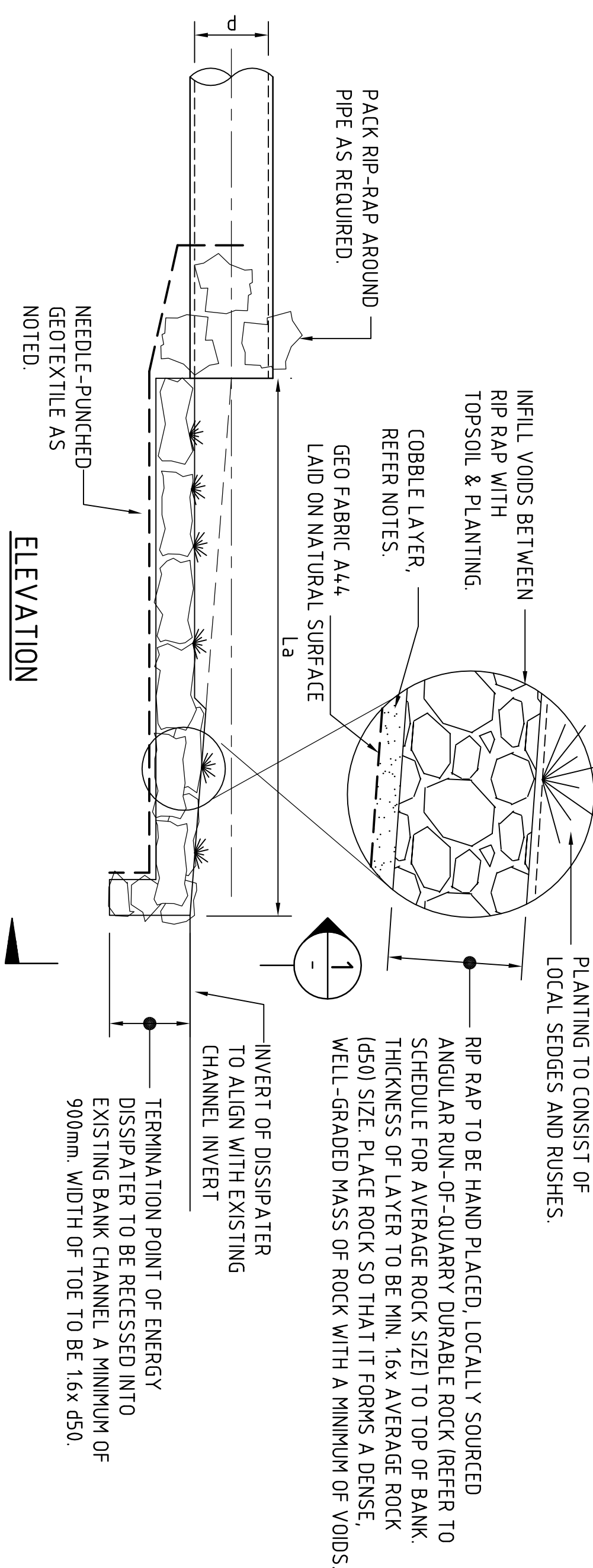


DISSIPATER NOTES:

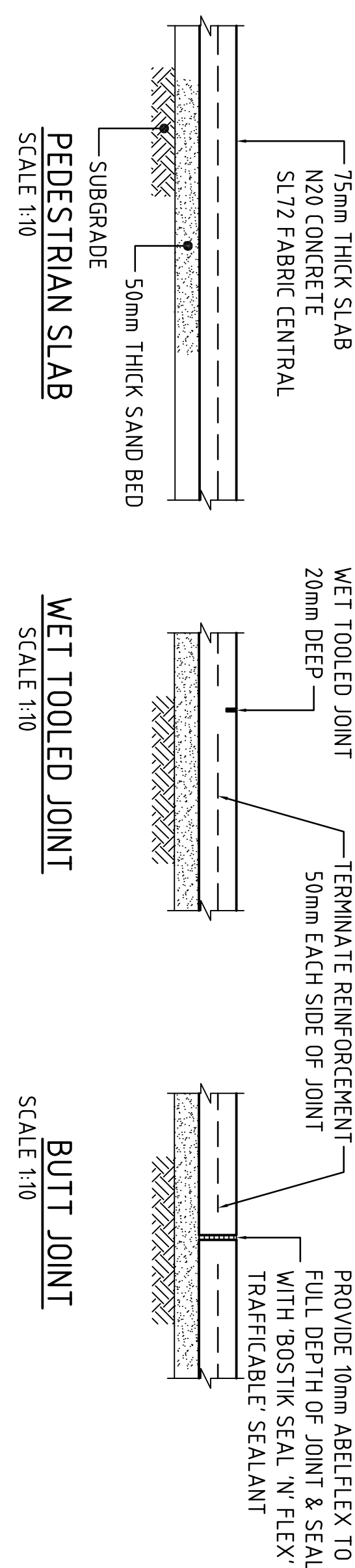
1. ALIGN STRUCTURE EVENLY W/ BANK.
2. LOCATE STRUCTURE AT INVERT LEVEL OF STREAM AND POINT IN A DOWNSTREAM DIRECTION.
3. PIPE TO REST ON, AND BE PACKED IN, BY RIP-RAP (SIZE AS NOTED).
4. DISCHARGE INTO STREAM WHERE BEDROCK IS PRESENT.
5. SCOUR PROTECT THE OPPOSITE BANK AS REQUIRED. SCOUR PROTECTION TO BE PROVIDED WHERE OPPOSITE BANK IS WITHIN 12-14' TIMES THE PIPE DIAMETER.
6. RIP-RAP TO CONSIST OF ANGULAR RUN-OF-QUARRY ROCK (d50= 150mm MINIMUM) AS NOTED IN THE SCHEDULE. RIP-RAP TO BE MINIMUM THICKNESS OF RIP-RAP LAYER TO BE 1xk AVERAGE ROCK SIZE (d50).
7. RIP-RAP IS TO BE PLACED OVER A 200mm LAYER OF 14/10mm COBBLES OVER NEEDLE-POUNCHED GEO-AB RAY.
8. PLACE ROCK SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF ROCK WITH A MINIMUM OF VOIDS. THE FINISHED RIP-RAP SURFACE SHOULD BE FREE OF POCKETS OF SMALL ROCK OR CLUSTERS OF LARGE ROCKS.
9. GAPS IN RIP-RAP TO BE HAND PACKED WITH TOPSOIL & PLANTED WITH NATIVE SEEDS & RHIZES TO PROVIDE. THE INTENT IS FOR THERE TO BE NO VOIDS BETWEEN RIP-RAP Boulders.
10. ENSURE THE FINISHED ROCK SURFACE BLENDS WITH THE SURROUNDING GROUND LEVELS. NO OVER-ALL OR PROTRUSION OF ROCK SHOULD BE APPARENT.
11. ENSURE THAT STORMWATER FROM SURROUNDING GROUND IS FREE TO ENTER THE STRUCTURE WITHOUT CAUSING UNDESIRABLE PONDING OR SCOUR.

DISSIPATER SCHEDULE				
DISCHARGE POINT	d	La	W	RIP-RAP (d50)
OUTLET	825	XXX	XXX	XXX

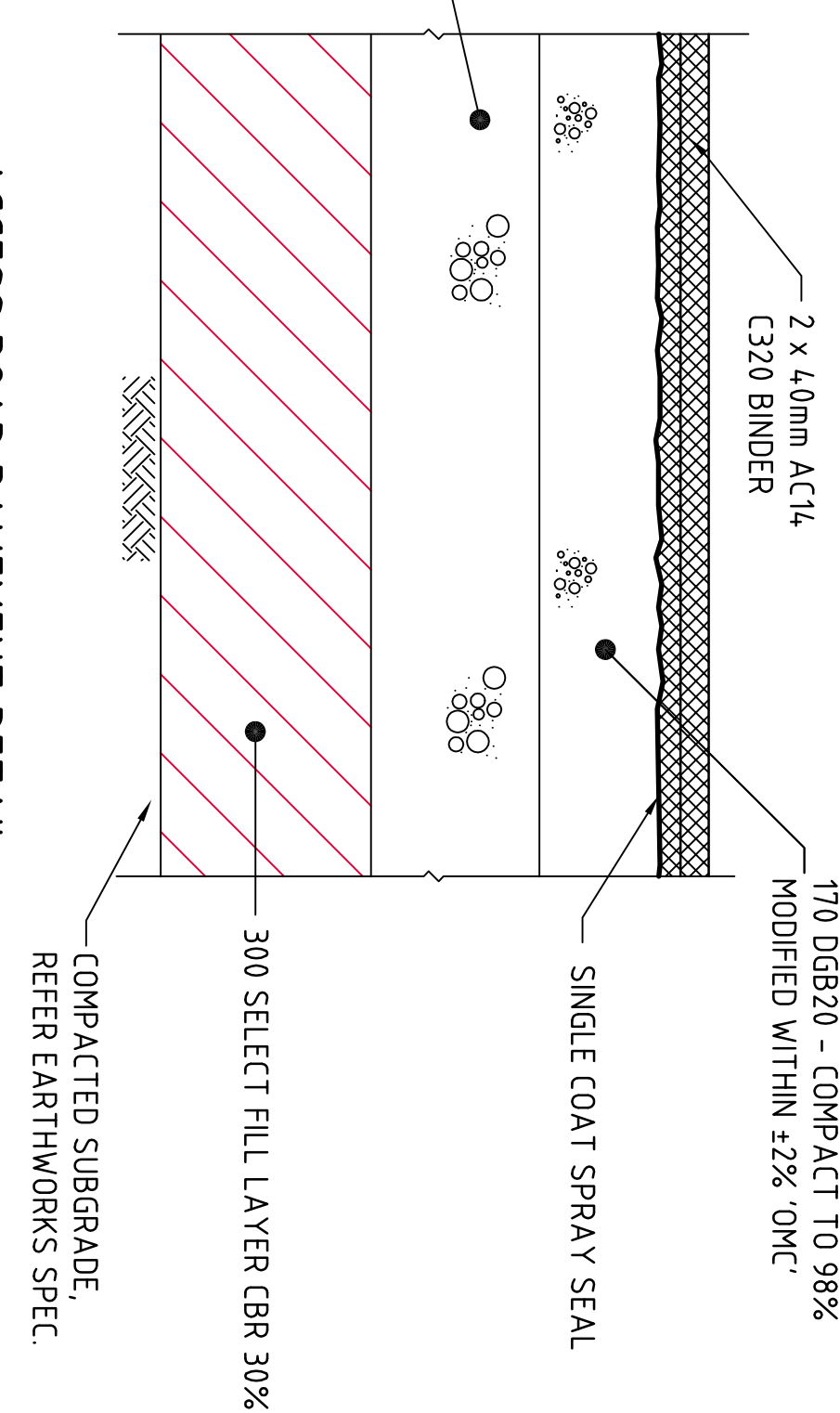
STORMWATER OUTLET DISSIPATER



PEDESTRIAN SLAB DETAILS



ACCESS ROAD PAVEMENT DETAIL



KERB & GUTTER (KG) & SUBSOIL DETAIL

PROVIDE JOINTS IN KERB TO MATCH JOINTS IN PAVEMENT

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION	19.06.15	D	
ISSUED FOR INFORMATION	18.05.15	C	
ISSUED FOR INFORMATION	18.03.15	B	
ISSUED FOR INFORMATION	25.02.15	A	
AMENDMENTS	DATE	ISSUE	AMENDMENTS

INTRODUCTION



CLIENT



PROJ

PROPOSED DEVELOPMENT

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE
				B1	AS SHOWN

1



Costin Roe Consulting Pty Ltd
Consulting Engineers ACN 003 896 440

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Walsh Bay, Sydney NSW 2000
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email: mail@costlinroe.com.au ©

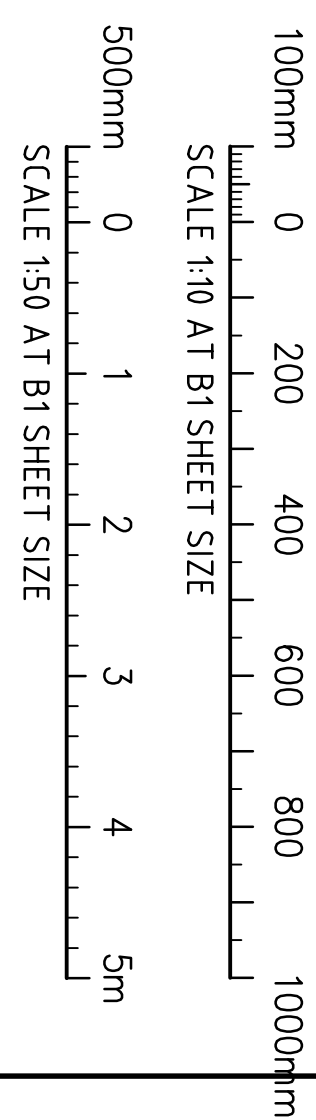
Costin Roșu

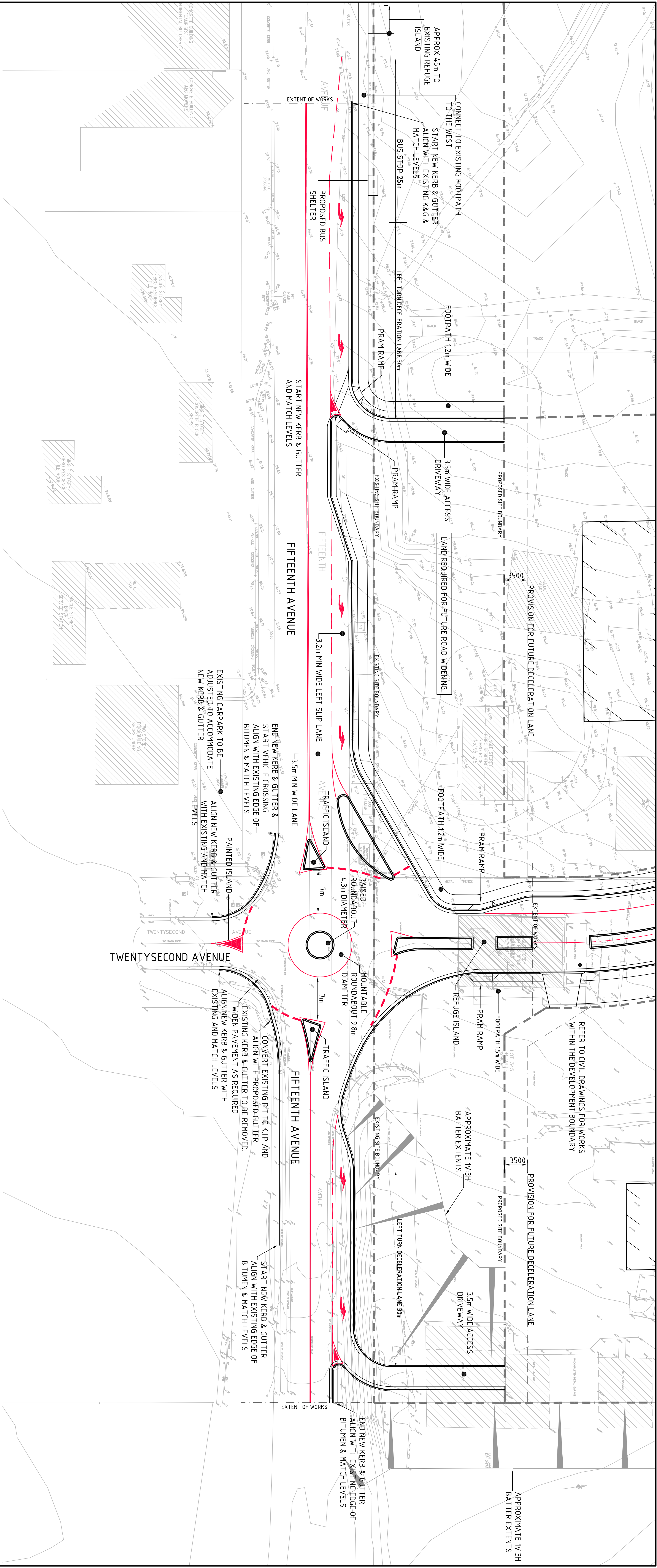
Value in Engineering and Management

DRAWING TITLE
CIVIL WORKS DETAILS

C011995.00 - DA45

ISSUE D



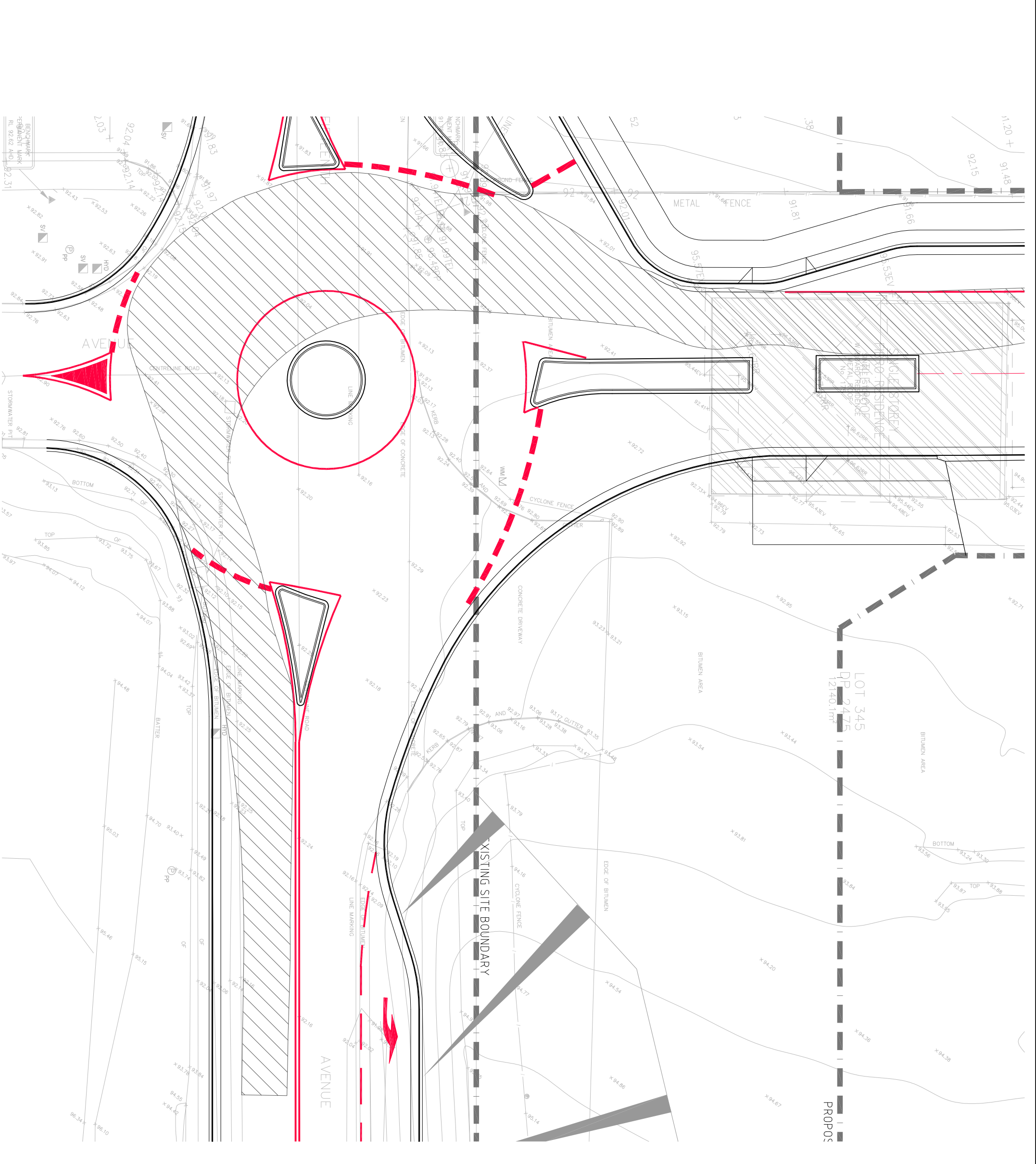
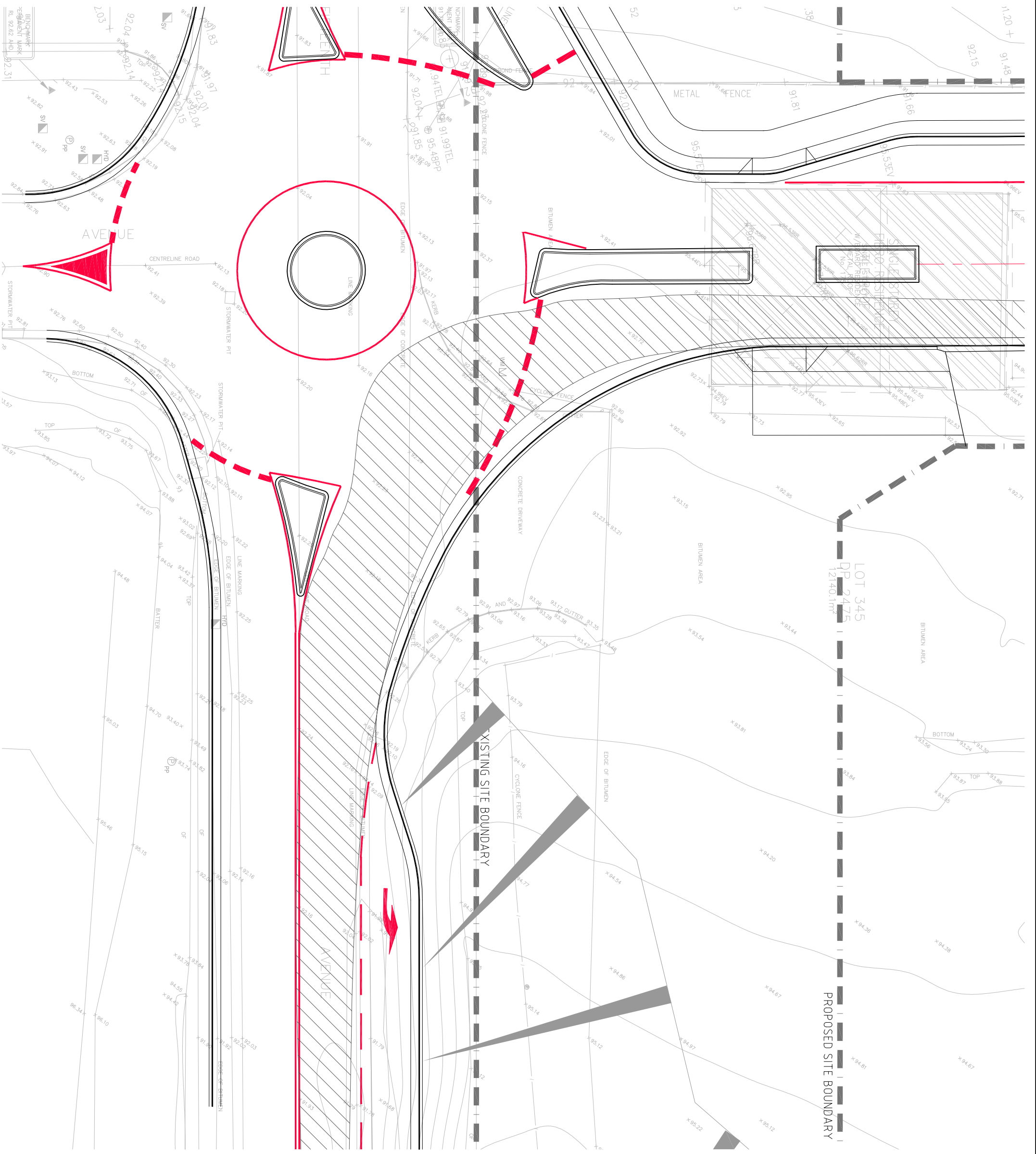
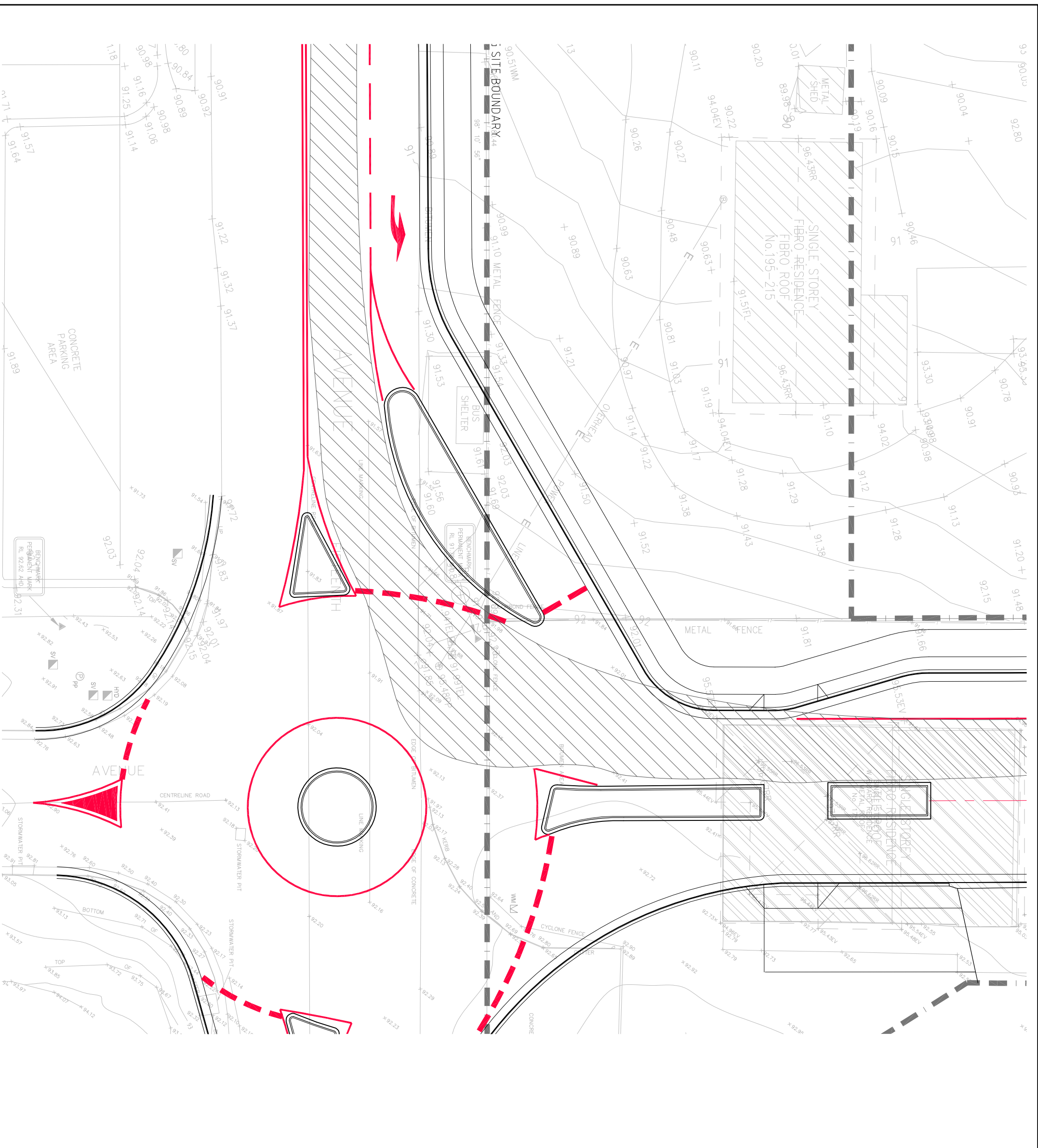


ROUNDABOUT FUNCTIONAL LAYOUT PLAN
SCALE 1:250



FOR APPROVAL

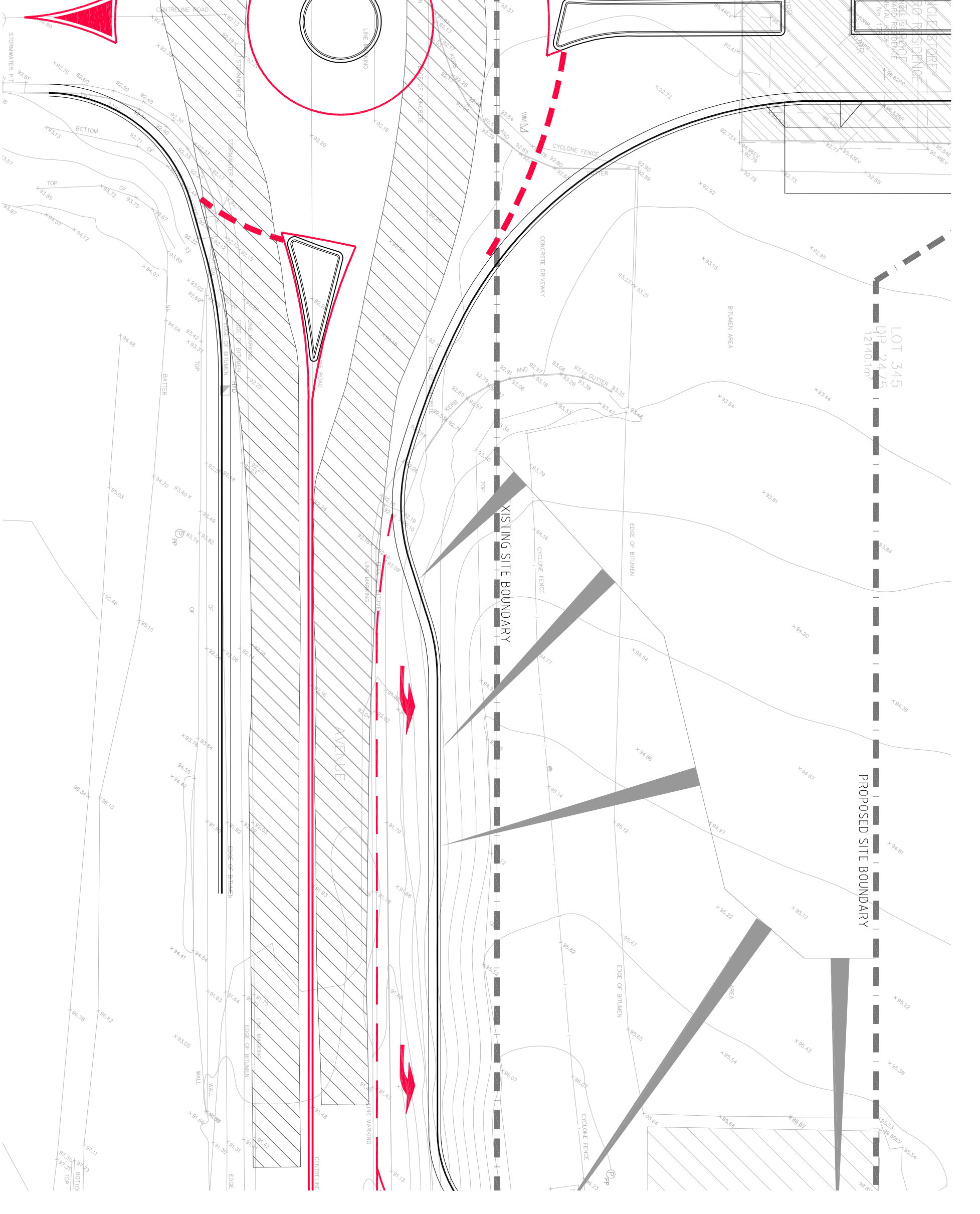
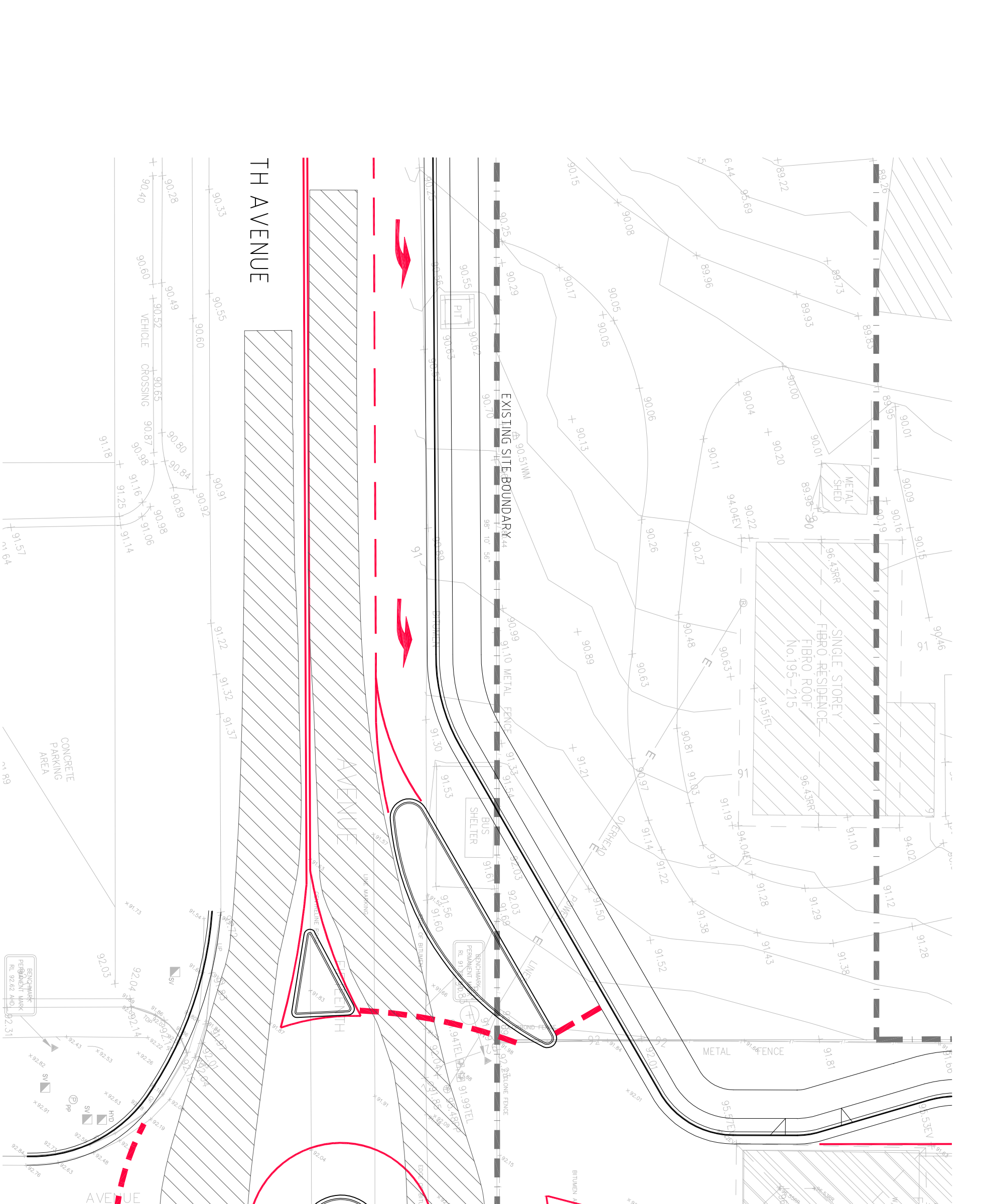
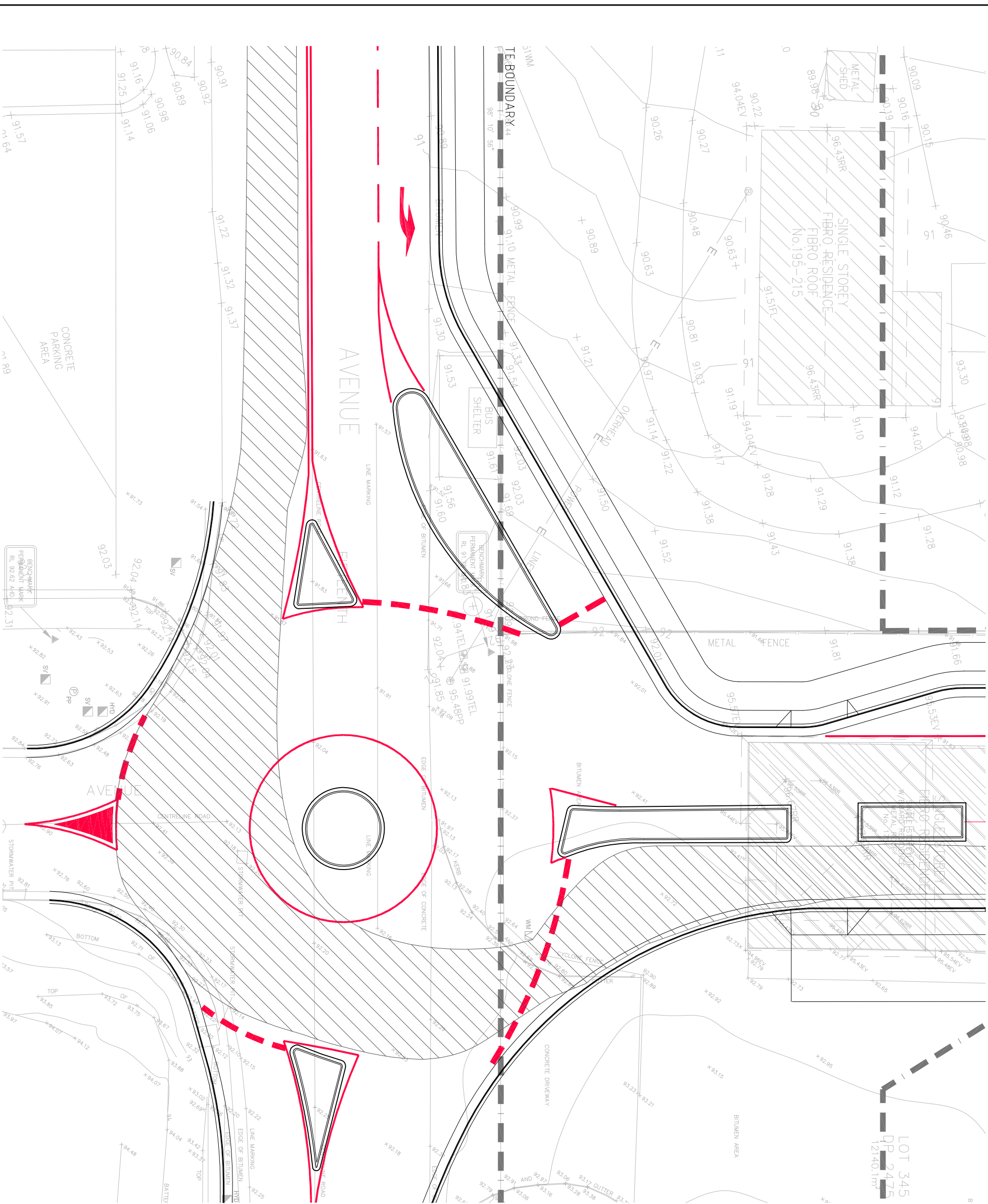
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ISSUED FOR APPROVAL		13.05.15	E
ISSUED FOR INFORMATION		11.05.15	D
ISSUED FOR INFORMATION		04.05.15	C
ISSUED FOR INFORMATION		30.04.15	B
ISSUED FOR INFORMATION		23.04.15	A
AMENDMENTS		DATE	ISSUE
ARCHITECT		LTA PROJECT PTY LIMITED	
CLIENT		Western Sydney Parklands Trust WESTERN SYDNEY PARKLANDS TRUST PARRAMATTA NSW 2150	
PROJECT		PROPOSED DEVELOPMENT FIFTEENTH AVENUE WEST HOXTON NSW	
DESIGNED BY		DATE	DATE
CHECKED BY		DATE	DATE
DRAWN BY		DATE	DATE
COSTIN ROE CONSULTING PTY LTD		COSTIN ROE CONSULTING PTY LTD Level 1, 8 Windmill Street Marrickville, Sydney NSW 2122 Phone: 02 9550 1234 Email: info@costinroe.com.au	
DRAWING TITLE		ROAD WORKS FUNCTIONAL LAYOUT PLAN	
DRAWING No		C011995.00-SK03	
ISSUE		F	



TURNING PATH - LEFT TURN IN
SCALE 1:200

TURNING PATH - LEFT TURN OUT
SCALE 1:200

TURNING PATH - RIGHT TURN IN
SCALE 1:200



TURNING PATH - RIGHT TURN OUT
SCALE 1:200

TURNING PATH - STRAIGHT THROUGH
SCALE 1:200

TURNING PATHS ARE SHOWN FOR 19m SEMI- TURNING
PATHS BASED ON TTPA DESIGN REFER TO TTPA
DRAWINGS FOR ORIGINAL TURNING PATHS

2m 0 5 10 15 20m
SCALE 1:200 AT B1 SHEET SIZE

FOR APPROVAL

ISSUED FOR APPROVAL	19.06.15	E	ARCHITECT	UTS TRADING PTY LIMITED	CLIENT	Western Sydney Parklands Trust	PROJECT	PROPOSED DEVELOPMENT FIFTEENTH AVENUE WES1 HOXTON NSW	CONSULTANT	COSTIN ROE CONSULTING PTY LTD Level 1, 8 Midland Street Maitland NSW 2108 Mobile: 02 9551 2000 Email: maitland@costinroe.com.au	DRAWING TITLE	TURNING PATHS PLAN
ISSUED FOR APPROVAL	13.05.15	D										
ISSUED FOR INFORMATION	11.05.15	C										
ISSUED FOR INFORMATION	04.05.15	B										
ISSUED FOR INFORMATION	30.04.15	A										
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE							