

44 WHARF ROAD, MELROSE PARK

STAGE 1 - VRS

CIVIL ENGINEERING PACKAGE



DRAWING SCHEDULE	
DWG NO.	DRAWING TITLE
C01.01	COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN
C01.11	SPECIFICATION NOTES
C01.21	EXISTING SITE CONDITIONS
C01.22	GENERAL ARRANGEMENT PLAN
C02.01	CONCEPT SEDIMENT AND SOIL EROSION CONTROL PLAN
C02.11	SEDIMENT AND SOIL EROSION CONTROL DETAILS
C06.11	SITEWORKS AND GRADING PLAN - SHEET 1
C06.12	SITEWORKS AND GRADING PLAN - SHEET 2
C06.13	SITEWORKS AND GRADING PLAN - SHEET 3
C06.14	SITEWORKS AND GRADING PLAN - SHEET 4
C09.11	STORMWATER DRAINAGE PLAN - SHEET 1
C09.12	STORMWATER DRAINAGE PLAN - SHEET 2
C09.13	STORMWATER DRAINAGE PLAN - SHEET 3
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C16.01	LONGITUDINAL SECTIONS - SHEET 1
C16.02	LONGITUDINAL SECTIONS - SHEET 2
C16.03	LONGITUDINAL SECTIONS - SHEET 3
C16.04	LONGITUDINAL SECTIONS - SHEET 4
C16.51	EXTERNAL LONGITUDINAL SECTIONS - SHEET 1
C16.52	EXTERNAL LONGITUDINAL SECTIONS - SHEET 2
C16.53	EXTERNAL LONGITUDINAL SECTIONS - SHEET 3
C17.01	CROSS SECTIONS - SHEET 1
C17.02	CROSS SECTIONS - SHEET 2
C17.03	CROSS SECTIONS - SHEET 3
C17.04	CROSS SECTIONS - SHEET 4
C17.05	CROSS SECTIONS - SHEET 5
C17.06	CROSS SECTIONS - SHEET 6
C17.07	CROSS SECTIONS - SHEET 7
C17.08	CROSS SECTIONS - SHEET 8
C17.09	CROSS SECTIONS - SHEET 9
C17.51	EXTERNAL CROSS SECTIONS - SHEET 1
C17.52	EXTERNAL CROSS SECTIONS - SHEET 2
C17.53	EXTERNAL CROSS SECTIONS - SHEET 3
C17.54	EXTERNAL CROSS SECTIONS - SHEET 4
C18.01	KERB RETURNS - SHEET 1
C19.01	STORMWATER LONGITUDINAL SECTIONS
C20.11	STORMWATER MANAGEMENT DEVICES - SHEET 1
C20.12	STORMWATER MANAGEMENT DEVICES - SHEET 2
C20.21	STORMWATER MANAGEMENT DEVICE - OSD 1
C20.22	STORMWATER MANAGEMENT DEVICE - OSD 2
C23.01	TURNING PATHS PLAN
C24.01	CATCHMENT PLAN

DRAWN: R. GRIEVE
DESIGNED: P. GILLAM
JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	RG		PG	22.07.16
2	ISSUED FOR DA	RG		PG	22.09.16
3	RE-ISSUED FOR DA	RG		PG	15.11.16
4	RE-ISSUED FOR DA	RG		PG	15.03.17
5	RE-ISSUED FOR DA	RG		PG	01.06.17

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PROJECT

44 WHARF ROAD
MELROSE PARK

STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

COVER SHEET, DRAWING
SCHEDULE AND LOCALITY PLAN

JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

DRAWING NUMBER

REVISION

C01.01

5

DRAWING SHEET SIZE = A1

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NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH CITY OF PARRAMATTA COUNCIL DEVELOPMENT GUIDELINES .THE AFOREMENTIONED GUIDELINES INCLUSIVE OF ALL SPECIFICATIONS TAKE PRECEDENCE OVER NOTES PROVIDED BELOW.

STORMWATER DRAINAGE	
1.	ALL DRAINAGE LINES SHALL BE UPVC (CLASS SN4) SEWER GRADE DRAINAGE PIPE, U.N.O.
2.	ALL DRAINAGE LINES SHALL BE LAID AT 1% MIN. FALL, UNO.
3.	ALL LEVELS ARE AUSTRALIAN HEIGHT DATUM (AHD).
4.	ALL DOWNPIPES GUTTERS TO BE DESIGNED IN ACCORDANCE WITH AS/NZS 3500.3.2 - 2003 'STORMWATER' DRAINAGE.
5.	THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3.2-2003 'STORMWATER' DRAINAGE.
6.	ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.
7.	SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.
8.	ALL GRATES TO BE GALVANISED STEEL WITH HINGES AND CHILD PROOF LOCK.
9.	ALL GRATES TO BE HEEL SAFE WITHIN AGED CARE DEVELOPMENTS.
10.	THE STORMWATER DRAINAGE IS DESIGNED IN ACCORDANCE WITH COUNCIL'S STORMWATER CODE.

GENERAL NOTES	
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.	
ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).	
NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.	
ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.	
DETAIL SURVEY DATA WAS SUPPLIED BY LTS LOCKLEY, REF. No: 41367 DRAWING DATED 16/12/2014.	
EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.	
ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.	

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.	
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VERIFIER: S. FRYER

JOB MANAGER: M. RICHARDS

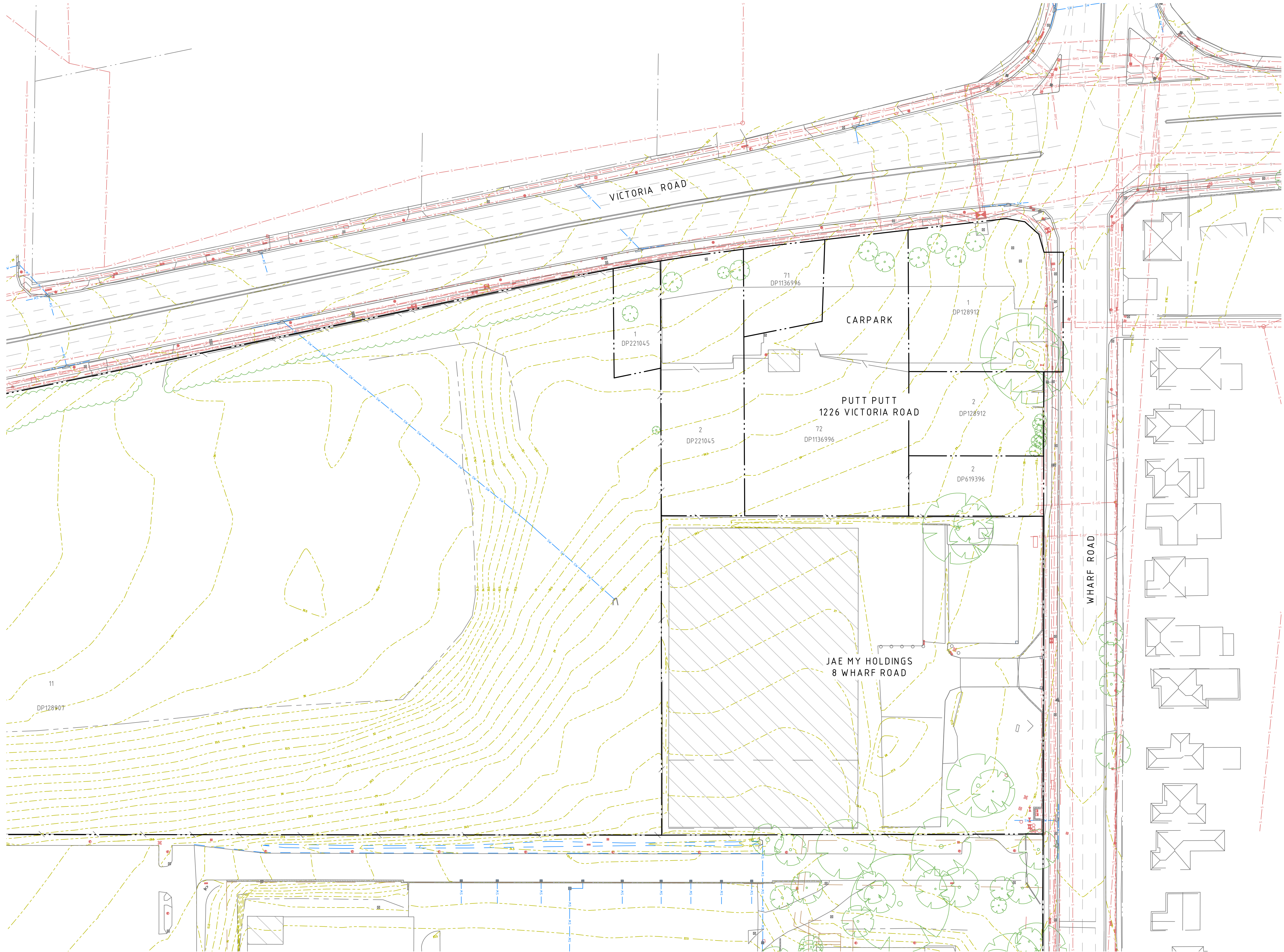
DESIGNED: P. GILLAM

DRAWN: R. GRIEVE

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1	ISSUED FOR CLIENT REVIEW	RG		PG	22.07.16				Sydney Level 11, 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	44 WHARF ROAD MELROSE PARK	CIVIL ENGINEERING PACKAGE	150077-01-01-DA			
2	ISSUED FOR DA	RG		PG	22.09.16							DRAWING NUMBER			
3	RE-ISSUED FOR DA	RG		PG	15.11.16							REVISION			
4	RE-ISSUED FOR DA	RG		PG	15.03.17							C01.11			
5	RE-ISSUED FOR DA	RG		PG	01.06.17							5			
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JOB MANAGER: M. RICHARDS
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LEGEND	
	EXISTING BOUNDARY LINE
	EXISTING SERVICES
	EXISTING STORMWATER
	EXISTING CONTOURS

NOT FOR CONSTRUCTION

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SCALE 1:500@A1

0 5 10 15 20 25m

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PROJECT

**44 WHARF ROAD
MELROSE PARK**

STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

EXISTING SITE CONDITIONS

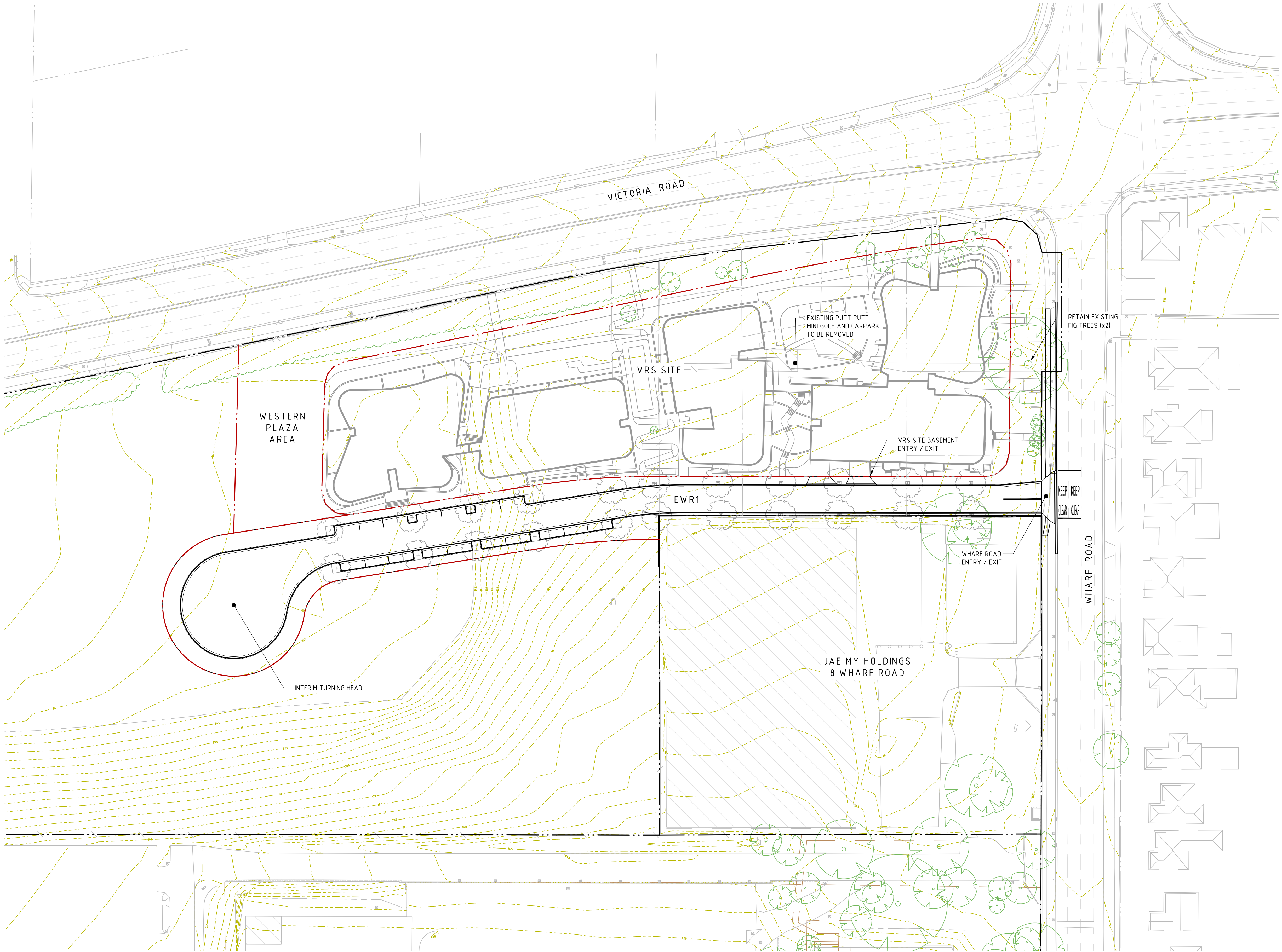
JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

DRAWING NUMBER	REVISION
C01.21	5

DRAWING SHEET SIZE = A1

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JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER



LEGEND	
	EXISTING BOUNDARY LINE
	PROPOSED BOUNDARY LINE
	EXISTING CONTOURS

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0 5 10 15 20 25m

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PROJECT

**44 WHARF ROAD
MELROSE PARK**

STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

GENERAL ARRANGEMENT PLAN

JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

DRAWING NUMBER

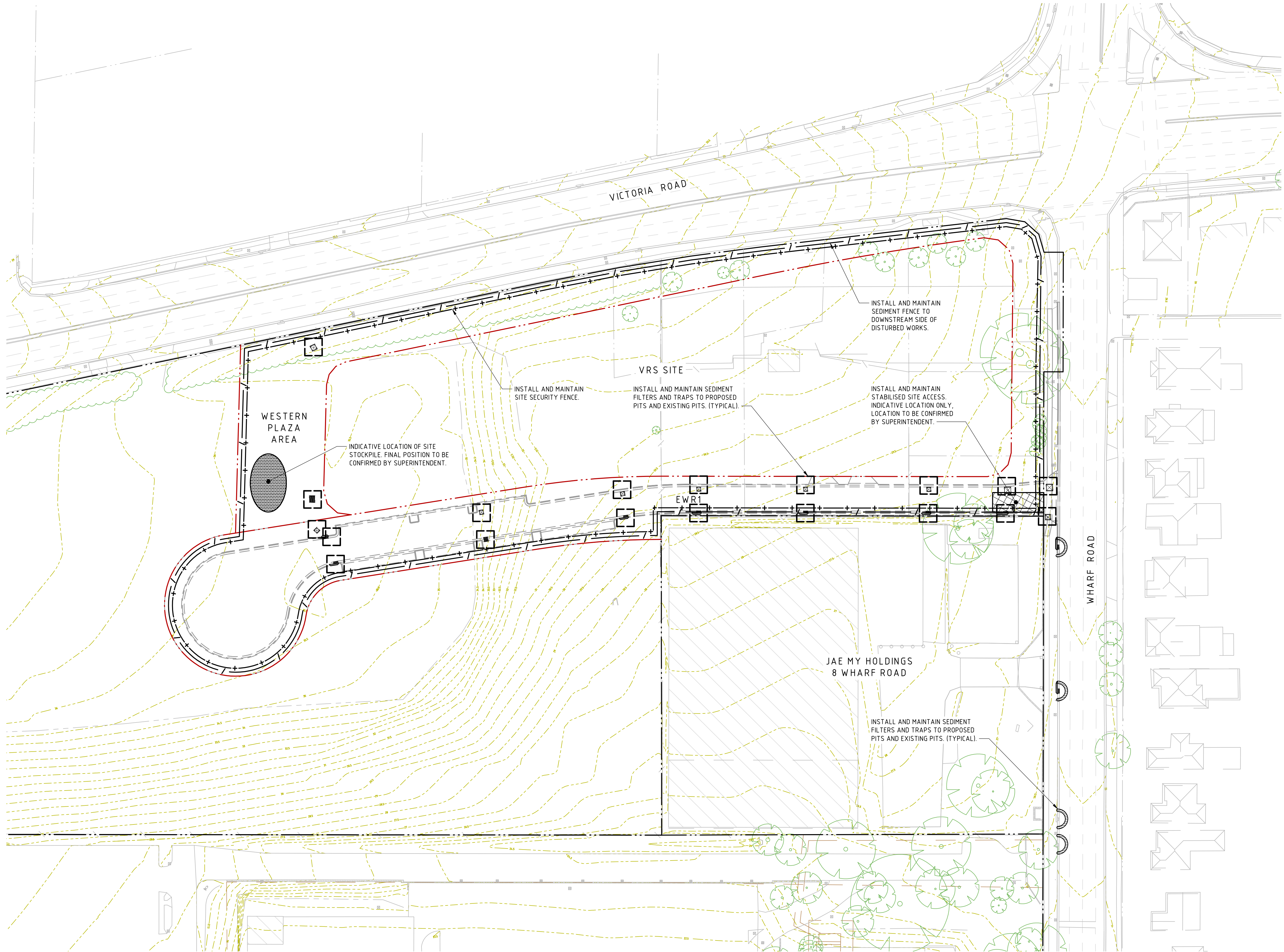
C01.22

REVISION

4

DRAWING SHEET SIZE = A1

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JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER



LEGEND	
	EXISTING BOUNDARY LINE
	PROPOSED BOUNDARY LINE
	SEDIMENT FENCE
	SECURITY FENCE
	WIRE MESH AND GRAVEL SEDIMENT FILTER
	DROP INLET SEDIMENT TRAP
	DRAINAGE SWALE
	STABILISED SITE ACCESS
	STOCKPILE
	EXISTING CONTOURS

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STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

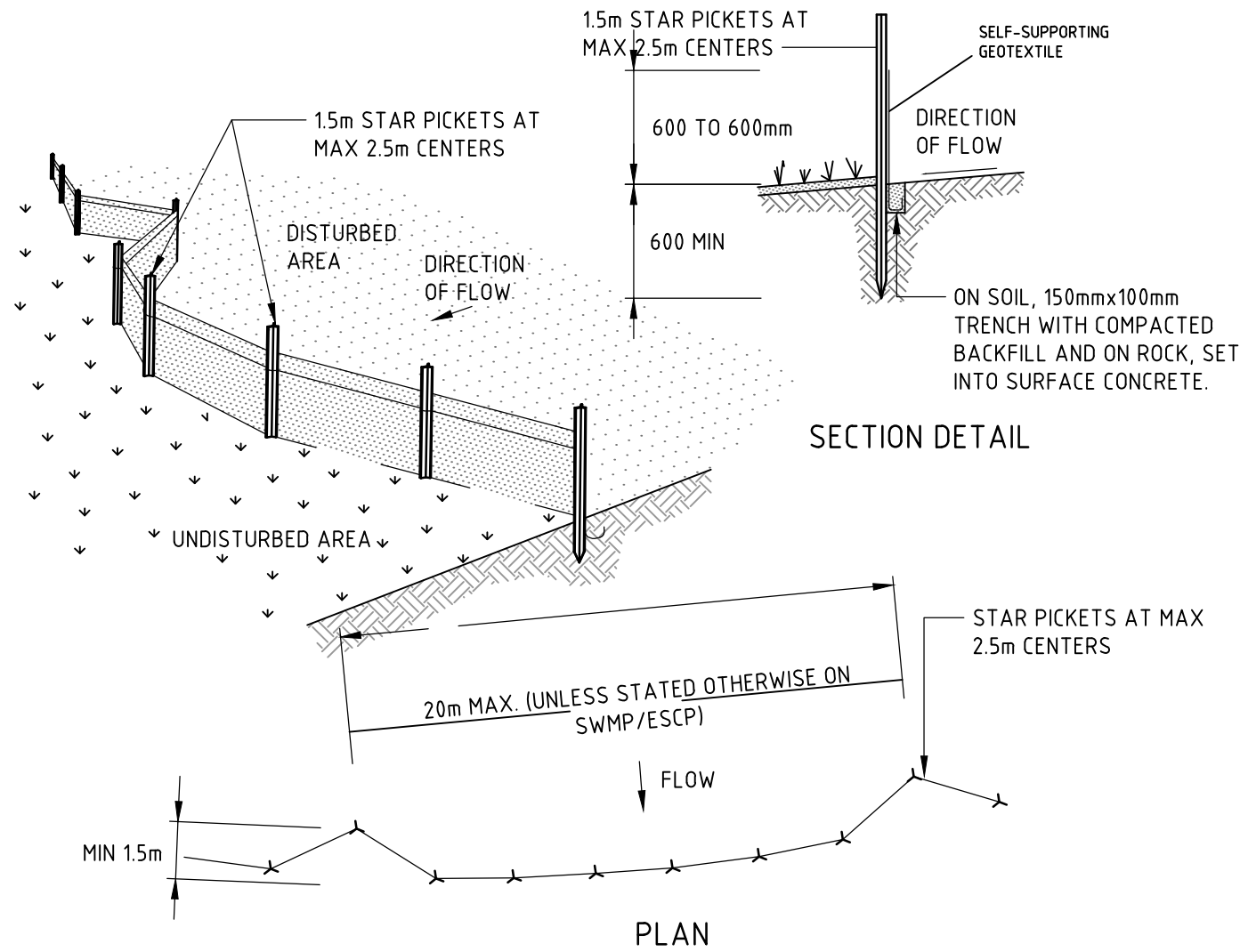
**CONCEPT SEDIMENT AND SOIL
EROSION CONTROL PLAN**

JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

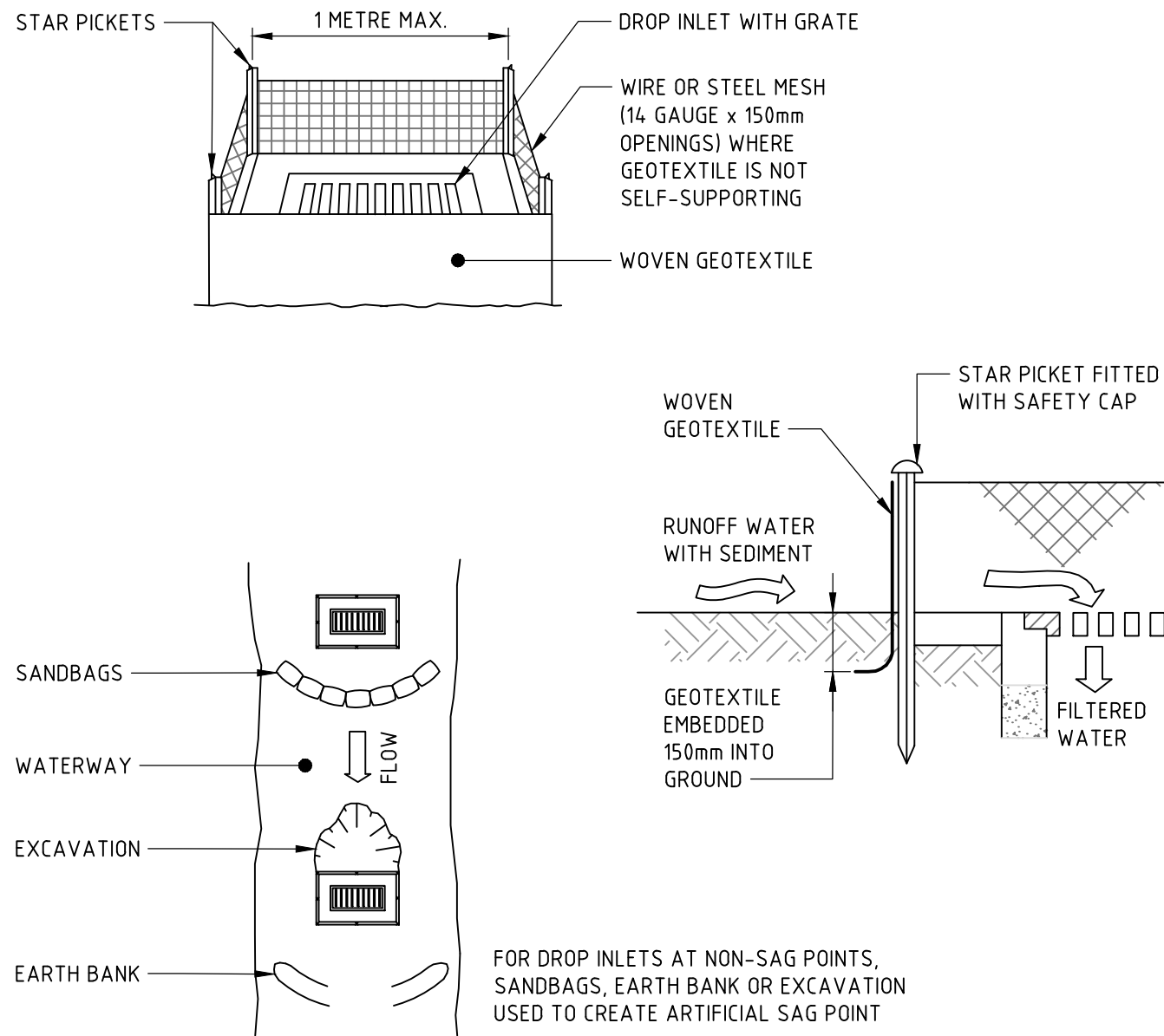
DRAWING NUMBER	REVISION
C02.01	5

DRAWING SHEET SIZE = A1



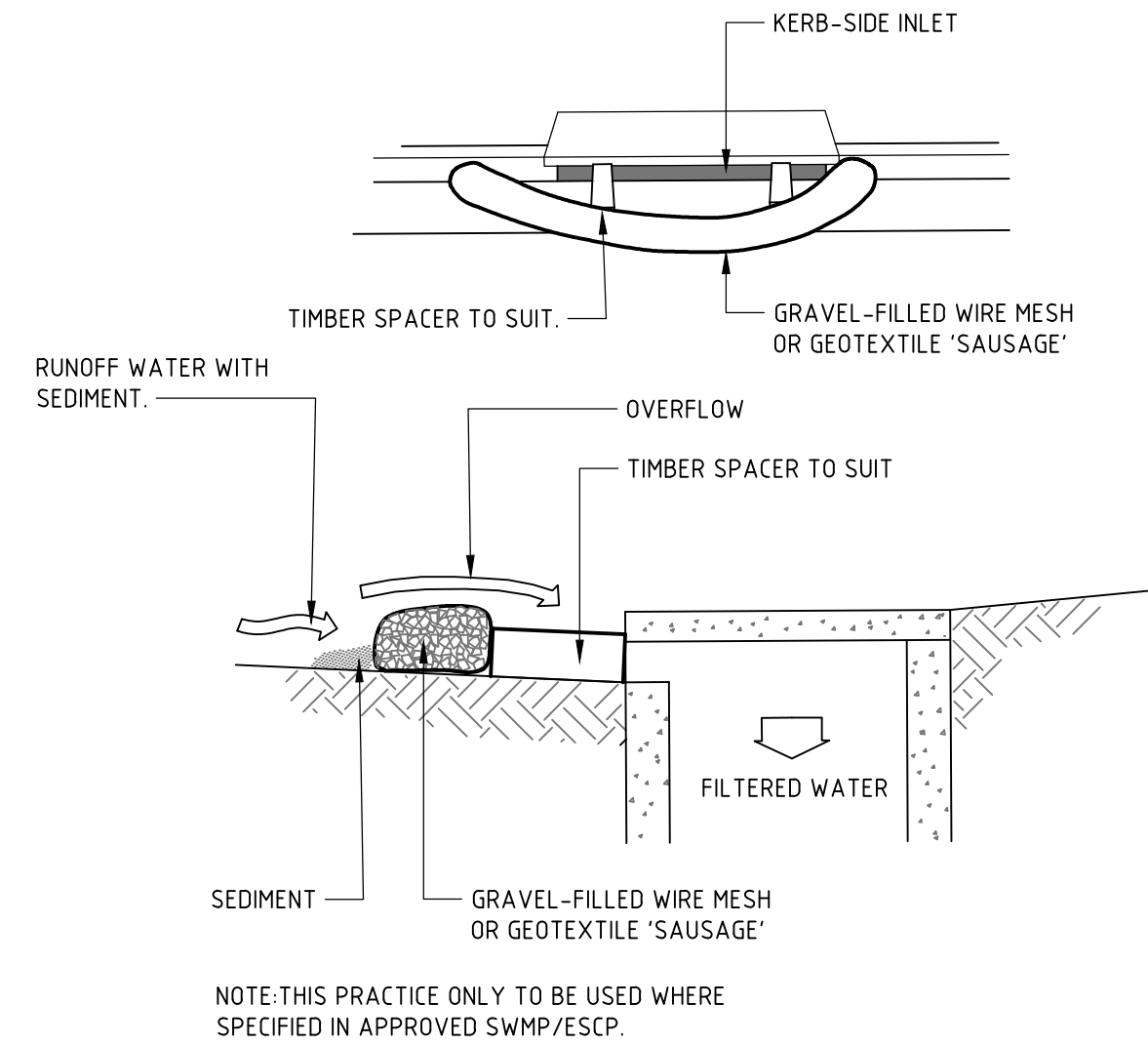
- CONSTRUCTION NOTES**
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
 2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
 3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
 4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
 5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
 6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)



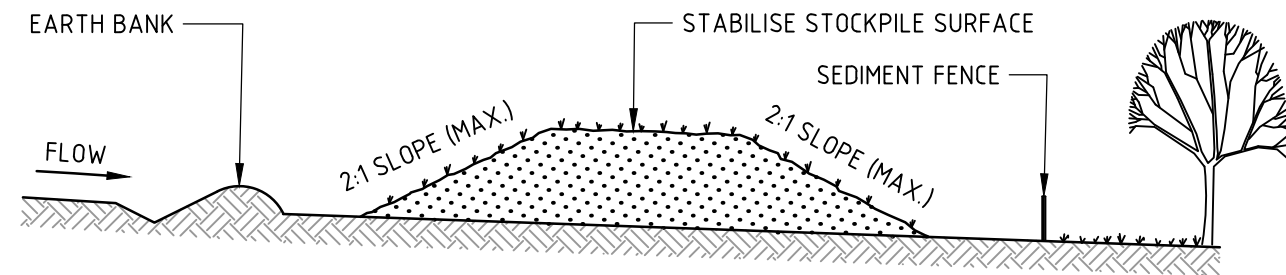
- CONSTRUCTION NOTES**
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
 2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOTEXTILE. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
 3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN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

GEOTEXTILE INLET FILTER (SD 6-12)



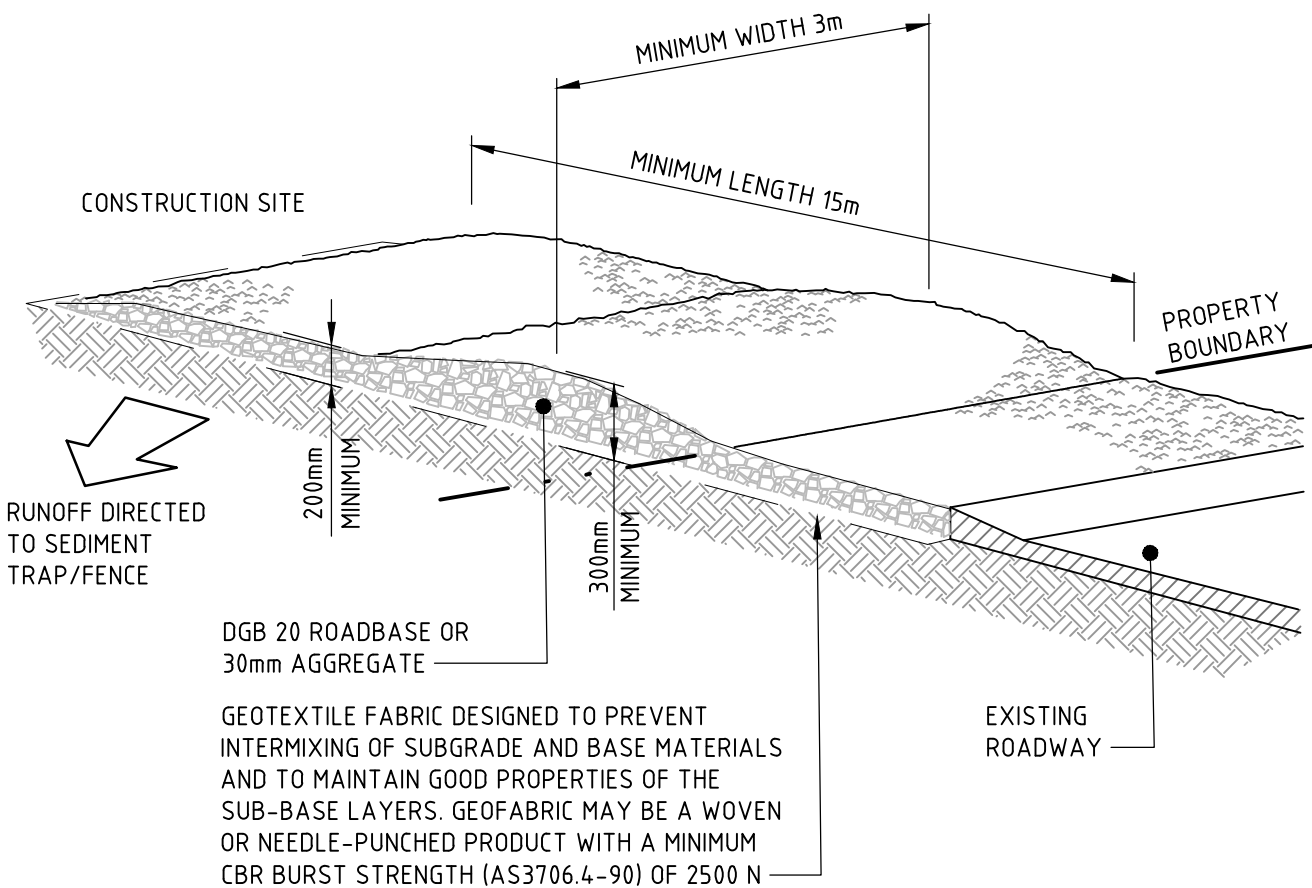
- CONSTRUCTION NOTES**
1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
 2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
 3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
 4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
 5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
 6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH AND GRAVEL INLET FILTER (SD 6-11)



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

STOCKPILES (SD 4-1)



- CONSTRUCTION NOTES**
1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
 2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
 3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
 4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
 5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)

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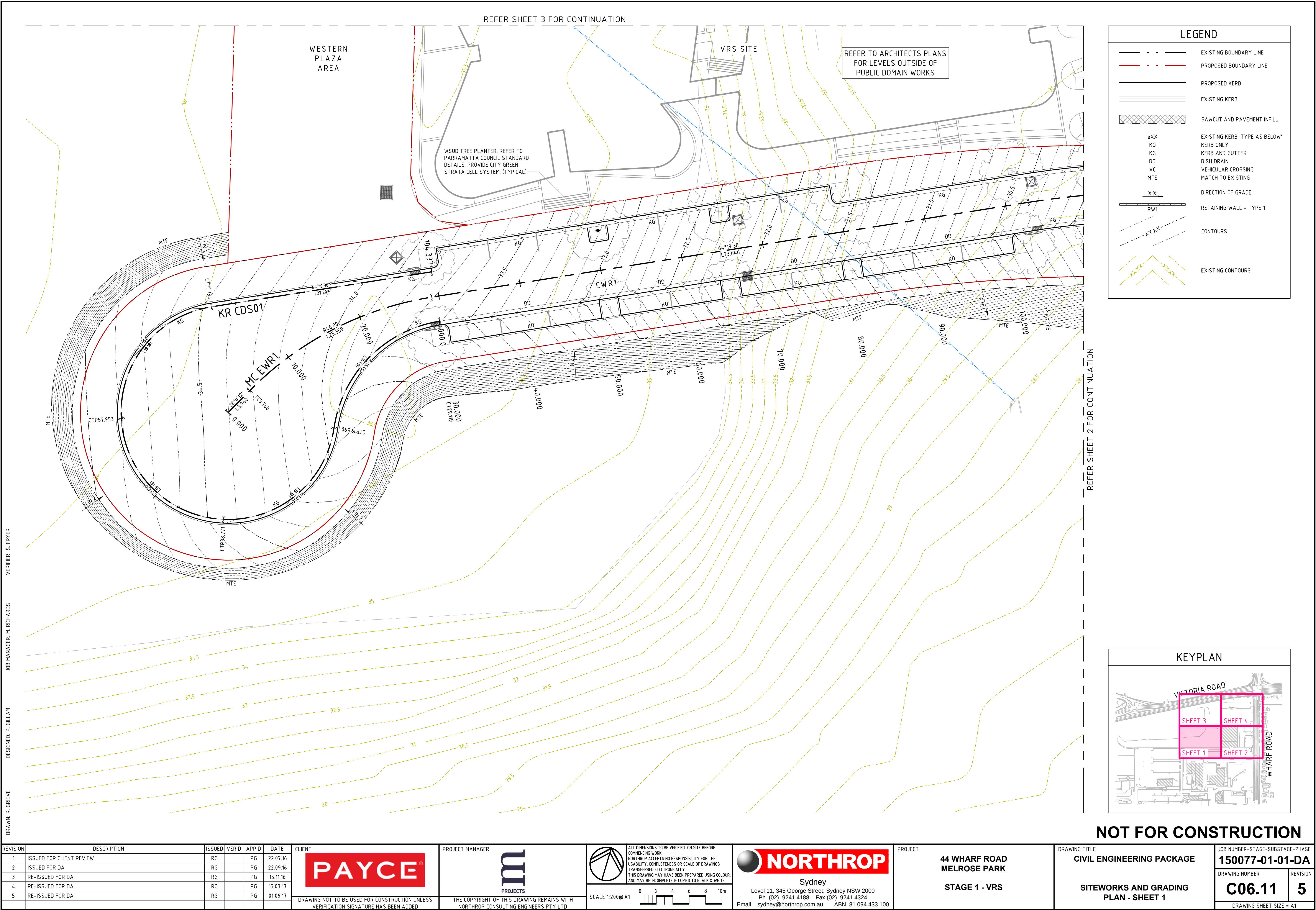
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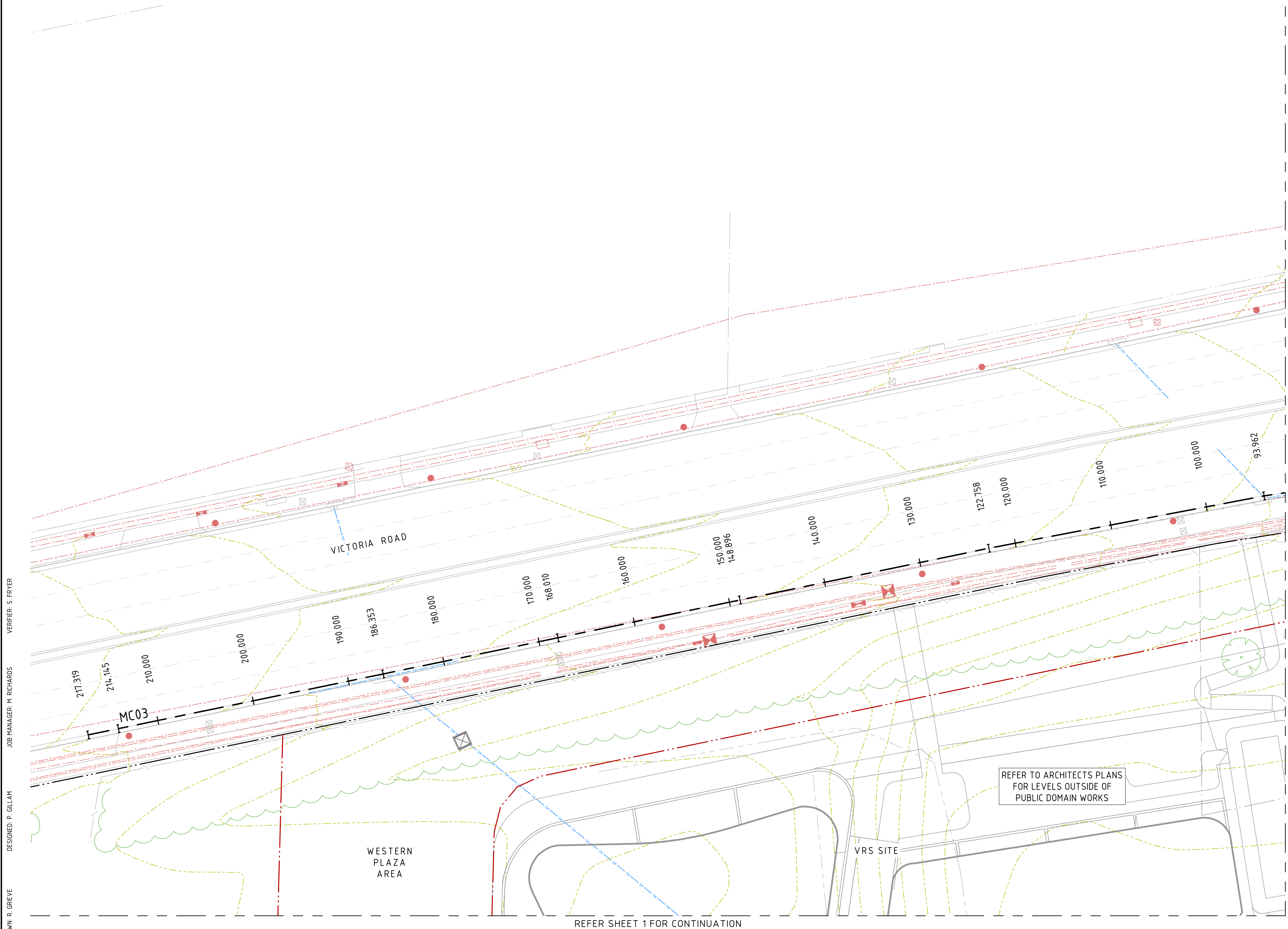
PROJECT
44 WHARF ROAD MELROSE PARK
STAGE 1 - VRS

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
SEDIMENT AND SOIL EROSION CONTROL DETAILS

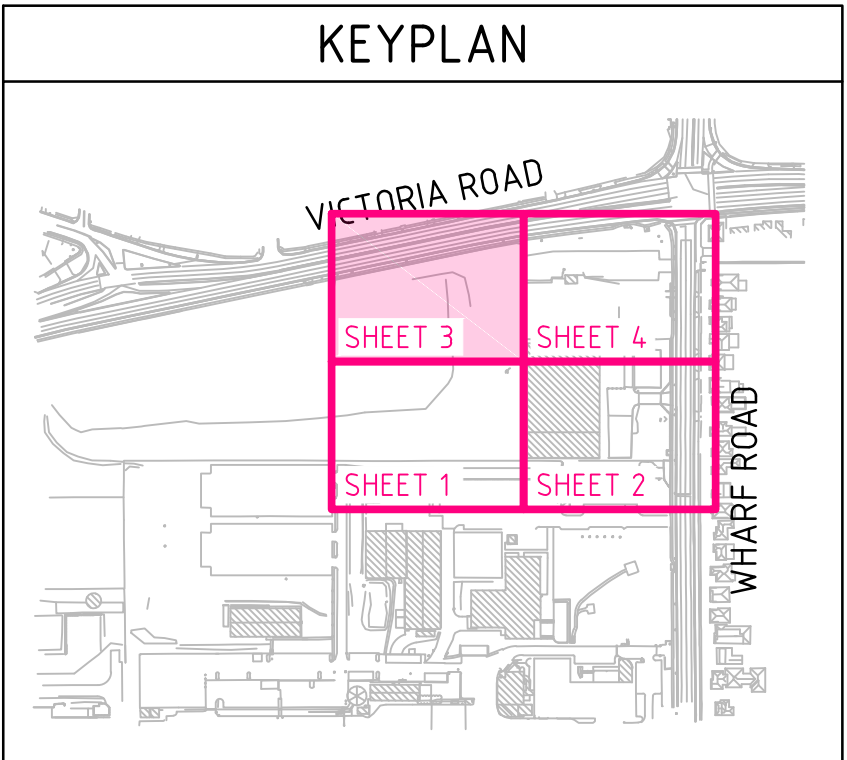
JOB NUMBER-STAGE-SUBSTAGE-PHASE
150077-01-01-DA
DRAWING NUMBER
C02.11
REVISION
5
DRAWING SHEET SIZE = A1



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DESIGNED: P. GILLAM
JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER



LEGEND	
	EXISTING BOUNDARY LINE
	PROPOSED BOUNDARY LINE
	PROPOSED KERB
	EXISTING KERB
	SAWCUT AND PAVEMENT INFILL
	EXISTING KERB 'TYPE AS BELOW'
	KERB ONLY
	KERB AND GUTTER
	DISH DRAIN
	VEHICULAR CROSSING
	MATCH TO EXISTING
	DIRECTION OF GRADE
	RETAINING WALL - TYPE 1
	CONTOURS
	EXISTING CONTOURS



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SCALE 1:200@A1

0 2 4 6 8 10m

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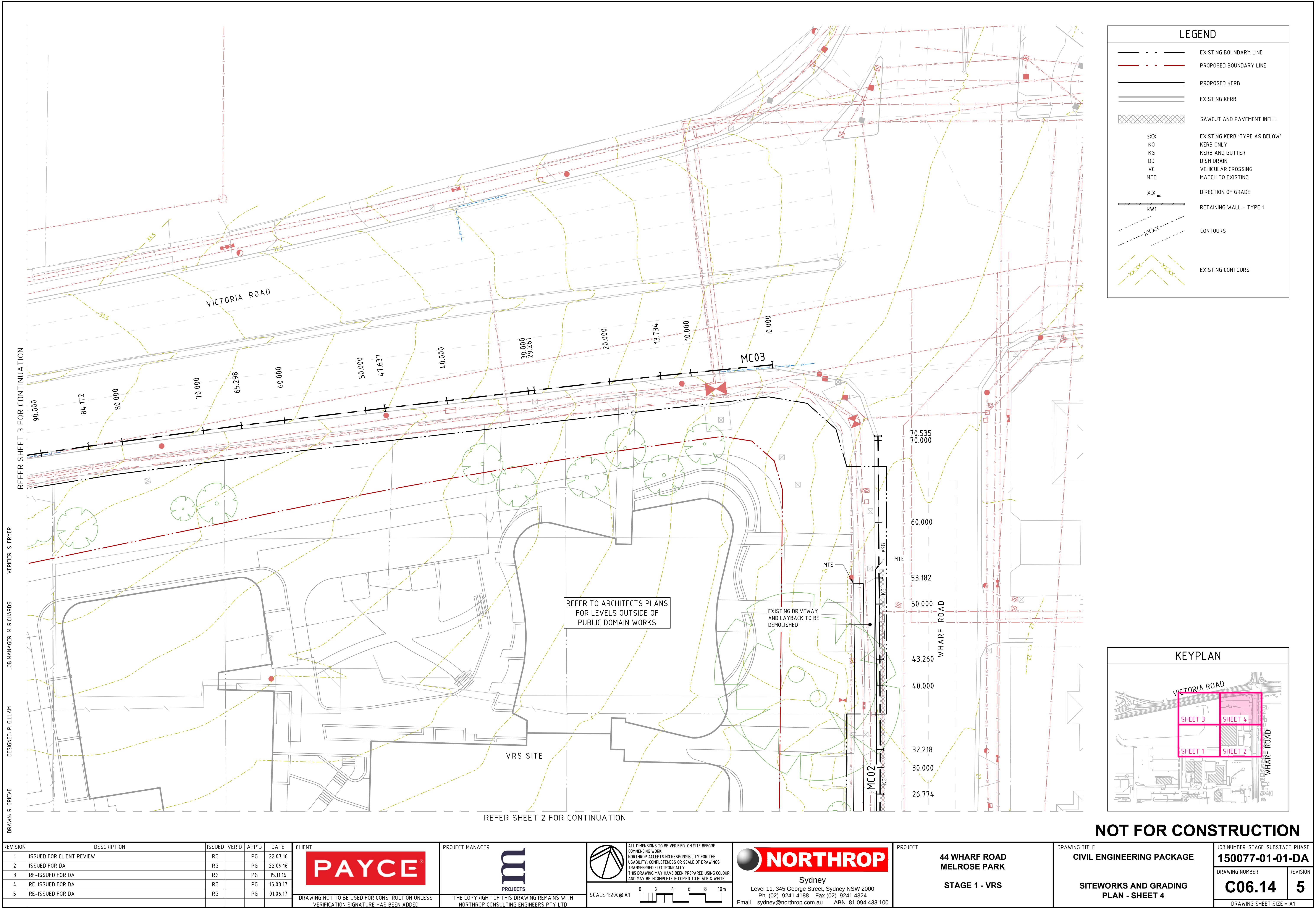
**SITEWORKS AND GRADING
PLAN - SHEET 3**

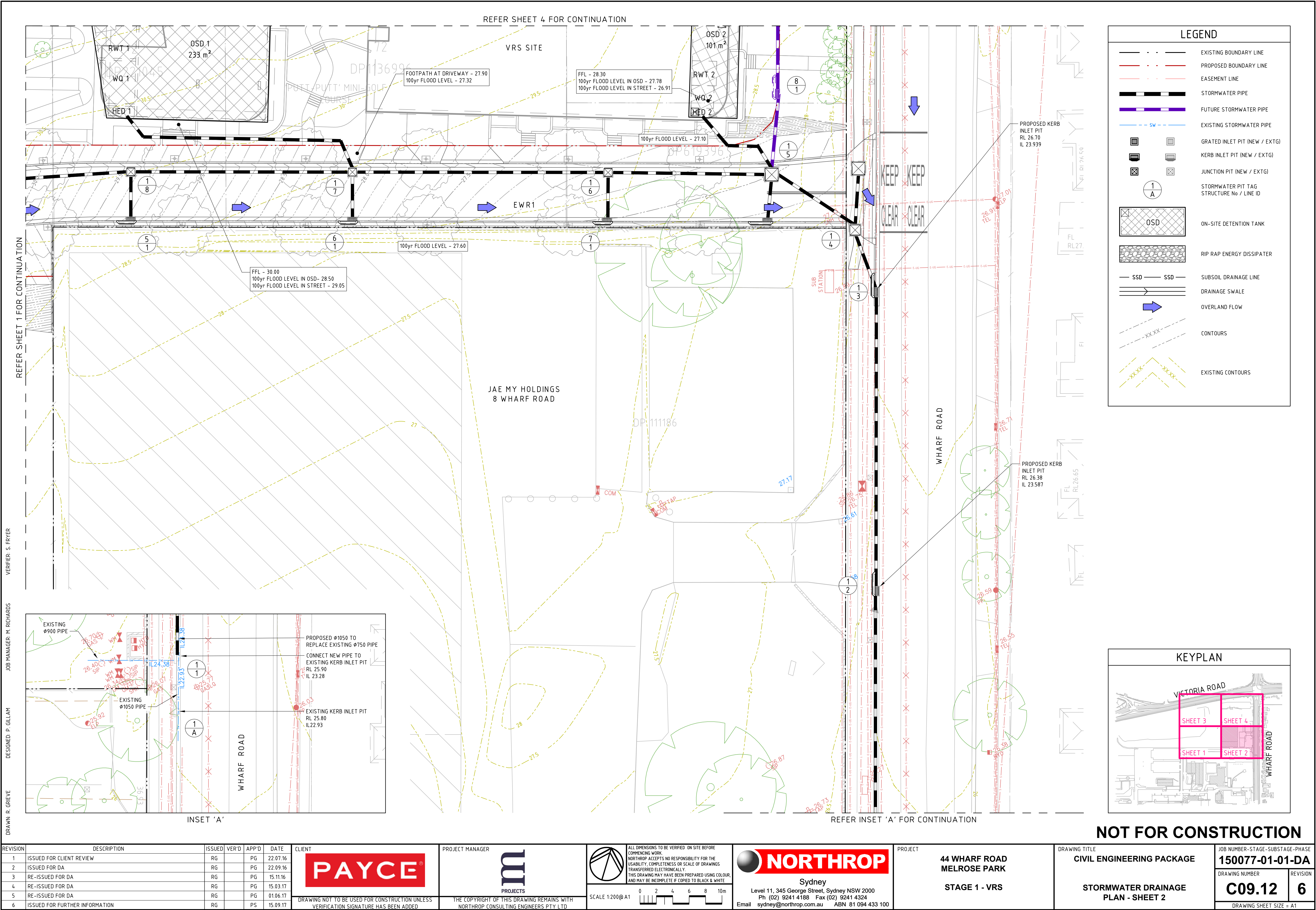
JOB NUMBER-STAGE-SUBSTAGE-PHASE

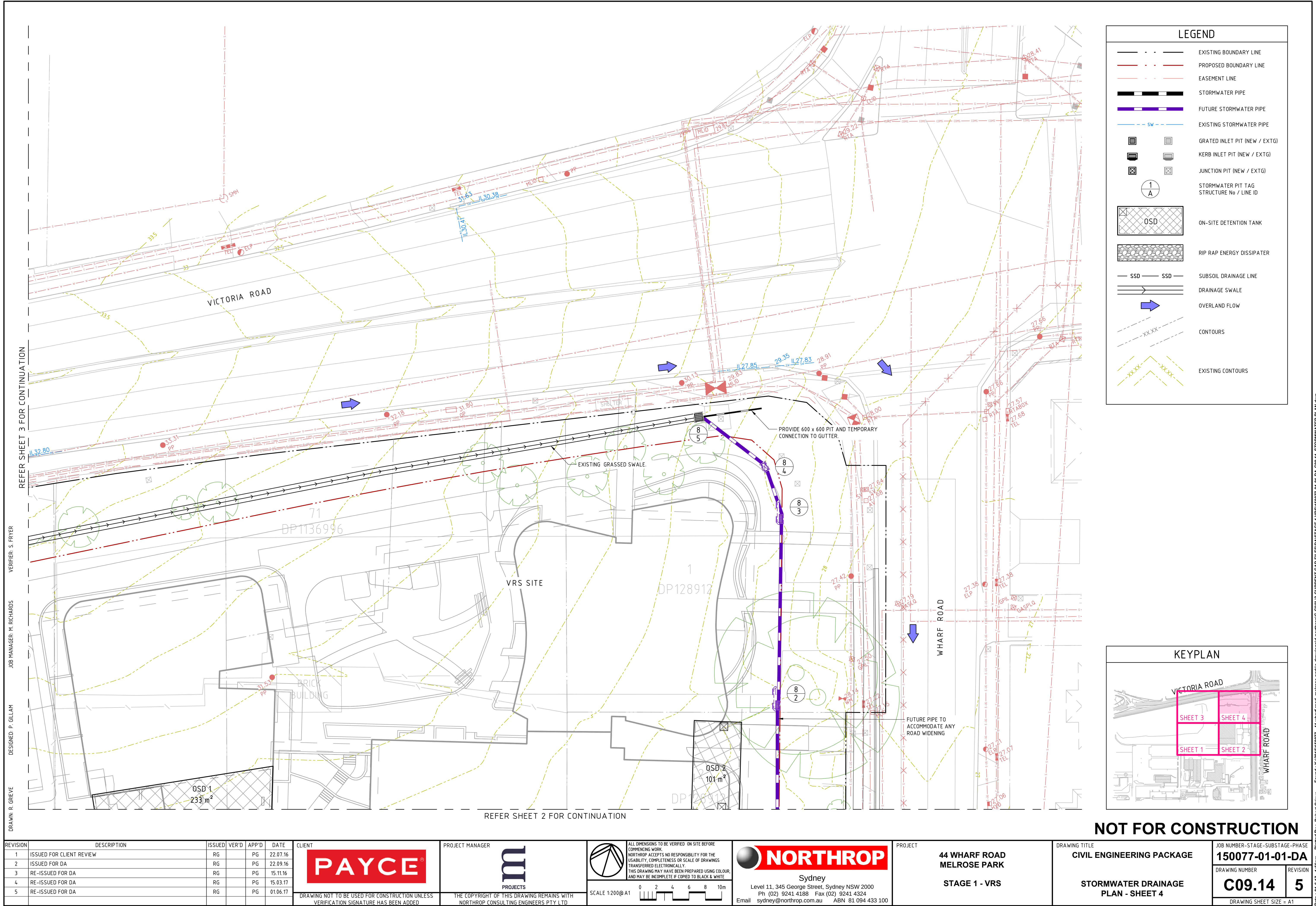
150077-01-01-DA

DRAWING NUMBER	REVISION
C06.13	5

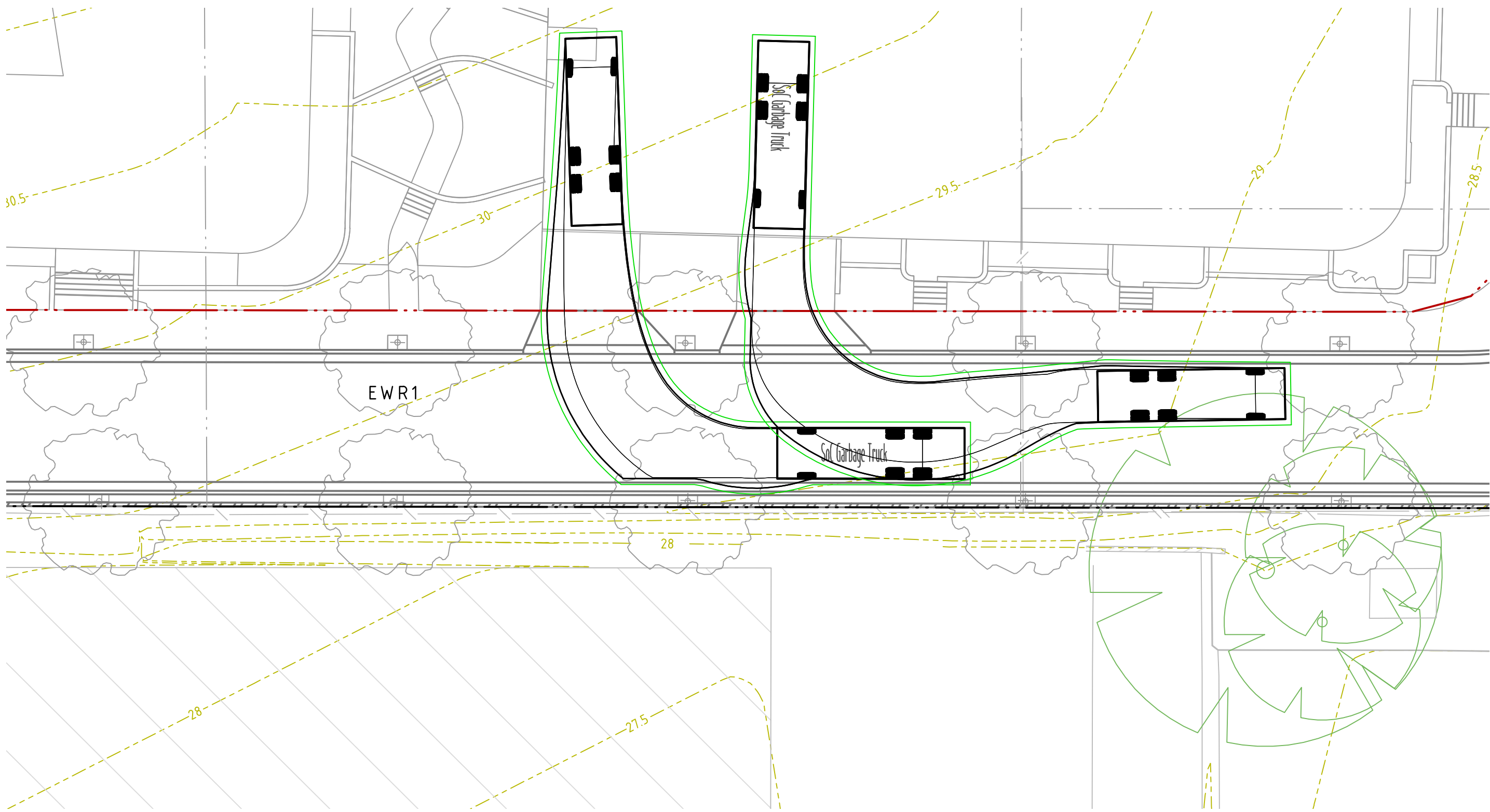
DRAWING SHEET SIZE = A1



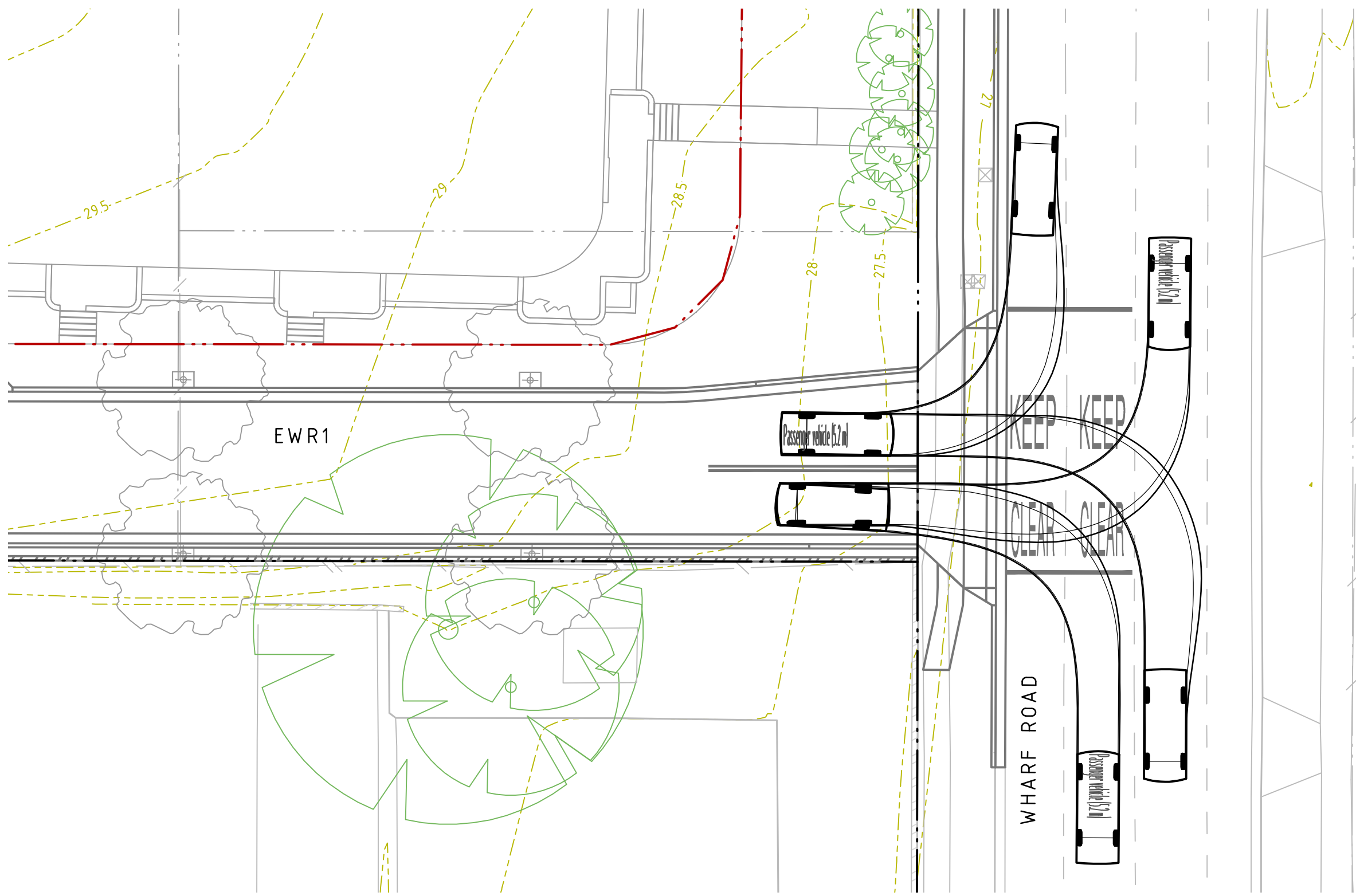




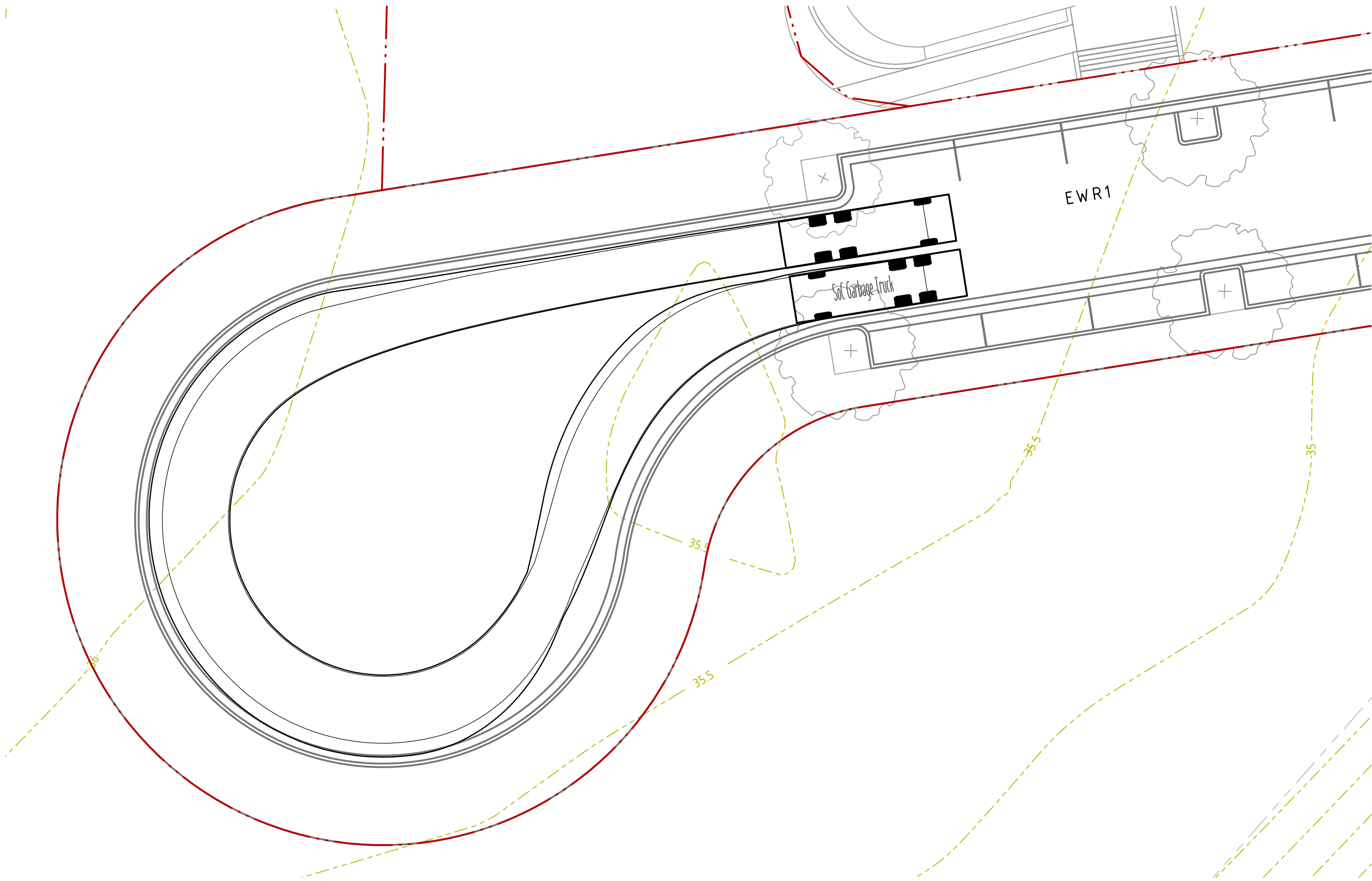
DRAWN: R. GRIEVE
DESIGNED: P. GILLAM
JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER



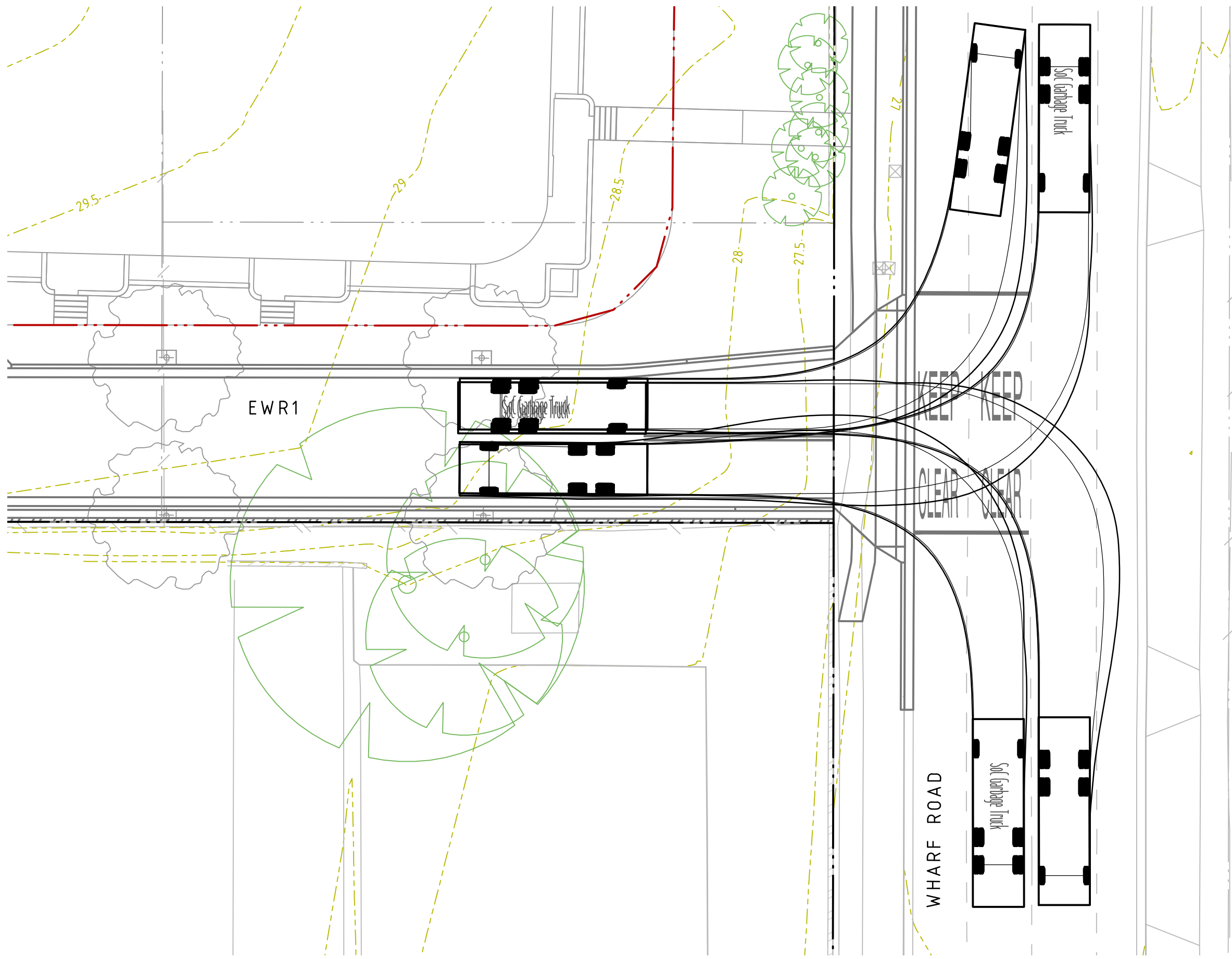
VRS SITE BASEMENT ENTRY / EXIT - 8.8m SERVICE VEHICLE



WHARF ROAD ENTRY / EXIT - 5.2m PASSENGER VEHICLE



INTERIM TURNING HEAD - 8.8m SERVICE VEHICLE



WHARF ROAD ENTRY / EXIT - 8.8m SERVICE VEHICLE

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	RG		PG	22.07.16
2	ISSUED FOR DA	RG		PG	22.09.16
3	RE-ISSUED FOR DA	RG		PG	15.11.16
4	RE-ISSUED FOR DA	RG		PG	15.03.17
5	RE-ISSUED FOR DA	RG		PG	01.06.17

CLIENT

PAYCE

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PROJECT MANAGER

m PROJECTS

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SCALE 1:200@A1

0 2 4 6 8 10m

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

**44 WHARF ROAD
MELROSE PARK**

STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

TURNING PATHS PLAN

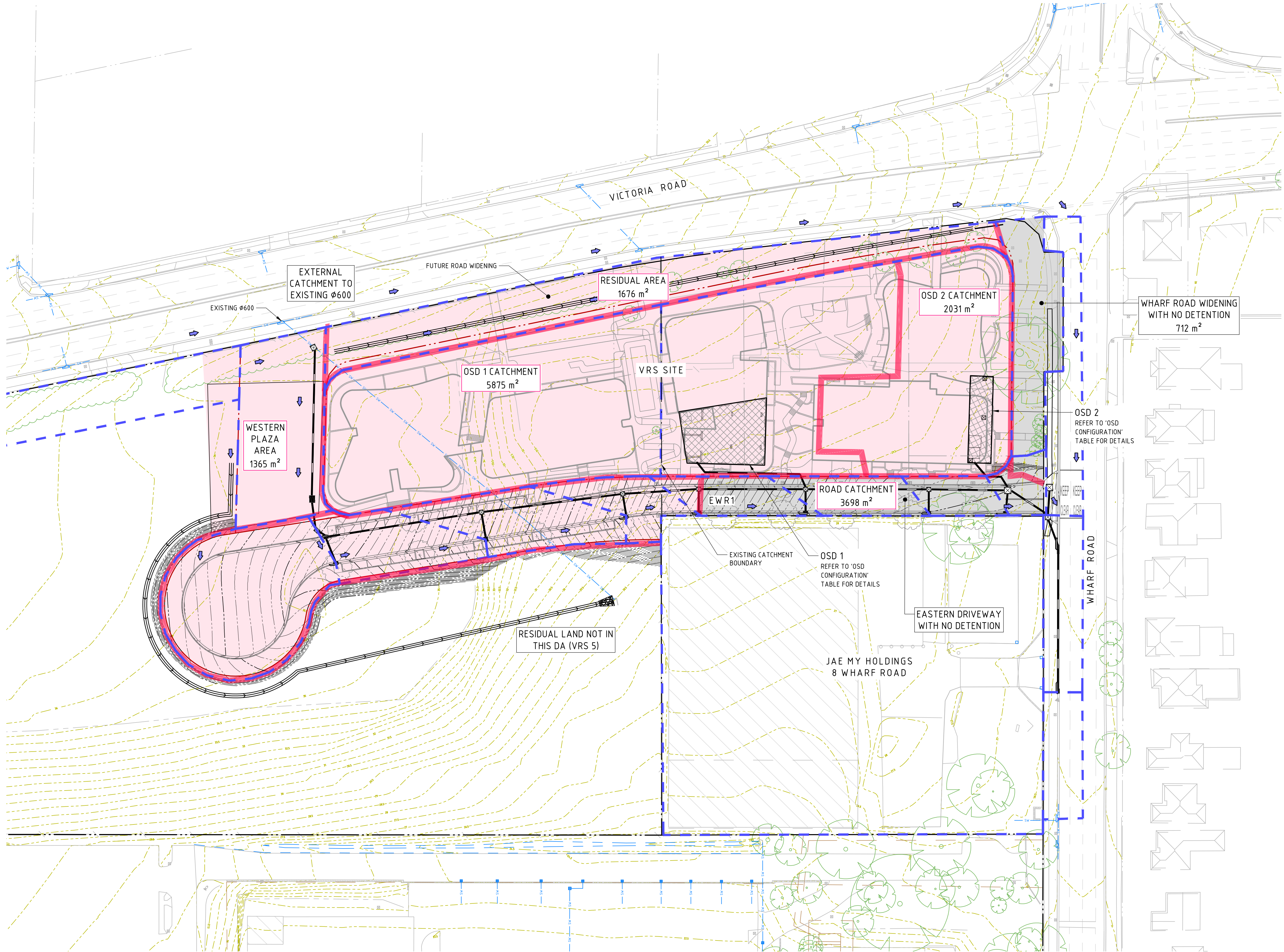
JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

DRAWING NUMBER	REVISION
C23.01	5

DRAWING SHEET SIZE = A1

DRAWN: R. GRIEVE
DESIGNED: P. GILLAM
JOB MANAGER: M. RICHARDS
VERIFIER: S. FRYER



LEGEND	
	OSD CATCHMENT BOUNDARY
	PIT CATCHMENT BOUNDARY
	CATCHMENT EXTENTS
	WHARF ROAD WIDENING WITH NO DETENTION
	DRAINAGE SWALE

SITE AREA CALCULATIONS	
SITE OSD CALCULATIONS	
TOTAL SITE AREA (Ha)	1.509
PUBLIC ROAD NOT REQUIRING OSD (Ha)	0.370
PRIVATE DEVELOPMENT AREAS REQUIRING OSD (Ha)	1.139
PRIVATE AREA BYPASSING OSD (Ha)	0.173
OSD RATE FOR NON UPRCT AREAS (m³/S/Ha)	-15%
PSD FOR PRIVATE LANDS (m³/s)	0.190
OSD VOLUMES AS MODELLING IN DRAINS (m³)	0.216
	450.000

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR PRE DA	RG		PG	26.08.16
2	ISSUED FOR DA	RG		PG	22.09.16
3	RE-ISSUED FOR DA	RG		PG	15.11.16
4	RE-ISSUED FOR DA	RG		PG	15.03.17
5	RE-ISSUED FOR DA	RG		PG	01.06.17

CLIENT

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PROJECT MANAGER

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SCALE 1:500@A1

0 5 10 15 20 25m

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PROJECT

**44 WHARF ROAD
MELROSE PARK**

STAGE 1 - VRS

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

CATCHMENT PLAN

JOB NUMBER-STAGE-SUBSTAGE-PHASE

150077-01-01-DA

DRAWING NUMBER

C24.01

REVISION

5

DRAWING SHEET SIZE = A1