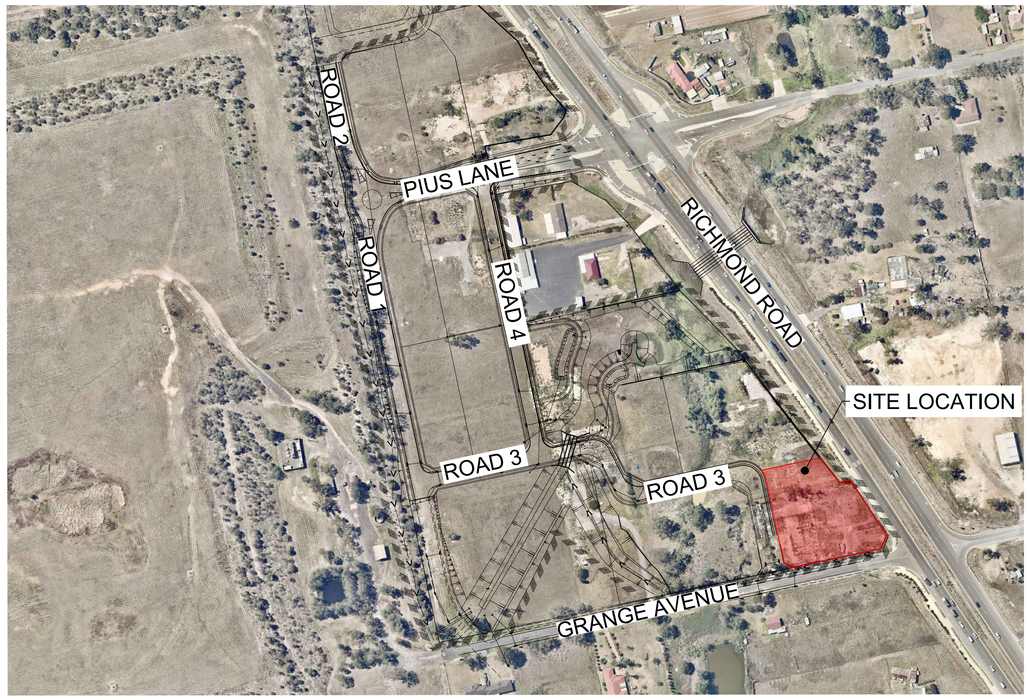
PLAN OF PROPOSED DEVELOPMENT OF LOT 8 IN PROPOSED SUBDIVISION OF LOTS 5, 6, 7, 8, 9, 10 & 11 IN DP 1245610, LOTS 20 & 21 IN DP 1191512 AND LOT 60 IN DP 1196729 RICHMOND ROAD, MARSDEN PARK

CIVIL AND DRAINAGE WORKS
DEVELOPMENT APPLICATION



LOCALITY SKETCH

Prepared By:

J. WYNDHAM PRINCE

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& PROJECT MANAGERS

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PLAN No. 11041911/DA421 B

FILE No. 11041911DA421

LEGEND

DESCRIPTION	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
KERB & GUTTER	KG		
DISH CROSSING	DC		
PRAM RAMP			
DRAINAGE LINE, PIT & EASEMENT	05/05 Ø225		
DRAINAGE LINE & PIT	05/06 Ø600		
HEADWALL			
GUIDE POSTS			
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS	46.0	47.0	
CATCH DRAIN			
KERB RETURN No	KR -		
ELECTRICITY, POWER POLE	E	eE FP eE	
TELECOM, BOX	T	eT	
WATER, STOP VALVE, HYDRANT	W	eW HYD eW SV	
SEWER, MANHOLE	S	eS SMH	
GAS	G	eG	
STABILISED SITE ACCESS			
SEDIMENT FENCE			
STRAW BALE BARRIER			
STOCKPILE	SP		
PROTECTIVE FENCING			
MESH AND GRAVEL INLET FILTER			
GEOTEXTILE INLET FILTER			
SUBSOIL DRAINAGE	SS	SS	
SITE BOUNDARY			

GENERAL NOTES

1. ALL WORKS ARE TO BE IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S "CIVIL WORKS SPECIFICATION 2005".
2. THIS SET OF DRAWINGS IS TO BE READ IN CONJUNCTION WITH THE RELEVANT DA DRAWINGS PREPARED FOR PROPOSED DEVELOPMENT.
3. TREE RETENTION/REMOVAL AND SOIL AND WATER MANAGEMENT FOR SITE IS TO BE IN ACCORDANCE WITH THE RELEVANT DA PLANS MENTIONED ABOVE.
4. THE CONTOURS SHOWN ON THESE PLANS ARE DESIGN SURFACE LEVELS AS DETAILED IN DA DRAWING SET 11041902DA01 - DA39 AS PREPARED BY JWP.
5. ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEER'S REQUIREMENTS.
6. SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
7. VEHICULAR CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER WHERE SHOWN.
8. ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
9. DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
10. ALL BATTER SLOPES TYPICALLY 1v:4h MAXIMUM UNLESS NOTED OTHERWISE

STORMWATER NOTES

1. STORMWATER DESIGN CRITERIA:
   1:100YR ARI MAJOR SYSTEM
   1:20YR ARI MINOR SYSTEM
2. RUNOFF FROM HARDSTAND AREAS TO BE PRE-TREATED BY USE OF PIT FILTER INSERTS, USING 200µm MESH, PRIOR TO DISCHARGING INTO DOWNSTREAM DRAINAGE SYSTEM
3. ALL ROOF WATER TO BE DIRECTED TO DRAINAGE PITS WHICH INCLUDES ENVIROPODS AT A LOWER LEVEL THAN THE ROOFWATER INLET. REFER TO DWG DA424.
4. ALL DRAINAGE WITHIN THE SITE TO BE DIRECTED TO STORMFILTER CARTRIDGES FOR TREATMENT PRIOR TO DISCHARGING INTO THE ROAD DRAINAGE NETWORK.
5. THE WORKS SHOWN IN THIS DRAWING SET HAVE BEEN ASSESSED FOR QUALITY AND ARE TO BE READ IN CONJUNCTION WITH THE JWP RESPONSE LETTER 110419-11-Lot 8-S34 Response Letter_C.
6. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998) PLUMBING AND DRAINAGE CODE.
7. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
8. GRATES AND COVERS SHALL CONFORM TO AS 3996.
9. MINIMUM OF THE 3 MONTH ARI FLOW IS DIRECTED THROUGH PIT FILTER INSERTS AND STORMFILTER CARTRIDGES PRIOR TO DISCHARGING IN TO THE DOWNSTREAM ROAD DRAINAGE NETWORK.
10. DRAINAGE LINES UNDER ROADWAYS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 3m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWNSTREAM PITS.
11. ALL DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
12. DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.
13. ALL SITE RUNOFF WITHIN PROPERTY TO BE DIRECTED TO SURFACE INLET PITS VIA USE OF DWARF WALLS ALONG THE BOUNDARY, GARDEN BEDS, LANDSCAPING OR SURFACE GRADING.

CIVIL PLAN INDEX		
PLAN NO.	PLAN NAME	REV
11041911/DA421	COVER SHEET	B
11041911/DA422	LEGEND, NOTES, AND INDEX	D
11041911/DA423	DRAINAGE AND GRADING PLAN	D
11041911/DA424	STORMWATER AND STORMFILTER SYSTEM DETAILS	C
11041911/DA425	CATCHMENT PLAN	B
11041911/DA426	DRAINAGE LONGITUDINAL SECTIONS SHEET 1	B
11041911/DA426a	DRAINAGE LONGITUDINAL SECTIONS SHEET 2	A
11041911/DA427	DRAINAGE CALCULATIONS	B
11041911/DA428	SOIL & WATER MANAGEMENT PLAN	B
11041911/DA429	SOIL & WATER MANAGEMENT NOTES	A
11041911/DA430	SOIL & WATER MANAGEMENT DETAILS	A

SURVEYED BY:
UNIVERSAL PROPERTY GROUP
CAD REFERENCE: Richmond Rd - Plan 230817.dwg
DATE RECEIVED: 24/08/2017

ARCHITECTURAL BY:
UNIVERSAL PROPERTY GROUP
REFERENCE: 170629 - DA001 TO DA032 REV C 06/07/2020
DATE RECEIVED: 14/07/2020

	AMENDMENT	DES	DRN	CKD	APR	DATE
D	INDEX UPDATED	JC	JM	KE	MS	24/05/21
C	INDEX UPDATED	JC	JM	MS	RO	27/08/20
B	INDEX UPDATED & NOTES AMENDED	JC	JM	MS	RO	21/07/20
A	ISSUED FOR DA APPROVAL	JC	JM	MS	RO	28/04/20

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PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

LEGEND, NOTES, AND INDEX

PLAN No: 11041911/DA422 D
FILE No: 11041911DA422
SHEET SIZE: A1 ORIGINAL

LOT 9

PROVIDE GATE AT BOUNDARY

PROVIDE LAYBACK AND DRIVEWAY 3m WIDE

MAINTENANCE ACCESS PATH REFER TO ARCHITECTURAL PLANS

SUBDIVISION INTERALLOTMENT DRAINAGE LINE IN EASEMENT LINE 32

DIRECT CONNECTION INTO LINE 32 SUBDIVISION INTERALLOTMENT PIT RL 32.25 IL 29.57

16 CARTRIDGE STORMFILTER CHAMBER INLET IL 30.51 OUTLET IL 29.58 FALSE FLOOR RL 29.72

RETAINING WALL

EXTENT OF BASEMENT BELOW

BLOCK A FFL 32.80

LOT 8

EXTENT OF BASEMENT BELOW

EXPOSED DRIVEWAY AREA NOT DRAINING TO GRAVITY SYSTEM 132m²

COVERED DRIVEWAY AREA DRIVEWAY RL 29.80 TOP OF COVERED AREA RL 34.60

RETAINING WALL

DRIVEWAY AT BASEMENT LEVEL RL 29.80

RETAINING WALL

RETAINING WALL

RICHMOND ROAD

ROAD 3

CREST AT BOUNDARY TO BE 268mm HIGHER THAN CORRESPONDING GUTTER LEVELS IN ROAD

TRENCH GRATE ACROSS DRIVEWAY

BLOCK B FFL 33.40

PATH TO CONNECT TO FUTURE ROAD FOOTPATH UPON COMPLETION OF FINAL GRANGE AVENUE AND ASSOCIATED WORKS

TEMPORARY RETAINING WALL

PATH TO CONNECT TO FUTURE ROAD FOOTPATH UPON COMPLETION OF FINAL GRANGE AVENUE AND ASSOCIATED WORKS

PATH TO CONNECT TO FUTURE ROAD FOOTPATH UPON COMPLETION OF FINAL GRANGE AVENUE AND ASSOCIATED WORKS

GRANGE AVENUE (UPGRADE SUBJECT TO DETAIL DESIGN DA-18-00159)

1:250 (AT A1)
1:500 (AT A3)

5 0 5 10 15 20 25
METRES

LEGEND

DESCRIPTION	PROPOSED	EXISTING
BOUNDARY		
CONTOURS	-46.0-	47.0
STORMWATER PIT WITH PIT INSERT		
JUNCTION PIT		
EXISTING KERB INLET PIT		
EXISTING GSIP PIT		
STORMWATER PIPE		
GRATED TRENCH DRAIN (250mm WIDE MIN)		
STORMFILTER CHAMBER		
OVERLAND FLOW		
RETAINING WALL		
PROPOSED BUILDING		
DRIVEWAY ACCESS		
FOOTPATH		
DOWNPIPE		
BYPASS PUMPWELL		

BASEMENT PUMP WELL DETAILS

SUMP SIZE AND PUMP BASED ON 100YR 90 MINUTE STORM
INTENSITY = 52.0 mm/h
DRIVEWAY RAMP AREA BYPASSING GRAVITY DRAINAGE SYSTEM = 132m²
VOLUME = 132m² x (52/1000) x 1.5 = 10.3m³ (MINIMUM)
PUMP OUT RATE BASED ON 5YR 60 MINUTE STORM
INTENSITY = 39.2mm/h
PUMP RATE = 132m² x 39.2/(60 x 60) = 1.44 L/s (MINIMUM)

* RUNOFF FROM RAMP DOWN TO BASEMENT TO BE COLLECTED BY GRATED TRENCH DRAIN. ENVIROPOD TO BE PROVIDED IN SUMP PITS FOR TREATMENT PRIOR TO BEING DIRECTED TO PUMP OUT SYSTEM.

REFER TO ARCHITECTURAL PLANS FOR RAMP GRADES.

	AMENDMENT	DES	DRN	CKD	APR	DATE
D	DRIVEWAY RAMP LEVEL	JC	JM	KE	MS	24/05/21
C	ARCHITECTURAL DRAINAGE LAYOUT AMENDED	JC	JM	MS	RO	27/08/20
B	DRAINAGE, FOOTPATH & BUILDING AMENDED	JC	JM	MS	RO	21/07/20
A	ISSUED FOR DA APPROVAL	JC	JM	MS	RO	28/04/20

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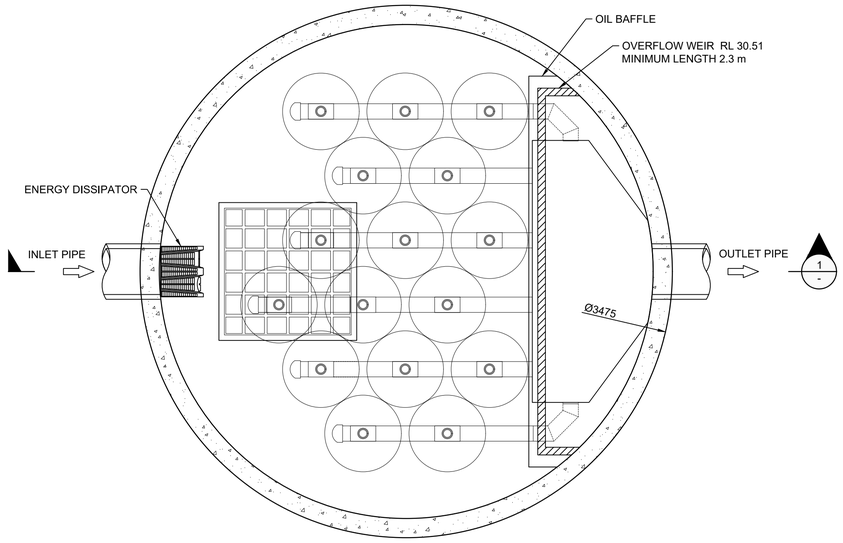
PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

DRAINAGE AND GRADING PLAN

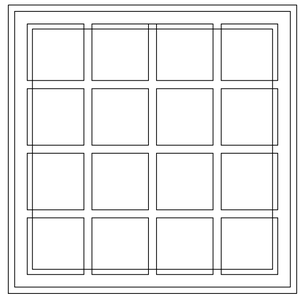
PLAN No: 11041911/DA423 D
FILE No: 11041911DA423
SHEET SIZE: A1 ORIGINAL

Plotted: 24 May 2021 12:26:14 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DALOT 8\11041911DA423.dwg



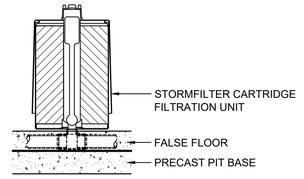
STORMFILTER CHAMBER PLAN (16 CARTRIDGES)

SCALE 1:20



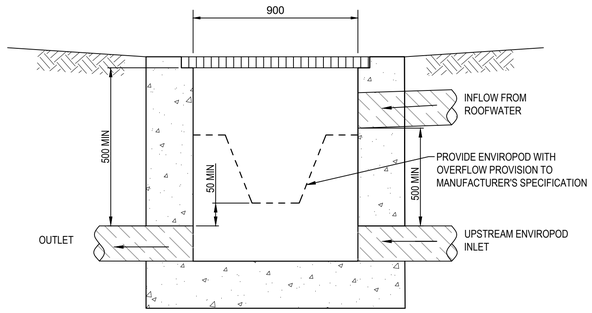
900 X 900 ACCESS COVER

NTS



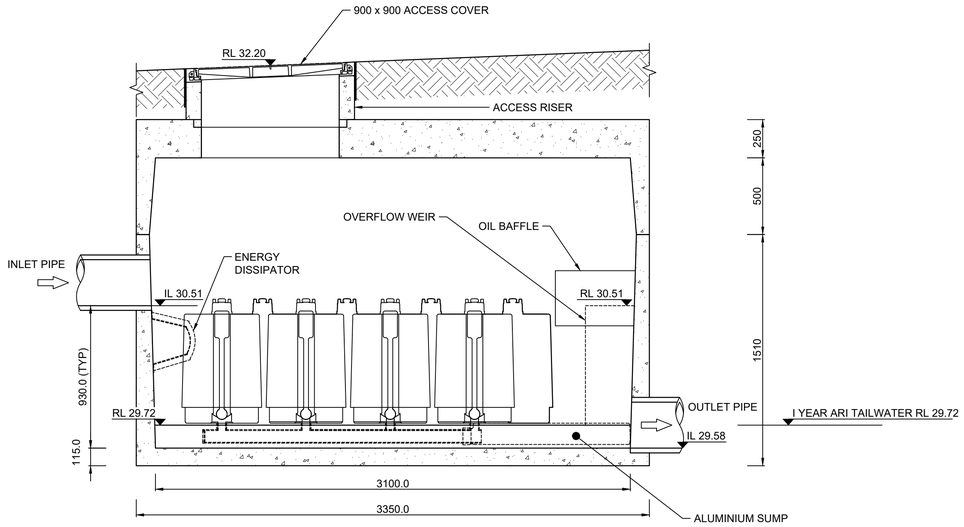
STORMFILTER CARTRIDGE DETAIL

NTS



GSIP DETAIL WITH ENVIROPOD ARRANGEMENT

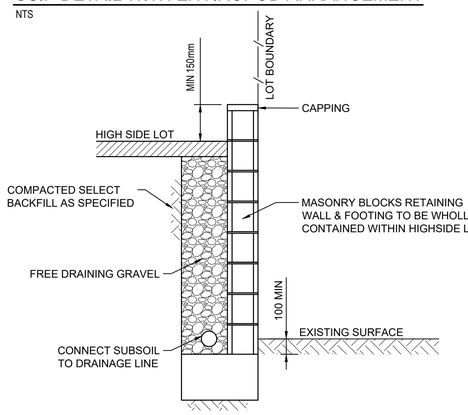
NTS



PIT 01/10 - STORMFILTER CHAMBER SECTION

SCALE 1:20

1
-



TYPICAL RETAINING WALL DETAIL

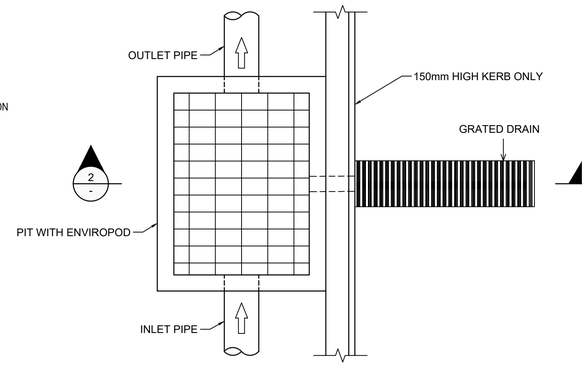
MASONRY BLOCK RETAINING WALL

SCALE 1:20

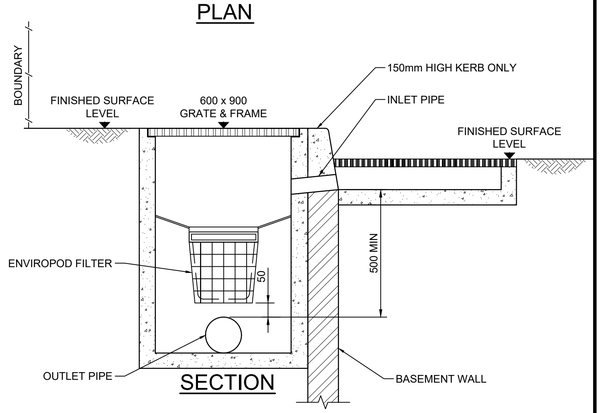
NOTE:

SETOUT LOCATION ONLY RETAINING WALL DETAILS BY WALL CONTRACTOR.

FOOTING DESIGN SUBJECT TO STRUCTURAL CERTIFICATION.



PLAN



SECTION

TRENCH GRATE WITH ENVIROPOD

NTS

2
-

1:20 (AT A1)

400 200 0 400 800 1200 1600 2000

MILLIMETRES

C	NOTES AMENDED	JC	JM	MS	RO	27/08/20
B	MINOR UPDATES	JC	JM	MS	RO	21/07/20
A	ISSUED FOR DA APPROVAL	JC	JM	MS	RO	28/04/20
	AMENDMENT	DES	DRN	CKD	APR	DATE

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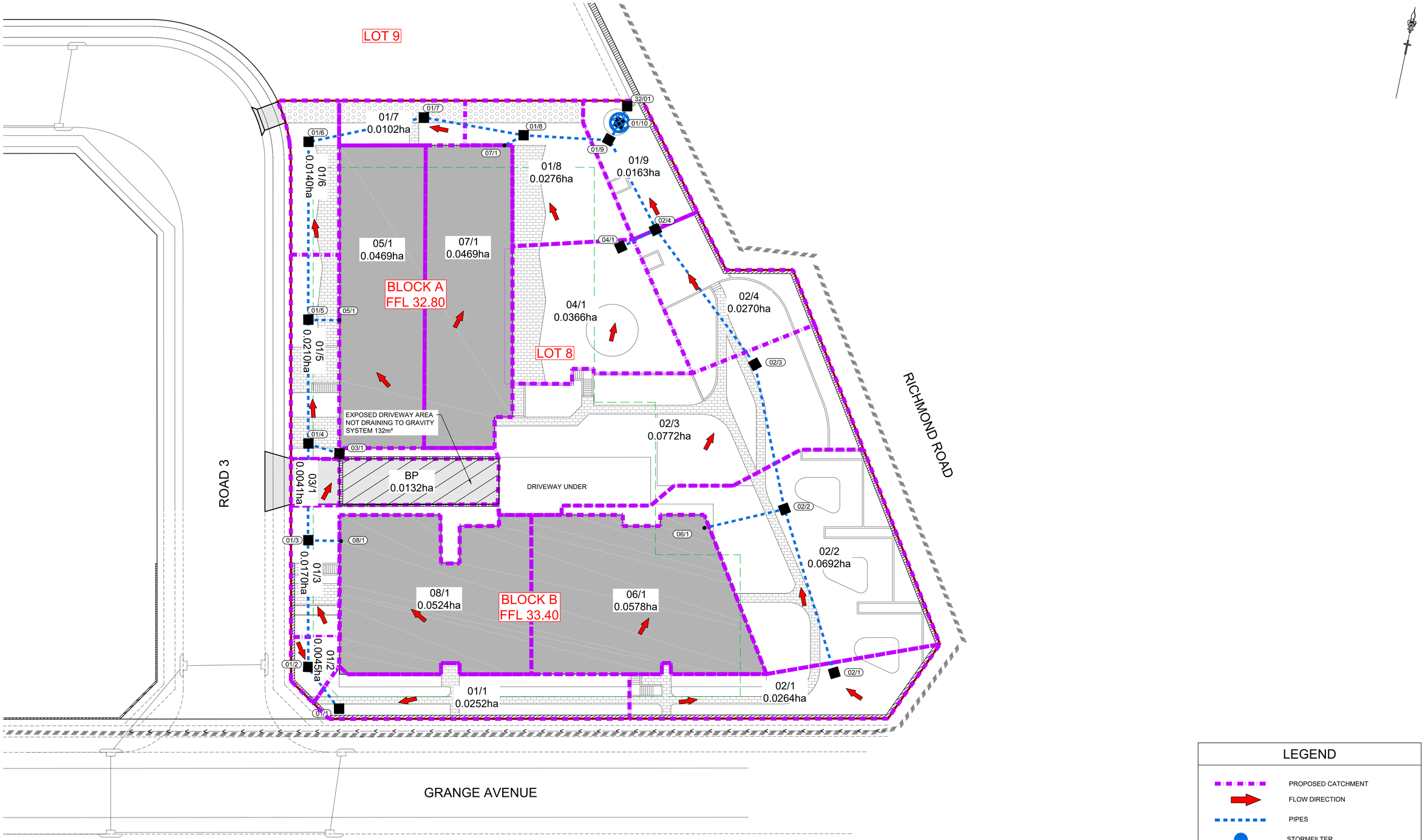
PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

STORMWATER AND STORMFILTER SYSTEM DETAILS

PLAN No: 11041911/DA424 C

FILE No: 11041911DA424

SHEET SIZE: A1 ORIGINAL



LEGEND

- PROPOSED CATCHMENT
- FLOW DIRECTION
- PIPES
- STORMFILTER

1:250 (AT A1)
1:500 (AT A3)

5 0 5 10 15 20 25
METRES

B	ARCHITECTURAL DRAINAGE LAYOUT AMENDED	JC	JM	MS	RO	27/08/20
A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20
	AMENDMENT	DES	DRN	CKD	APR	DATE

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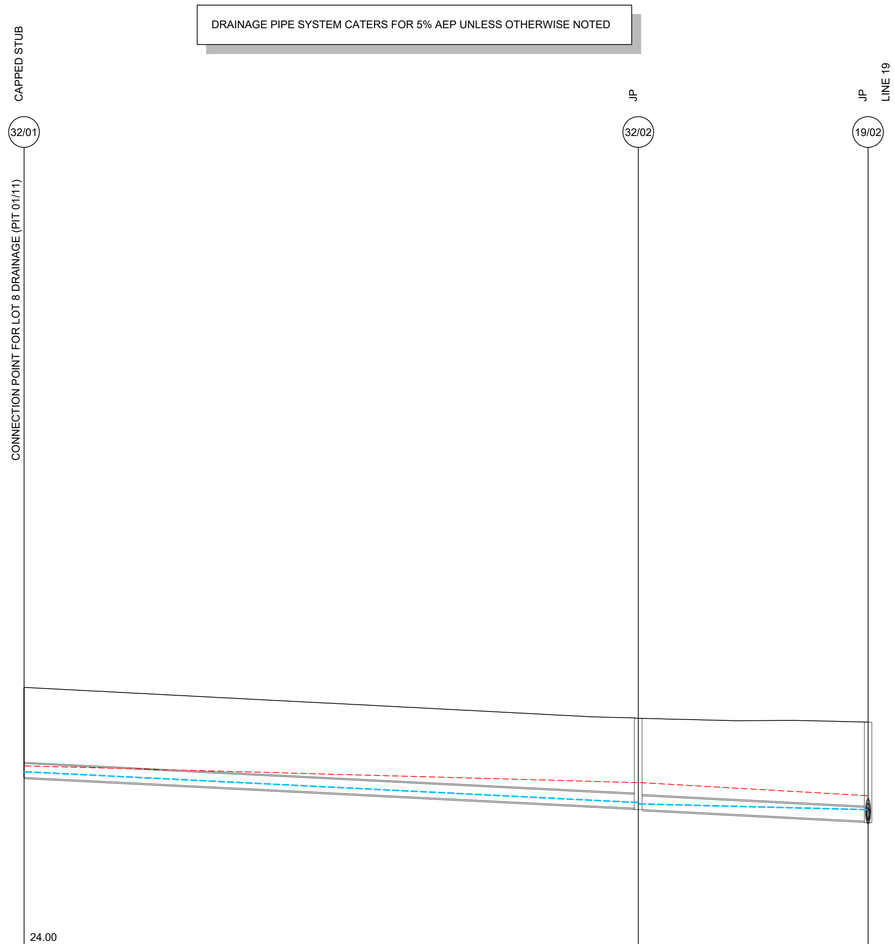
PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

CATCHMENT PLAN

PLAN No: 11041911/DA425 B
FILE No: 11041911DA425
SHEET SIZE: A1 ORIGINAL

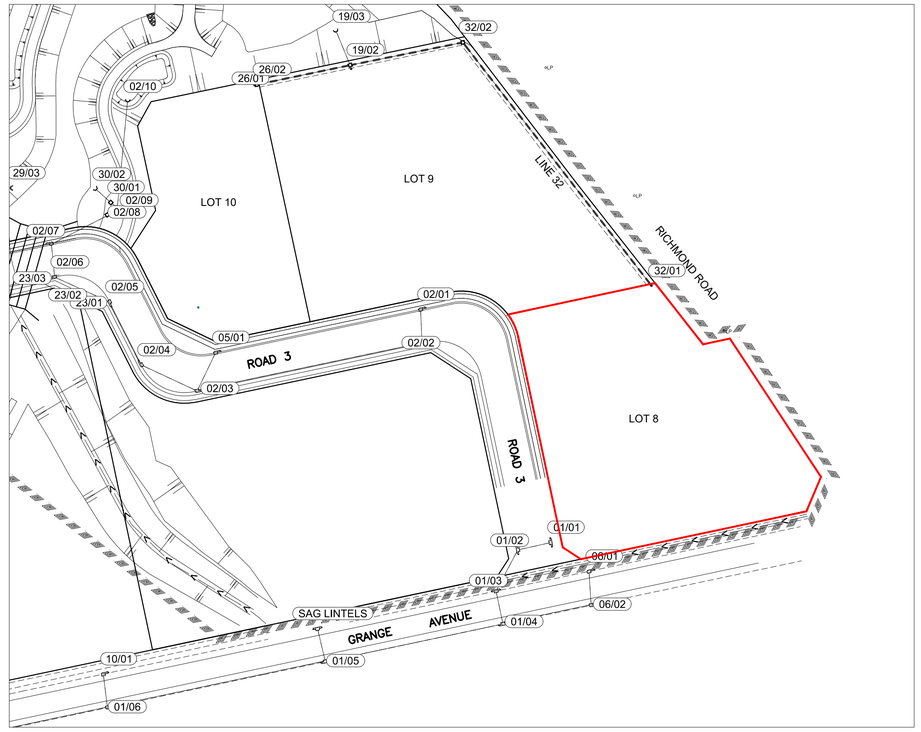
Plotted: 24 May , 2021 12:26:30 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DALOT 8\11041911DA425.dwg

DRAINAGE PIPE SYSTEM CATERS FOR 5% AEP UNLESS OTHERWISE NOTED



DATUM (m)	24.00		
PEAK FLOW (L/s)	234	235	
PIPE SIZE (mm)	450	450	
PIPE CLASS	RRJ2	RRJ2	
PIPE GRADE (%)	1.0	1.0	
PIPE COVER MINIMUM	2.42	2.49	
FULL PIPE VELOCITY (m/s)	1.69	1.48	
HGL GRADE (%)	0.55	1.13	
HYDRAULIC GRADE LINE 1 EY	29.721	28.715 28.671	28.484
HYDRAULIC GRADE LINE 5% AEP	29.914	29.363	28.939
INVERT LEVEL	29.536	28.534 28.484	28.109 28.059
DESIGN SURFACE LEVEL	32.474	31.466	31.34
PIPE CHAINAGE	0	100.271	137.768

SUBDIVISION LINE 32



PLAN
SCALE 1:1000

1:500 (AT A1)
1:1000 (AT A3)
10 0 10 20 30 40 50
METRES

1:100 (AT A1)
1:200 (AT A3)
2 1 0 1 2 3 4 5 6 7 8 9 10
METRES

1:1000 (AT A1)
1:2000 (AT A3)
20 10 0 10 20 30 40 50 60 70 80 90 100
METRES

	AMENDMENT	DES	DRN	CKD	APR	DATE
A	NEW SHEET ADDED	JC	JM	MS	RO	27/08/20

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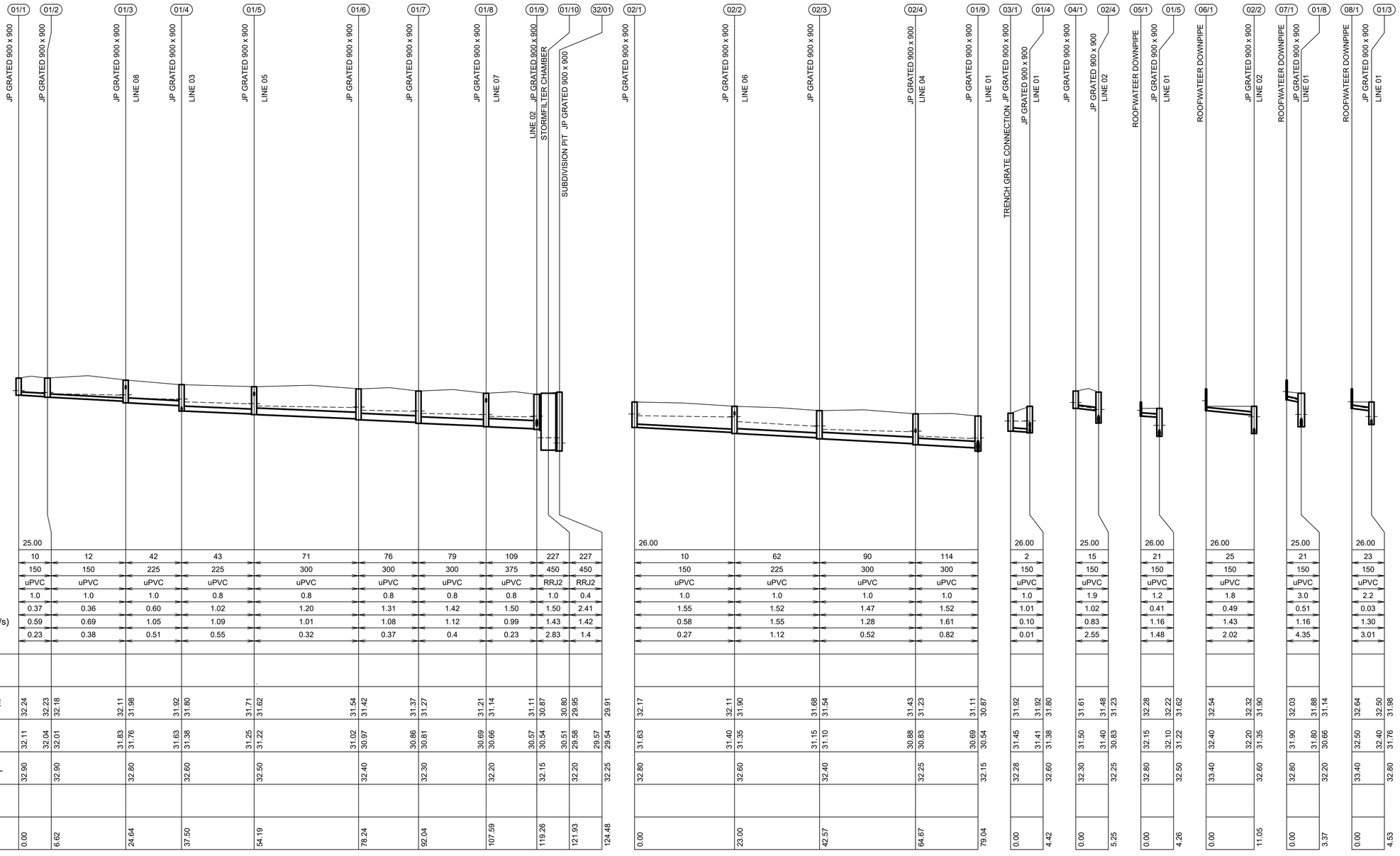
PLAN OF PROPOSED LOT 8 SUBDIVISION
GRANGE AVENUE, MARSDEN PARK
DRAINAGE LONGITUDINAL SECTIONS
SHEET 2

PLAN No: 11041911/DA426a A
FILE No: 11041911DA426a
SHEET SIZE: A1 ORIGINAL

Plotted: 24 May , 2021 12:27:19 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DAILOT 8\11041911DA426a.dwg

DRAINAGE PIPE SYSTEM CATERS FOR 5% AEP UNLESS OTHERWISE NOTED



	LINE 01										LINE 02				LINE 03	LINE 04	LINE 05	LINE 06	LINE 07	LINE 08
DATUM (m)	25.00										26.00				26.00	25.00	26.00	26.00	25.00	26.00
PEAK FLOW (L/s)	10	12	42	43	71	76	79	109	227	227	10	62	90	114	2	15	21	25	21	23
PIPE SIZE (mm)	150	150	225	225	300	300	300	375	450	450	150	225	300	300	150	150	150	150	150	150
PIPE CLASS	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	RRJ2	RRJ2	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC
PIPE GRADE (%)	1.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8	1.0	0.4	1.0	1.0	1.0	1.0	1.0	1.9	1.2	1.8	3.0	2.2
PIPE COVER MINIMUM	0.37	0.36	0.60	1.02	1.20	1.31	1.42	1.50	1.50	2.41	1.55	1.52	1.47	1.52	1.01	1.02	0.41	0.49	0.51	0.03
FULL PIPE VELOCITY (m/s)	0.59	0.69	1.05	1.09	1.01	1.08	1.12	0.99	1.43	1.42	0.58	1.55	1.28	1.61	0.10	0.83	1.16	1.43	1.16	1.30
HGL GRADE (%)	0.23	0.38	0.51	0.55	0.32	0.37	0.4	0.23	2.83	1.4	0.27	1.12	0.52	0.82	0.01	2.55	1.48	2.02	4.35	3.01
WAE																				
HYDRAULIC GRADE LINE	32.24	32.23 / 32.18	32.11 / 31.98	31.92 / 31.80	31.71 / 31.62	31.54 / 31.42	31.37 / 31.27	31.21 / 31.14	31.11 / 30.87	30.80 / 29.95	29.91	32.17	32.11 / 31.90	31.68 / 31.54	31.43 / 31.23	31.11 / 30.87	31.92	31.92 / 31.80	31.61	31.48 / 31.23	32.28	32.22 / 31.62	32.54	32.32 / 31.90	32.03	31.88 / 31.14	32.64	32.50 / 31.98
INVERT LEVEL	32.11	32.04 / 32.01	31.83 / 31.76	31.63 / 31.38	31.25 / 31.22	31.02 / 30.97	30.86 / 30.81	30.69 / 30.66	30.57 / 30.54	30.51 / 29.58	29.57 / 29.54	31.63	31.40 / 31.35	31.15 / 31.10	30.88 / 30.83	30.69 / 30.54	31.45	31.41 / 31.38	31.50	31.40 / 30.83	32.15	32.10 / 31.22	32.40	32.20 / 31.35	31.90	31.80 / 30.66	32.50	32.40 / 31.76
DESIGN SURFACE LEVEL	32.90	32.90	32.80	32.60	32.50	32.40	32.30	32.20	32.15	32.20	32.25	32.80	32.60	32.40	32.25	32.15	32.28	32.60	32.30	32.25	32.80	32.50	33.40	32.60	32.80	32.20	33.40	32.80
ROAD CHAINAGE																												
PIPE CHAINAGE	0.00	6.62	24.64	37.50	54.19	78.24	92.04	107.59	119.26	121.93	124.48	0.00	23.00	42.57	64.67	79.04	0.00	4.42	0.00	5.25	0.00	4.26	0.00	11.05	0.00	3.37	0.00	4.53

1:500 (AT A1)
1:1000 (AT A3)
10 0 10 20 30 40 50
METRES

1:100 (AT A1)
1:200 (AT A3)
2 1 0 1 2 3 4 5 6 7 8 9 10
METRES

B	DRAINAGE LONG SECTIONS UPDATED	JC	JM	MS	RO	27/08/20
A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

DRAINAGE LONGITUDINAL SECTIONS
SHEET 1

PLAN No: 11041911/DA426 B
FILE No: 11041911DA426
SHEET SIZE: A1 ORIGINAL

Plotted: 24 May , 2021 12:26:51 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DA\LOT 8\11041911DA426.dwg

DESIGN STORM 1:20yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
01/1	JP GRATED 900 x 900	0.025	90	0.885	5	175.1	10	133.8	10	133.8	8	5	175.1	10	10	0	10	1	10	0	01/2	
01/2	JP GRATED 900 x 900	0.004	90	0.885	5	175.1	10	133.8	10	133.8	1	5	175.1	2	2	0	2	1	2	0	01/3	
01/3	JP GRATED 900 x 900	0.017	90	0.885	5	175.1	10	133.8	10	133.8	6	5	175.1	7	7	0	7	1	7	0	01/4	
01/4	JP GRATED 900 x 900	0	0						0	0	0	0	0	0	0	0	0	1	0	0	01/5	
01/5	JP GRATED 900 x 900	0.021	90	0.885	5	175.1	10	133.8	10	133.8	7	5	175.1	9	9	0	9	1	9	0	01/6	
01/6	JP GRATED 900 x 900	0.014	90	0.885	5	175.1	10	133.8	10	133.8	5	5	175.1	6	6	0	6	1	6	0	01/7	
01/7	JP GRATED 900 x 900	0.01	90	0.885	5	175.1	10	133.8	10	133.8	3	5	175.1	4	4	0	4	1	4	0	01/8	
01/8	JP GRATED 900 x 900	0.028	85	0.878	5	175.1	10	133.8	10	133.8	9	5	175.1	11	11	0	11	1	11	0	01/9	
01/9	JP GRATED 900 x 900	0.016	80	0.87	5	175.1	10	133.8	10	133.8	5	5	175.1	6	6	0	6	1	6	0	01/10	
01/10	GPT	0	0						0	0	0	0	0	0	0	0	0	1	0	0	LOST	STORMFILTER CHAMBER
32/01	JP GRATED 900 x 900																					DIRECT CONNECTION INTO SUBDIVISION INTERALLOTMENT DRAINAGE LINE 32
02/1	JP GRATED 900 x 900	0.026	80	0.87	5	175.1	10	133.8	10	133.8	9	5	175.1	10	10	0	10	1	10	0	02/2	
02/2	JP GRATED 900 x 900	0.069	80	0.87	5	175.1	10	133.8	10	133.8	22	5	175.1	27	27	0	27	1	27	0	02/3	
02/3	JP GRATED 900 x 900	0.077	80	0.87	5	175.1	10	133.8	10	133.8	25	5	175.1	30	30	0	30	1	30	0	02/4	
02/4	JP GRATED 900 x 900	0.027	80	0.87	5	175.1	10	133.8	10	133.8	9	5	175.1	10	10	0	10	1	10	0	01/9	
03/1	JP GRATED 900 x 900	0.004	100	0.9	5	175.1			5	175.1	2	5	175.1	2	2	0	2	1	2	0	01/4	SIP WITH TRENCH GRATE CONNECTION
04/1	JP GRATED 900 x 900	0.037	85	0.878	5	175.1	10	133.8	10	133.8	12	5	175.1	15	15	0	15	1	15	0	01/8	
05/1	NODE	0.047	100	0.9	5	175.1			5	175.1	21	5	175.1	21	21	0	21	1	21	0	01/5	ROOFWATER DOWNPIPE
06/1	NODE	0.058	100	0.9	5	175.1			5	175.1	25	5	175.1	25	25	0	25	1	25	0	02/2	ROOFWATER DOWNPIPE
07/1	NODE	0.047	100	0.9	5	175.1			5	175.1	21	5	175.1	21	21	0	21		21	0		ROOFWATER DOWNPIPE
08/1	NODE	0.052	100	0.9	5	175.1			5	175.1	23	5	175.1	23	23	0	23	1	23	0	01/3	ROOFWATER DOWNPIPE

DESIGN STORM 1:20yr ARI HYDRAULIC RESULTS

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA Af (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA TIME Tc (min)	PART-AREA INTENSITY I (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (L/s)	NET BYPASS FLOW Qb (L/s)	PIPE FLOW Q (L/s)	FLOW CAP. Qcap (L/s)	Q/Qcap RATIO (-)	FULL PIPE VELOCITY (m/s)	NORM. DEPTH VELOCITY (m/s)	CRIT. DEPTH VELOCITY (m/s)	U/S PIT GRATE RL (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE V'HEAD (m)	PIT LOSS (Ku.V'head) (m)	WSE LOSS (Kw.V'head) (m)	TOTAL PIPE LOSS (m)	U/S PIT HGL (m)	U/S PIPE HGL (m)	D/S PIPE HGL (m)	HGL GRADE (%)	MIN. COVER (m)	U/S FREEBOARD (m)	COMMENTS
01/1 to 01/2	uPVC	150	6.62	1	0.02	10	133.8	0.022	8.3	5	175.1	0.02	10.4	0	10.4	0	10.4	19.8	0.53	0.59	1.13	0.89	32.9	32.111	32.045	0.03	4.5		0.02	0.08	0.08	0.02	32.324	32.244	32.229	0.23	0.37	0.58	
01/2 to 01/3	uPVC	150	18.01	1	0.02	10.06	133.5	0.026	9.8	5.06	174.4	0.03	12.2	0	12.2	0	12.2	19.8	0.62	0.69	1.18	0.95	32.9	32.015	31.834	0.075	1.98	2.43	0.02	0.05	0.06	0.07	32.24	32.181	32.113	0.38	0.36	0.66	
01/3 to 01/4	uPVC	225	12.87	1	0.04	10.21	132.6	0.088	32.6	5.04	174.6	0.09	41.7	0	41.7	0	41.7	58.4	0.71	1.05	1.6	1.29	32.8	31.759	31.631	0.25	2.28	2.55	0.06	0.13	0.14	0.07	32.128	31.985	31.919	0.51	0.6	0.67	
01/4 to 01/5	uPVC	225	16.69	0.8	0.04	10.31	132.1	0.092	33.8	5.14	173.3	0.09	43.1	0	43.1	0	43.1	52.2	0.83	1.09	1.47	1.31	32.6	31.381	31.247	0.03	1.94	2.15	0.06	0.12	0.13	0.09	31.932	31.803	31.712	0.55	1.02	0.67	
01/5 to 01/6	uPVC	300	24.04	0.8	0.07	10.45	131.3	0.153	55.8	5.28	171.7	0.15	71.3	0	71.3	0	71.3	112.5	0.63	1.01	1.68	1.36	32.5	31.217	31.025	0.05	1.82	2.07	0.05	0.09	0.11	0.08	31.725	31.617	31.54	0.32	1.2	0.78	
01/6 to 01/7	uPVC	300	13.8	0.8	0.07	10.65	130.2	0.165	59.8	5.48	169.4	0.16	76	0	76	0	76	112.5	0.68	1.08	1.71	1.4	32.4	30.975	30.865	0.05	2.04	2.49	0.06	0.12	0.15	0.05	31.566	31.42	31.369	0.37	1.31	0.83	
01/7 to 01/8	uPVC	300	15.55	0.8	0.07	10.77	129.6	0.174	62.8	5.6	168.1	0.17	79.5	0	79.5	0	79.5	112.5	0.71	1.12	1.72	1.43	32.3	30.815	30.69	0.03	1.46	1.69	0.06	0.09	0.11	0.06	31.384	31.275	31.213	0.4	1.42	0.92	
01/8 to 01/9	uPVC	375	11.67	0.8	0.11	10.9	128.9	0.241	86.2	5.73	166.7	0.24	109	0	109	0	109	204	0.53	0.99	1.88	1.44	32.2	30.66	30.567	0.03	1.49	1.77	0.05	0.07	0.09	0.03	31.227	31.139	31.112	0.23	1.5	0.97	
01/9 to 01/10	RRJ2	450	2.67	1	0.16	10.99	128.4	0.513	183	5.58	168.4	0.49	226.9	0	226.9	0	226.9	309	0.73	1.43	2.12	1.78	32.15	30.537	30.51	0.93	2.31	2.62	0.1	0.24	0.27	0.01	31.145	30.872	30.797	2.83	1.5	1.01	
01/10 to 32/01	RRJ2	450	2.55	0.39	0.16	11.02	128.3	0.513	182.8	5.6	168.1	0.49	226.6	0	226.6	0	226.6	193.4	1.17	1.42	1.42	1.78	32.2	29.58	29.57		2		0.1	0.21	0.21	0.01	30.153	29.946	29.91	1.4	2.41	2.05	CONNECTION INTO SUBDIVISION INTERALLOTMENT STORMWATER SYSTEM
02/1 to 02/2	uPVC	150	23	1	0.02	10	133.8	0.023	8.5	5	175.1	0.02	10.2	0	10.2	0	10.2	19.8	0.52	0.58	1.13	0.88	32.8	31.627	31.397	0.05	4.5		0.02	0.08	0.08	0.06	32.244	32.167	32.106	0.27	1.55	0.56	
02/2 to 02/3	uPVC	225	19.57	1	0.04	10.19	132.7	0.135	49.8	5.09	173.9	0.13	61.7	0	61.7	0	61.7	58.4	1.06	1.55	1.66	1.64	32.6	31.347	31.151	0.05	1.72	1.82	0.12	0.21	0.22	0.22	32.119	31.896	31.677	1.12	1.52	0.48	
02/3 to 02/4	uPVC	300	22.09	1	0.07	10.35	131.8	0.202	74.1	5.26	172	0.19	90.5	0	90.5	0	90.5	125.8	0.72	1.28	1.94	1.53	32.4	31.101	30.88	0.05	1.64	1.87	0.08	0.14	0.16	0.11	31.696	31.54	31.426	0.52	1.47	0.7	
02/4 to 01/9	uPVC	300	14.37	1	0.07	10.54	130.8	0.258	93.7	5.44	169.9	0.24	113.8	0	113.8	0	113.8	125.8	0.9	1.61	2.01	1.75	32.25	30.83	30.687	0.15	1.48	1.7	0.13	0.2	0.22	0.12	31.454	31.23	31.112	0.82	1.52	0.8	
03/1 to 01/4	uPVC	150	4.42	1	0.02	5	175.1	0.004	1.8	5	175.1	0	1.8	0	1.8	0	1.8	19.8	0.09	0.1	0.7	0.51	32.28	31.455	31.411	0.03	4.5		0	0	0	0	31.922	31.92	31.919	0.01	1.01	0.36	
04/1 to 02/4	uPVC	150	5.25	1.9	0.02	10	133.8	0.032	11.9	5	175.1	0.03	14.6	0	14.6	0	14.6	27.3	0.53	0.83	1.57	1.03	32.3	31.5	31.4	0.57	4.64		0.03	0.16	0.16	0.06	31.774	31.612	31.478	2.55	1.02	0.53	
05/1 to 01/5	uPVC	150	4.26	1.17	0.02	5	175.1	0.042	20.5	5	175.1	0.04	20.5	0	20.5	0	20.5	21.5	0.96	1.16	1.38	1.26	32.8	32.15	32.1	0.883	2		0.07	0.14	0.14	0.05	32.418	32.28	32.217	1.48	0.41	0.38	
06/1 to 02/2	uPVC	150	11.05	1.81	0.02	5	175.1	0.052	25.3	5	175.1	0.05	25.3	0	25.3	0	25.3	26.6	0.95	1.43	1.72	1.48	33.4	32.4	32.2	0.853	3.06		0.1	0.32	0.32	0.18	32.859	32.539	32.317	2.02	0.49	0.54	
07/1 to 01/8	uPVC	150	3.37	2.97	0.02	5	175.1	0.042	20.5	5	175.1	0.04	20.5	0	20.5	0	20.5	34.1	0.6	1.16	2.02	1.26	32.8	31.9	31.8	1.14	3.58		0.07	0.25	0.25	0.02	32.277	32.03	31.884	4.35	0.51	0.52	
08/1 to 01/3	uPVC	150	4.53	2.21	0.02	5	175.1	0.047	22.9	5	175.1	0.05	22.9	0	22.9	0	22.9	29.4	0.78	1.3	1.84	1.36	33.4	32.5	32.4	0.641	2		0.09	0.17	0.17	0.06	32.807	32.636	32.5	3.01	0.03	0.59	

	AMENDMENT	DES	DRN	CKD	APR	DATE
B	DRAINAGE CALCULATIONS UPDATED	JC	JM	MS	RO	27/08/20
A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20

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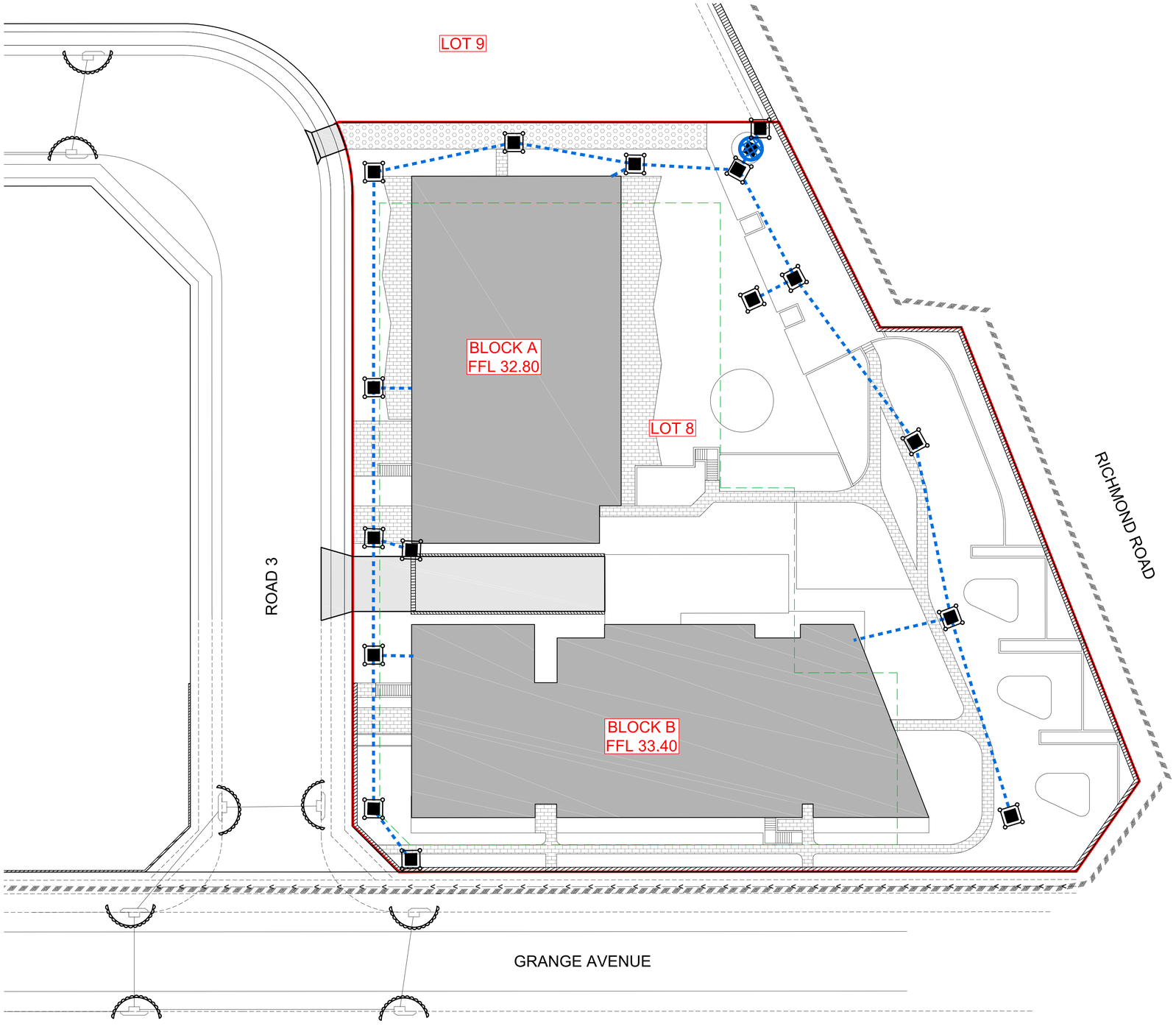
PLAN OF PROPOSED LOT 8 SUBDIVISION
GRANGE AVENUE, MARSDEN PARK
DRAINAGE CALCULATIONS

PLAN No: 11041911/DA427 B

FILE No: 11041911DA427

SHEET SIZE: A1 ORIGINAL

Plotted: 24 May , 2021 12:27:23 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DALOT 8\11041911DA427.dwg



LEGEND

- FILTER ROLL
- INLET FILTER
- 30 — EXISTING CONTOURS
- SEDIMENT FENCE
- STABILISED SITE ACCESS
- SP — STOCKPILE

NOTES:

1. MAINTAIN PROTECTIVE FENCING
2. MAINTAIN FLAGGING AREA FENCING
3. MAINTAIN ENTRY TO SITE AS DIRECTED AND POSITIONED BY SITE SUPERVISOR.
4. PLACE SEDIMENT FENCE AS INDICATED

NOTE:

USE EXISTING SEDIMENT BASIN AS IMPLEMENTED AS PART OF BULK EARTHWORKS. REFER TO DRAWING SET 11041902DA01 - DA39

NOTE:

SEDIMENT CONTROL IN FUTURE ROAD 3 AND GRANGE AVENUE TO BE IN PLACE IF STORMWATER SYSTEM IS CONSTRUCTED

1:250 (AT A1)
1:500 (AT A3)

5 0 5 10 15 20 25
METRES

B	ARCHITECTURAL DRAINAGE LAYOUT AMENDED	JC	JM	MS	RO	27/08/20
A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PLAN OF PROPOSED LOT 8 SUBDIVISION GRANGE AVENUE, MARSDEN PARK

SOIL & WATER MANAGEMENT PLAN

PLAN No: 11041911/DA428 B
FILE No: 11041911DA428
SHEET SIZE: A1 ORIGINAL

Plotted: 24 May, 2021 12:27:36 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DALOT 8\11041911DA428.dwg

SOIL AND WATER MANAGEMENT NOTES

GENERAL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE " SOILS AND CONSTRUCTION - VOLUME 1, 4TH EDITION, MARCH 2004 ".
2. TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
3. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
4. ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
6. ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.
7. DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.
8. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
9. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.
10. THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.
11. CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK").
12. ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.
13. THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LAND USE	LIMITATION	COMMENTS
CONSTRUCTION AREAS	DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS	ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL.
ACCESS AREAS	LIMITED TO A MAXIMUM WIDTH OF 10m	THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS.
REMAINING LANDS	ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH	THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION.

NOTE:
WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE A GROUNDCOVER MORE THAN 70%, USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

14. WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE. EACH SUBSEQUENT STAGE IS NOT TO COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE:-

    a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL(SD) 6-8.
    b. CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 6-14.
    c. CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-5.
    d. PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S)AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-8 OR BARRIER FENCING AND EARTH BANKS (SD) 5-5.
    e. PLACE SEDIMENT FENCING (SD) 6-8 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.
    f. CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4
    g. STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED
    h. CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.
    i. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS.
    j. GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
    k. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.

15. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE
16. EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-

    a. 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m
    b. 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m
    c. 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m
    d. 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m
    e. 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m
    f. 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

    SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

17. PROTECTION FROM EROSIVE FORCES SHALL BE UNDERTAKEN ON ALL LANDS. GROUND COVER TO BE IN PLACE WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION AND BEFORE THEY ARE ALLOWED TO CARRY ANY CONCENTRATED FLOWS.
18. TEMPORARY GROUND COVER SHOULD BE MINIMUM 70%. FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS.
19. WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO SCHEDULE WORKS SUCH THAT LAND DISTURBANCE ACTIVITIES ARE COMPLETED IN LESS THAN 6 MONTHS. REVEGETATION WORKS MUST BE CARRIED OUT AS STIPULATED IN THE RELEVANT COUNCIL GUIDELINES / SPECIFICATIONS SUCH THAT A SATISFACTORY GROUND COVER IS PROVIDED TO AT LEAST 60% OF THE DISTURBED AREA WITHIN 10 DAYS AND AT LEAST 70% OF THE DISTURBED AREA WITHIN A FURTHER 60 DAYS..
20. SEDIMENT FENCES (SD) 6-8 SHALL:-

    a. BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
    b. HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m, AND A STORAGE DEPTH OF AT LEAST 0.6m.
    c. PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 50litres/sec IN A MAX. 10yr Tc DISCHARGE.

21. STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.
22. DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.
23. STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.
24. THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-

    a. BE CONSTRUCTED WHERE SHOWN ON THE PLANS.
    b. BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)
    c. HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.

25. STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-

    a. LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING
    b. THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE
    c. THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT DISCHARGING SEDIMENT FROM THE SITE.

26. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.
27. WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-11 & 6-12.
28. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.
29. ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

STOCKPILE NOTES:

1. SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
2. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
3. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATED.

SEDIMENTATION CONTROL DEVICES:

1. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 600mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.
2. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2.5m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG IT'S LOWER EDGE.
3. PROVIDE STRIP OF TURF MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

SITE INSPECTION AND MAINTENANCE:

1. A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A INSPECTION TEST PLAN (ITP) OR LOG BOOK. A SITE INSPECTION USING THE ITP SHALL BE MADE BY THE SITE MANAGER-:

    a. AT LEAST WEEKLY
    b. IMMEDIATELY BEFORE SITE CLOSURE
    c. IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.

    THE SELF AUDIT SHALL INCLUDE:-

    a. RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED
    b. RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'
    c. RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE
    d. RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
    e. FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.

2. IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-

    a. 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION. TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.
    b. ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS

    THE RESPONSIBLE PERSON SHALL ENSURE THAT:-

    a. THIS PLAN IS BEING IMPLEMENTED CORRECTLY
    b. REPAIRS ARE BEING UNDERTAKEN AS REQUIRED
    c. ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY. EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.

3. WASTE BINS SHALL BE EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT
4. PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED,ESPECIALLY THAT:-

    a. NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.
    b. AREAS OF EROSION ARE REPAIRED (e.g LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
    c. BLOCKAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)

5. SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.
6. RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.
7. EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.
8. ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-

    a. RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.
    b. DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED
    c. SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLING ZONE.

9. ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.
10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.
11. WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(s) SHALL BE:-

    a. TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)
    b. DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.

12. LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

	AMENDMENT	DES	DRN	CKD	APR	DATE
A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20

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AZIMUTH:
DATUM:
ORIGIN:

CLIENT: Universal Property Group Pty Ltd

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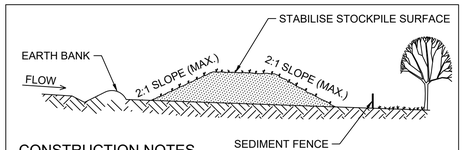
NOT FOR CONSTRUCTION

PLAN OF PROPOSED LOT 8 SUBDIVISION
GRANGE AVENUE, MARSDEN PARK
SOIL & WATER MANAGEMENT NOTES

PLAN No: 11041911/DA429 A
FILE No: 11041911DA429
SHEET SIZE: A1 ORIGINAL

Plotted: 24 May 2021 12:27:40 PM File Name: J:\110419 - Richmond Road Marsden Park\11 - Grange Ave SUPERLOTS\CD\DALOT 8\11041911DA429.dwg



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW AND HAZARD AREAS.

2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.

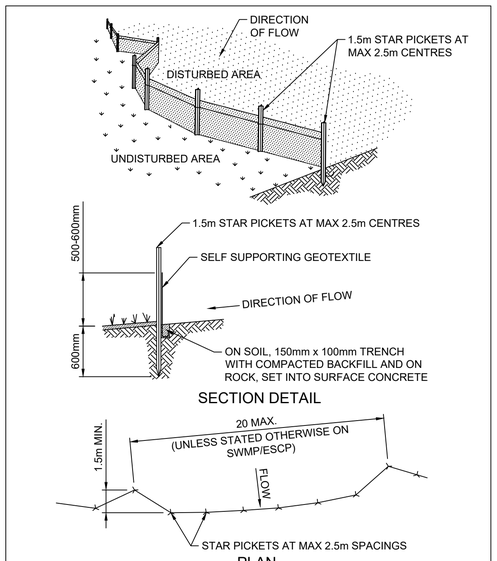
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.

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 2 METRES DOWNSLOPE.

STOCKPILES SD4-1

N.T.S



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 1.5 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.

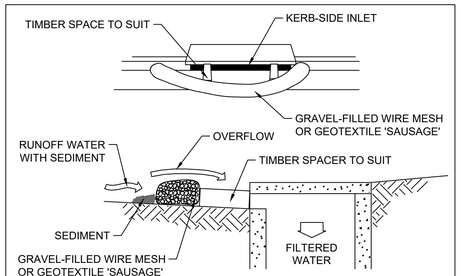
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.

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 SD6-8

N.T.S.



NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

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-50mm GRAVEL.

3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.

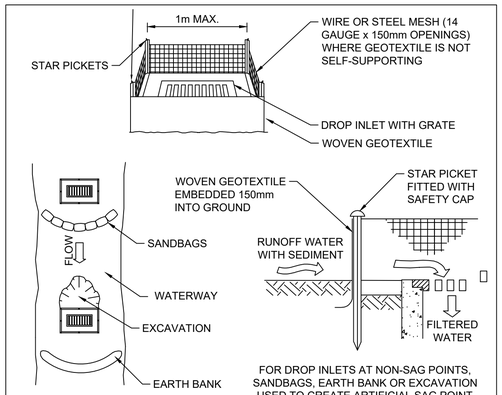
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.

5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING 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 & GRAVEL INLET FILTER SD6-11

N.T.S.



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.

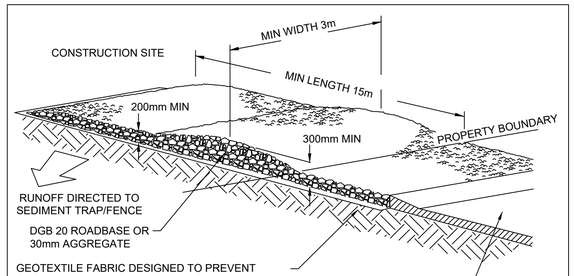
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.

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 SD6-12

N.T.S.



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 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m 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 SD6-14

N.T.S.

A	NEW SHEET ADDED	JC	JM	MS	RO	21/07/20
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH:
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ORIGIN:

CLIENT: Universal Property Group Pty Ltd

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR DA APPROVAL
NOT FOR CONSTRUCTION

PLAN OF PROPOSED LOT 8 SUBDIVISION
GRANGE AVENUE, MARSDEN PARK
SOIL & WATER MANAGEMENT DETAILS

PLAN No: 11041911/DA430 A
FILE No: 11041911DA430
SHEET SIZE: A1 ORIGINAL