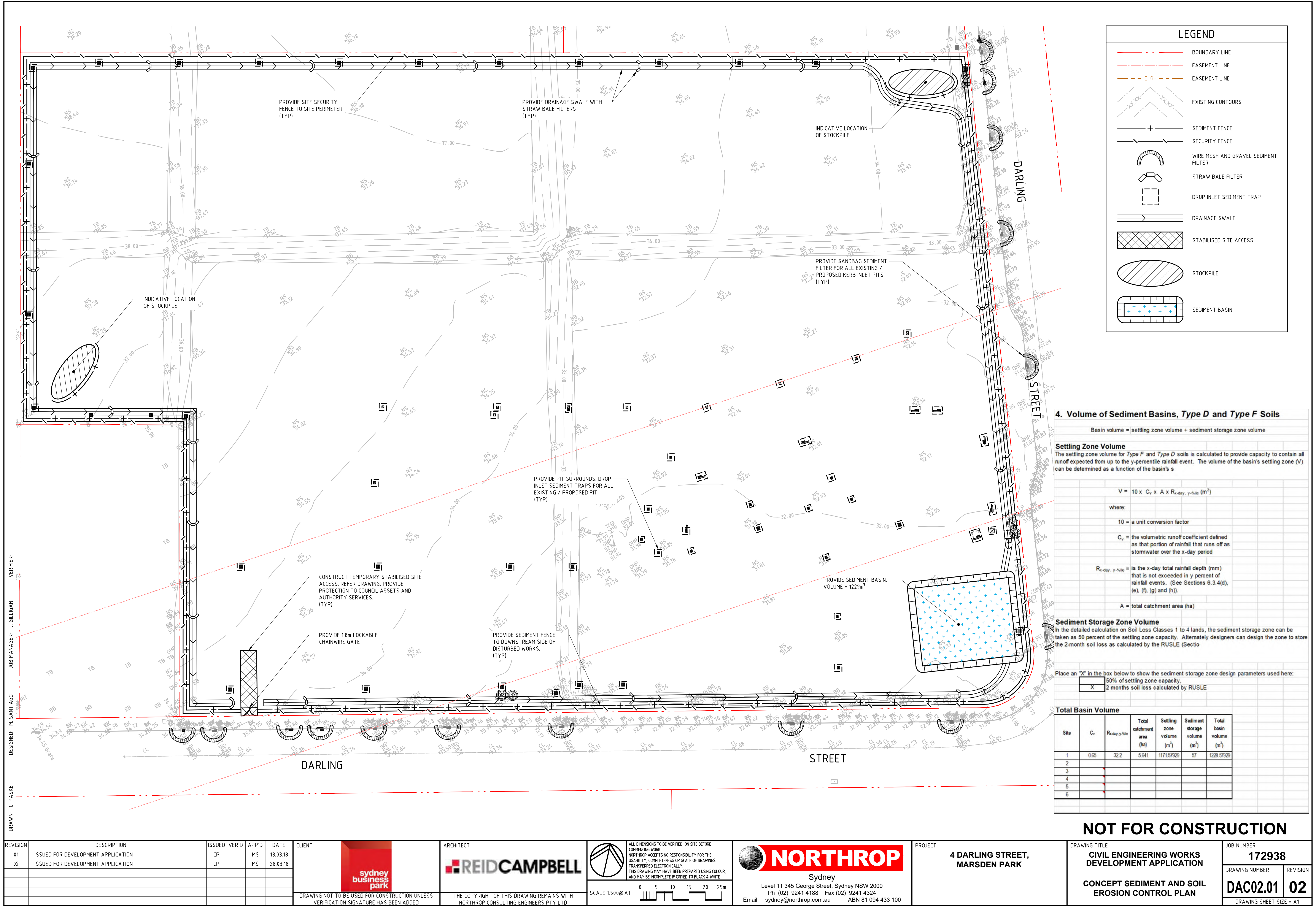
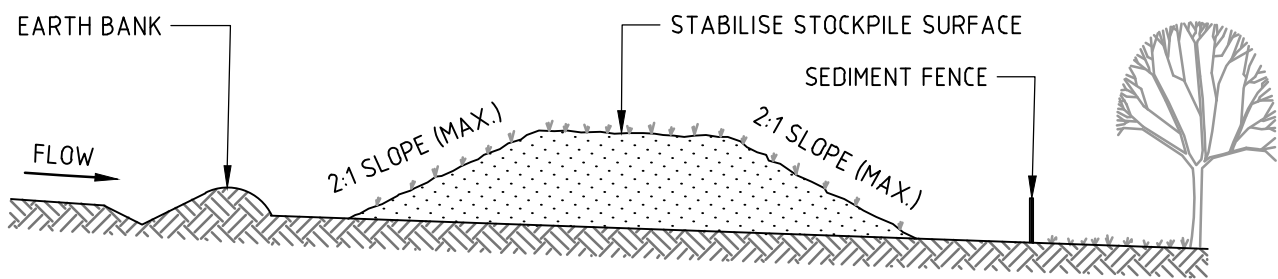



DRAWING SCHEDULE	
DRG No.	DRAWING TITLE
DAC01.01	COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN
DAC02.01	CONCEPT SEDIMENT AND SOIL EROSION CONTROL PLAN
DAC02.11	SEDIMENT AND SOIL EROSION CONTROL DETAILS
DAC03.01	EARTHWORKS CUT AND FILL PLAN
DAC04.01	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
DAC04.02	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
DAC04.03	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 03
DAC04.04	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 04
DAC05.11	STORMWATER LONGITUDINAL SECTIONS - SHEET 1
DAC05.12	STORMWATER LONGITUDINAL SECTIONS - SHEET 2
DAC05.13	STORMWATER LONGITUDINAL SECTIONS - SHEET 3
DAC05.14	STORMWATER LONGITUDINAL SECTIONS - SHEET 4
DAC05.15	STORMWATER LONGITUDINAL SECTIONS - SHEET 5
DAC05.20	STORMWATER ANALYSIS RESULTS
DAC06.01	BOUNDARY ALIGNMENT PLAN
DAC06.11	BOUNDARY LONGITUDINAL SECTION - SHEET 1
DAC06.12	BOUNDARY LONGITUDINAL SECTION - SHEET 2
DAC06.13	BOUNDARY LONGITUDINAL SECTION - SHEET 3
DAC08.01	CATCHMENT PLAN
DAC09.01	TYPICAL DETAILS - SHEET 01

DRAWN: C. PASKE DESIGNED: M. SANTIAGO JOB MANAGER: J. GILLIGAN VERIFIER:

REVISION		DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	 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	PROJECT	DRAWING TITLE	JOB NUMBER	
01		ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			SCALE 1:2500@A1 	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938	
02		ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18							
							DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED.	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD			COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN	DRAWING NUMBER DAC01.01	
												REVISION 02	DRAWING SHEET SIZE = A1

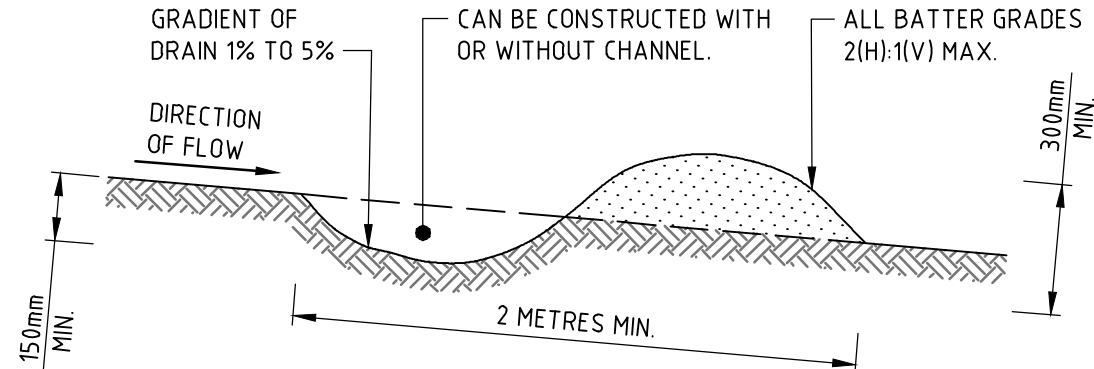




CONSTRUCTION NOTES

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.

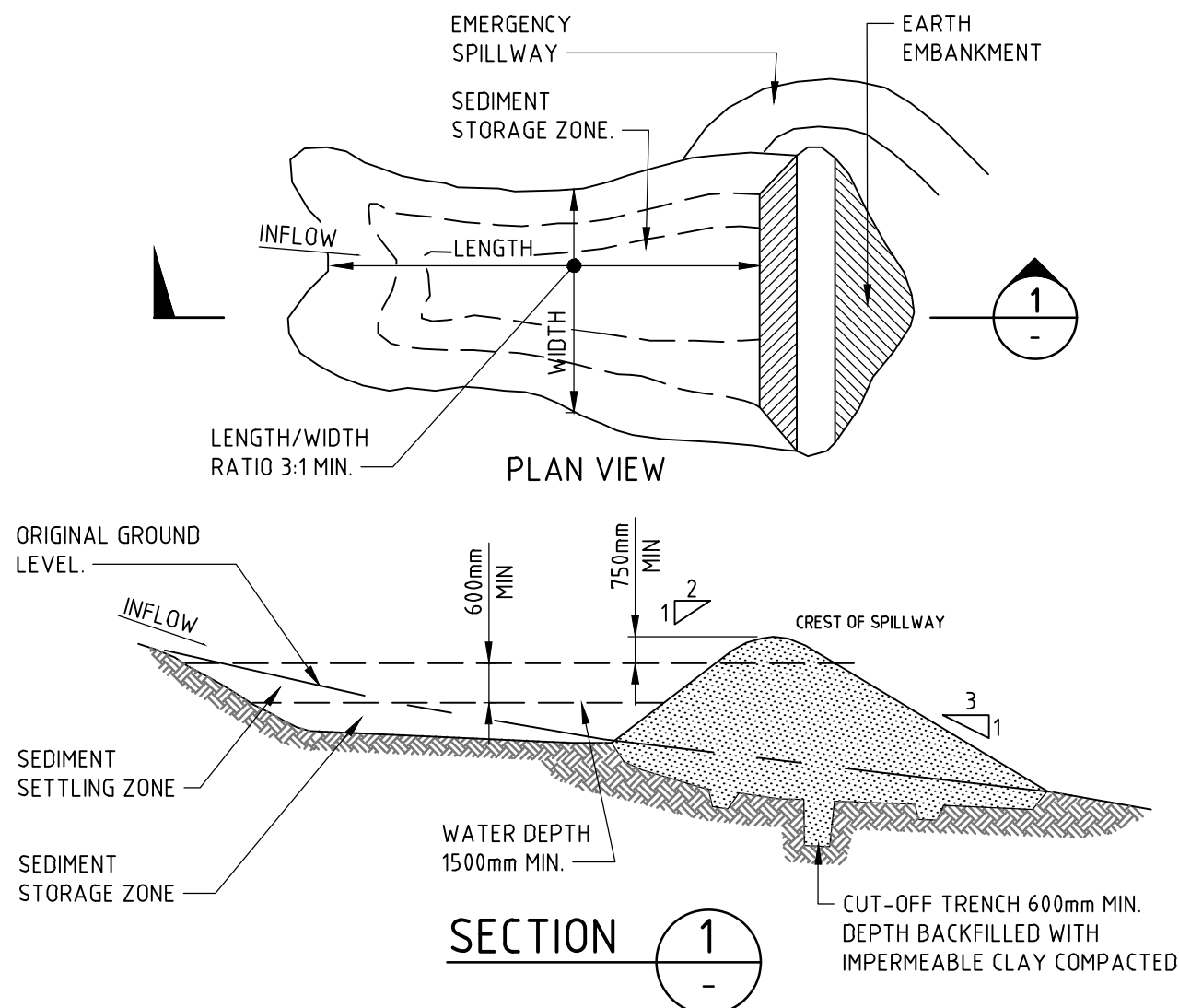
STOCKPILES



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

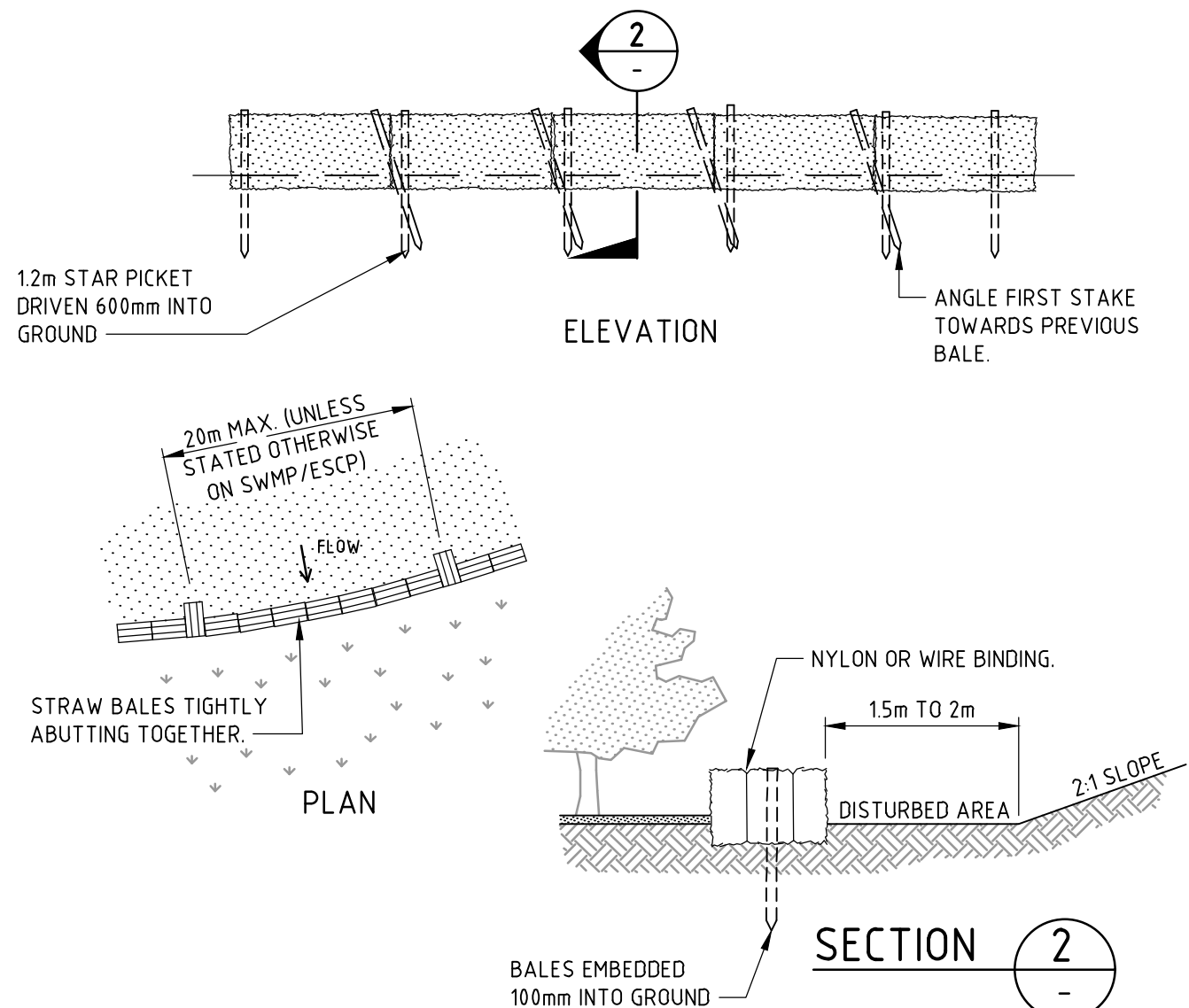
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES. EARTH BANK - LOW FLOW (DRAINAGE SWALE)



CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

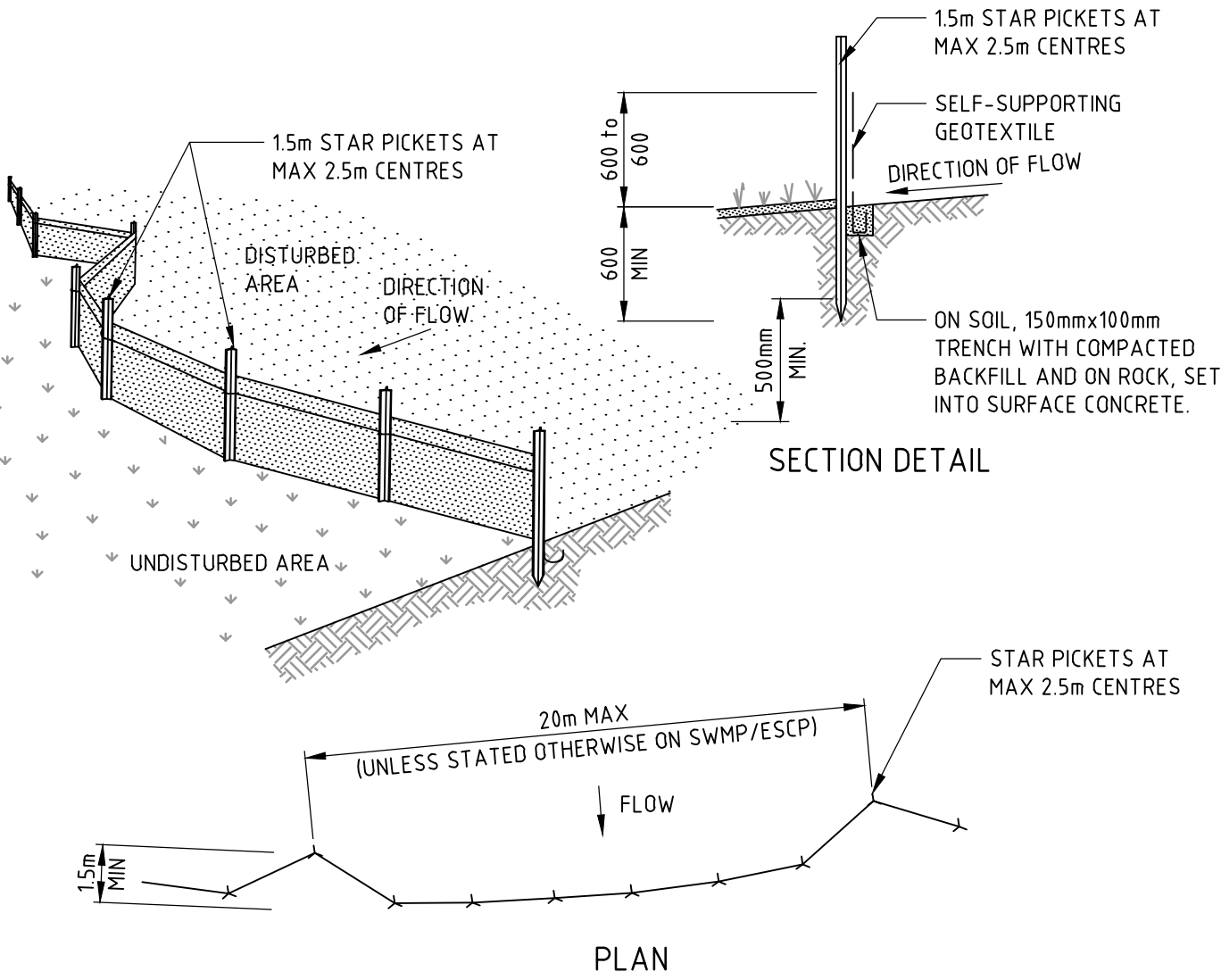
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) SEDIMENT BASIN



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 12 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

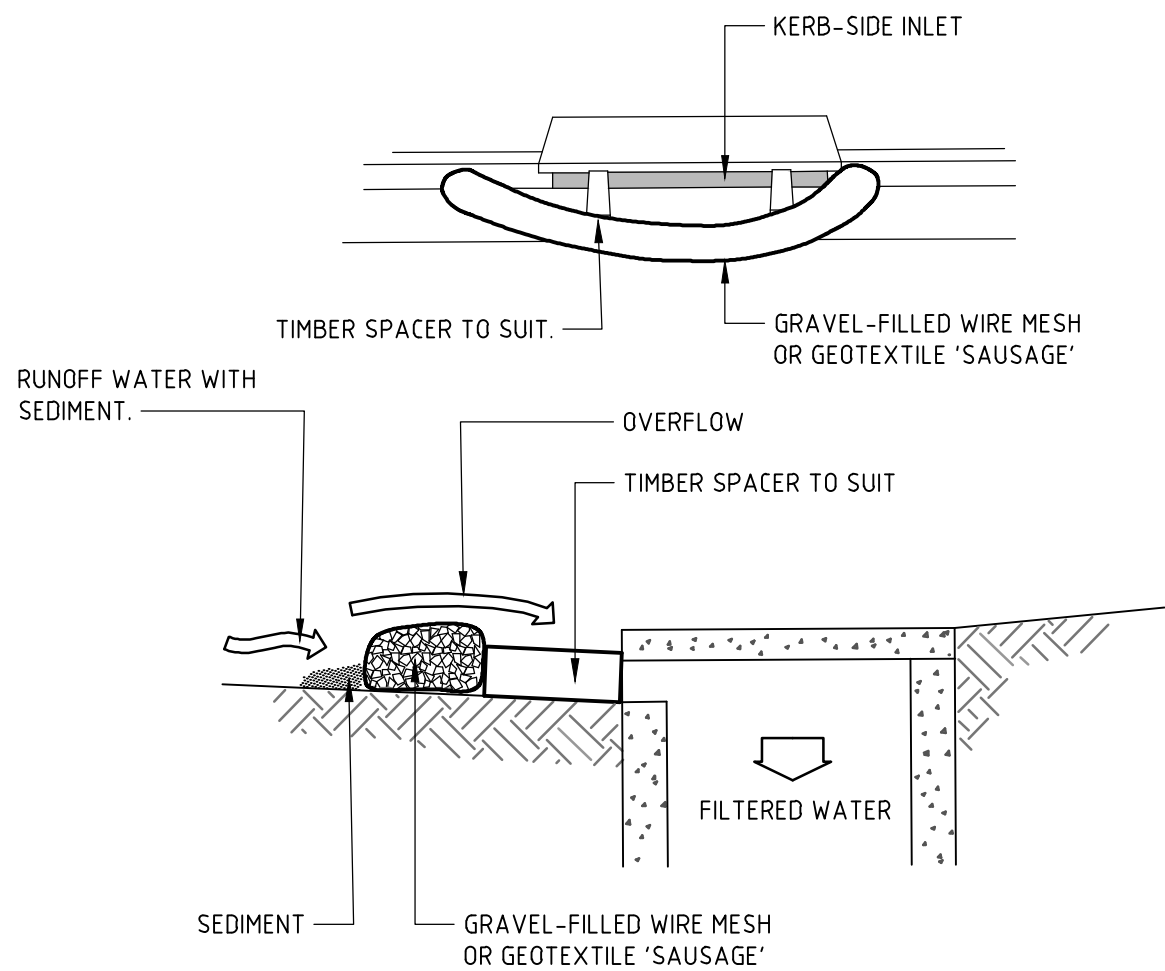
STRAW BALE FILTER



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.

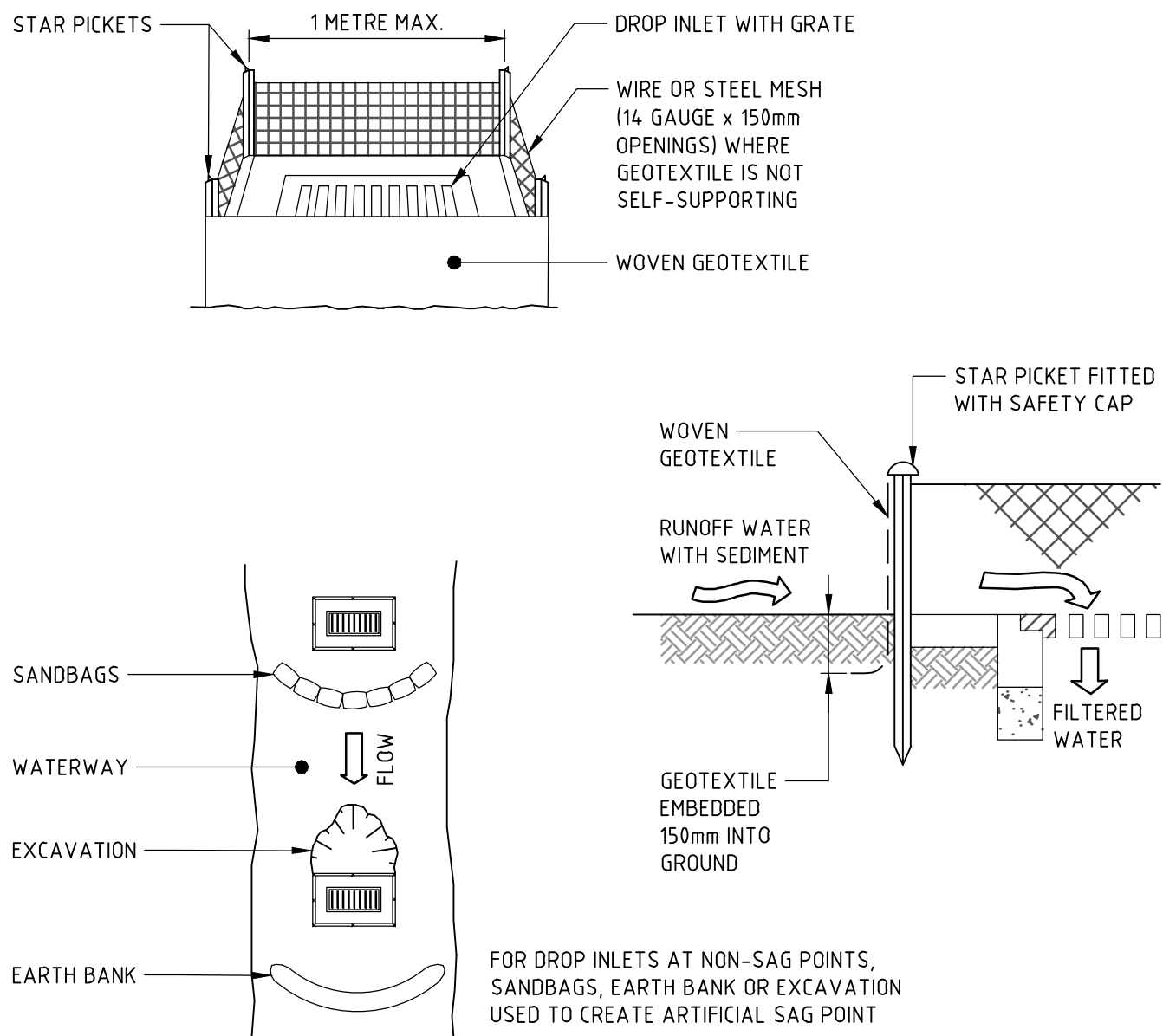
SEDIMENT FENCE



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-LOADED WATERS CANNOT PASS BETWEEN.

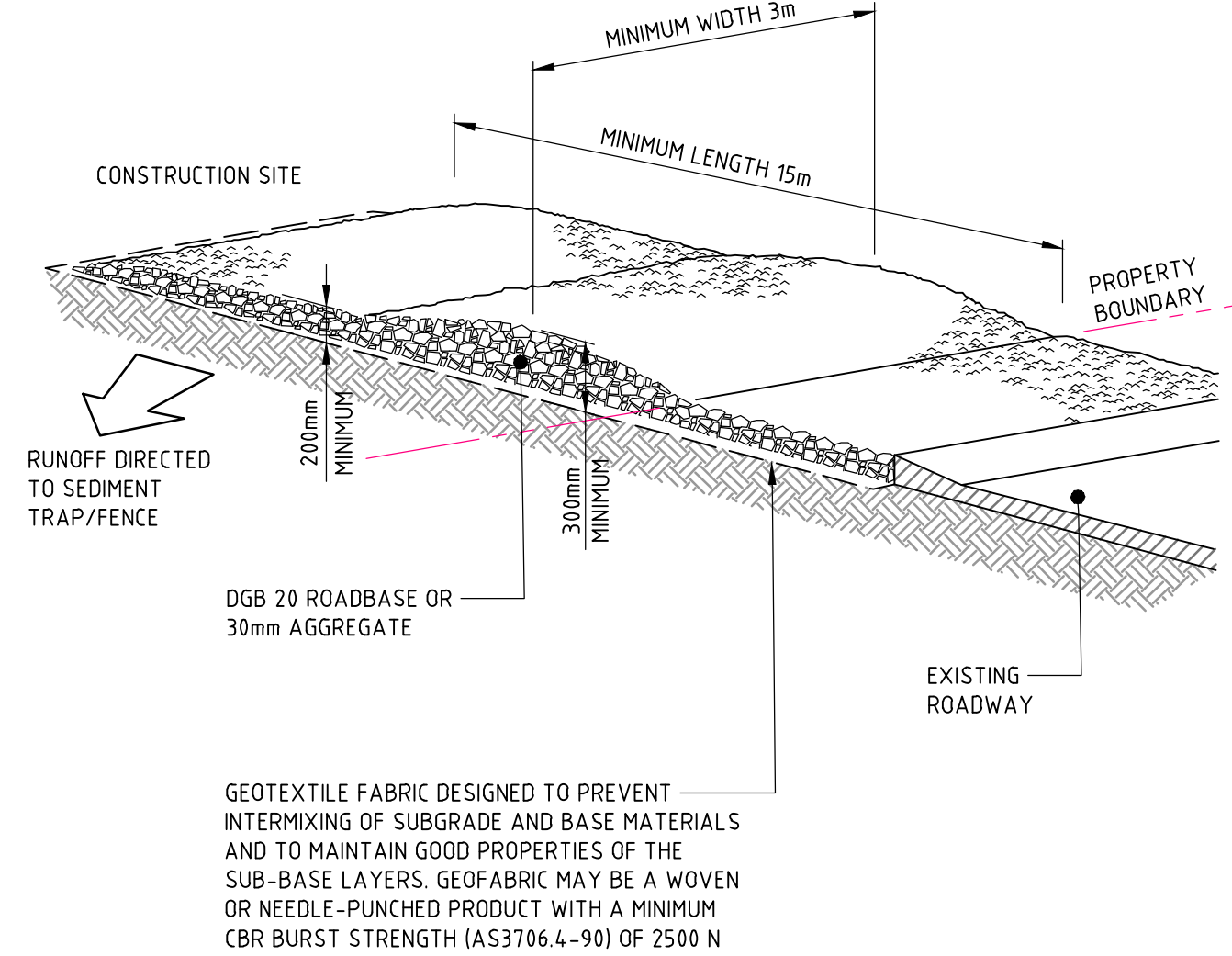
MESH AND GRAVEL INLET FILTER



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 GEOFABRIC. 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



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 HUMPS IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

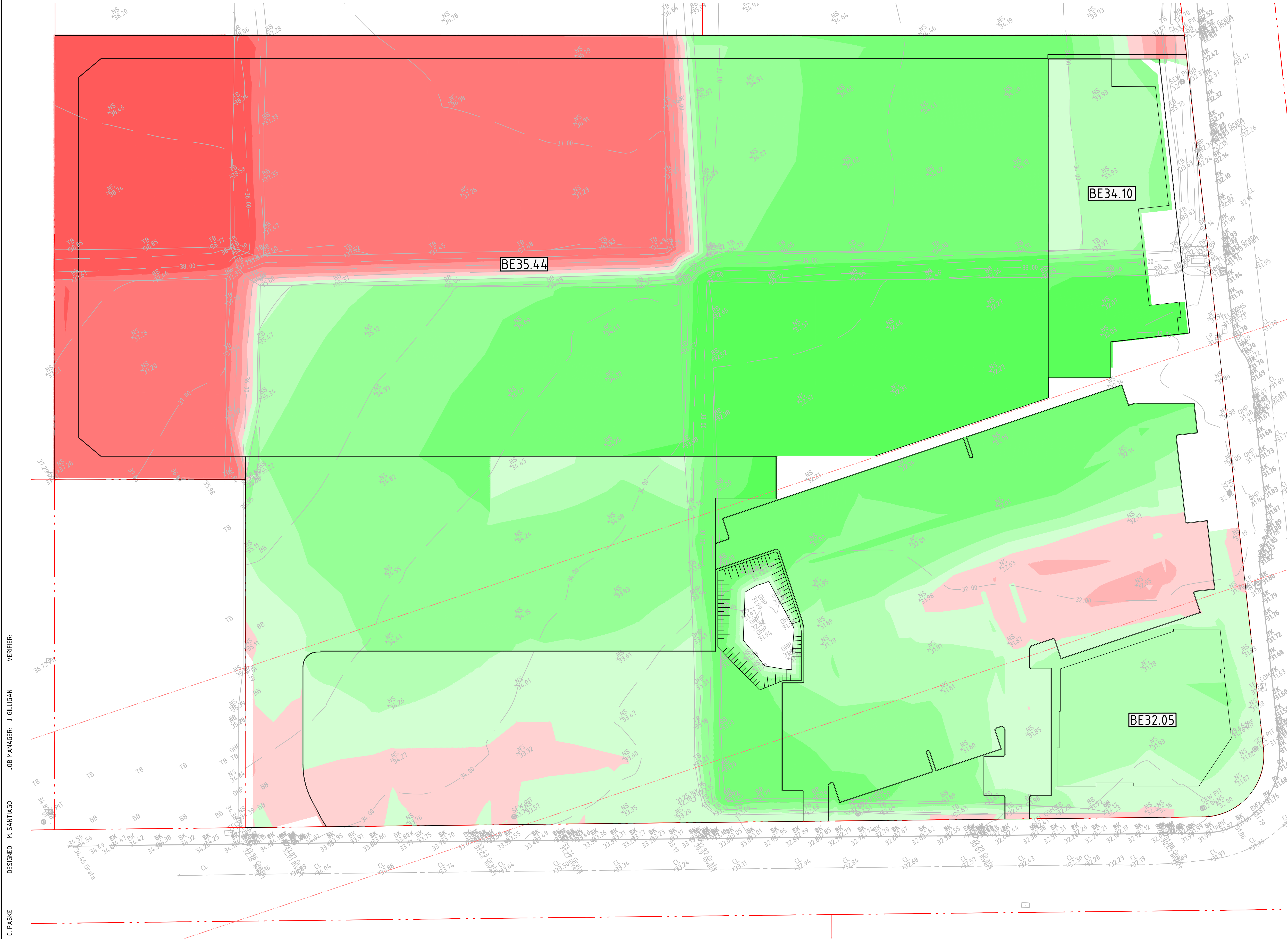
STABILISED SITE ACCESS

NOT FOR CONSTRUCTION

VERIFIER: J. GILLIGAN
JOB MANAGER: M. SANTIAGO
DESIGNED: C. PASKE
DRAWN: C. PASKE

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01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION SEDIMENT AND SOIL EROSION CONTROL DETAILS	172938	
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18						DRAWING NUMBER	REVISION
											DAC02.11	02
											DRAWING SHEET SIZE = A1	
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DESIGNED: M. SANTIAGO
DRAWN: C. PASKE
JOB MANAGER: J. GILLIGAN
VERIFIER:



LEGEND

BOUNDARY LINE

EASEMENT LINE

• RL.XX.XX

BULK EARTHWORKS SPOT HEIGHT

BEXX.XX

BULK EARTHWORKS PAD LEVEL

BATTERS

CONTOURS

DEPTH OF CUT

- 999m TO - 15.0m

- 15.0m TO - 10.0m

- 10.0m TO - 5.0m

- 5.0m TO - 2.0m

- 2.0m TO - 1.0m

- 1.0m TO - 0.5m

- 0.5m TO - 0.25m

- 0.25m TO - 0.0m

DEPTH OF FILL

0.0m TO 0.25m

0.25m TO 0.5m

0.5m TO 1.0m

1.0m TO 2.0m

2.0m TO 5.0m

5.0m TO 10.0m

10.0m TO 15.0m

15.0m TO 999m

LIMIT OF WORKS

LIMIT OF WORKS

GENERAL NOTES

APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS:

1. CUT 27 089 cu.m

2. FILL 30 046 cu.m

3. BALANCE 2 957 cu.m

4. NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.

PAVEMENT DEPTH ASSUMPTIONS:

LOADING DOCK - 330mm

CARPARK - 330mm

LANDSCAPED AREAS - 150mm

FOOTPATH AREAS - 150mm

FIRETRAIL - 250mm

WAREHOUSE SLAB - 310mm

OFFICE AND RETAIL SLAB - 150mm

ON HOLD

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01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18	sydney business park
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18	
03	ISSUED FOR INFORMATION	JO		TB	04.07.18	

sydney business park

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ARCHITECT

REIDCAMPBELL

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SCALE 1:800@A1

0 10 20 30 40m

NORTHROP

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

PROJECT

4 DARLING STREET, MARSDEN PARK

DRAWING TITLE

CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION

EARTHWORKS CUT AND FILL PLAN

JOB NUMBER

172938

DRAWING NUMBER

DAC03.01

REVISION

03

DRAWING SHEET SIZE = A1

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:



FOR CONTINUATION REFER TO SHEET 03

FOR CONTINUATION REFER TO SHEET 02

LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- EXISTING OVERHEAD TRANSMISSION LINE
- EXISTING TRANSMISSION TOWER
- PROPOSED KERB
- SAWCUT AND PAVEMENT INFILL
- K0
- KG
- RETAINING WALL - TYPE 1
- EXISTING RETAINING WALL
- CE
- CREST
- DIRECTION OF GRADE
- VEHICULAR CROSSING
- KR
- KERB RAMP
- WHEEL STOP
- BOLLARD
- ANTI-RAM BOLLARD
- KERB TAPER TO 0
- PROPOSED FINISHED FLOOR LEVEL
- PROPOSED BATTERS
- PROPOSED SPOT HEIGHT
- EXISTING SPOT HEIGHT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- GRATED INLET PIT (NEW / EXTG)
- KERB INLET PIT (NEW / EXTG)
- PROPOSED RAINWATER TANK
- PROPOSED WATER QUALITY TANK
- VEHICULAR CONCRETE PAVEMENT - TYPE '1'
- ASPHALT PAVEMENT - TYPE '2'
- CONCRETE PAVEMENT - TYPE '3'
- FIRE-TRAIL PAVEMENT - TYPE '4'
- LANDSCAPING

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03	ISSUED FOR INFORMATION	JO		TB	04.07.18



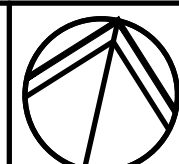
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PROJECT

4 DARLING STREET,
MARSDEN PARK

DRAWING TITLE

CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION

SITeworks AND STORMWATER
MANAGEMENT PLAN - SHEET 01

JOB NUMBER

172938

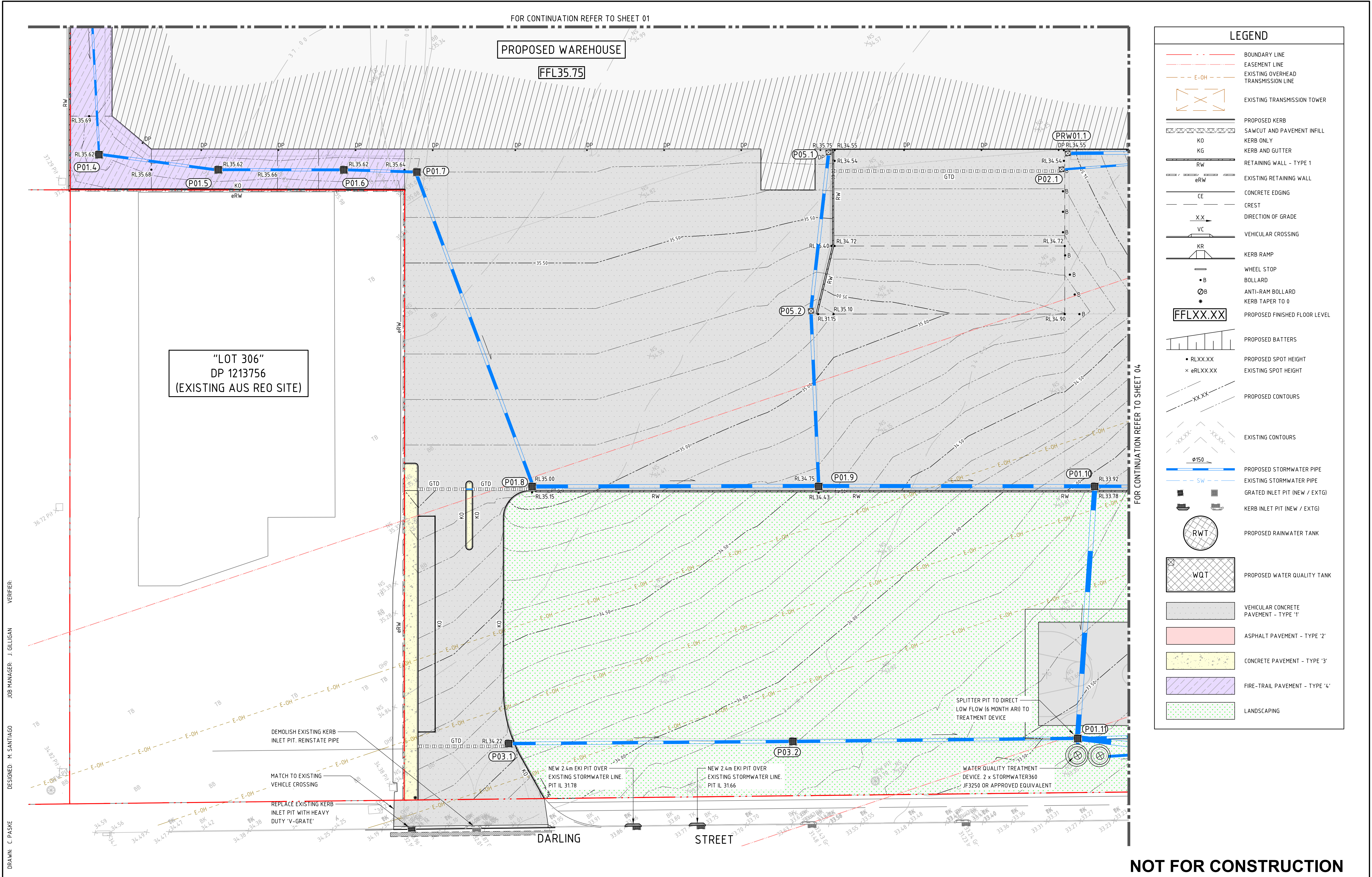
DRAWING NUMBER

DAC04.01

REVISION

03

DRAWING SHEET SIZE = A1



VERIFIER: J. GILLIGAN
JOB MANAGER: M. SANTIAGO
DESIGNED: C. PASKE
DRAWN: C. PASKE

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01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18				SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 03	DAC04.03
03	ISSUED FOR INFORMATION	JO		TB	04.07.18					REVISION
										03
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SCALE 1:250 @ A1

0 2 4 6 8 10 12m

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FOR CONTINUATION REFER TO SHEET 03

VERIFIER:

JOB MANAGER: J. GILLIGAN

DESIGNED: M. SANTIAGO

DRAWN: C. PASKE

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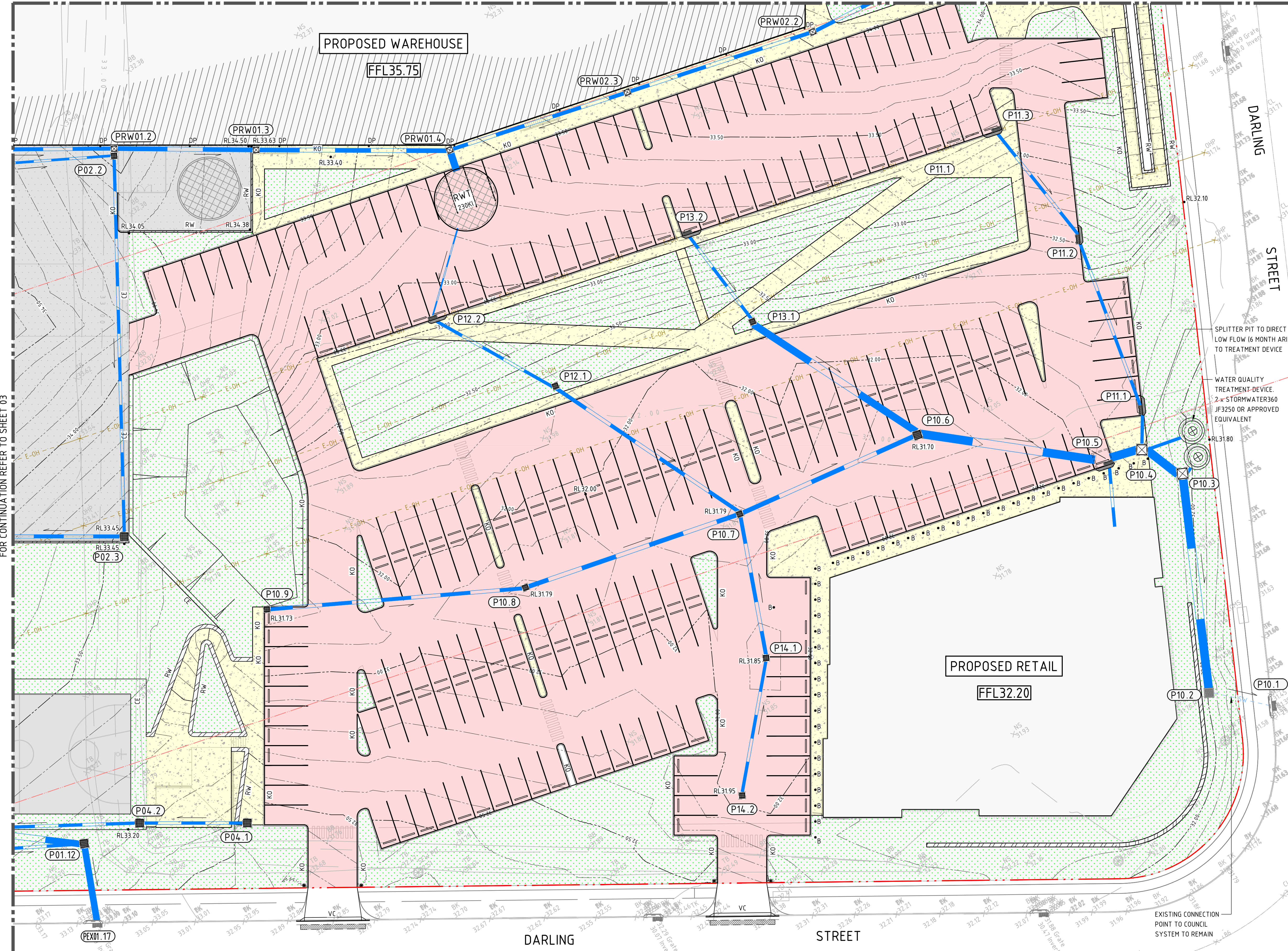
NORTHROP	PROJECT
Sydney	4 DARLING STREET, MARSDEN PARK
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Email sydney@northrop.com.au	
ABN 81 094 433 100	

DRAWING TITLE	JOB NUMBER
CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938
SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 04	DAC04.04
	REVISION 03
	DRAWING SHEET SIZE = A1

NOT FOR CONSTRUCTION

LEGEND

	BOUNDARY LINE
	EASEMENT LINE
	EXISTING OVERHEAD TRANSMISSION LINE
	EXISTING TRANSMISSION TOWER
	PROPOSED KERB
	SAWCUT AND PAVEMENT INFILL
	KERB ONLY
	KERB AND GUTTER
	RETAINING WALL - TYPE 1
	EXISTING RETAINING WALL
	CONCRETE EDGING
	CREST
	DIRECTION OF GRADE
	VEHICULAR CROSSING
	KERB RAMP
	WHEEL STOP
	BOLLARD
	ANTI-RAM BOLLARD
	KERB TAPER TO 0
	PROPOSED FINISHED FLOOR LEVEL
	PROPOSED BATTERS
	PROPOSED SPOT HEIGHT
	EXISTING SPOT HEIGHT
	PROPOSED CONTOURS
	EXISTING CONTOURS
	PROPOSED STORMWATER PIPE
	EXISTING STORMWATER PIPE
	GRADED INLET PIT (NEW / EXTG)
	KERB INLET PIT (NEW / EXTG)
	PROPOSED RAINWATER TANK
	PROPOSED WATER QUALITY TANK
	VEHICULAR CONCRETE PAVEMENT - TYPE '1'
	ASPHALT PAVEMENT - TYPE '2'
	CONCRETE PAVEMENT - TYPE '3'
	FIRE-TRAIL PAVEMENT - TYPE '4'
	LANDSCAPING

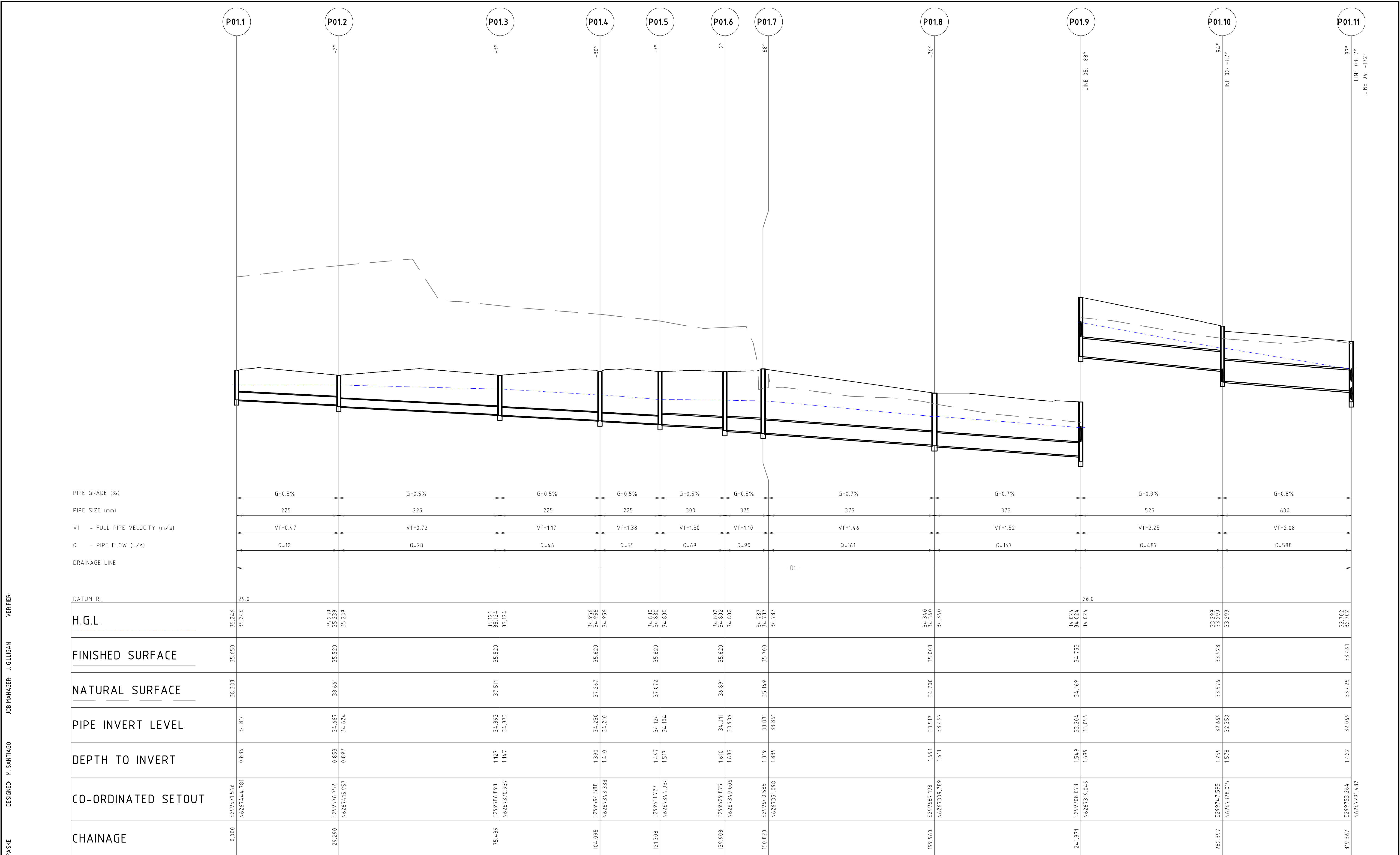


SPLITTER PIT TO DIRECT LOW FLOW (6 MONTH ARI) TO TREATMENT DEVICE

WATER QUALITY TREATMENT DEVICE. 2x STORMWATER360 JF3250 OR APPROVED EQUIVALENT

EXISTING CONNECTION POINT TO COUNCIL SYSTEM TO REMAIN

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:



LINE 01

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER	
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18	 DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	 THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE  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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION STORMWATER LONGITUDINAL SECTIONS SHEET 1	172938	
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18						DRAWING NUMBER	REVISION
											DAC05.11	02
											DRAWING SHEET SIZE = A1	

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:

PIPE GRADE (%)
PIPE SIZE (mm)
VF - FULL PIPE VELOCITY (m/s)
Q - PIPE FLOW (L/s)
DRAINAGE LINE

DATUM RL
H.G.L.

FINISHED SURFACE

NATURAL SURFACE

PIPE INVERT LEVEL

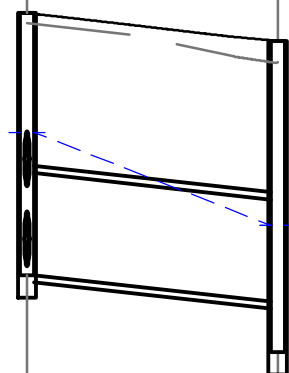
DEPTH TO INVERT

CO-ORDINATED SETOUT

CHAINAGE

P01.11

LINE 03: 7°
LINE 04: -172°



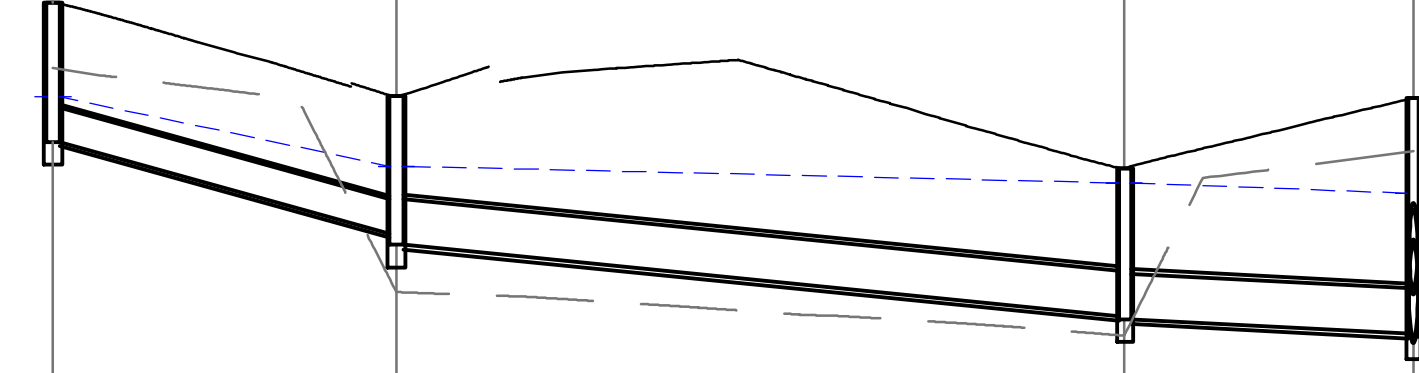
P01.12

74°

P02.1

P02.2

93°



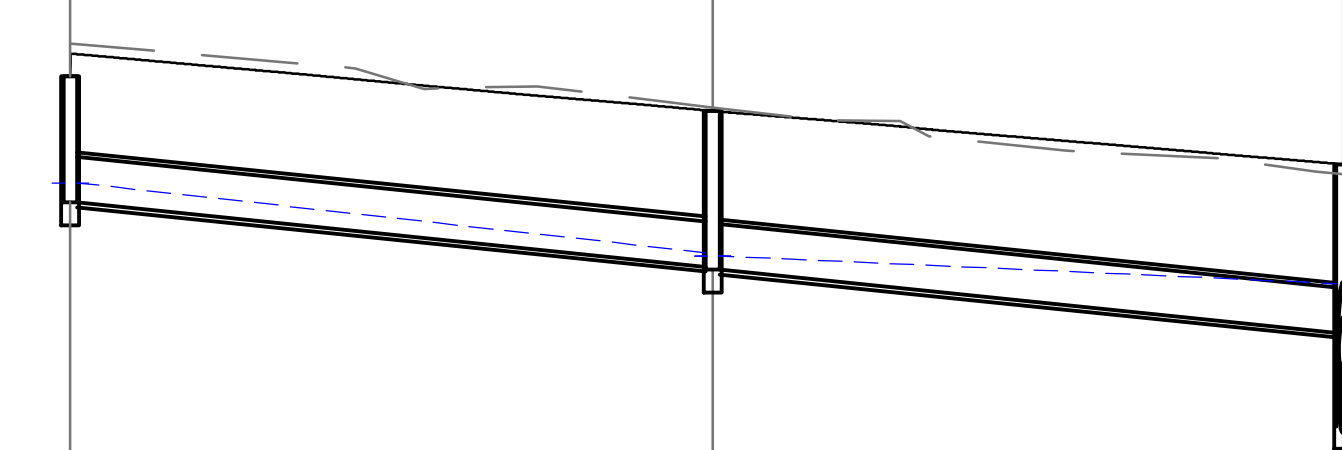
P02.3

91°

P01.10

LINE 01

P03.1



P03.2

-2°

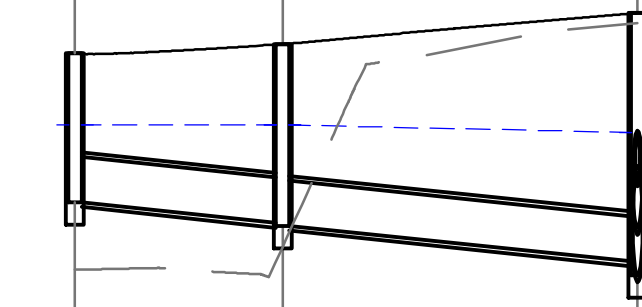
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LINE 01

P04.1

P04.2

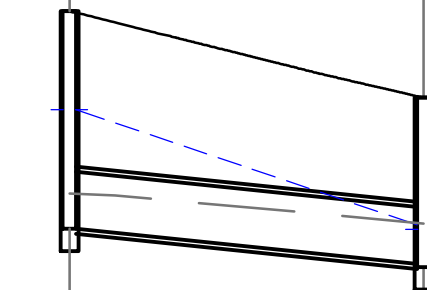
-1°



P01.11

LINE 01

P05.1



P05.2

-9°

LINE 01

LINE 02

LINE 03

LINE 04

LINE 05

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18

CLIENT	
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ARCHITECT	
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PROJECT	4 DARLING STREET, MARSDEN PARK
---------	-----------------------------------

DRAWING TITLE	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION
STORMWATER LONGITUDINAL SECTIONS SHEET 2	

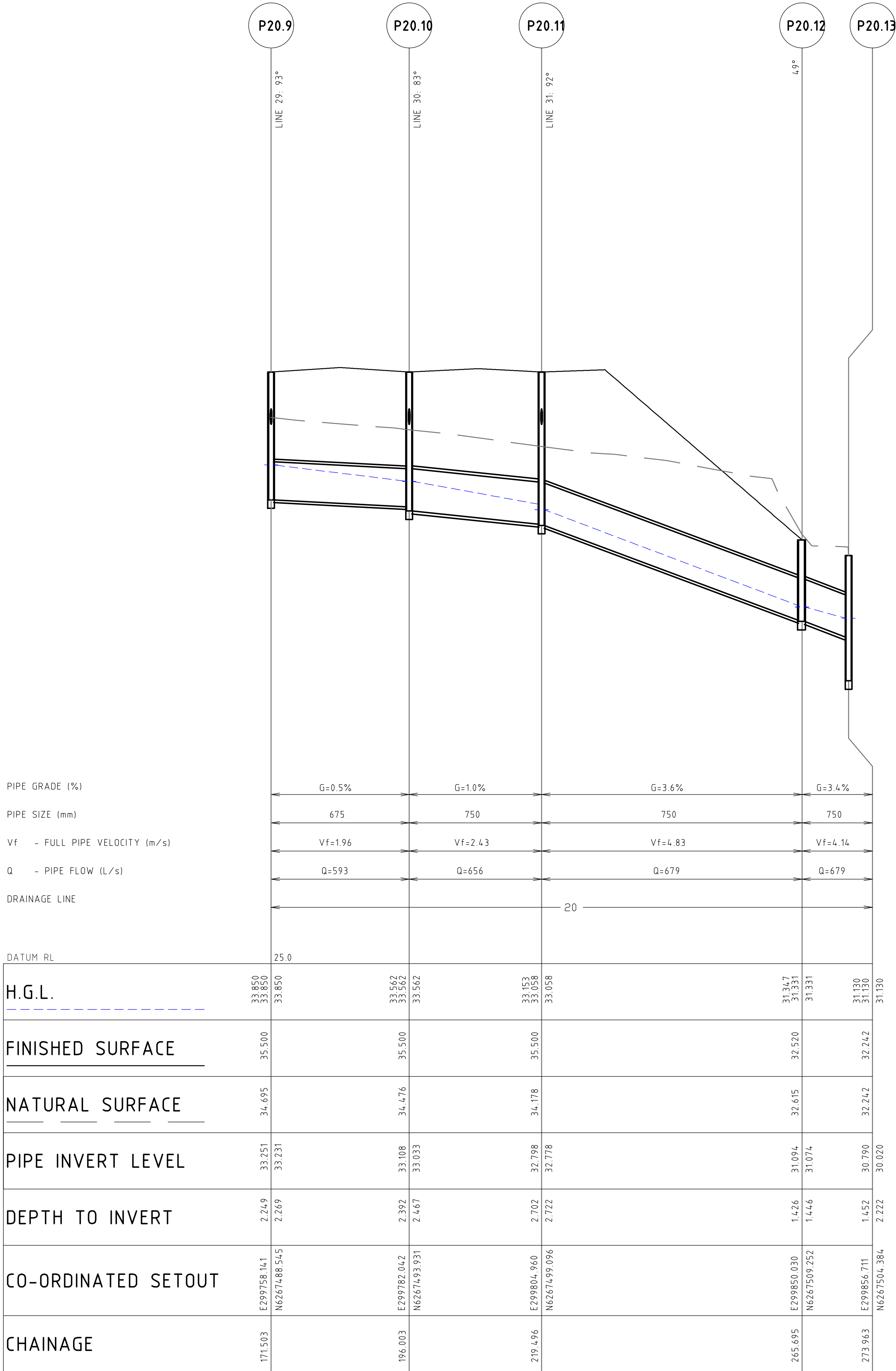
JOB NUMBER	172938
DRAWING NUMBER	DAC05.12
REVISION	02
DRAWING SHEET SIZE = A1	

LINE 12

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER		
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE  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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION STORMWATER LONGITUDINAL SECTIONS SHEET 3	172938		
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18							DRAWING NUMBER	REVISION
												DAC05.13	02
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD	DRAWING SHEET SIZE = A1					

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:



LINE 20

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER				
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938			
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18									DRAWING NUMBER	REVISION
														DAC05.15	02
														DRAWING SHEET SIZE = A1	
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD			STORMWATER LONGITUDINAL SECTIONS SHEET 5					

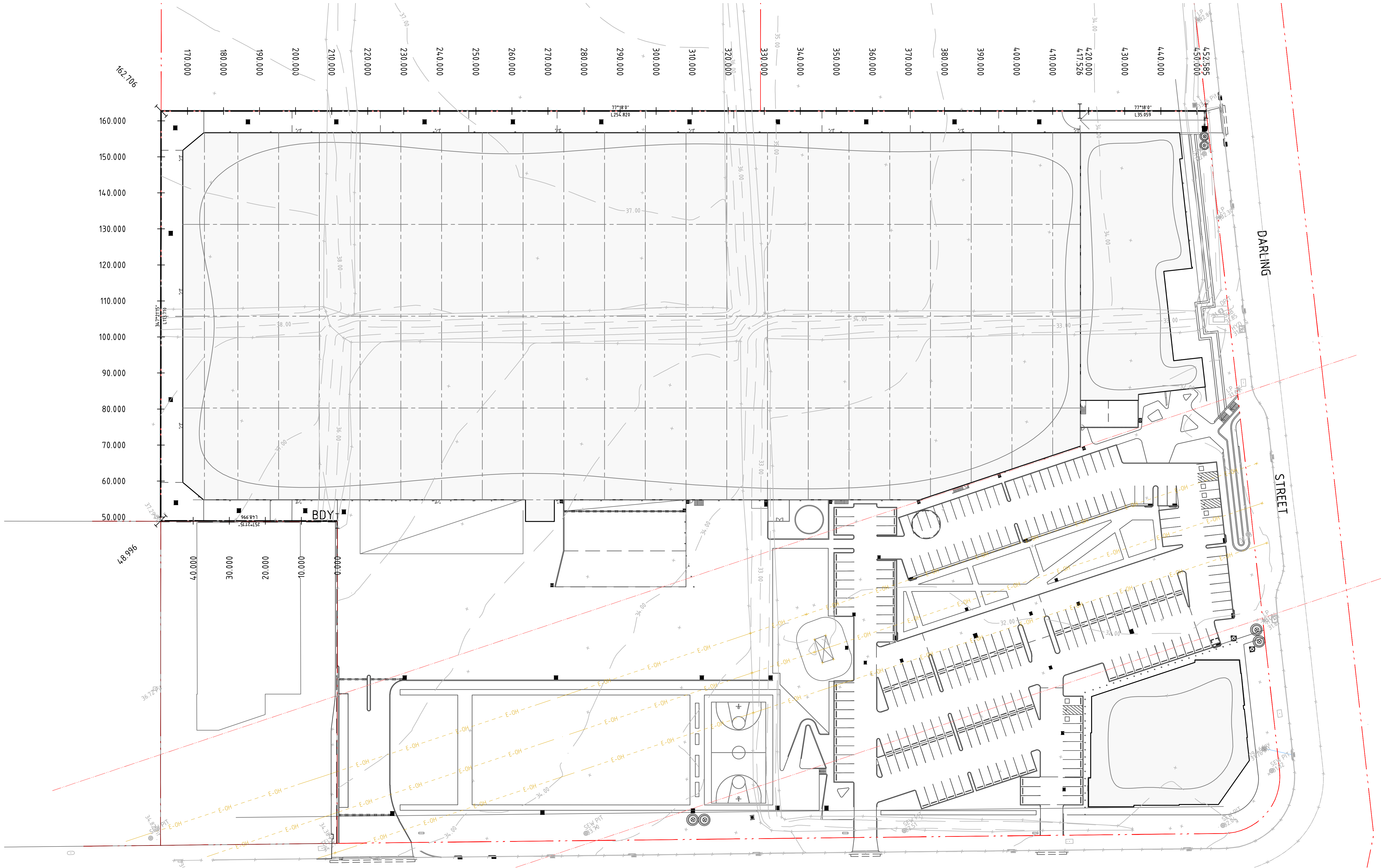
12d Model Dynamic Drainage Results

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE NORTHROP 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	4 DARLING STREET, MARSDEN PARK CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION STORMWATER ANALYSIS RESULTS	172938 DRAWING NUMBER REVISION DAC05.20 01 DRAWING SHEET SIZE = A1
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD			

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18	sydney business park
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18	

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ARCHITECT

REIDCAMPBELL

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SCALE 1:500 @ A1

0 5 10 15 20 25m

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Sydney

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

PROJECT

**4 DARLING STREET,
MARSDEN PARK**

DRAWING TITLE

**CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION**

BOUNDARY ALIGNMENT PLAN

JOB NUMBER

172938

DRAWING NUMBER

DAC06.01

REVISION

02

DRAWING SHEET SIZE = A1

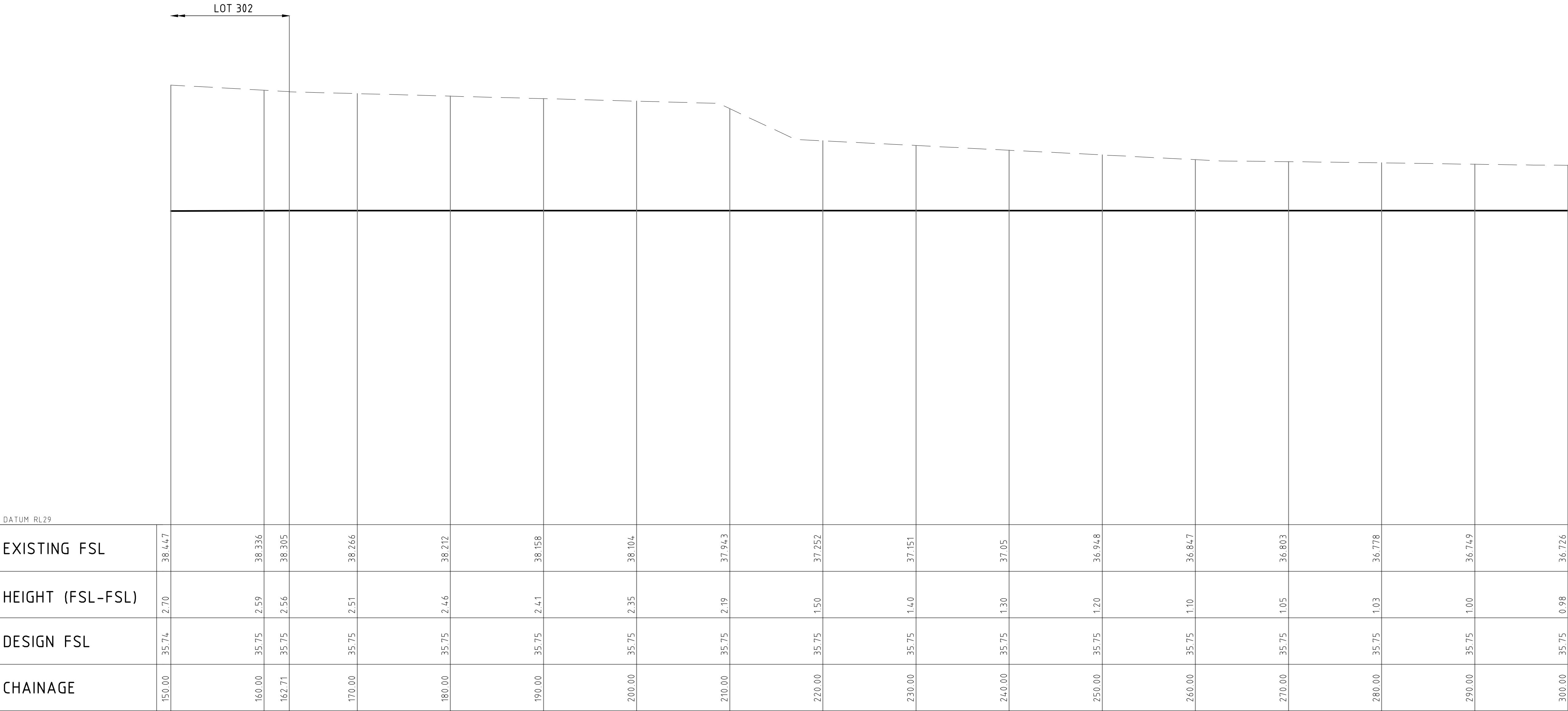
DRAWN: C. PASKE



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01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION BOUNDARY LONGITUDINAL SECTION SHEET 1	172938
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED.
											DRAWING SHEET SIZE = A1

JOB MANAGER: J. GILLIGAN
DESIGNED: M. SANTIAGO
DRAWN: C. PASKE
VERIFIER:

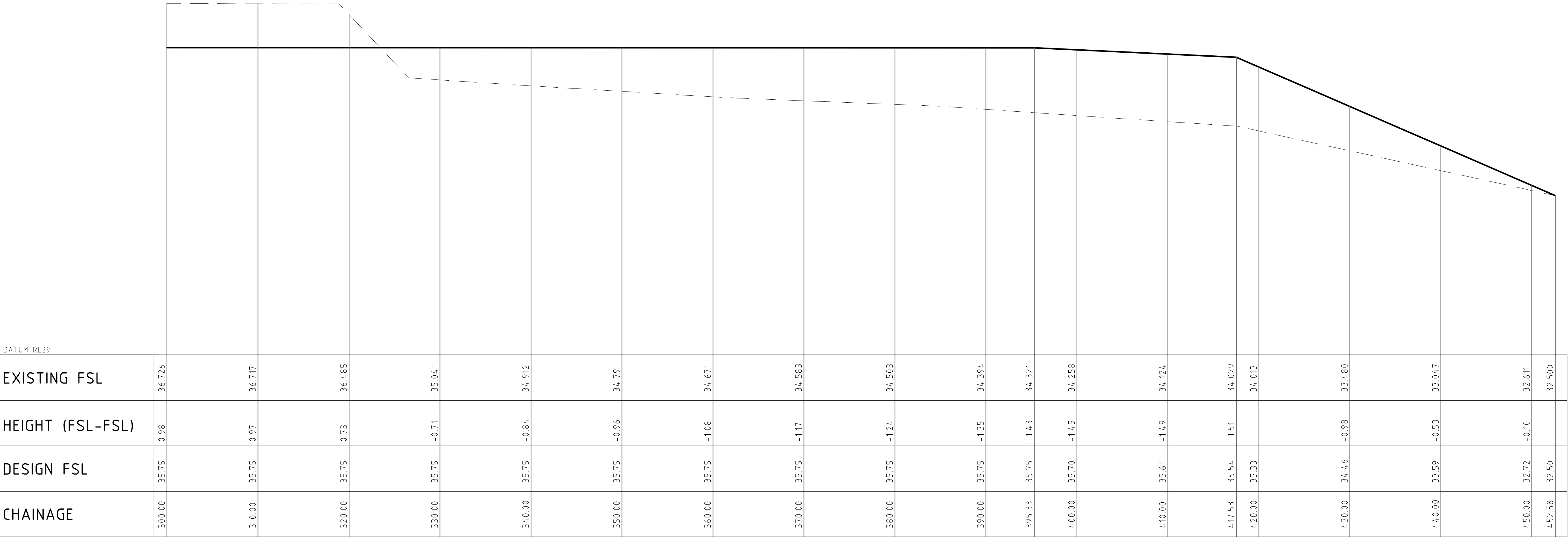


LONGITUDINAL SECTION ALONG BOUNDARY

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER	
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE  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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION BOUNDARY LONGITUDINAL SECTION SHEET 2	172938	
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18						DRAWING NUMBER	REVISION
											DAC06.12	02
											DRAWING SHEET SIZE = A1	
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VERIFIER: J. GILLIGAN
JOB MANAGER: J. GILLIGAN
DESIGNED: M. SANTIAGO
DRAWN: C. PASKE



SCALE 1:250 HORIZ 1:50 VERT

LONGITUDINAL SECTION ALONG BOUNDARY

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER		
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938		
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18								
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD		BOUNDARY LONGITUDINAL SECTION SHEET 3			DRAWING NUMBER DAC06.13	REVISION 02
												DRAWING SHEET SIZE = A1	

VERIFIER: J. GILLIGAN
JOB MANAGER: J. GILLIGAN
DESIGNED: M. SANTIAGO
DRAWN: C. PASKE



LEGEND

BOUNDARY LINE

EASEMENT LINE

EXISTING CONTOURS

PROPOSED CONTOURS

CATCHMENT BOUNDARY
(PERVIOUS/IMPERVIOUS)

XX

XX

CATCHMENT AREA (ha)

EXISTING DRAINAGE
STRUCTURE

NEW DRAINAGE STRUCTURE

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18

southern
business
park

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SCALE 1:800@A1

0 10 20 30 40m

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

PROJECT

4 DARLING STREET,
MARSDEN PARK

DRAWING TITLE

CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION

CATCHMENT PLAN

JOB NUMBER

172938

DRAWING NUMBER

DAC08.01

REVISION

02

DRAWING SHEET SIZE = A1

DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18	sydney business park THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD

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REIDCAMPBELL	

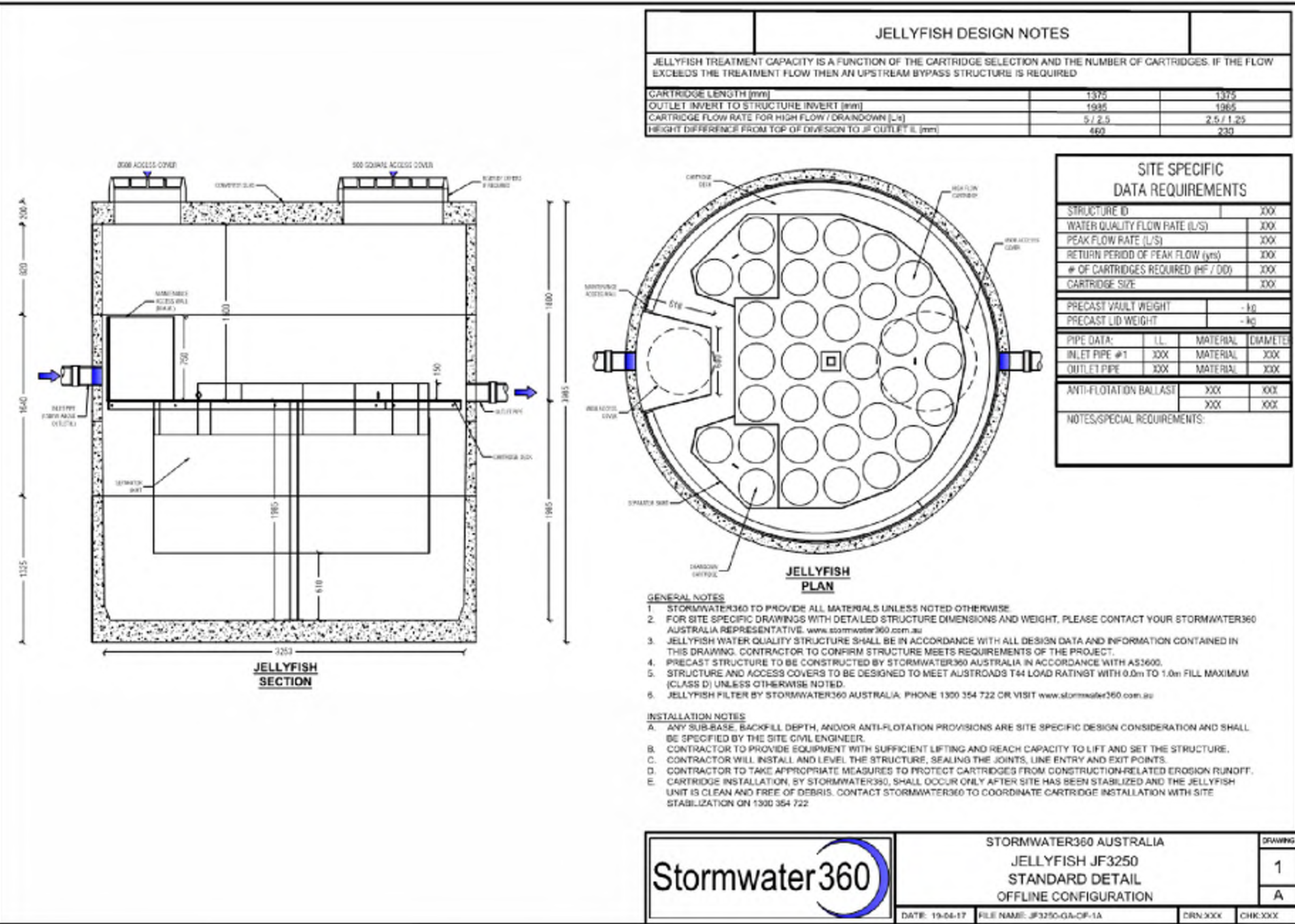
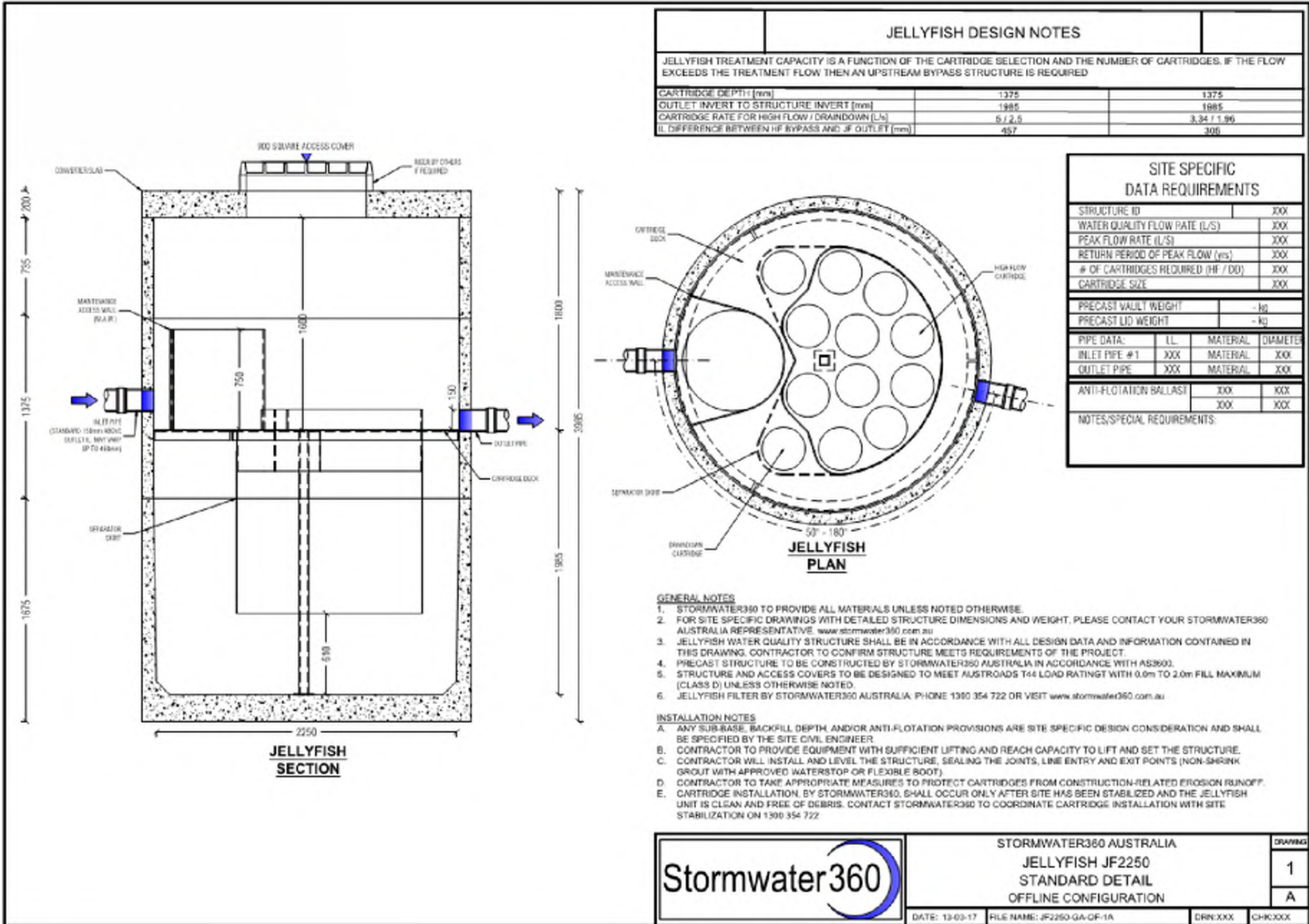
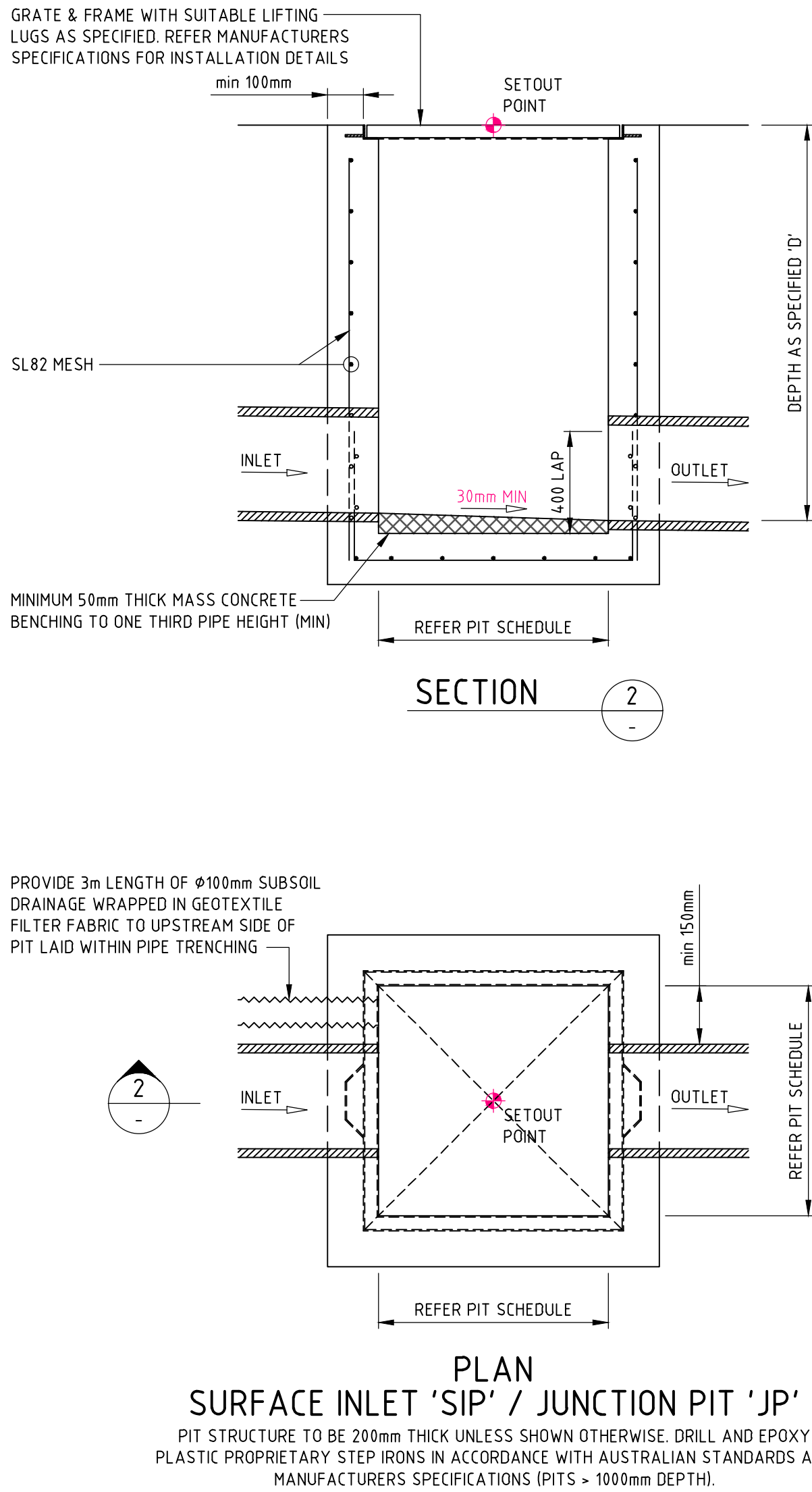
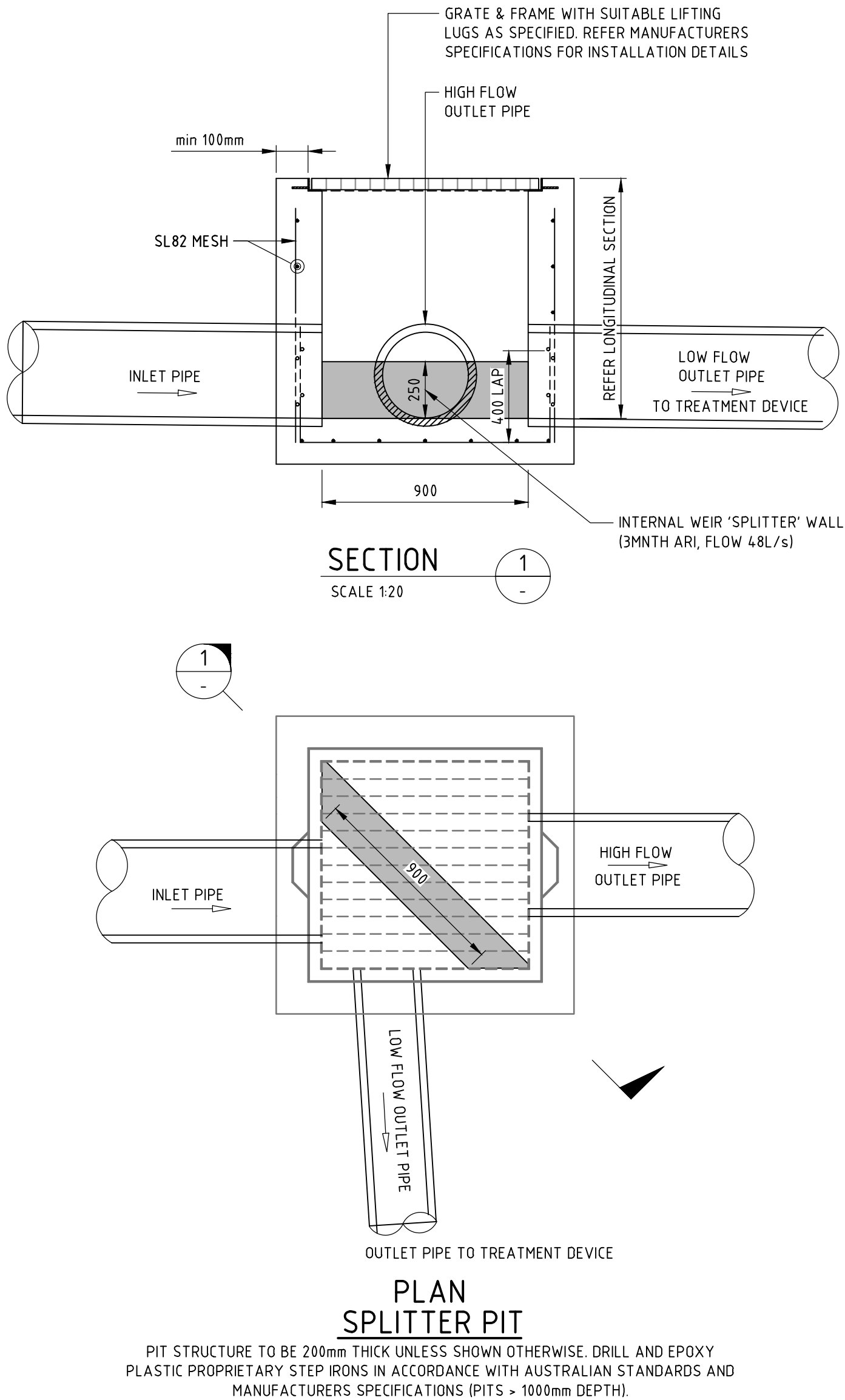
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PROJECT	
4 DARLING STREET, MARSDEN PARK	

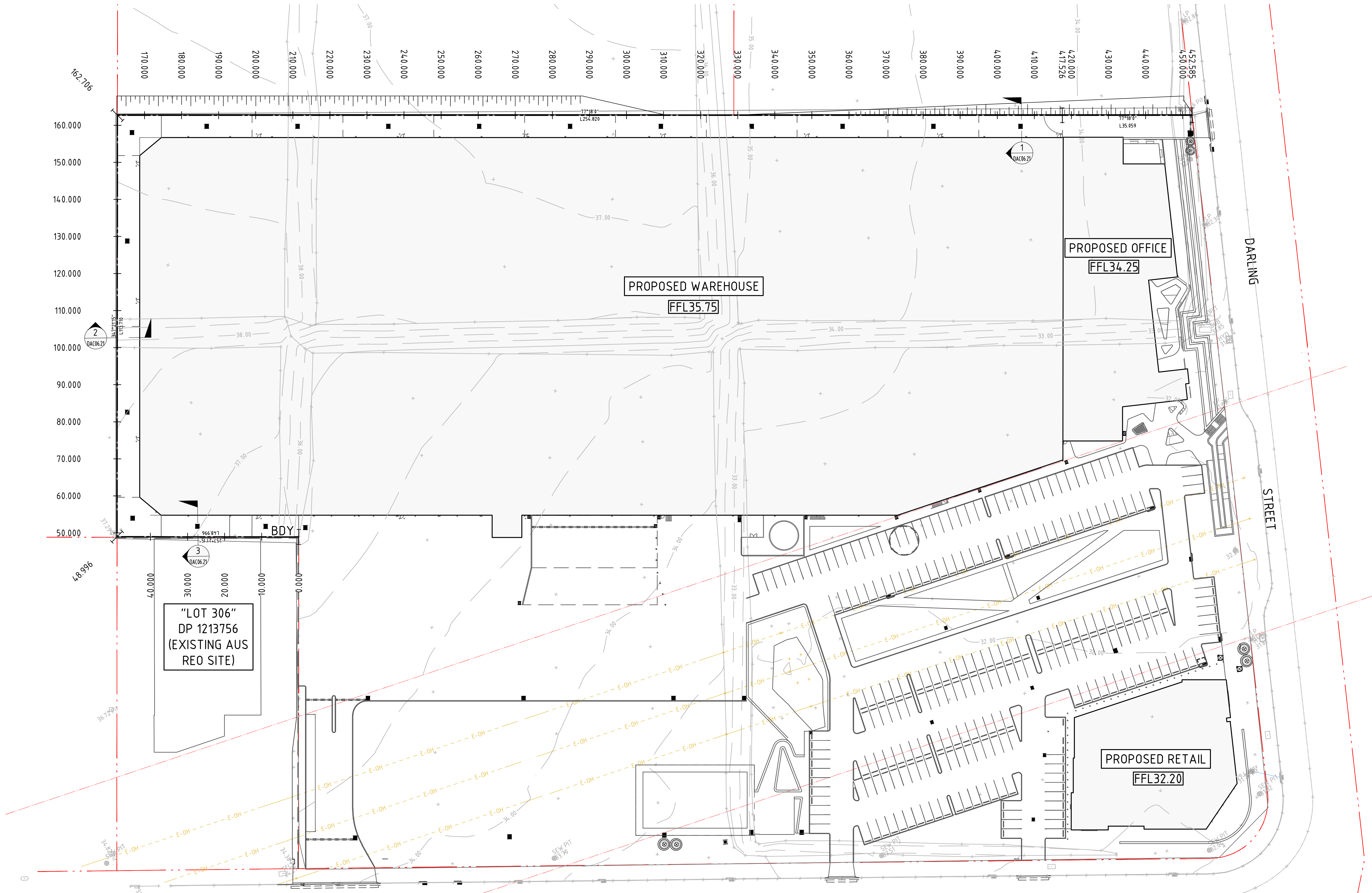
DRAWING TITLE	
CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	
TYPICAL DETAILS SHEET 01	

JOB NUMBER	172938
DRAWING NUMBER	REVISION
DAC09.01	01
DRAWING SHEET SIZE = A1	



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DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:



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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18	sydney business park
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18	
03	ISSUED FOR INFORMATION	JO		MS	09.07.18	

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SCALE 1:500 @ A1

0 5 10 15 20 25m

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PROJECT

**4 DARLING STREET,
MARSDEN PARK**

DRAWING TITLE

**CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION**

BOUNDARY ALIGNMENT PLAN

JOB NUMBER

172938

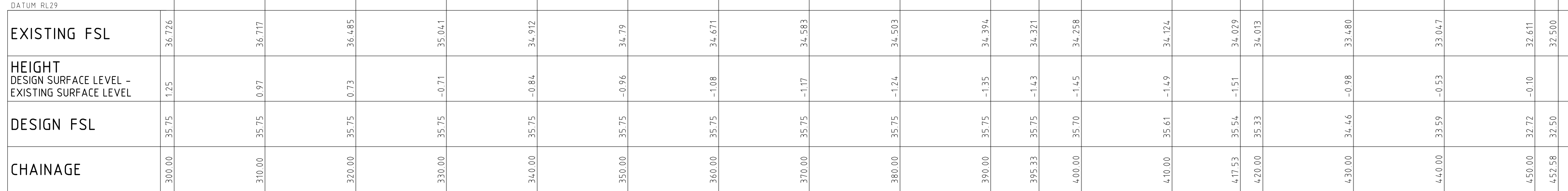
DRAWING NUMBER

DAC06.01

REVISION

03

DRAWING SHEET SIZE = A1

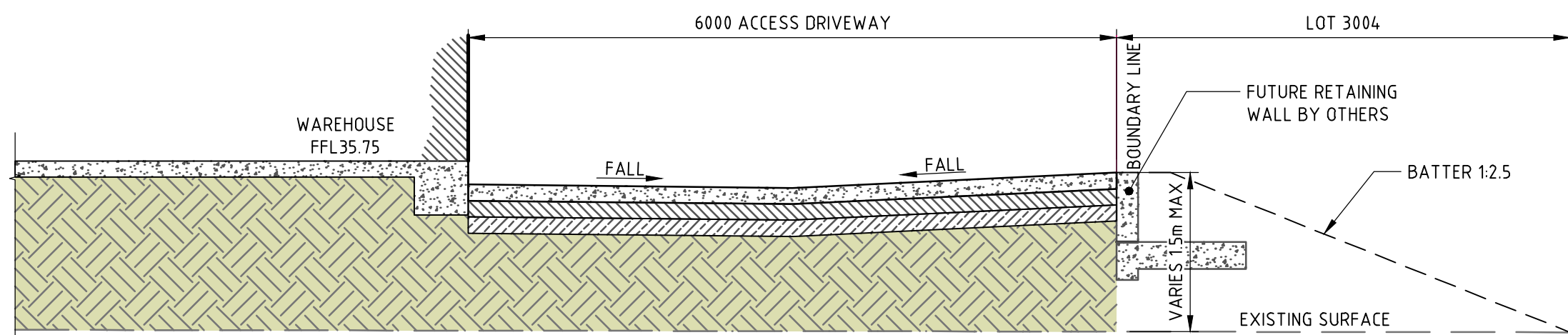


LONGITUDINAL SECTION ALONG BOUNDAR

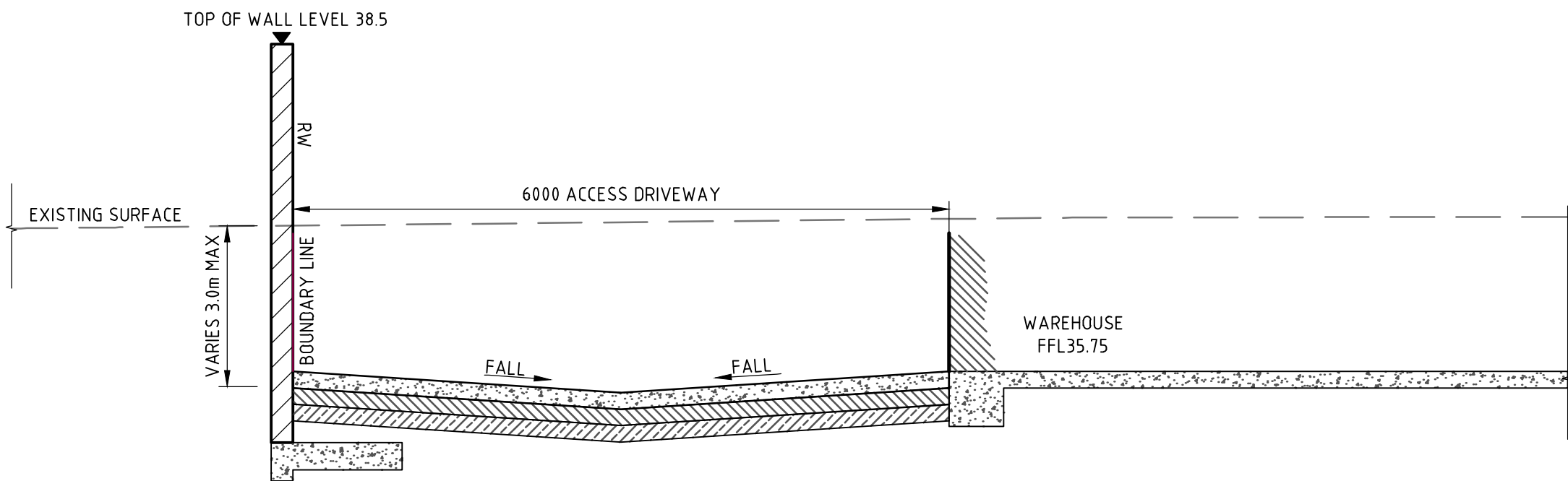
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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	PROJECT	DRAWING TITLE	JOB NUMBER
01	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	13.03.18			 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION	172938
02	ISSUED FOR DEVELOPMENT APPLICATION	CP		MS	28.03.18					DRAWING NUMBER	REVISION
03	ISSUED FOR INFORMATION	JO		MS	09.07.18					DAC06.13	03
										DRAWING SHEET SIZE = A1	
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS NORTHROP CONSULTING ENGINEERS PTY LTD VERIFICATION SIGNATURE HAS BEEN ADDED.	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD				

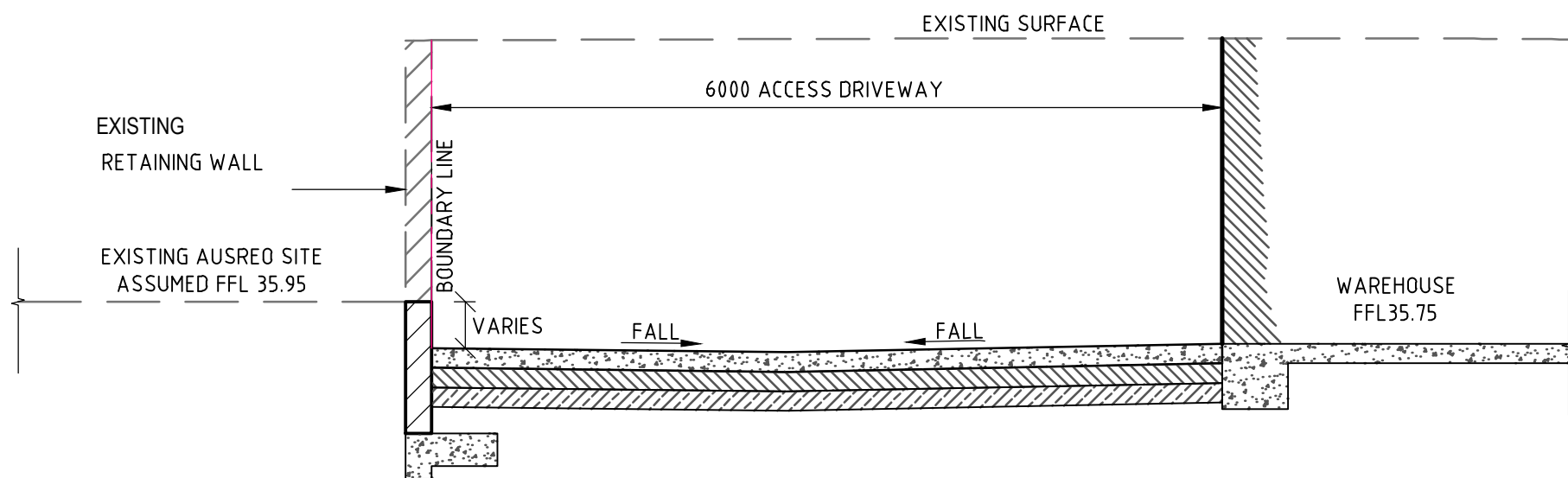
DRAWN: C. PASKE
DESIGNED: M. SANTIAGO
JOB MANAGER: J. GILLIGAN
VERIFIER:



SECTION 1
DAC06.01



SECTION 2
DAC06.01



SECTION 3
DAC06.01

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT		PROJECT	DRAWING TITLE	JOB NUMBER				
01	ISSUED FOR INFORMATION	JO		MS	09.07.18			ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS. TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	 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	4 DARLING STREET, MARSDEN PARK	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION TYPICAL BOUNDARY SECTIONS	172938			
DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED							THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD								
										DRAWING NUMBER	REVISION				
										DAC06.21	01				
										DRAWING SHEET SIZE = A1					