Prepared by:

Orion Consulting

CONSULT AUSTRALIA
Member Firm

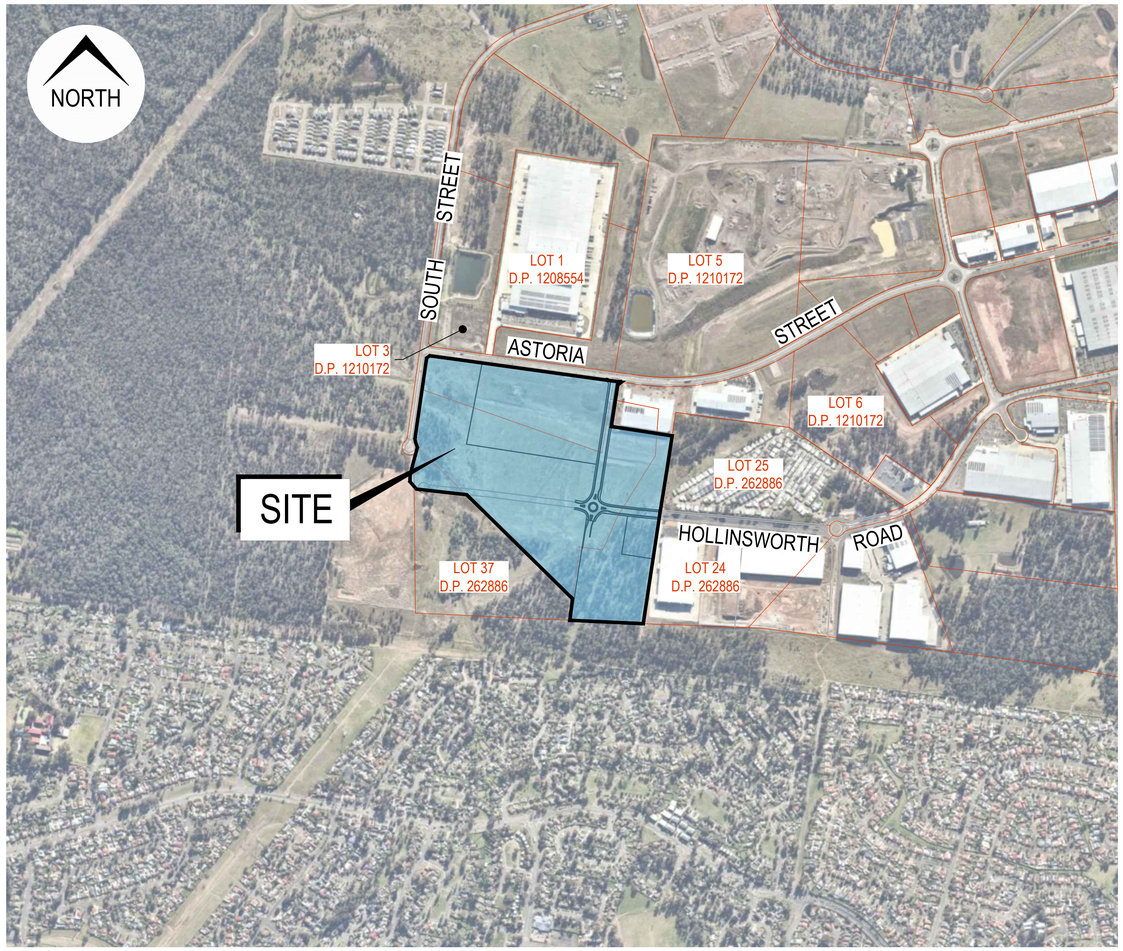
Prepared for:

sydney business park

LGA:

Blacktown City Council

DA: _____



SITE / LOCATION (Image courtesy of Nearmap 23.06.2020)

LOTS 4 & 5, D.P. 1210172
LOT 36, D.P. 262886

STAGE 3, SYDNEY BUSINESS PARK, MARSDEN PARK

ROAD, DRAINAGE & BULK EARTHWORKS DESIGN

ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

PLAN INDEX

No.	PLAN	REV
PRELIMINARIES		
DA 000	COVER SHEET	A
DA 001	GENERAL LAYOUT PLAN, NOTES & LEGEND	A
DA 002	SITE CONSTRAINTS PLAN	A
DA 003	DEMOLITION & TREE REMOVAL PLAN	A
DA 004	COMBINED SERVICES PLAN	A
DA 005	SITE REGRADING PLAN	A
DA 006	SITE REGRADING SECTIONS SHEET 01 OF 04	A
DA 007	SITE REGRADING SECTIONS SHEET 02 OF 04	A
DA 008	SITE REGRADING SECTIONS SHEET 03 OF 04	A
DA 009	SITE REGRADING SECTIONS SHEET 04 OF 04	A
SEDIMENT & EROSION CONTROL		
DA 100	SEDIMENT & EROSION CONTROL PLAN	A
DA 101	SEDIMENT & EROSION CONTROL PLAN NOTES & DETAILS	A
ENGINEERING & ROADWORKS		
DA 200	ENGINEERING PLAN SHEET 01 OF 05	A
DA 201	ENGINEERING PLAN SHEET 02 OF 05	A
DA 202	ENGINEERING PLAN SHEET 03 OF 05	A
DA 203	ENGINEERING PLAN SHEET 04 OF 05	A
DA 204	ENGINEERING PLAN SHEET 05 OF 05	A
DA 300	TYPICAL ROAD CROSS SECTIONS & DETAILS	A
DA 301	ROAD LONG SECTIONS SHEET 01 OF 02	A
DA 301	ROAD LONG SECTIONS SHEET 02 OF 02	A

No.	PLAN	REV
STORMWATER DRAINAGE		
DA 400	STORMWATER CATCHMENT PLAN	A
DA 401	OVERALL STORMWATER CATCHMENT PLAN	A
DA 405	WATER QUALITY DETAILS SHET 01 OF 02	A
DA 406	WATER QUALITY DETAILS SHET 02 OF 02	A
DA 410	DRAINAGE LONG SECTIONS SHEET 01 OF 15	A
DA 411	DRAINAGE LONG SECTIONS SHEET 02 OF 15	A
DA 412	DRAINAGE LONG SECTIONS SHEET 03 OF 15	A
DA 413	DRAINAGE LONG SECTIONS SHEET 04 OF 15	A
DA 414	DRAINAGE LONG SECTIONS SHEET 05 OF 15	A
DA 415	DRAINAGE LONG SECTIONS SHEET 06 OF 15	A
DA 416	DRAINAGE LONG SECTIONS SHEET 07 OF 15	A
DA 417	DRAINAGE LONG SECTIONS SHEET 08 OF 15	A
DA 418	DRAINAGE LONG SECTIONS SHEET 09 OF 15	A
DA 419	DRAINAGE LONG SECTIONS SHEET 10 OF 15	A
DA 420	DRAINAGE LONG SECTIONS SHEET 11 OF 15	A
DA 421	DRAINAGE LONG SECTIONS SHEET 12 OF 15	A
DA 422	DRAINAGE LONG SECTIONS SHEET 13 OF 15	A
DA 423	DRAINAGE LONG SECTIONS SHEET 14 OF 15	A
DA 424	DRAINAGE LONG SECTIONS SHEET 15 OF 15	A
TRAFFIC CONTROL		
DA 600	ROUNDABOUT VEHICLE TURN PATH PLAN SHEET 01 OF 03	A
DA 601	ROUNDABOUT VEHICLE TURN PATH PLAN SHEET 02 OF 03	A
DA 602	ROUNDABOUT VEHICLE TURN PATH PLAN SHEET 03 OF 03	A

Project No. 20-0127 Set No. 02 Milestone DA Plan 000 Revision A

INSET A

LEGEND

	EXISTING	PROPOSED	FUTURE
UTILITY - ELECTRICITY	E	E	E
GAS	G	G	G
SEWER	S	S	S
WATER	W	W	W
TELECOMS	T	T	T
NBN	NBN	NBN	NBN
OPTIC FIBRE	OF	OF	OF
CONTOUR LINE & LABEL		20.0	
LOT NUMBER & BOUNDARY	LOT #	LOT #	LOT #
APPROXIMATE LIMIT OF WORKS			
BUILDING / ENVELOPE			
ROAD, NUMBER, CONTROL LINE, CHAINAGE & CHAINAGE MARK	CH# ROAD	CH# ROAD	CH# ROAD
COUNCIL STANDARD KERB & GUTTER		K&G	
COUNCIL STANDARD DISH CROSSING		DC	
EDGE OF BITUMEN		EOB	
COUNCIL STANDARD CONCRETE FOOTPATH & KERB RAMP			
STORMWATER DRAINAGE PIPE AND STRUCTURE			
STORMWATER DRAINAGE PIPE AND STUB			
TEMPORARY STORMWATER DRAINAGE PIPE			
EASEMENT (REFER LEGEND)	(A) (B) (C)	(A) (B) (C)	
SUBSOIL DRAIN		SS	
DIVERSION SWALE			
RETAINING WALL		RW1	
BATTER			
TREE - TO BE RETAINED OR TO BE REMOVED			
BATCH OF TREES - TO BE RETAINED OR TO BE REMOVED			
APPROXIMATE EDGE OF EXISTING PAVEMENT			
BASIN A NOT PART OF THIS APPLICATION. APPROVAL BY BLACKTOWN CITY COUNCIL UNDER SEPERATE S7.11 PROCESS. FINAL APPROVAL EXPECTED PRIOR TO CONSTRUCTION OF STAGE 3.			

GENERAL NOTES

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL (CURRENT EDITION) AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
2. THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
3. COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
4. DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
5. ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH THE EXISTING CONDITIONS.

STORMWATER DRAINAGE NOTES

D1. STORMWATER DESIGN CRITERIA:
1:100 MAJOR SYSTEM
1:20 MINOR SYSTEM

SURVEY PROVIDED BY FREEBURN SURVEYING: (DATED 29/05/2020)
COORDINATES: M.G.A GDA94 — DATUM: A.H.D.
COORDINATES ORIGIN: SSM 180705 — LEVELS ORIGIN: R.L. 42.040

UTILITIES SHOWN ARE DIAGRAMMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES/STANDARDS.

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale: 0 20 40 60 80 100 120 140 160 180 200
SCALE 1:2000 (A1) — SCALE 1:4000 (A3)

For: sydney business park

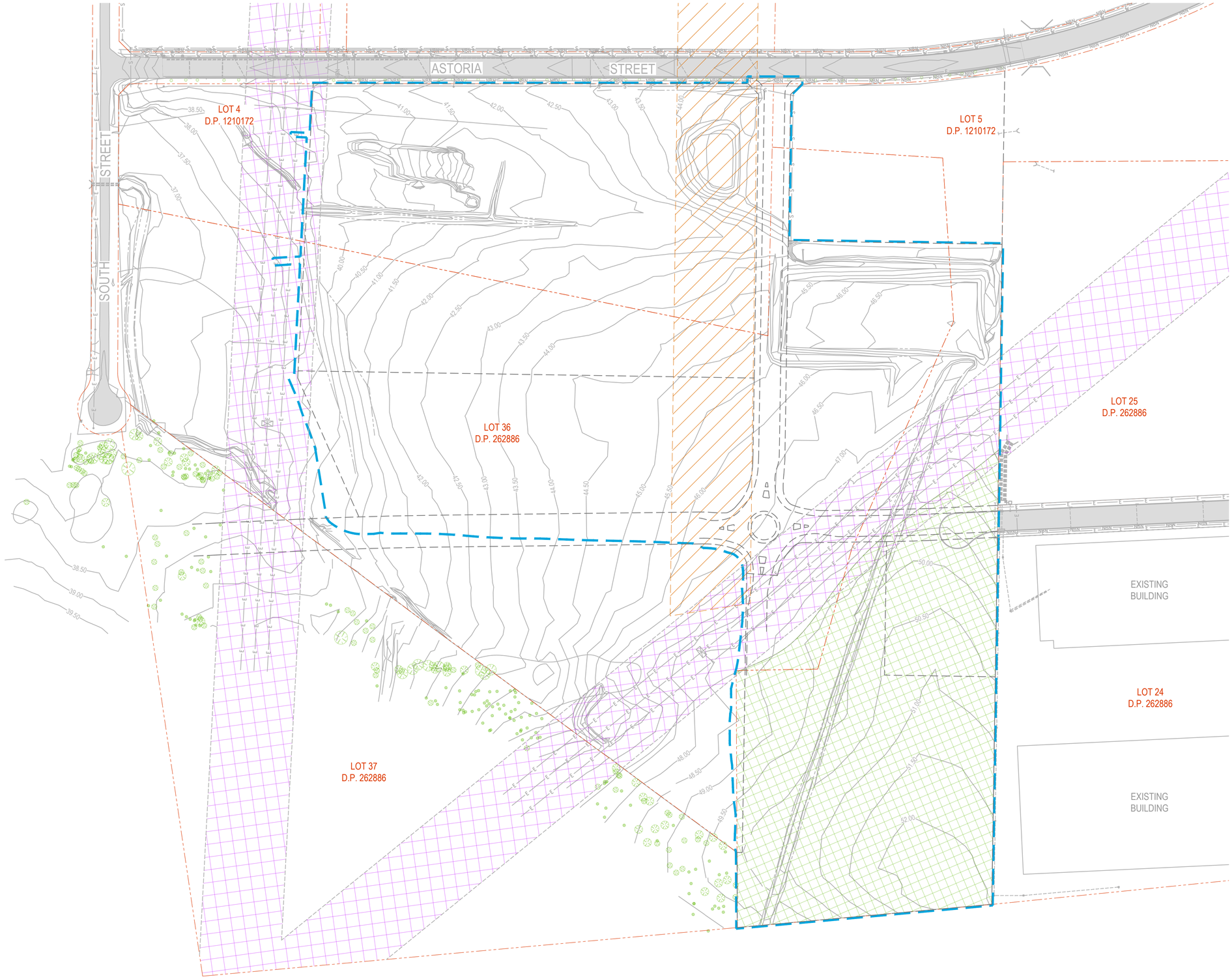
By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: GENERAL LAYOUT PLAN, NOTES & LEGEND

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	001	A

Plotted: File Name=C:\12dS\data\ORION-SYN\20\102-DA Development Application_2020\7\DWGS\20-0127-02-DA-001.dwg



LEGEND

EXISTING 60.96m WIDE ELECTRICAL EASEMENT	
INDICATIVE FUTURE METRO CORRIDOR	
APPROXIMATE LIMIT OF WORKS	
EXISTING ELECTRICITY	E E
EXISTING GAS	G G
EXISTING SEWER	S S
EXISTING WATER	W W
EXISTING TELECOMS	T T
EXISTING NBN	NBN NBN
EXISTING OPTIC FIBRE	OF OF
EXISTING TREES / EXISTING BATCH OF TREES	
EXISTING CONTOURS	60.0

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Scale:
0 15 30 45 60 75 90 105 120 135 150
SCALE 1:1500 (A1) SCALE 1:3000 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

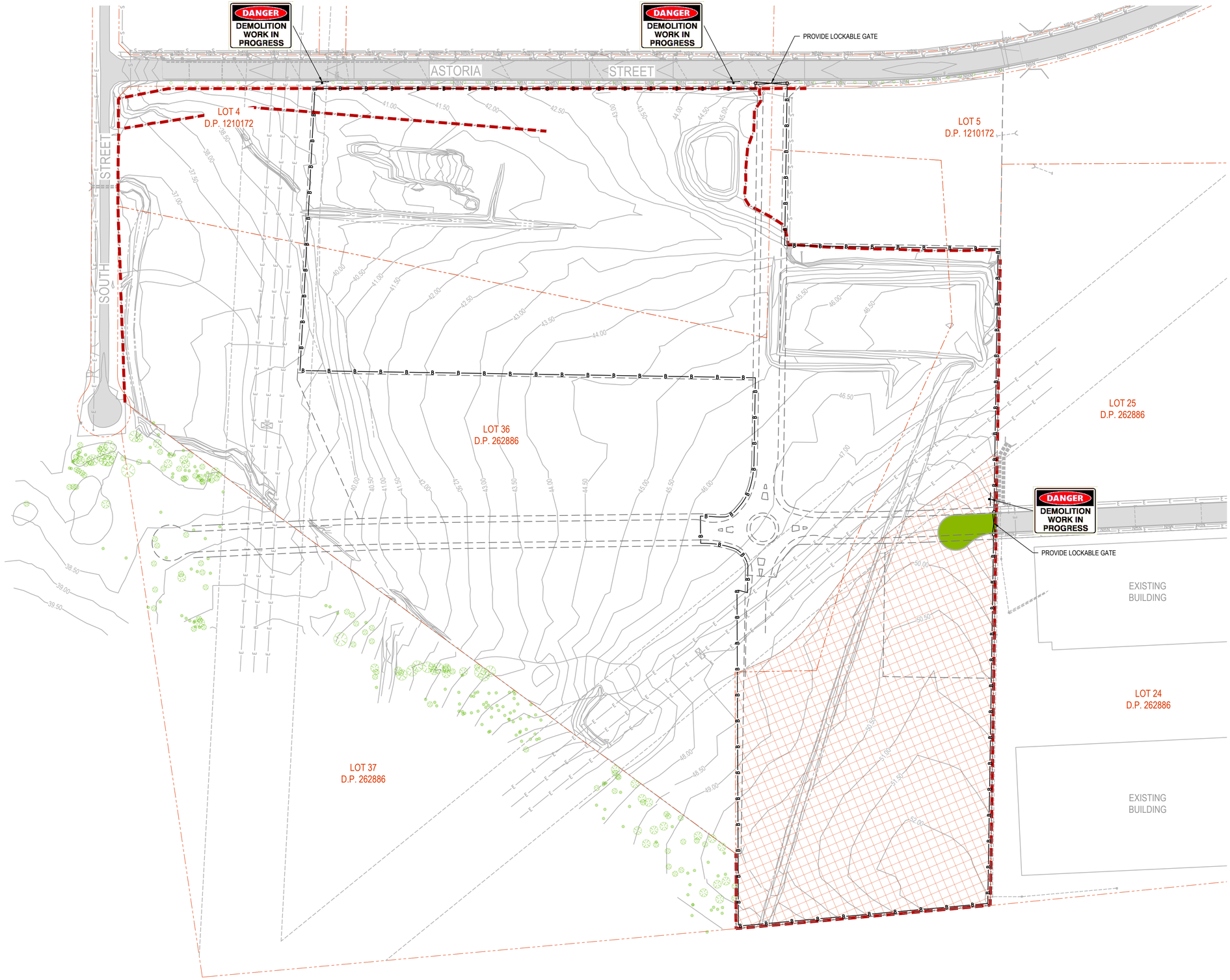
SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title: SITE CONSTRAINTS PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	002	A

Plotted. File Name:C:\12dSolids\ORION-SYNO\1\02-DA-Development Application - 2020\7\DWGS\20-0127-02-DA-002.dwg



LEGEND

EXISTING FENCE & GATE TO BE DEMOLISHED AND REMOVED OFFSITE TO APPROVED WASTE FACILITY	
EXISTING PAVEMENT TO BE DEMOLISHED AND REMOVED OFFSITE TO APPROVED WASTE FACILITY	
EXISTING TREES / EXISTING BATCH OF TREES TO BE REMOVED	
EXISTING TREES TO REMAIN	
EXISTING CONTOURS	60.0
SITE SECURITY FENCE	B

1. SURVEY PROVIDED BY FREEBURN SURVEYING: (DATED 29/05/2020)
2. CONTRACTOR TO ESTABLISH EXTENT OF ALL EXISTING SERVICES WITHIN THE EXTENT OF WORKS.
3. CONTRACTOR TO GAIN ALL NECESSARY APPROVALS & PERMITS TO DEMOLISH, CAP OR REMOVE EXISTING SERVICES AS REQUIRED.
4. CONTRACTOR TO ALLOW FOR THE DEMOLITION OF ALL EXISTING STRUCTURES & FEATURES (ABOVE & BELOW GROUND) ON THE SITE REQUIRED, INCLUDING BUILDINGS, FENCES, EXISTING PAVEMENT, DRAINAGE, SIGNS ETC.
5. ALL DEMOLITION WORKS SHALL COMPLY WITH THE PROVISIONS OF AS2601:2001 THE DEMOLITION OF STRUCTURES.
6. REMOVAL OF EXISTING ELECTRICAL INFRASTRUCTURE TO BE COMPLETED IN ACCORDANCE ELECTRICAL CONSULTANTS SPECIFICATIONS & DRAWINGS.
7. EXISTING SERVICES TO BE LOCATED FROM DBYD PLANS AND ONSITE SERVICES LOCATION.
8. TREE REMOVAL SHALL BE IN ACCORDANCE WITH THE HAWKESBURY CITY COUNCIL'S REQUIREMENTS AND SPECIFICATIONS.

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SIGNS

DANGER
DEMOLITION WORK IN PROGRESS

"DANGER - DEMOLITION IN PROGRESS", OR SIMILAR MESSAGE SHALL BE MAINTAINED ON THE FENCING AT APPROPRIATE PLACES TO WARN THE PUBLIC.

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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 15 30 45 60 75 90 105 120 135 150
SCALE 1:1500 (A1) SCALE 1:3000 (A3)

For: sydney business park

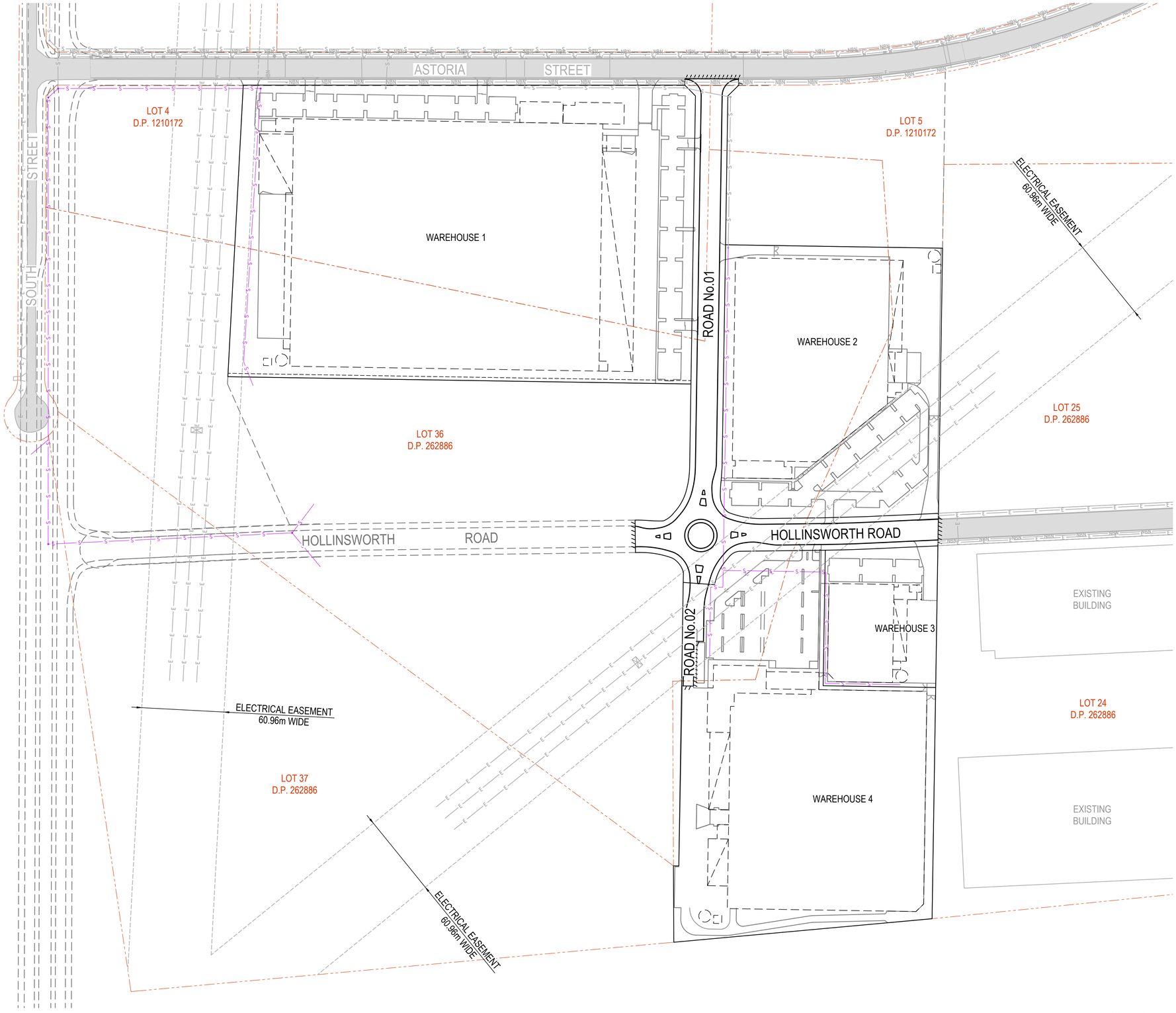
By: Orion Consulting
SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: DEMOLITION & TREE REMOVAL PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	003	A

Plotted: File Name:C:\12dEstate\ORION-SYNO\102-DA Development Application_2020\7.DWGS\20-0127-02-DA-003.dwg



LEGEND

	EXISTING	PROPOSED	FUTURE
UTILITY - ELECTRICITY	E	E	E
GAS	G	G	G
SEWER	S	S	S
WATER	W	W	W
NBN	NBN	NBN	NBN

NOTES:

1. PLAN PROVIDED FOR INFORMATION PURPOSES ONLY. REFER TO (CURRENT) APPROVED VERSION SERVICE PROVIDER DRAWINGS BY OTHERS
2. EXISTING SERVICE INFORMATION PROVIDED BY UTILITY MAPPING (DATED: 02/03/2020)
3. ADDITIONAL TELSTRA INFORMATION OBTAINED FROM DBYD (DATED: 25/06/2020)
4. OVERHEAD INFORMATION OBTAINED FROM SURVEY INFORMATION PROVIDED BY BLACKTOWN CITY COUNCIL (RECEIVED: 01/11/2017)

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0 15 30 45 60 75 90 105 120 135 150
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For: sydney business park

By: Orion Consulting
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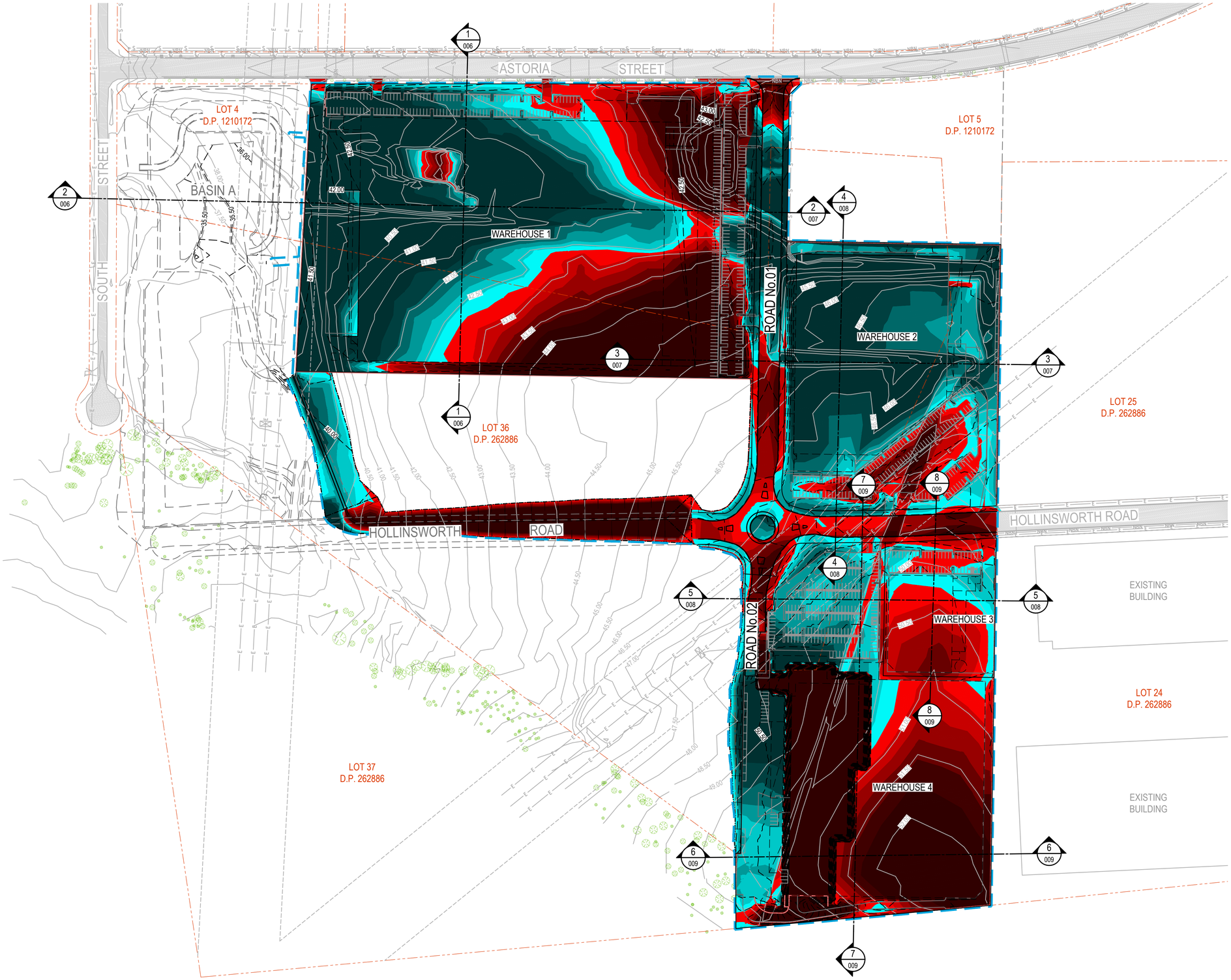
SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title: COMBINED SERVICES PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	004	A

Plotted: File Name:C:\12dSolids\ORION-SYN\0192-DA Development Application_2020\7DWG\20-0127-02-DA-004.dwg



LEGEND

APPROXIMATE EXTENT OF FILL	0.0 - 0.5m
	0.5 - 1.0m
	1.0 - 1.5m
	1.5 - 2.0m
	2.0 - 2.5m
	> 2.5m
APPROXIMATE EXTENT OF CUT	0.0 - 0.5m
	0.5 - 1.0m
	1.0 - 1.5m
	1.5 - 2.0m
	2.0 - 2.5m
	> 2.5m

VOLUMES

CUT -	115,730m³
FILL -	98,810m³
BALANCE -	16,920m³

NOTE:
- BULK EARTHWORKS QUANTITIES MEASURED AS SOLID VOLUMES, NO BULKING FACTOR HAS BEEN APPLIED

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Scale:
0 15 30 45 60 75 90 105 120 135 150
SCALE 1:1500 (A1) SCALE 1:3000 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

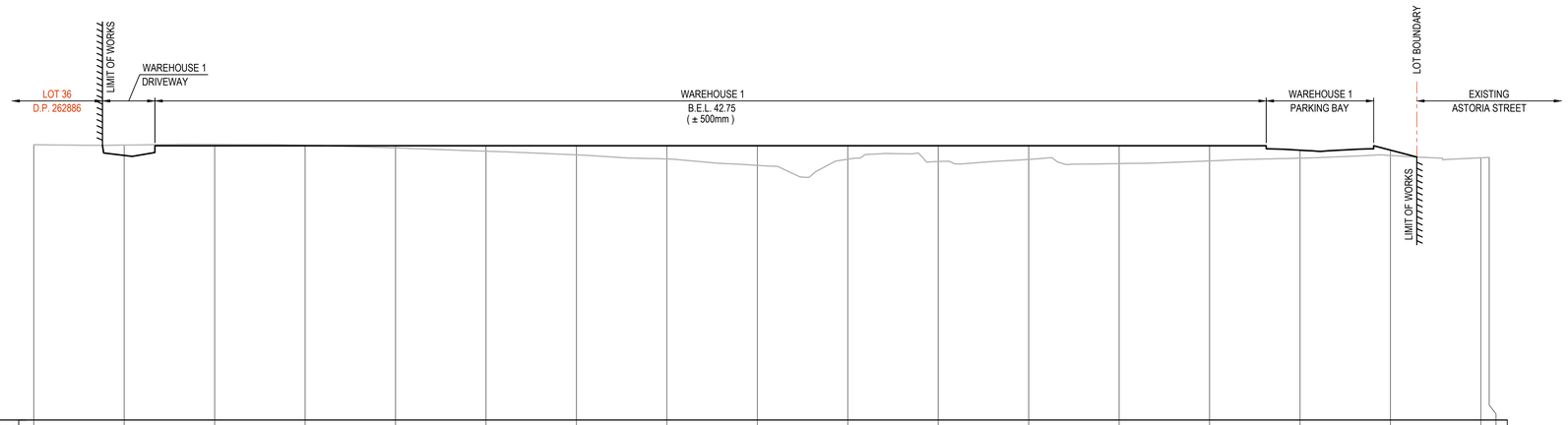
Title: SITE REGRADING PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	005	A

Plotted: File Name=C:\12d\Sites\ORION-SYN3\102-DA Development Application_2020\7.DWGS\20-0127-02-DA-005.dwg

LEGEND

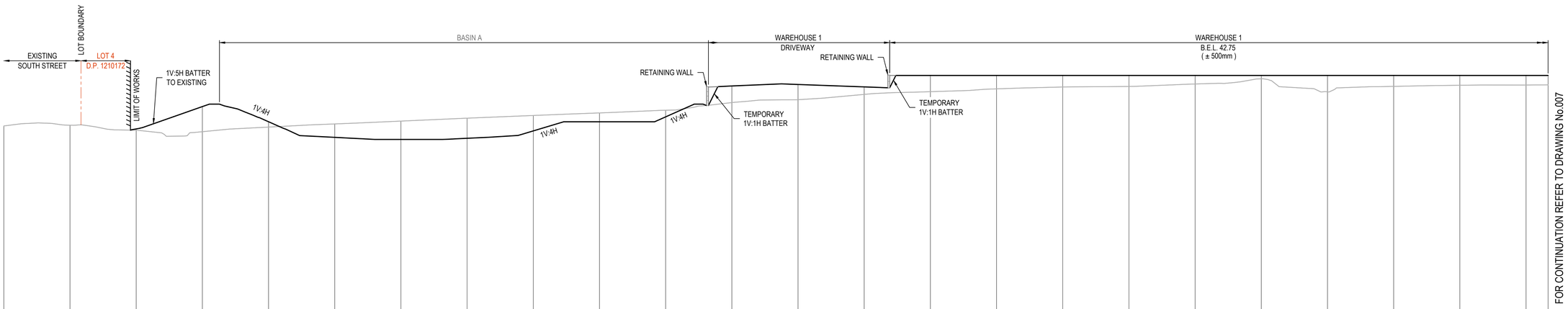
BULK EARTHWORKS LEVEL	
EXISTING SURFACE	
FUTURE SURFACE LEVEL	
SITE BOUNDARY	



DATUM R.L. 20

BEW DESIGN LEVEL		41.95	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.38	42.49		
EXISTING LEVEL	42.84	42.81	42.86	42.79	42.57	42.3	42	41.65	41.12	41.63	41.45	41.62	41.27	41.49	41.72	41.94	41.75	41.78
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	241.374

SITE SECTION 1 / 005
SCALE 1:500 (H)
SCALE 1:250 (V)



DATUM R.L. 15

BEW DESIGN LEVEL			36.69	39.22	37.5	35.73	35.5	35.63	36.47	37.5	38.06	41.56	41.73	41.45	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75	42.75
EXISTING LEVEL	37.03	37.12	36.54	36.37	36.9	37.26	37.58	37.91	38.21	38.5	38.81	39.68	40	40.6	40.91	41.23	41.44	41.5	41.78	42.36	40.89	41.51	41.63	41.66	41.68
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	350

SITE SECTION 2 / 005
SCALE 1:500 (H)
SCALE 1:250 (V)

ISSUED FOR **DEVELOPMENT APPLICATION**
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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50 — SCALE 1:500 (A1) — SCALE 1:1000 (A3)
0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25 — SCALE 1:250 (A1) — SCALE 1:500 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

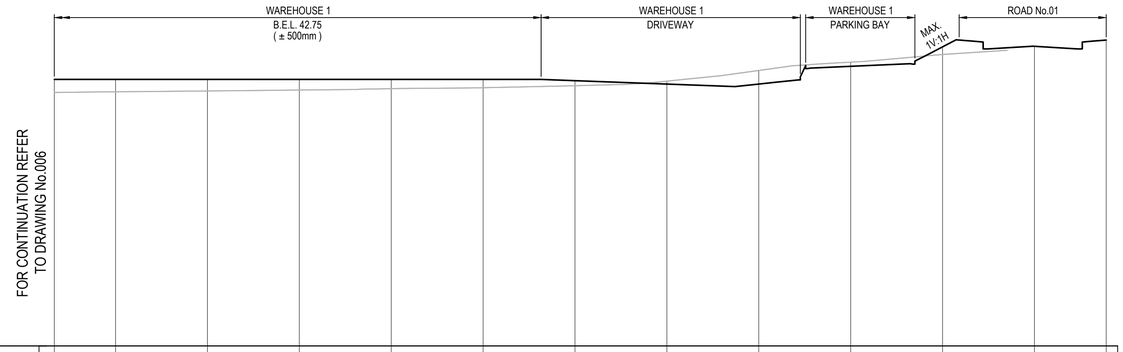
Title: SITE REGRADING SECTIONS
SHEET 01 OF 04

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	006	A

Profile: File Name:C:\12d\Sidata\ORION-STN01\02-DA-Development Application_2020\FOWDS\S20-0127-02-DA-006.dwg

LEGEND

BULK EARTHWORKS LEVEL	
EXISTING SURFACE	
FUTURE SURFACE LEVEL	
SITE BOUNDARY	

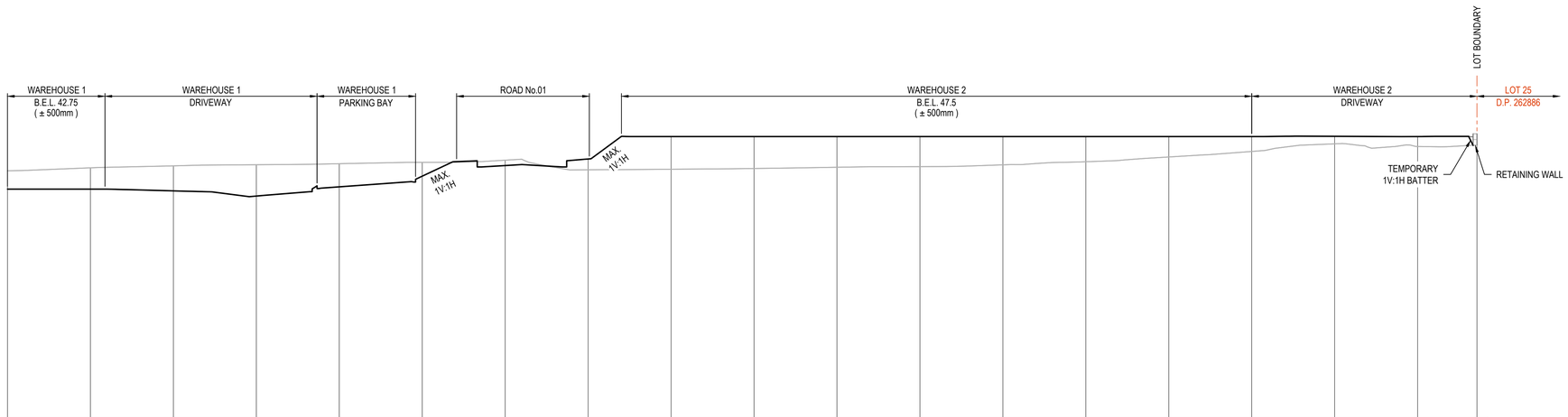


DATUM R.L. 21

BEW DESIGN LEVEL	42.75	42.75	42.75	42.75	42.75	42.75	42.85	42.37	42.37	43.82	45.4	45.45	45.96
EXISTING LEVEL	41.68	41.74	41.81	41.88	41.99	42.07	42.23	42.61	43.48	44.16	44.78		
CHAINAGE	350	360	375	390	405	420	435	450	465	480	495	510	521.716

SITE SECTION 2 / 005

SCALE 1:500 (H)
SCALE 1:250 (V)



DATUM R.L. 22

BEW DESIGN LEVEL	42.75	42.75	42.59	42.12	42.96	43.92	44.88	45.47	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.52	47.5	46.6
EXISTING LEVEL	44.41	44.67	44.85	44.96	45.05	45.17	45.36	44.49	44.54	44.62	44.73	44.78	44.95	45.22	45.65	46.16	46.84	46.6	46.6
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	265.73

SITE SECTION 3 / 005

SCALE 1:500 (H)
SCALE 1:250 (V)

ISSUED FOR **DEVELOPMENT APPLICATION**
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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25
SCALE 1:250 (A1) SCALE 1:500 (A3)

For: sydney business park

By: Orion Consulting
JAS-ANZ SUSTAINABLE CERTIFICATION ISO 9001 WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title: SITE REGRADING SECTIONS
SHEET 02 OF 04

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	007	A

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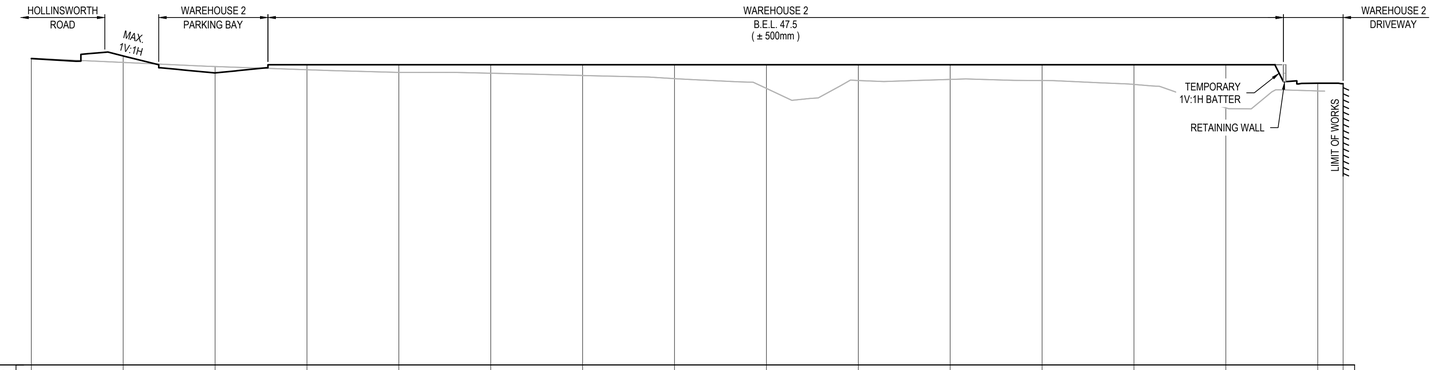
LEGEND

BULK EARTHWORKS LEVEL	———
EXISTING SURFACE	———
FUTURE SURFACE LEVEL	— — — —
SITE BOUNDARY	—·—·—

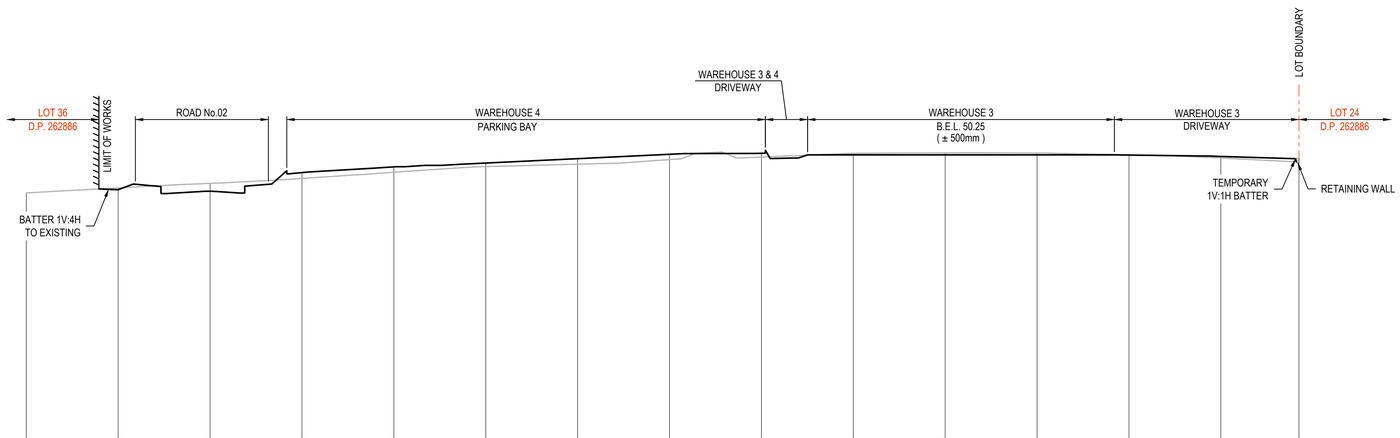


DATUM R.L. 23

BEW DESIGN LEVEL	48	48.22	46.83	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	45.99	45.95
EXISTING LEVEL	48.03	47.69	47.35	47.09	46.87	46.81	46.62	46.36	45.57	46.21	46.3	46.21	45.69	43.97	45.36	
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	214.14

SITE SECTION 4 / 005

SCALE 1:500 (H)
SCALE 1:250 (V)



DATUM R.L. 27

BEW DESIGN LEVEL		47.41	47.28	48.8	49.27	49.58	49.94	50.3	50.38	50.25	50.25	50.25	50.23	50.12	49.68
EXISTING LEVEL	47.14	47.56	47.33	48.33	48.83	49.29	49.49	49.87	50.07	50.38	50.41	50.4	50.25	49.99	49.68
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	207.75

SITE SECTION 5 / 005

SCALE 1:500 (H)
SCALE 1:250 (V)

ISSUED FOR **DEVELOPMENT APPLICATION**
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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
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SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25
SCALE 1:250 (A1) SCALE 1:500 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

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Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

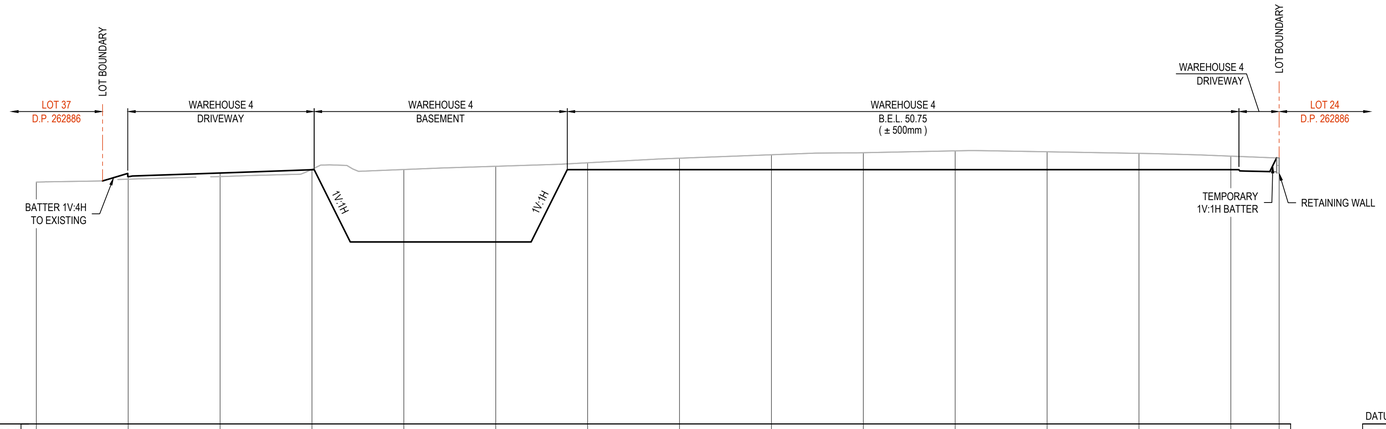
Title: SITE REGRADING SECTIONS
SHEET 03 OF 04

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	008	A

Profile: File Name:C:\12d\Sstate\ORION-STN01\02.DA Development Application_2020\TOWS\S20-0127-02-DA-008.dwg

LEGEND

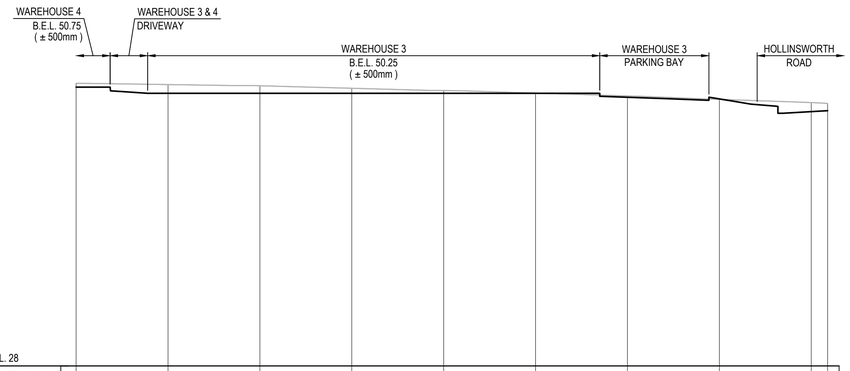
- BULK EARTHWORKS LEVEL
- EXISTING SURFACE
- FUTURE SURFACE LEVEL
- SITE BOUNDARY



DATUM R.L. 30

BEW DESIGN LEVEL		50.19	50.48	50.74	44.85	44.85	50.75	50.75	50.75	50.75	50.75	50.75	50.75	50.75	51.7
EXISTING LEVEL	49.73	49.97	50.19	50.79	50.76	51.03	51.31	51.68	51.97	52.13	52.28	52.21	52.08	51.85	51.7
CHAINAGE	0	15	30	45	60	75	90	105	120	135	150	165	180	195	202.882

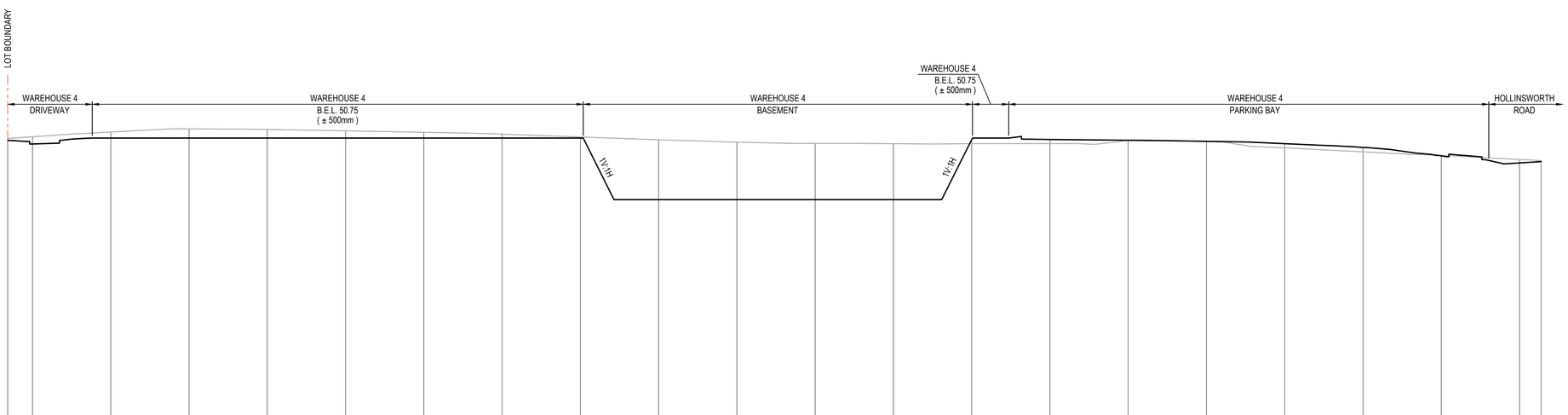
SITE SECTION 6 / 005
SCALE 1:500 (H)
SCALE 1:250 (V)



DATUM R.L. 28

BEW DESIGN LEVEL	50.75	50.25	50.25	50.25	50.25	50.25	49.92	49.79	48.75	48.83
EXISTING LEVEL	51.06	50.96	50.86	50.66	50.47	50.27	50.04	49.75	49.49	49.43
CHAINAGE	0	15	30	45	60	75	90	105	120	122.674

SITE SECTION 8 / 005
SCALE 1:500 (H)
SCALE 1:250 (V)



DATUM R.L. 24

BEW DESIGN LEVEL		50.5	50.18	50.75	50.75	50.75	50.75	50.75	50.75	50.75	44.85	44.85	44.85	44.85	50.6	50.61	50.53	50.43	50.21	49.85	49.04	48.37	48.49
EXISTING LEVEL		50.72	50.88	51.33	51.63	51.58	51.44	51.3	51.12	50.85	50.58	50.35	50.23	50.21	50.21	50.22	50.55	50.42	49.81	49.43	49.08	48.69	48.58
CHAINAGE	0	10.25	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	304.141

SITE SECTION 7 / 005
SCALE 1:500 (H)
SCALE 1:250 (V)

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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25
SCALE 1:250 (A1) SCALE 1:500 (A3)

For: sydney business park

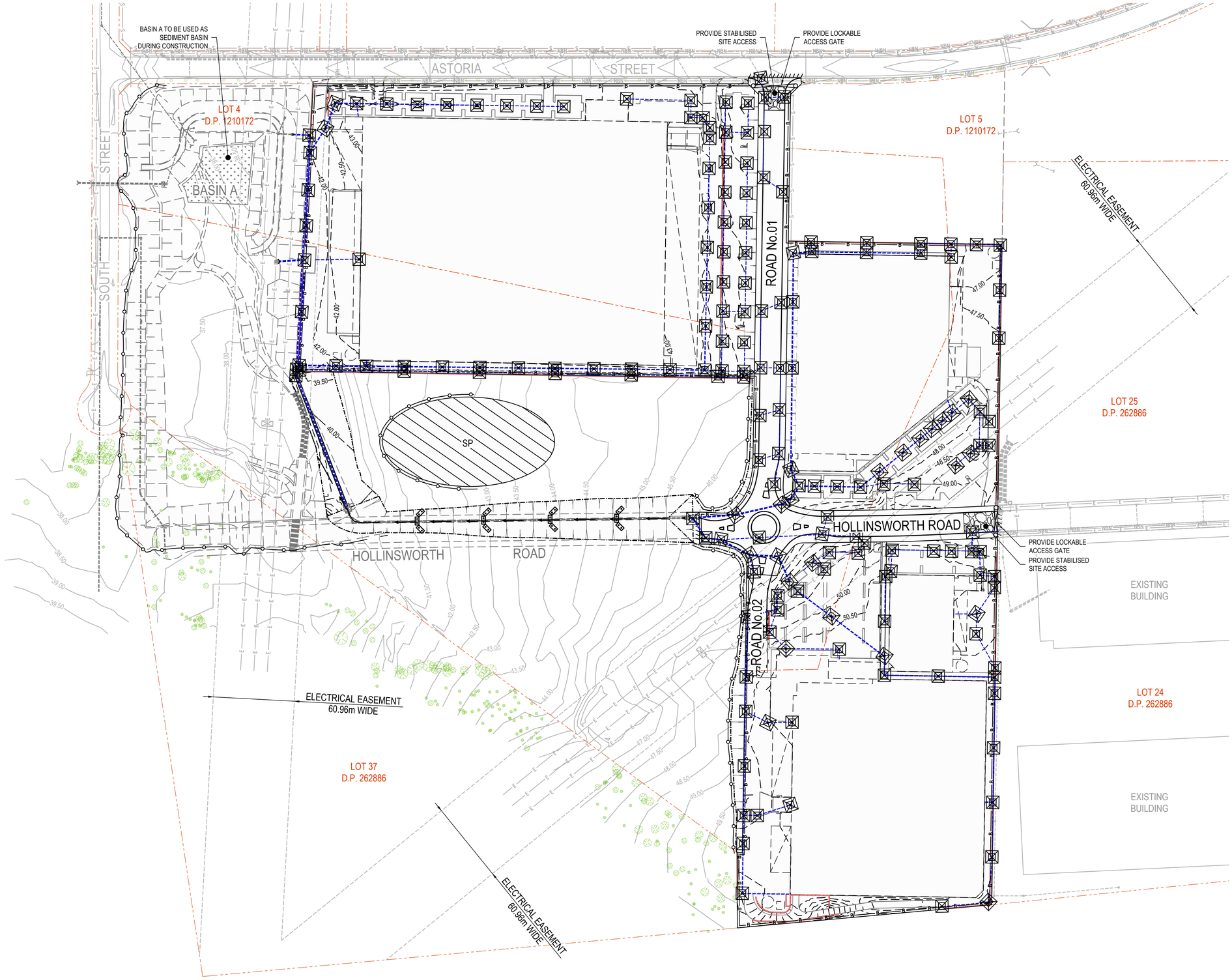
By: Orion Consulting
JAS-ANZ SUSTAINABLE CERTIFICATION ISO 9001 WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title: SITE REGRADING SECTIONS
SHEET 04 OF 04

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	009	A

Profile: File Name C:\12d\Sstate\ORION-STN01\02.DA Development Application_2020\FLOWS\S20-0127-02-DA-009.dwg



LEGEND

CONTOURS	55.0 — 60.0
STABILISED SITE ACCESS	
POSSIBLE STOCKPILE LOCATION	
SITE SECURITY FENCE	B — B — B
SEDIMENT FENCE	
CATCH DRAIN / DIVERSION SWALE	
PIT INLET FILTER (GEOTEXTILE OR MESH & GRAVEL)	
STRAW / HAY BALE FILTER	

UTILITIES SHOWN ARE DIAGRAMMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES/STANDARDS.

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1. Erosion Hazard and Sediment Basins

Site Name: Sydney Business Park

Site Location: Astoria Street, Marsden Park

Precinct/Stage: Stage 3

Other Details:

Site area	Sub-catchment or Name of Structure							Notes
	1	2	3					
Total catchment area (ha)	23.7	1.04	0.3					
Disturbed catchment area (ha)	16	1.04	0.3					
Soil analysis (enter sediment type if known, or laboratory particle size data)								
Sediment Type (C, F or D) if known	D	D	D					From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)								Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)								
% clay (fraction finer than 0.002 mm)								
Dispersion percentage								E.g. enter 10 for dispersion of 10%
% of whole soil dispersible								See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D					Automatic calculation from above
Rainfall data								
Design rainfall depth (no of days)	5	5	5					See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	75	75	75					
x-day, y-percentile rainfall event (mm)	19	19	19					
Rainfall R-factor (if known)								Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.1	10.1	10.1					
RUSLE Factors								
Rainfall erosivity (*R*-factor)	2250	2250	2250					Auto-filled from above
Soil erodibility (*K*-factor)	0.038	0.038	0.038					RUSLE LS factor calculated for a high rill/interrill ratio.
Slope length (m)	80	80	80					
Slope gradient (%)	3	2	2					
Length/gradient (*LS*-factor)	0.65	0.41	0.41					
Erosion control practice (*P*-factor)	1:3	1:3	1:3	1:3	1:3	1:3		
Ground cover (*C*-factor)	1	1	1	1	1	1		
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)								
Storage (soil) zone design (no of months)	2	2	2	2	2	2		Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.5	0.5	0.5					See Table F2, page F-4 in Appendix F
Calculations and Type D/F Sediment Basin Volumes								
Soil loss (t/ha/yr)	72	45	45					
Soil Loss Class	1	1	1					See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	56	35	35					Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	148	6	2					See Sections 6.3.4(l) for calculations
Sediment basin settling (water) volume (m^3)	2262	99	29					See Sections 6.3.4(l) for calculations
Sediment basin total volume (m^3)	2400	105	31					

ISSUED FOR **DEVELOPMENT APPLICATION**
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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 15 30 45 60 75 90 105 120 135 150
SCALE 1:1500 (A1) SCALE 1:3000 (A3)

For: sydney business park

By: Orion Consulting
SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 **PO Box:**7936, BAULKHAM HILLS NSW 2153 **T:**(02) 8660 0035 **E:**info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: SEDIMENT & EROSION CONTROL PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	100	A

Plotted: File Name:C:\12dSolids\ORION-SYN\0127-DA Development Application_2020\7\DWGS\20-0127-02-DA-100.dwg

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 "ENVIRONMENT PROTECTION AUTHORITY".AND "DEPT OF LAND AND WATER CONSERVATION". MEASURES OUTLINED IN THE SEDIMENT & EROSION CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.
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 STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
4. ALL TAIL-OUT DRAINS SHALL BE 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. 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.
7. ALL DISTURBED AREAS SHALL BE REVEGETATED WITHIN 14 WORKING DAYS FROM THE CONCLUSION OF LAND SHAPING.
8. MINIMISE DUST BY WATERING WHEN REQUIRED.

STOCKPILE NOTES:

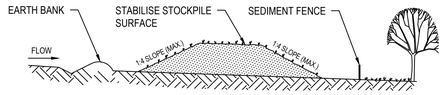
9. SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
10. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
11. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.
12. ALL STOCKPILES TO BE (MAX) 2m HIGH AND PROTECTED WITH SILT FENCE.

SPECIAL NOTES:

13. LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE.
14. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE GUIDELINES SET OUT IN "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION " -4TH EDITION AND THE ACCOMPANYING ROAD AND DRAINAGE PLANS.
15. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT.
16. MANAGEMENT DEVICES SHALL BE MAINTAINED ON A REGULAR BASIS. WHERE CLEANING IS REQUIRED, THE SEDIMENT SHALL BE REMOVED TO A POINT NOMINATED BY THE ENGINEER.
17. PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS, AND AFTER THE ROAD CENTRELINES HAVE BEEN PEGGED AND/OR PERMANENTLY MARKED, THE SITE MUST BE INSPECTED BY COUNCIL'S REPRESENTATIVE AND THE APPLICANT'S REPRESENTATIVE TO IDENTIFY AND APPROPRIATELY MARK:-
    a) THE TREES TO BE RETAINED.
    b) ALL TREES TO BE LEFT UNDISTURBED AND TO BE CORDONED OFF.
18. NO TREES SHALL BE REMOVED WITHOUT COUNCIL'S CLEARANCE.
19. MANAGEMENT DEVICES TO REMAIN UNTIL THE END OF THE MAINTENANCE PERIOD.

SEDIMENTATION CONTROL DEVICES:

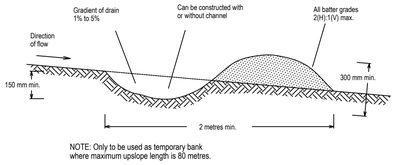
20. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCATED ON THE BALE CENTRE LINE.
21. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m (3m MAX) CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.



CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES 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 2 METRES IN HEIGHT.
4. ALL STOCKPILES ARE TO BE LOCATED AND PLACED IN ACCORDANCE WITH THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN.
5. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) NO STABILISATION IS REQUIRED. REVIEW THE ADEQUACY OF SEDIMENT CONTROLS IF RAINFALL IS PREDICTED.
6. WHERE STOCKPILES ARE TEMPORARY (<14 DAYS) THE FOLLOWING ADDITIONAL CONTROLS ARE REQUIRED:
   -MAXIMUM BATTER SLOPE REDUCED TO 1:4
   -CONSTRUCT A CONTOUR DRAIN ON THE LOW SIDE OF THE STOCKPILE, AND DISCHARGING THROUGH A STRAW BALE OR 200mm HIGH GRAVEL DAM
   -ESTABLISH GRASS COVER TO SURFACE OF STOCKPILE WITHIN 14 DAYS, USING HYDROMULCH WITH A 75:25 MIX OF SEASONAL AND PERMANENT GRASS SEEDS, AND A STRAW MULCH THICKNESS OF NO LESS THAN 5mm.
7. 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.

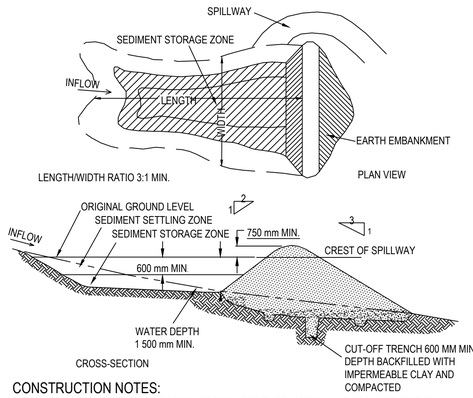
STOCKPILES — SD 4-1



Construction Notes

1. Build with gradients between 1 percent 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.

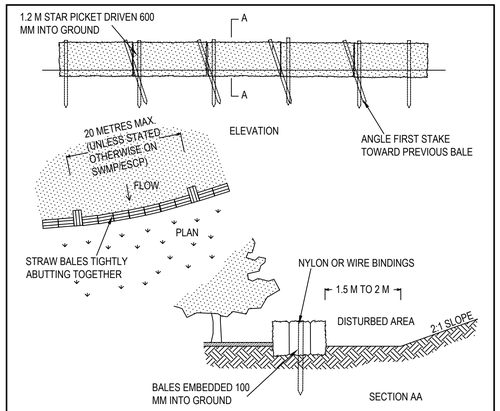
EARTH BANK (LOW FLOW) — SD 5-5



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 500 MM DEEP AND 1,200 MM 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 100 MM TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100 MM TO 150 MM LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY. 8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

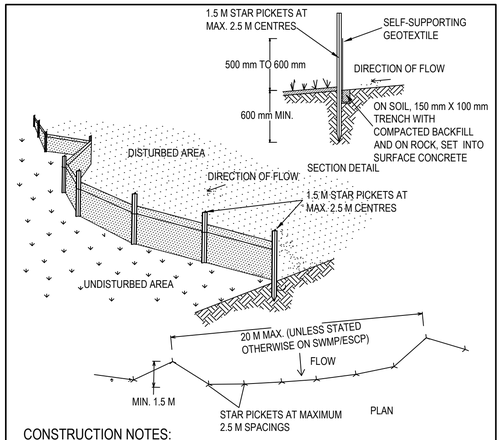
EARTH BASIN - WET (APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY) — SD 6-4



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 75 mm TO 100 mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE.DRIVE THEM 600 mm 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.

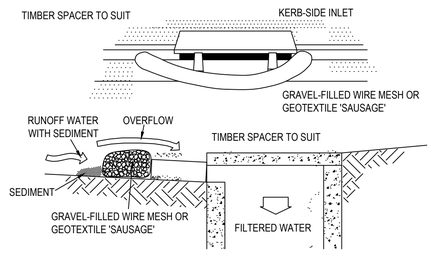
STRAW BALE FILTER — SD 6-7



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 2.5m 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

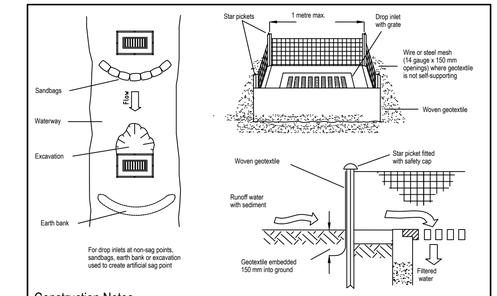


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

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 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.

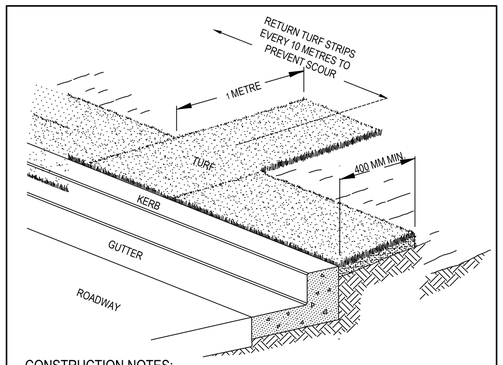
MESH AND GRAVEL INLET FILTER — SD 6-11



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for 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.

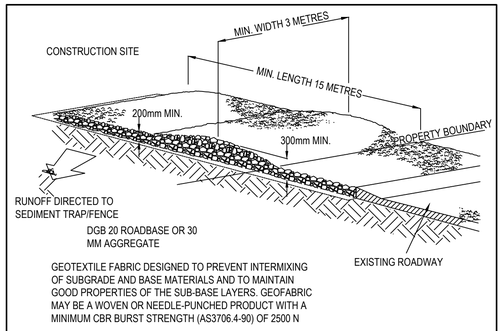
GEOTEXTILE INLET FILTER — SD 6-12



CONSTRUCTION NOTES:

1. INSTALL A 400mm MINIMUM WIDE ROLL OF TURF ON THE FOOTPATH NEXT TO THE KERB AND AT THE SAME LEVEL AS THE TOP OF THE KERB.
2. LAY 1.4 METRE LONG TURF STRIPS NORMAL TO THE KERB EVERY 10m.
3. REHABILITATE DISTURBED SOIL BEHIND THE TURF STRIP FOLLOWING THE ESCP/SWMP.

KERBSIDE TURF STRIP — SD 6-13



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

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 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 — SD 6-14

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Scale:

For: sydney business park

By: Orion Consulting

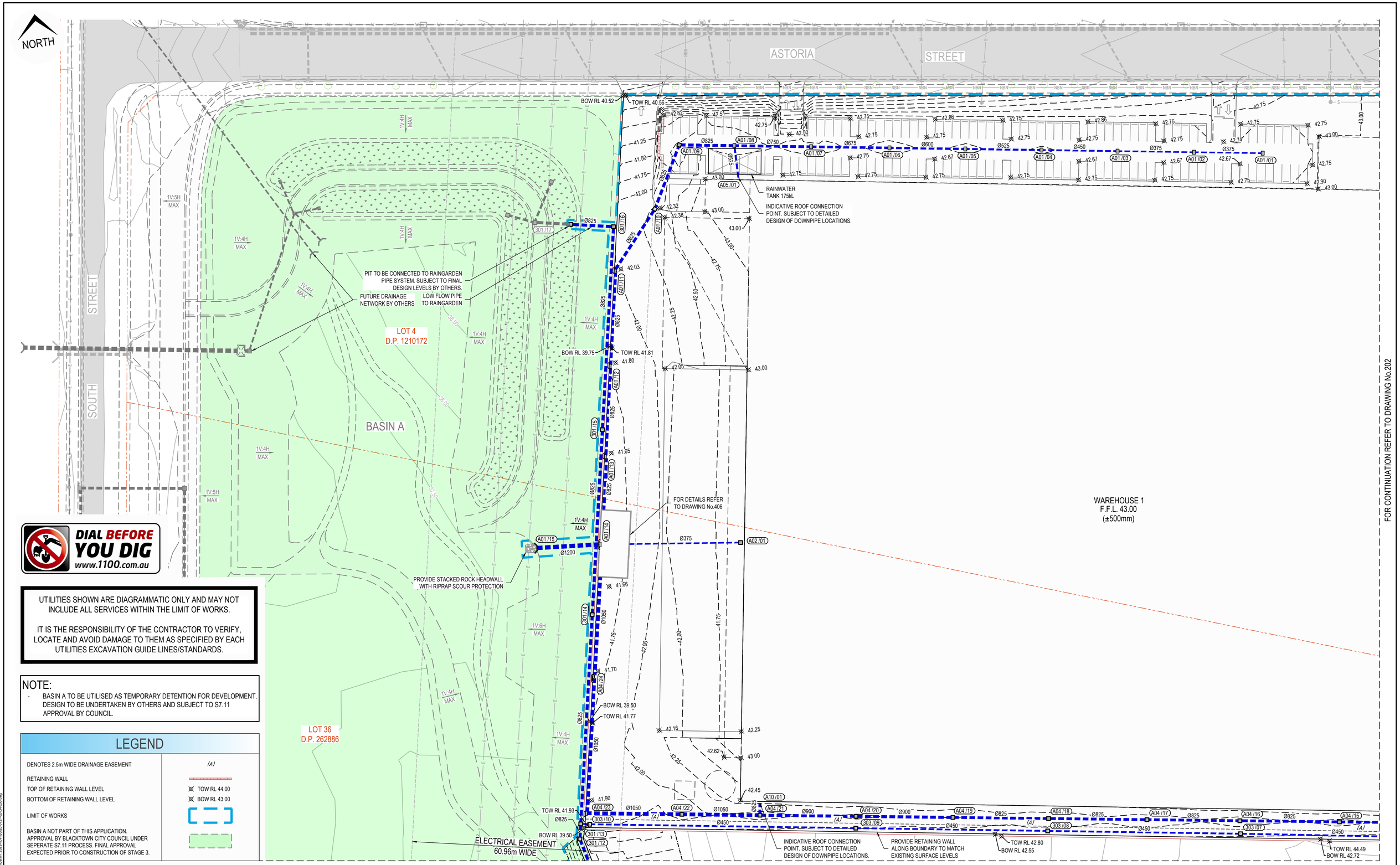
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: SEDIMENT & EROSION CONTROL NOTES & DETAILS

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	101	A

Plotted, File Name:C:\12d\Sstas\ORION-SYNO\20-0127-02-DA Development Application, 2020\FDW\SS\20-0127-02-DA-101.dwg



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NOTE:

- BASIN A TO BE UTILISED AS TEMPORARY DETENTION FOR DEVELOPMENT. DESIGN TO BE UNDERTAKEN BY OTHERS AND SUBJECT TO S7.11 APPROVAL BY COUNCIL.

LEGEND

DENOTES 2.5m WIDE DRAINAGE EASEMENT	(A)
RETAINING WALL	
TOP OF RETAINING WALL LEVEL	TOW RL 44.00
BOTTOM OF RETAINING WALL LEVEL	BOW RL 43.00
LIMIT OF WORKS	
BASIN A NOT PART OF THIS APPLICATION. APPROVAL BY BLACKTOWN CITY COUNCIL UNDER SEPERATE S7.11 PROCESS. FINAL APPROVAL EXPECTED PRIOR TO CONSTRUCTION OF STAGE 3.	

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SCALE 1:500 (A1) SCALE 1:1000 (A3)

For: sydney business park

By: Orion Consulting
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SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: ENGINEERING PLAN SHEET 01 OF 05

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	200	A

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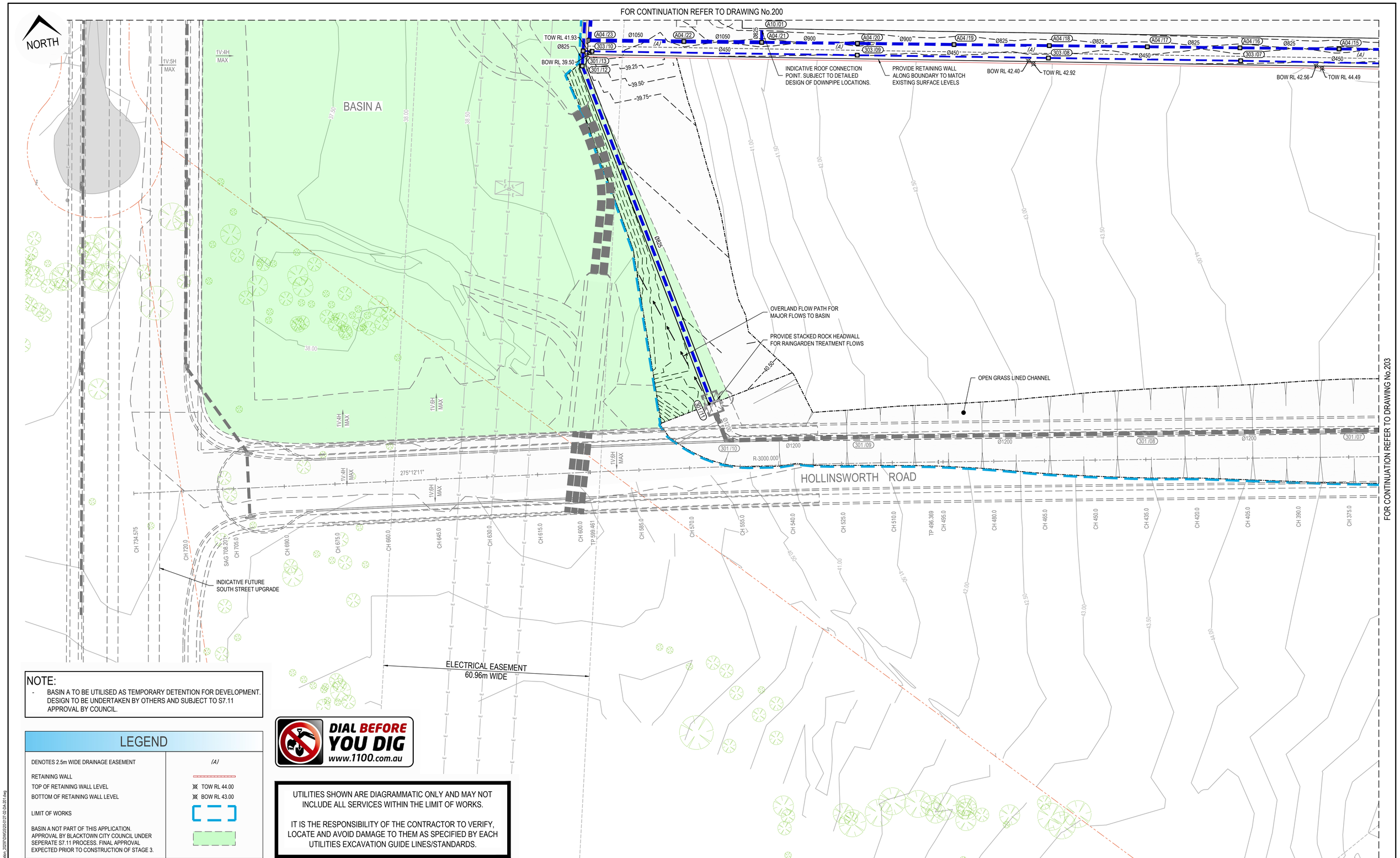

NOTE:

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LEGEND

DENOTES 2.5m WIDE DRAINAGE EASEMENT	(A)
RETAINING WALL	
TOP OF RETAINING WALL LEVEL	TOW RL 44.00
BOTTOM OF RETAINING WALL LEVEL	BOW RL 43.00
LIMIT OF WORKS	
BASIN A NOT PART OF THIS APPLICATION. APPROVAL BY BLACKTOWN CITY COUNCIL UNDER SEPERATE S7.11 PROCESS. FINAL APPROVAL EXPECTED PRIOR TO CONSTRUCTION OF STAGE 3.	

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Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: ENGINEERING PLAN SHEET 02 OF 05

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	201	A

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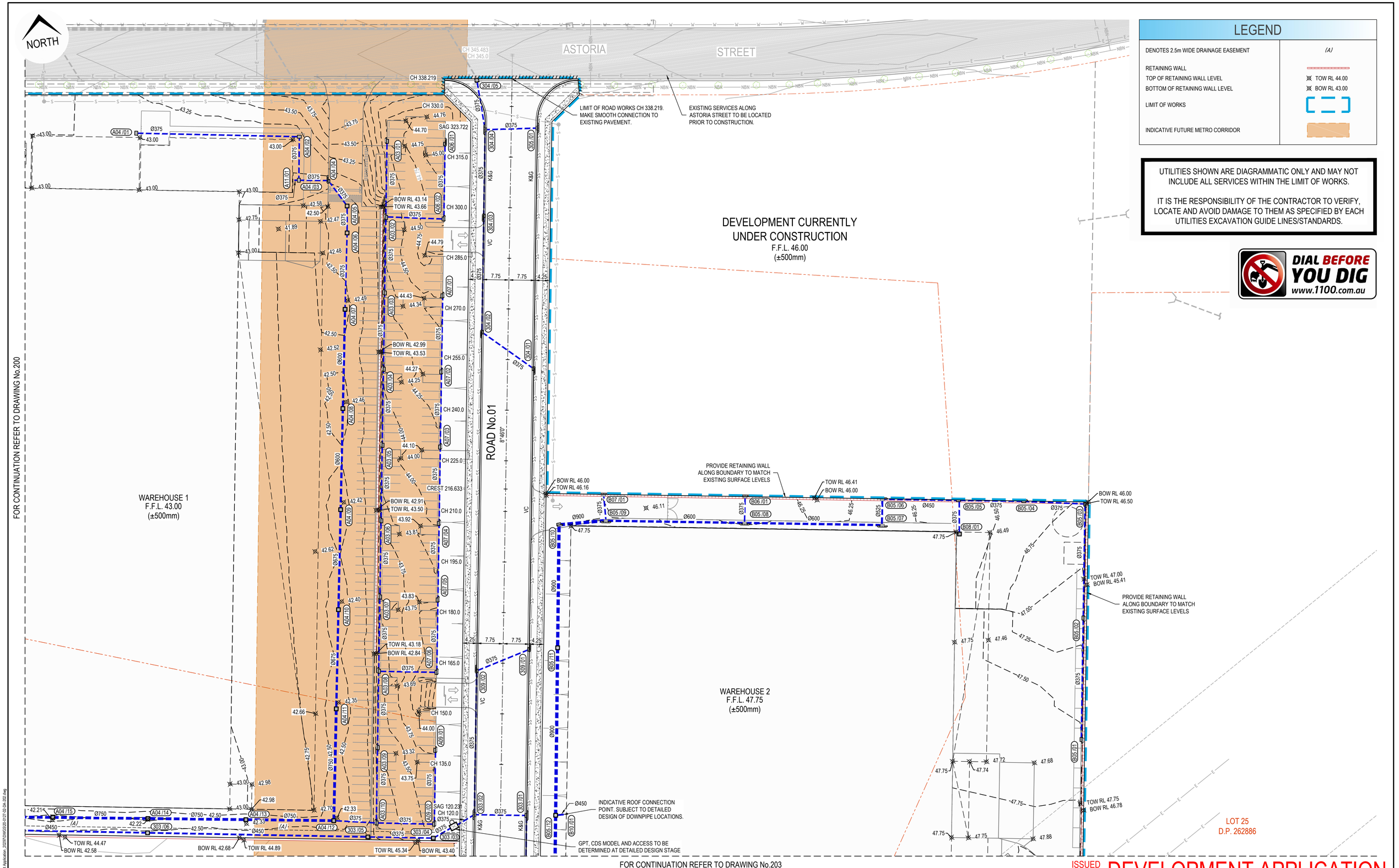

LEGEND

DENOTES 2.5m WIDE DRAINAGE EASEMENT	(A)
RETAINING WALL	
TOP OF RETAINING WALL LEVEL	TOW RL 44.00
BOTTOM OF RETAINING WALL LEVEL	BOW RL 43.00
LIMIT OF WORKS	
INDICATIVE FUTURE METRO CORRIDOR	

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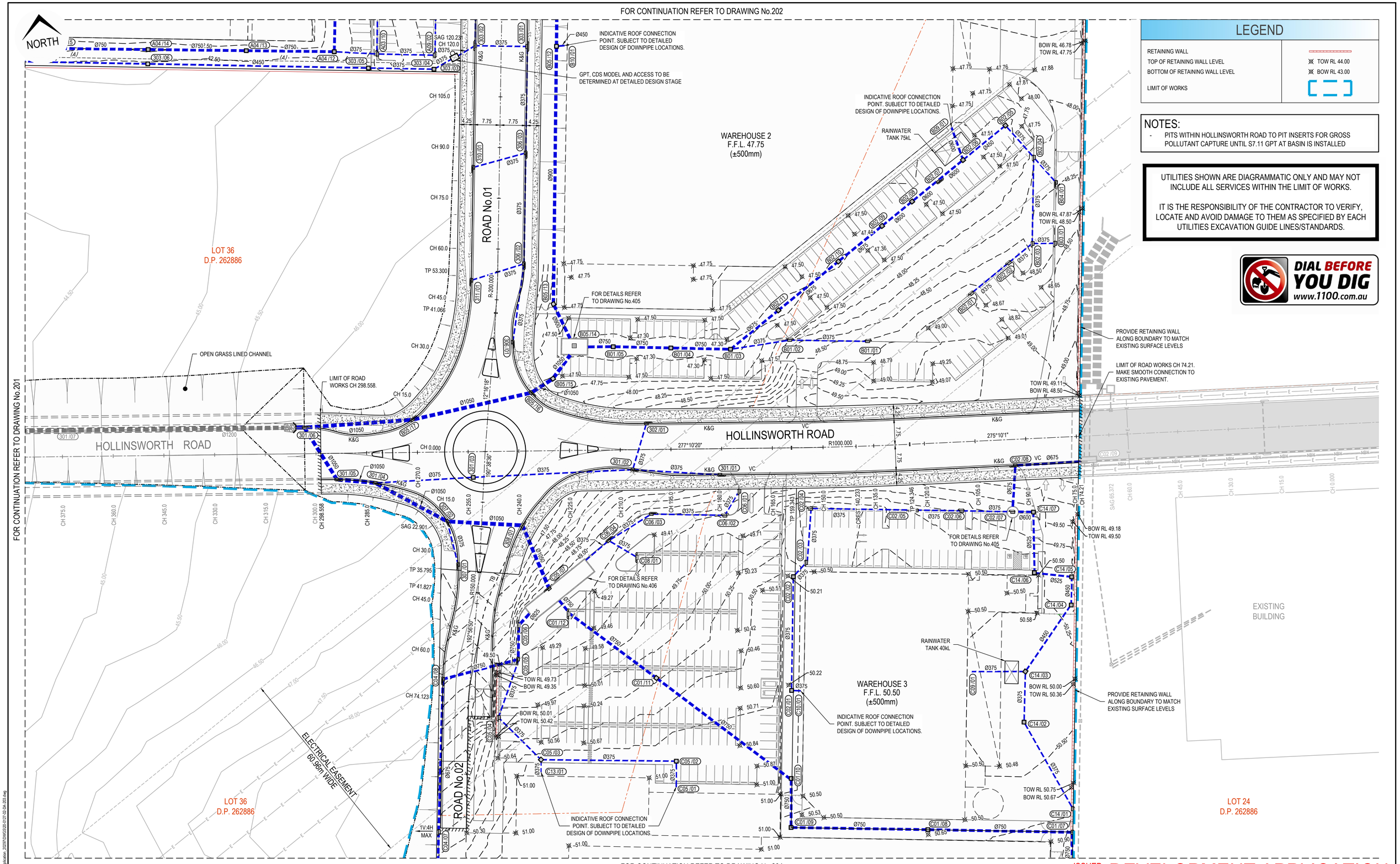
Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: ENGINEERING PLAN SHEET 03 OF 5

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	202	A

Plotted, File Name:C:\12d\Sotas\ORION-SYNGI\20-DA Development Application_2020\DWGS\20-0127-02-DA-202.dwg



LEGEND

RETAINING WALL	
TOP OF RETAINING WALL LEVEL	TOW RL 44.00
BOTTOM OF RETAINING WALL LEVEL	BOW RL 43.00
LIMIT OF WORKS	

NOTES:

- PITS WITHIN HOLLINSWORTH ROAD TO PIT INSERTS FOR GROSS POLLUTANT CAPTURE UNTIL S7.11 GPT AT BASIN IS INSTALLED

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Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: ENGINEERING PLAN SHEET 04 OF 05

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	203	A

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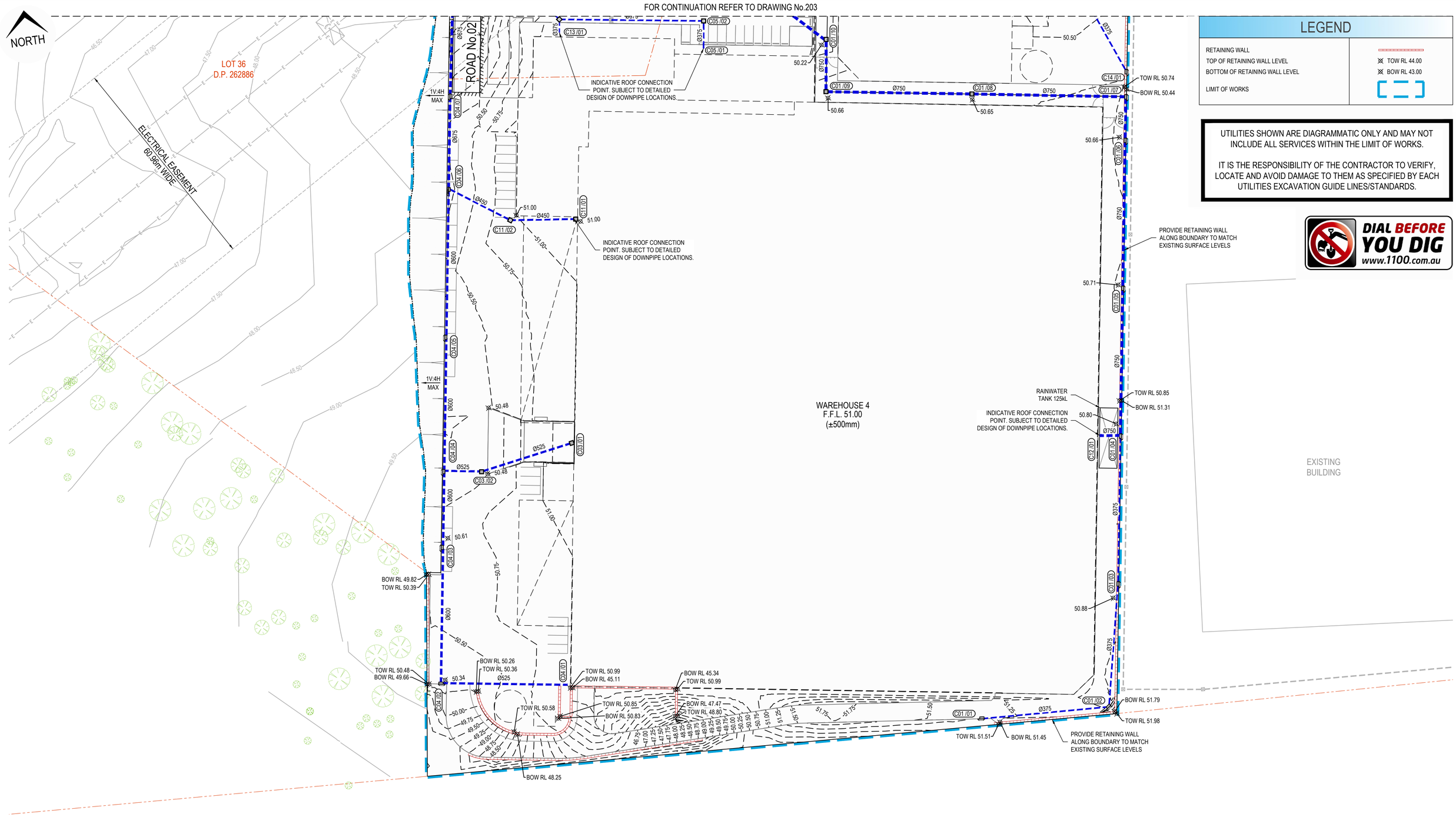

LEGEND

RETAINING WALL	
TOP OF RETAINING WALL LEVEL	TOW RL 44.00
BOTTOM OF RETAINING WALL LEVEL	BOW RL 43.00
LIMIT OF WORKS	

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For: sydney business park

By: Orion Consulting
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Project: STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title: ENGINEERING PLAN
SHEET 05 OF 05

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	204	A

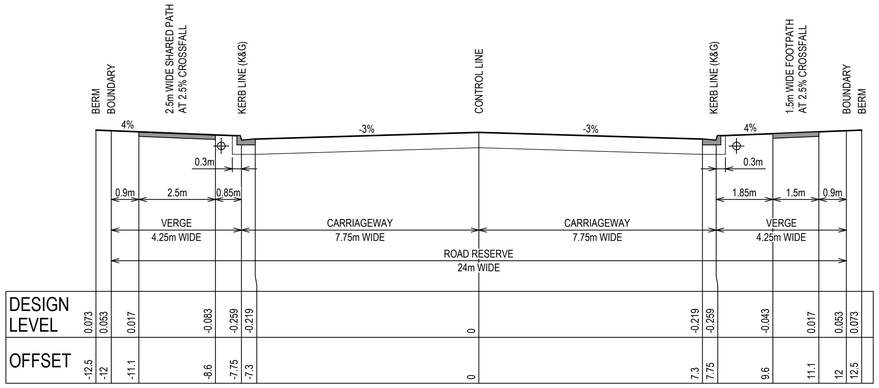
Plotted File Name:C:\12d\Sites\ORION-SYNO\102-DA Development Application_2020\DWGS\20-0127-02-DA-204.dwg

LEGEND

SUBSOIL DRAIN TO BE LAID BELOW ALL KERBS WHERE NO STORMWATER PIPE IS SHOWN

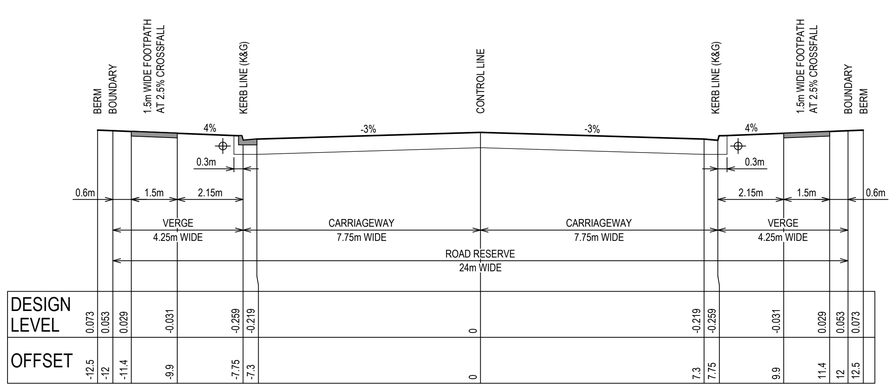
NOTE:

- FOOTPATH AND KERBS TO BE CONSTRUCTED TO BLACKTOWN CITY COUNCIL STANDARDS



TYPICAL CROSS SECTION - HOLLINSWORTH ROAD

SCALE 1:100



TYPICAL CROSS SECTION - ROAD No.01 & 02

SCALE 1:100

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Rev	Drawn	Design	Appd.	Date	Revision Description
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For: sydney business park

By: Orion Consulting
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Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

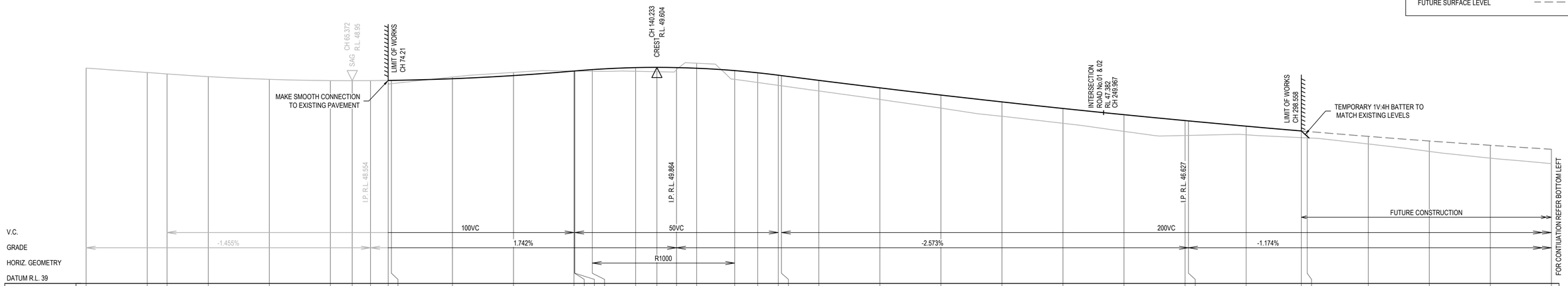
Title: TYPICAL ROAD CROSS SECTIONS & DETAILS

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	300	A

Plotted: File Name:C:\12d\Sites\ORION-SYN\01\02-DA Development Application_2020\TOWS\20-0127-02-DA-300.dwg

LEGEND

- FINISHED DESIGN SURFACE LEVEL
- EXISTING SURFACE
- FUTURE SURFACE LEVEL



CHAINAGE	EXISTING LEVEL	DESIGN LEVEL
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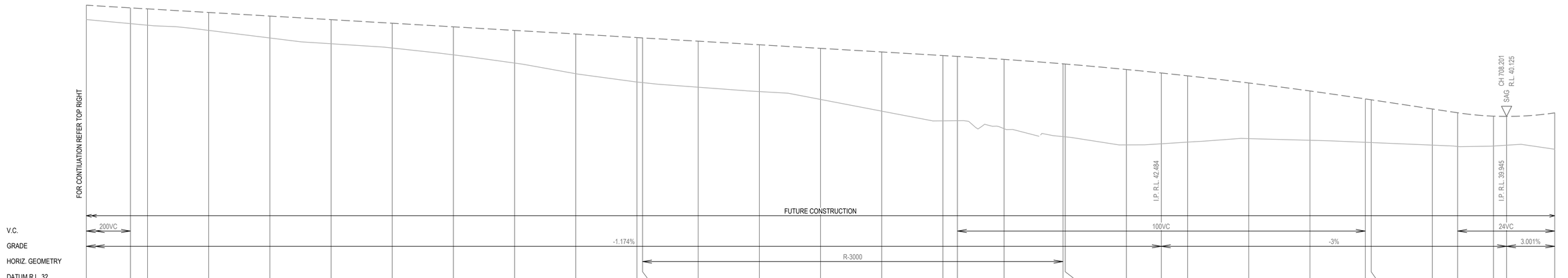
15	49.352	
19.866	49.281	
30	49.15	
45	49.017	
60	48.955	
65.372	48.95	
69.866	48.953	
74.21	48.786	48.963
75	48.804	48.965
90	49.132	49.047
105	49.357	49.201
119.866	49.426	49.425
120	49.425	49.427
120.048	49.425	49.428
124.346	49.416	49.495
135	49.412	49.592
140.233	49.392	49.604
145.048	49.49	49.594
150	49.608	49.563
159.343	49.014	49.446
165	48.862	49.339
170.048	48.722	49.22
170.826	48.7	49.2
180	48.449	48.967
195	48.033	48.599
210	47.606	48.246
225	47.203	47.909
240	46.86	47.587
255	46.462	47.282
270	46.262	46.992
270.826	46.265	46.977
285	46.295	46.718
298.558	46.157	46.484
300	46.143	46.46
315	45.846	46.217
330	45.48	45.99
345	45.148	45.779
360	44.88	45.584

W.A.E.

LONGITUDINAL SECTION - HOLLINSWORTH ROAD

SCALE 1:500 (H)
SCALE 1:100 (V)



CHAINAGE	EXISTING LEVEL	DESIGN LEVEL
360	44.88	45.584
370.826	44.679	45.452
375	44.602	45.403
390	44.347	45.227
405	43.976	45.051
420	43.692	44.875
435	43.482	44.699
450	43.146	44.523
465	42.743	44.346
480	42.22	44.17
495	41.814	43.994
496.369	41.765	43.978
510	41.559	43.818
525	41.345	43.642
540	40.96	43.466
555	40.365	43.289
570	39.908	43.113
573.561	39.915	43.071
585	39.524	42.925
599.461	39.134	42.706
600	39.123	42.697
615	38.727	42.428
623.561	38.762	42.256
630	38.864	42.118
645	39.035	41.766
660	38.954	41.374
673.561	38.854	40.984
675	38.842	40.941
690	38.716	40.491
696.204	38.65	40.305
705	38.673	40.138
708.201	38.712	40.125
720	38.515	40.299

W.A.E.

LONGITUDINAL SECTION - HOLLINSWORTH ROAD (CONT.)

SCALE 1:500 (H)
SCALE 1:100 (V)

ISSUED FOR **DEVELOPMENT APPLICATION**
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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50 — SCALE 1:500 (A1) — SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10 — SCALE 1:100 (A1) — SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
SUSTAINABLE CERTIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

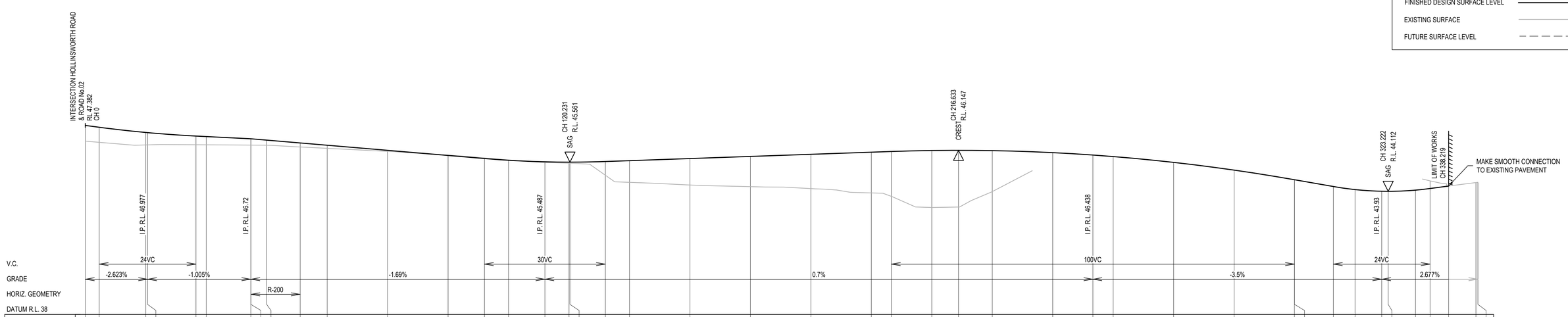
Title: ROAD LONG SECTIONS SHEET 01 OF 02

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	301	A

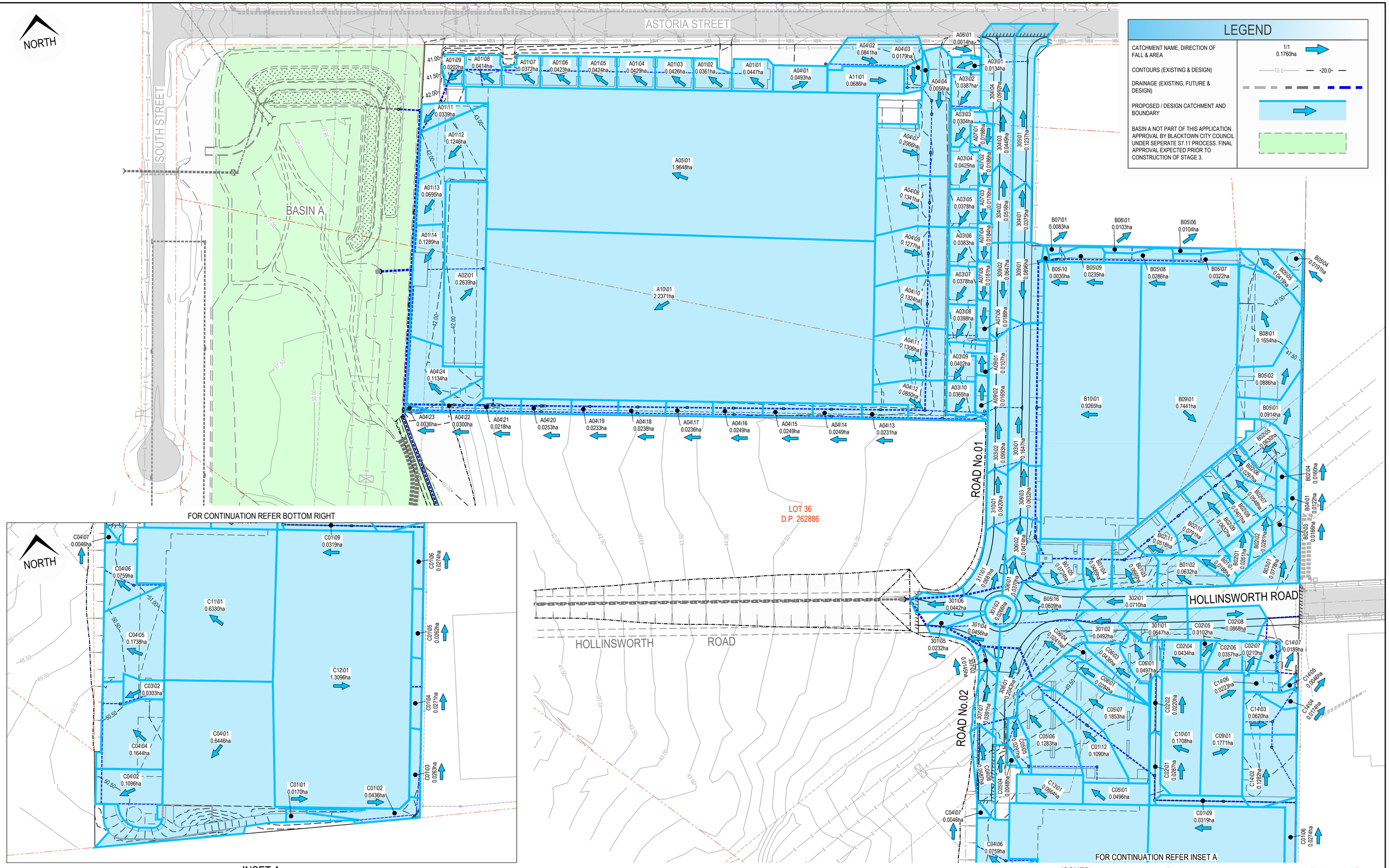
Protect File Name:C:\12d\Sdata\ORION-SYNO\12D DA Development Application_2020\FLOWS\S20-0127-02-DA-301.dwg

LEGEND

- FINISHED DESIGN SURFACE LEVEL
- EXISTING SURFACE
- FUTURE SURFACE LEVEL



| | | |



INSET A

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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

For: sydney business park

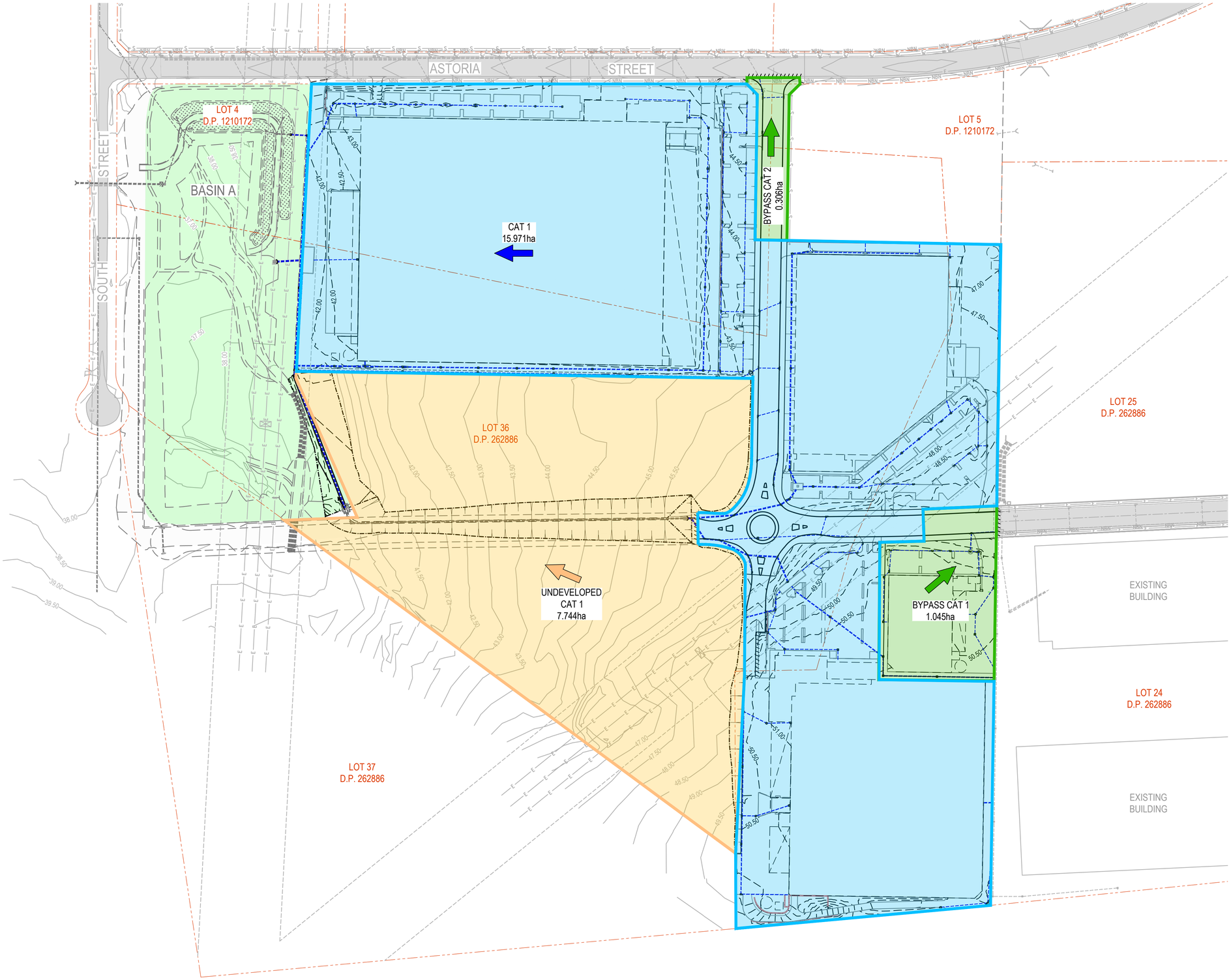
By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project:
STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title:
STORMWATER CATCHMENT PLAN

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	400	A

Plotted: File Name:C:\12dSdata\ORION-SYNO\20-DA Development Application_2020\DWG\20-0127-02-DA-400.dwg



LEGEND

CATCHMENT NAME, DIRECTION OF FALL & AREA	DESIGN 0.0001ha
CONTOURS (EXISTING & DESIGN)	10.0 -20.0-
DRAINAGE (EXISTING, FUTURE & DESIGN)	
APPROXIMATE UNDEVELOPED CATCHMENT AND BOUNDARY	
PROPOSED BASIN DESIGN CATCHMENT AND BOUNDARY	
APPROXIMATE EXTENT OF BYPASS CATCHMENT	
BASIN A NOT PART OF THIS APPLICATION. APPROVAL BY BLACKTOWN CITY COUNCIL UNDER SEPERATE S7.11 PROCESS. FINAL APPROVAL EXPECTED PRIOR TO CONSTRUCTION OF STAGE 3.	

ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale: 0 15 30 45 60 75 90 105 120 135 150
SCALE 1:1500 (A1) SCALE 1:3000 (A3)

For: sydney business park

By: Orion Consulting

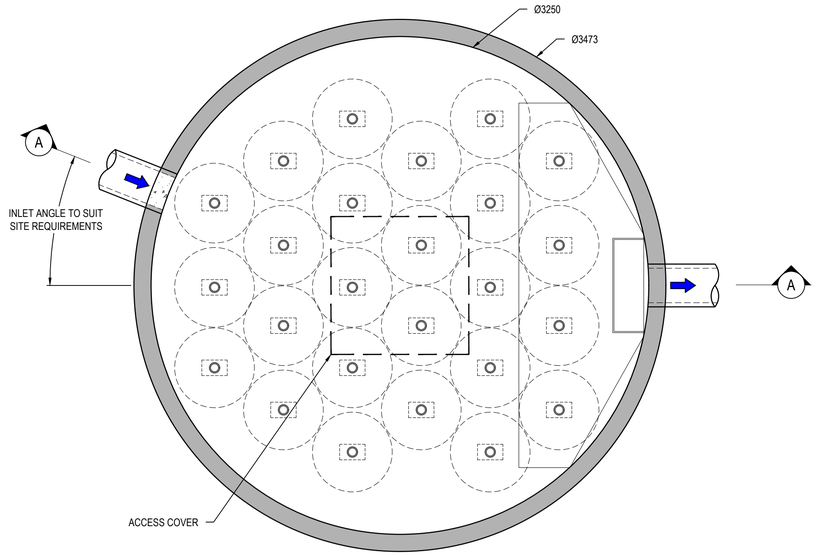
ABN:25 604 069 981 **PO Box:**7936, BAULKHAM HILLS NSW 2153 **T:**(02) 8660 0035 **E:**info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: OVERALL STORMWATER CATCHMENT PLAN

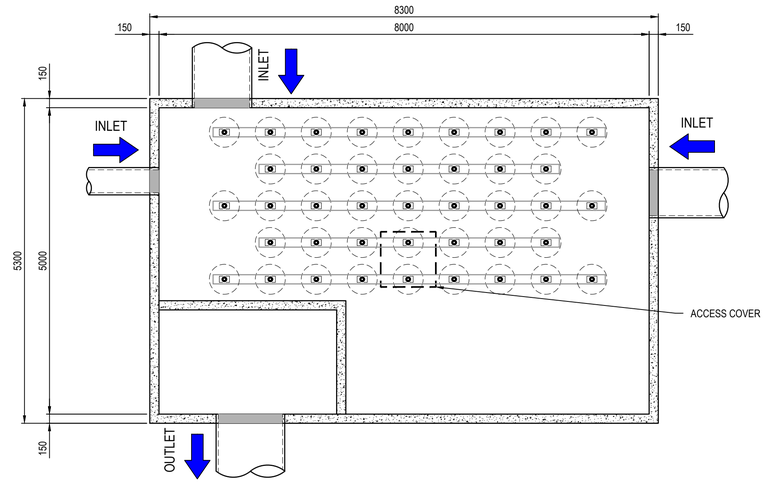
Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	401	A

Plotted File Name:C:\12d\Sites\ORION-SYNO\102-DA Development Application_2020\DWGS\20-0127-02-DA-401.dwg



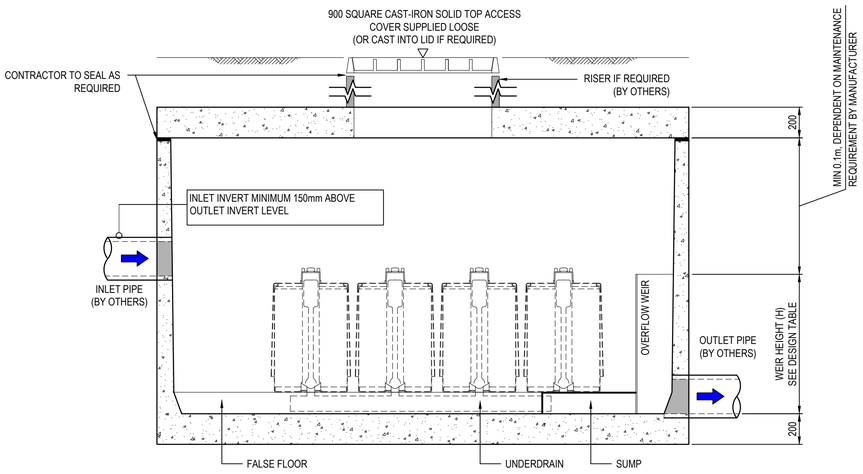
STORMFILTER CARTRIDGE (DN3250 MANHOLE) PLAN - WAREHOUSE 3

SCALE 1:20



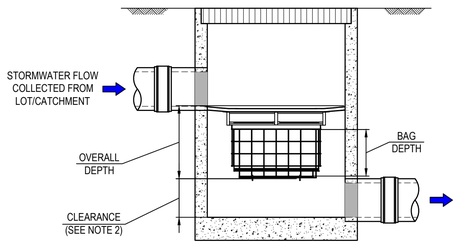
STORMFILTER CARTRIDGE (CAST IN-SITU VAULT 41 CARTRIDGE) PLAN - WAREHOUSE 2

SCALE 1:50



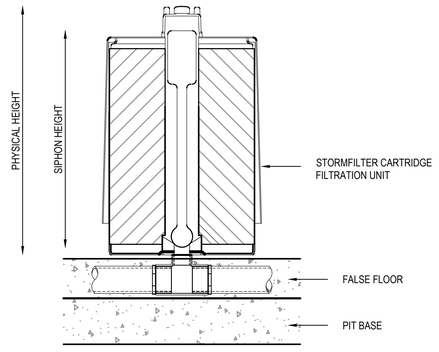
SECTION A-A

SCALE 1:20



PIPE FLOW CONFIGURATION

SCALE 1:20



STORMFILTER CARTRIDGE DETAIL

SCALE: N.T.S.

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
SCALE 1:50 (A1) SCALE 1:100 (A3)
0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0
SCALE 1:20 (A1) SCALE 1:40 (A3)

For: sydney business park

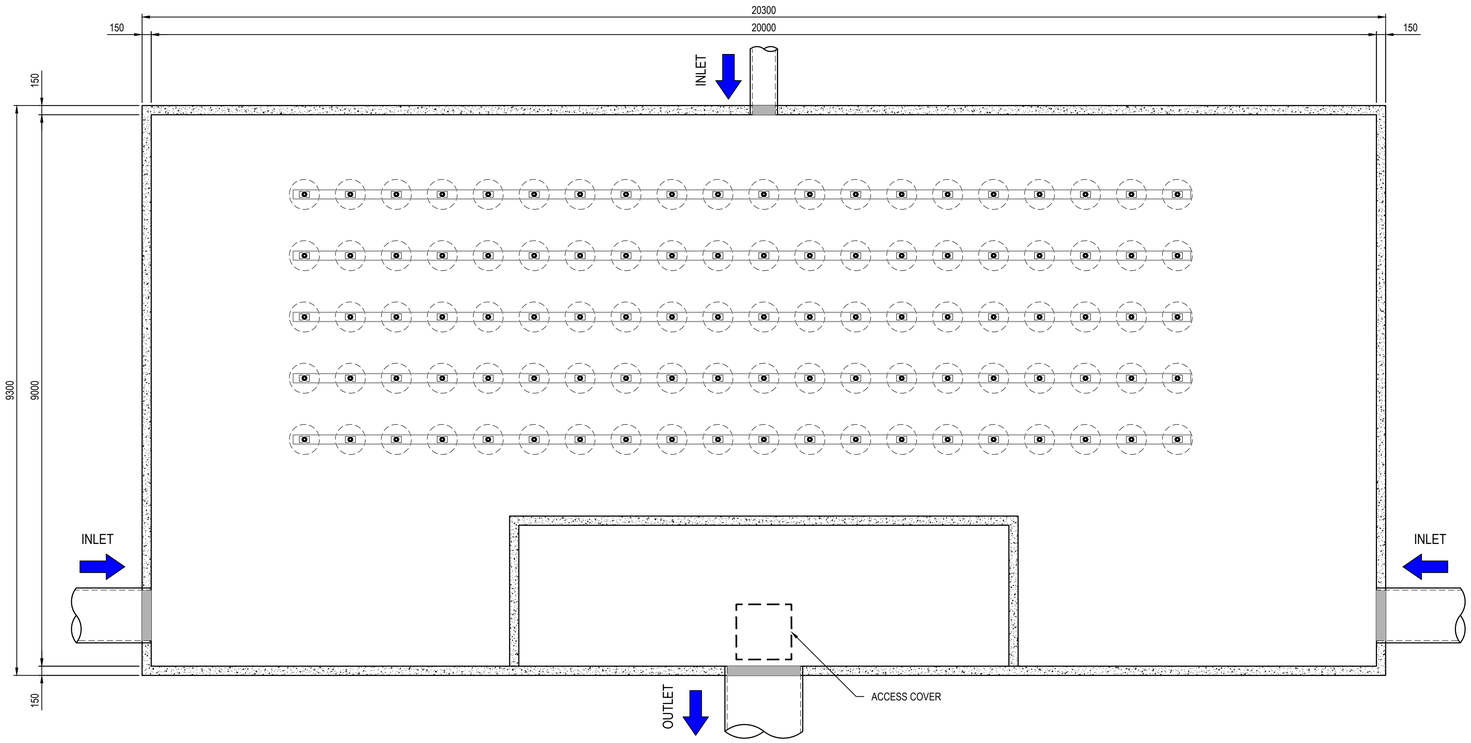
By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: WATER QUALITY DETAILS SHEET 01 OF 02

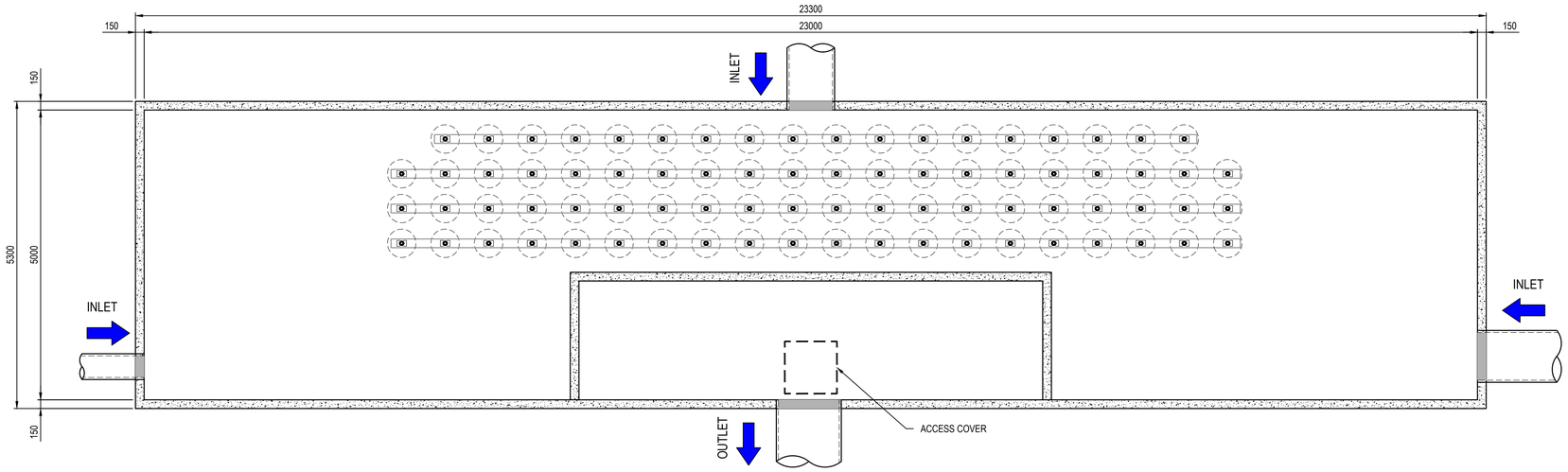
Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	405	A

Plotted: File Name:C:\12d\Data\ORION-SYNG\20-0127-02-DA-Development Application_2020\TEXT\CS\20-0127-02-DA-405.dwg



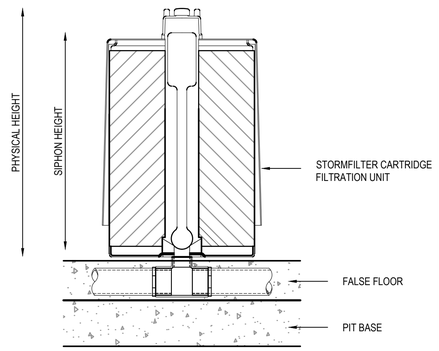
STORMFILTER CARTRIDGE (CAST IN-SITU VAULT 100 CARTRIDGE) PLAN - WAREHOUSE 1

SCALE 1:50



STORMFILTER CARTRIDGE (CAST IN-SITU VAULT 78 CARTRIDGE) PLAN - WAREHOUSE 4

SCALE 1:50



STORMFILTER CARTRIDGE DETAIL

SCALE: N.T.S.

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale: 0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

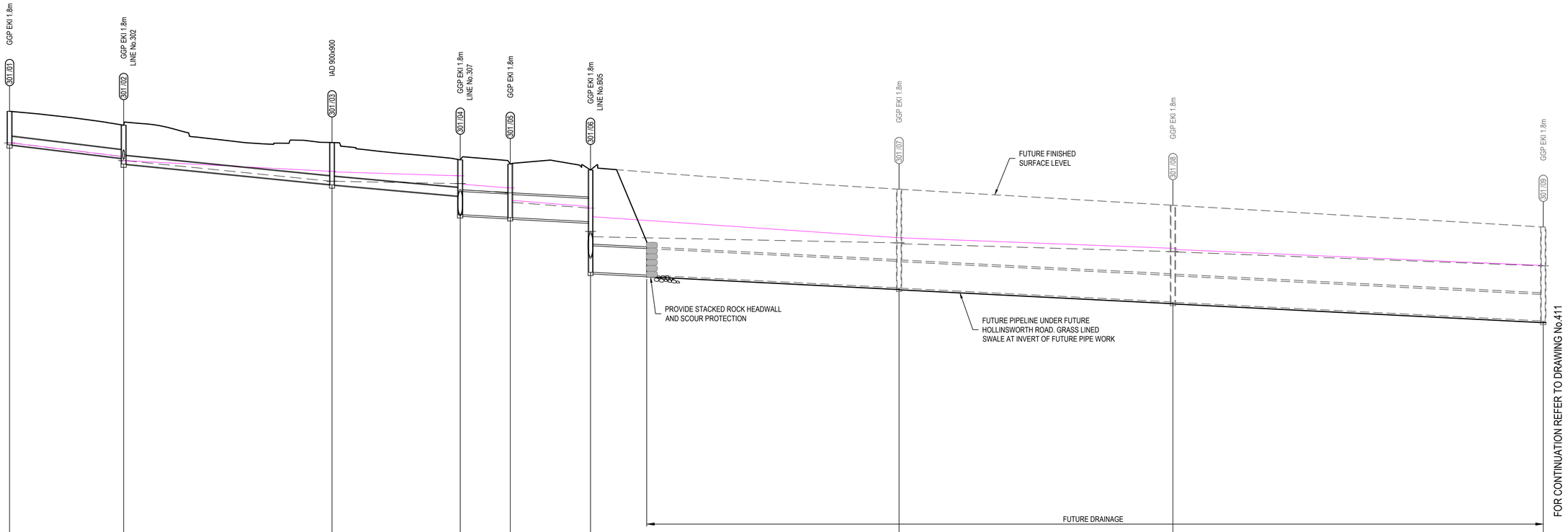
Title: WATER QUALITY DETAILS SHEET 02 OF 02

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	406	A

Protect File Name:C:\12d\Sites\ORION-SYNO\102.DA Development Application_2020\TOWS\S20-0127-02-DA-406.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
FUTURE PIT & PIPES	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	1.5		1.92		1.89		2.06		2.47		3.67		3.6		3.21									
DISCHARGE (cu.m/s)	0.03		0.08		0.09		1.78		1.79		3.13		2.96		2.92									
PIPE SIZE (mm) & CLASS	375RRJ2		375RRJ2		375RRJ2		1050RRJ2		1050RRJ2		1200RRJ2		1200RRJ2		1200RRJ2									
DESIGN GRADE	2.35%		1.95%		1.73%		1%		1%		1%		1%		1%									
DATUM R.L	24.0																							
DEPTH TO INVERT	1.52	1.5	1.76	1.9	1.92	1.64	2.49	2.41	2.43	2.34	4.63	4.46	4.48	4.38	4.4	4.25								
H.G.L. LEVEL	47.26	46.65	46.46	45.52	45.42	45.14	44.99	44.57	44.31	43.01	42.73	42.69	42.34	42.32	41.7									
INVERT LEVEL	47.18	46.57	46.3	45.38	45.36	44.86	44.01	43.89	43.87	43.69	41.4	40.7	40.68	40.06	40.04	39.2								
SURFACE LEVEL	48.69		48.06		47.28		46.49		46.3		46.03		45.16		44.44		43.45							
ROAD CHAINAGE	180.59		206.3		7.79		282.52		293.88		303.36		373.29		435.36		519.24							
PIPE CHAINAGE	0	25.86	25.86	47.23	73.08	29.05	102.13	11.35	113.48	18.18	131.66	69.93	201.59	62.07	263.66	83.93	347.59							

LINE 301

ISSUED FOR **DEVELOPMENT APPLICATION**
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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50 — SCALE 1:500 (A1) — SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10 — SCALE 1:100 (A1) — SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au
SUSTAINABLE CERTIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: DRAINAGE LONG SECTIONS SHEET 01 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	410	A

Protect File Name:C:\12dS\data\ORION-STN\20\02.DA Development Application_2020\TOWGS\20-0127-02-DA-410.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
FUTURE PIT & PIPES	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	

PIPE MAX. VELOCITY (m/s)	2.65			2.66		2.33							2.41	2.52				2.23			2.16			2.36
DISCHARGE (cu.m/s)	2.98			3.01		1.25							1.29	1.29				1.19			1.16			1.26
PIPE SIZE (mm) & CLASS	1200RRJ2			1200RRJ2		825RRJ2							825RRJ2	825RRJ2				825RRJ2			825RRJ2			825RRJ2
DESIGN GRADE	1%			0.7%		0.5%							0.5%	0.5%				0.5%			0.5%			0.7%
DATUM R.L	20.0																							
DEPTH TO INVERT	4.25	4.27		4.22	4.24	3.71	3.73					1.37	1.39	1.42	1.44			1.75	1.77		2.04	2.06	2.3	2.32	0.82	0.82
H.G.L. LEVEL	41.7	41.65		41.11	40.46		40.3					39.5	39.41	39.48	39.47			39.5	39.48		39.5	39.48	39.09	38.77		37.8
INVERT LEVEL	39.2	39.18		38.78	38.76	38.68	38.66					38.13	38.11	38.08	38.06			37.75	37.73 37.63		37.46	37.44	37.14	37.12	36.96	36.96
SURFACE LEVEL	43.45				43.01		42.39						39.5		39.5				39.5			39.5		39.45		37.78
ROAD CHAINAGE	519.24				558.89																					
PIPE CHAINAGE	347.59		39.76		387.35	11.71	399.06		106.96				506.02	4.46	510.49		61.75		572.23 20.66	54.61		626.84	59.91	686.75	23.2	709.95

LINE 301

ISSUED FOR **DEVELOPMENT APPLICATION**
NOT FOR CONSTRUCTION

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

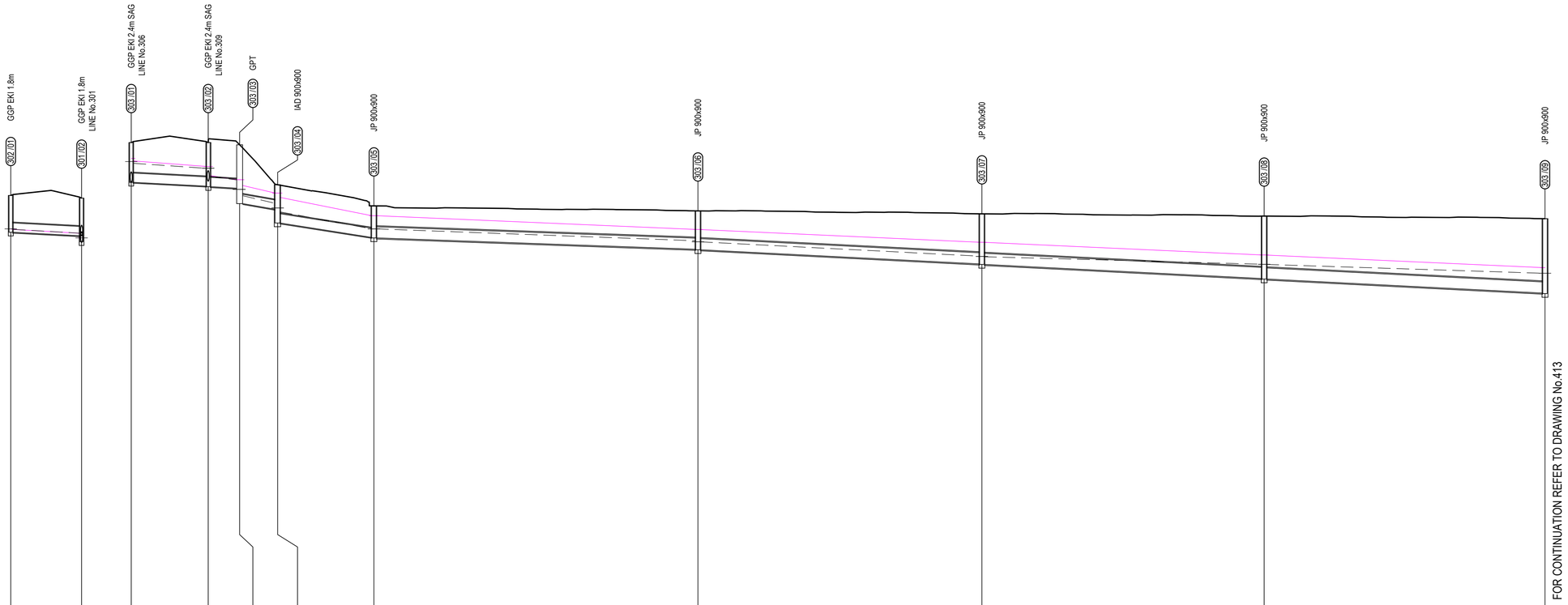
Title: DRAINAGE LONG SECTIONS SHEET 02 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	411	A

Plotted: File Name:C:\12d\Sites\ORION-SYNO\102-DA Development Application_2020\TOWS\20-0127-02-DA-411.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	0.99			1.34		2.04		2.29		2.18		1.77				1.98				1.94				1.89			
DISCHARGE (cu.m/s)	0.03			0.15		0.22		0.22		0.24		0.24				0.24				0.24				0.23			
PIPE SIZE (mm) & CLASS	375RRJ2			375RRJ2		375RRJ2		375RRJ2		375RRJ2		450RRJ2				450RRJ2				450RRJ2				450RRJ2			
DESIGN GRADE	1%			1%		1%		3%		3%		0.7%				1%				1%				1%			
DATUM R.L	27.0			22.0																							
DEPTH TO INVERT	1.48		1.52	1.6		1.76	1.78	1.75	2.37	0.99	1.54		1.27	1.29		1.55	1.57		2.02	2.04		2.52	2.54		3		1.76
H.G.L. LEVEL	46.8		46.65	44.46		44.26	43.94	43.8	43.16	42.85	42.51			41.82		41.34	41.3		40.72	40.7		40.4	40.39		40.03		46.46
INVERT LEVEL	46.69		46.54	43.7		43.54	43.52	43.46	42.84	42.61	42.06		41.48	41.46		41	40.98		40.41	40.39		39.82	39.8		39.23		46.3
SURFACE LEVEL	48.17			45.3		45.3		45.21		43.6				42.75			42.55			42.43			42.34				48.06
ROAD CHAINAGE	202.15			120		120																					206.3
PIPE CHAINAGE	0	14.27		0	15.5	15.5	6.34	21.84	7.66	29.5	19.38			48.88	65.28		114.16	57.2		171.36	56.86		228.23	56.57			284.8

LINE 302 LINE 303

ISSUED FOR **DEVELOPMENT APPLICATION**
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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

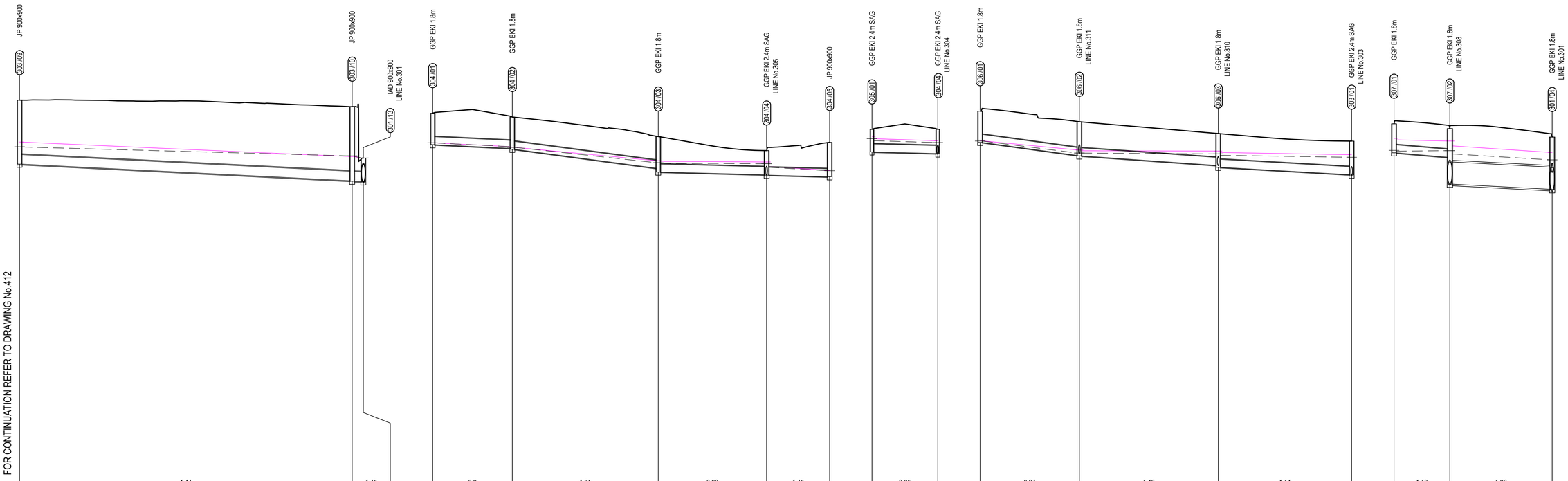
Title: DRAINAGE LONG SECTIONS SHEET 03 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	412	A

Protect File Name:C:\12d\Sstate\ORION-STN01\02.DA Development Application_2020\DWGS\20-0127-02-DA-412.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



	LINE 303																													
PIPE MAX. VELOCITY (m/s)	1.44														1.45															
DISCHARGE (cu.m/s)	0.23														0.23															
PIPE SIZE (mm) & CLASS	450RRJ2														450RRJ2															
DESIGN GRADE	1%														0.5%															
DATUM R.L	20.0																													
DEPTH TO INVERT	3	3.02												3.5	3.52											1.1	1.12			
H.G.L. LEVEL	40.03	40.02												39.6	39.59											39.5	39.5			
INVERT LEVEL	39.23	39.21												38.43	38.41											38.4	38.38			
SURFACE LEVEL	42.23														41.93												39.5			
ROAD CHAINAGE																														
PIPE CHAINAGE	284.8						78.45								363.25						2.64						365.89			

	LINE 304																													
PIPE MAX. VELOCITY (m/s)	0.9						1.71								0.63								1.45							
DISCHARGE (cu.m/s)	0.02						0.04								0.06								0.15							
PIPE SIZE (mm) & CLASS	375RRJ2						375RRJ2								375RRJ2								375RRJ2							
DESIGN GRADE	0.93%						2.6%								0.5%								0.5%							
DATUM R.L	24.0																													
DEPTH TO INVERT	1.49					1.48	1.52							1.49	1.67							1.14	1.16					1.62	1.62	
H.G.L. LEVEL	44.22					44.04	44.01							43.28	43.26							43.23	43.06					42.9		
INVERT LEVEL	44.13					43.96	43.92							43.02	42.84							42.71	42.69					42.62	42.62	
SURFACE LEVEL	45.62						45.44								44.52								43.85						44.24	
ROAD CHAINAGE	252.4						263								297.44								323							
PIPE CHAINAGE	0				18.78		18.78				34.44				53.22				25.56			78.78				14.86			93.64	

	LINE 305																													
PIPE MAX. VELOCITY (m/s)	0.65																													
DISCHARGE (cu.m/s)	0.07																													
PIPE SIZE (mm) & CLASS	375RRJ2																													
DESIGN GRADE	0.5%																													
DATUM R.L	23.0																													
DEPTH TO INVERT	1.06					1.14	1.16																							
H.G.L. LEVEL	43.32					43.23	43.06																							
INVERT LEVEL	42.79					42.71	42.69																							
SURFACE LEVEL	43.85						43.85																							
ROAD CHAINAGE	323.72						323																							
PIPE CHAINAGE	0				15.52		15.52																							

	LINE 306																													
PIPE MAX. VELOCITY (m/s)	0.94														1.48								1.14							
DISCHARGE (cu.m/s)	0.02														0.06								0.1							
PIPE SIZE (mm) & CLASS	375RRJ2														375RRJ2								375RRJ2							
DESIGN GRADE	2.64%														1.37%								1.11%							
DATUM R.L	25.0																													
DEPTH TO INVERT	1.47									1.59					1.61							1.5	1.59							1.58	1.6
H.G.L. LEVEL	45.3														44.74							44.7	44.63							44.54	44.46
INVERT LEVEL	45.24									44.62					44.6							44.16	44.07							43.72	43.7
SURFACE LEVEL	46.71														46.21								45.66							45.3	
ROAD CHAINAGE	32.82														55.76								88.53							120	
PIPE CHAINAGE	0						23.39								23.39					32.76			56.16					31.47			87.63

	LINE 307																													
PIPE MAX. VELOCITY (m/s)	1.13														1.96															
DISCHARGE (cu.m/s)	0.02														1.68															
PIPE SIZE (mm) & CLASS	375RRJ2														1050RRJ2															
DESIGN GRADE	1.61%														1%															
DATUM R.L	26.0																													
DEPTH TO INVERT	1.37					1.35	2.62								2.47	2.49														
H.G.L. LEVEL	45.83					45.85	45.7								45.42	45.14														
INVERT LEVEL	45.75					45.54	44.27								44.03	44.01														
SURFACE LEVEL	47.12						46.89								46.49															
ROAD CHAINAGE	33.73						20.93								282.52															
PIPE CHAINAGE	0				13.16		13.16				24.16				37.31															

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50 — SCALE 1:500 (A1) — SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10 — SCALE 1:100 (A1) — SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting

ABN:25 604 069 981 **PO Box:**7936, BAULKHAM HILLS NSW 2153 **T:**(02) 8660 0035 **E:**info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.IAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

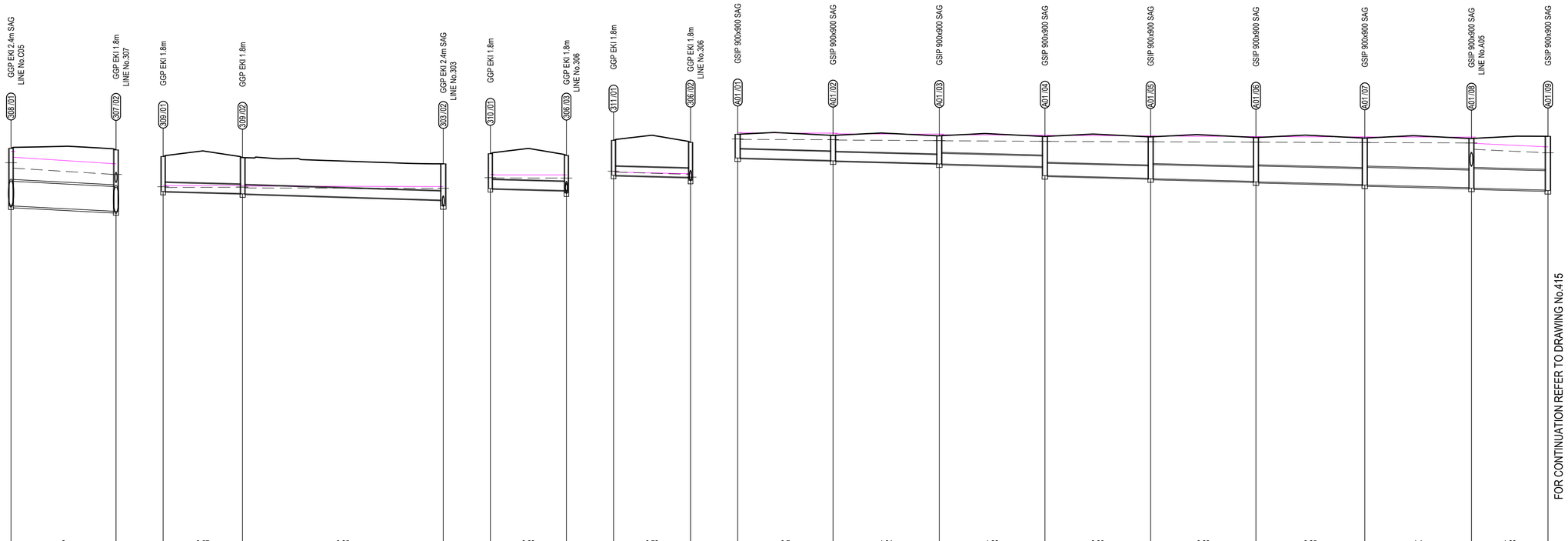
Title: DRAINAGE LONG SECTIONS SHEET 04 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	413	A

Plotted: File Name:C:\12dSolids\ORION-S1\20127-02-DA-Development Application_2020\DWG\20-0127-02-DA-413.dwg

LEGEND

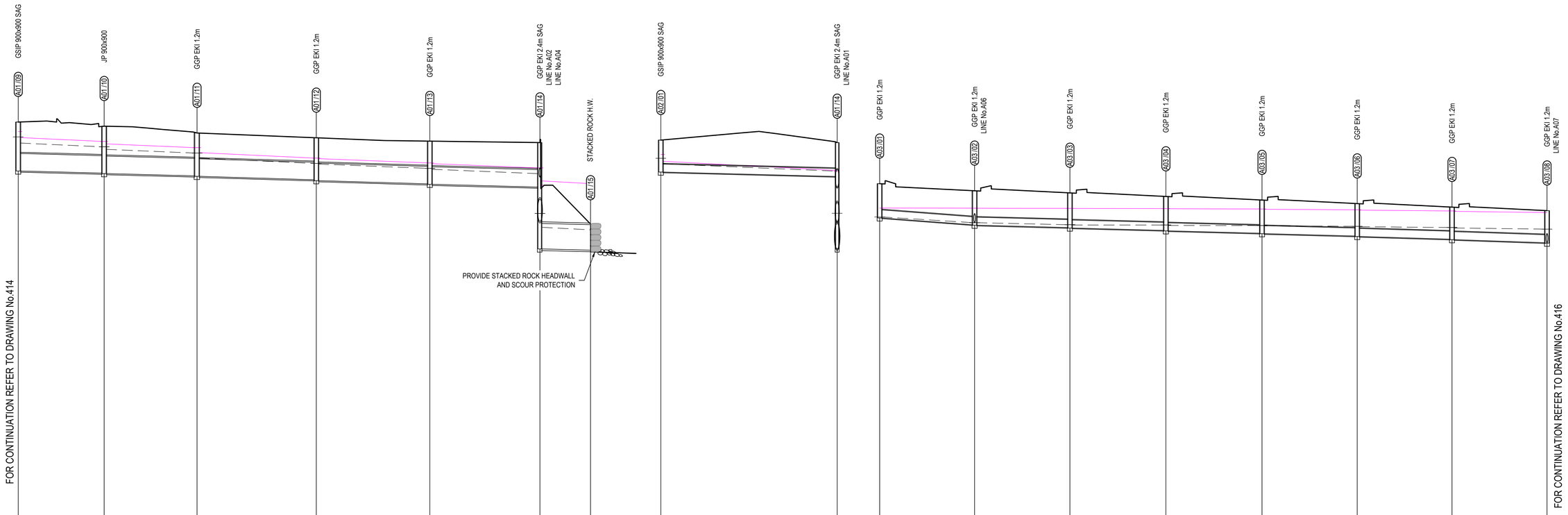
PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



| | LINE 308 | | |

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	1.88		1.88		1.93		2.03		2.28		2.64		1.2		0.47		0.75		0.8		0.91		0.99		1.07		0.95	
DISCHARGE (cu.m/s)	1		1		1.02		1.05		1.09		2.79		0.12		0.01		0.02		0.04		0.05		0.07		0.09		0.1	
PIPE SIZE (mm) & CLASS	825RRJ2		825RRJ2		825RRJ2		825RRJ2		825RRJ2		1200RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2	
DESIGN GRADE	0.5%		0.5%		0.58%		0.57%		0.5%		0.5%		0.5%		1.45%		0.5%		0.5%		0.5%		0.5%		0.58%		0.66%	
DATUM R.L	19.0												19.0		24.0													
DEPTH TO INVERT	2.28	2.3		2.21	2.23		2.02	2.04		1.98	2.02		2.01	2.03		2.09	5	1.5		1.59	5	1.61		1.6	1.62		1.63	1.65	
H.G.L. LEVEL	41.77	41.48		41.3	41.19		41.01	40.77		40.52	40.49		40.29	40.25		40.04	37.52	40.5		40.16	37.52	43.01		42.63	42.74		42.64	42.63	
INVERT LEVEL	40.19	40.17		40.07	40.05		39.94	39.92		39.75	39.71		39.56	39.54		39.41	36.5 36.5	40.12		39.91	36.5	42.96		42.64	42.62		42.51	42.49	
SURFACE LEVEL	42.47			42.27			41.96			41.73			41.57			41.5		41.62			41.5	44.57			44.24			44.14	
ROAD CHAINAGE																												
PIPE CHAINAGE	172	20.21		192.22	21.86		214.07	28.06		242.13	26.71		268.84	25.91		294.75	12.91	307.66	0	41.48	41.48	0	22.34		22.34	22.42		44.76	22.59

LINE A01 LINE A02 LINE A03

PIPE MAX. VELOCITY (m/s)		1.07		0.95																								
DISCHARGE (cu.m/s)		0.09		0.1																								
PIPE SIZE (mm) & CLASS		375RRJ2		375RRJ2																								
DESIGN GRADE		0.58%		0.66%																								
DATUM R.L																												
DEPTH TO INVERT	1.55		1.51	1.53		1.51																						
H.G.L. LEVEL	42.55		42.51	42.49		42.43																						
INVERT LEVEL	42.09		41.96	41.94		41.79																						
SURFACE LEVEL	43.63			43.47		43.3																						
ROAD CHAINAGE																												
PIPE CHAINAGE	112.36	22.31		134.66	22.36	157.02																						

LINE A03

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: DRAINAGE LONG SECTIONS SHEET 06 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	415	A

Plotted File Name:C:\12d\Sites\ORION-SYNO\102-DA Development Application_2020\DWGS\20-0127-02-DA-415.dwg

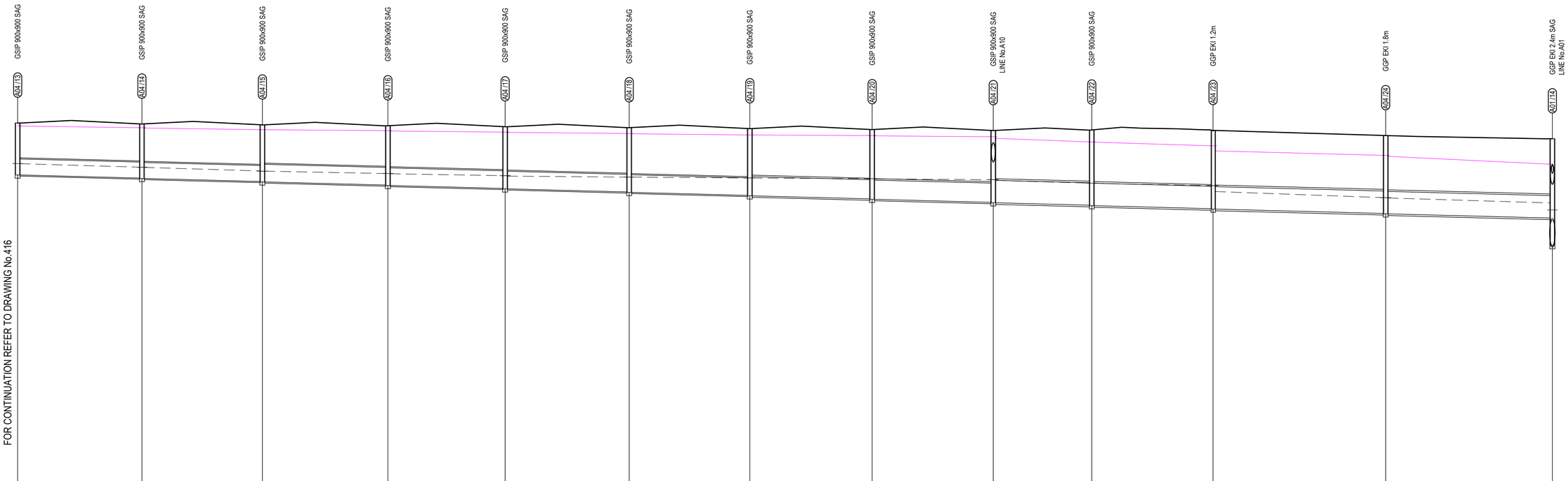
LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	

| | | |

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	1.92		1.99		1.94		1.94		1.96		1.96		1.89		1.86		1.91		1.87		1.92		2.39	
DISCHARGE (cu.m/s)	0.63		0.64		0.65		0.66		0.69		0.73		0.77		0.81		1.5		1.5		1.5		1.54	
PIPE SIZE (mm) & CLASS	750RRJ2		750RRJ2		825RRJ2		825RRJ2		825RRJ2		825RRJ2		900RRJ2		900RRJ2		1050RRJ2		1050RRJ2		1050RRJ2		1050RRJ2	
DESIGN GRADE	0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%	
DATUM R.L	21.0																							
DEPTH TO INVERT	2.41	2.43		2.53	2.55		2.65	2.67		2.78	2.8		2.89	2.91		3.01	3.03		3.12	3.14		3.24	3.26		3.36	3.38		3.52	3.54		3.66	3.68		3.64	3.66		3.71	5
H.G.L. LEVEL	40.34	40.34		40.17	40.16		40	39.99		39.88	39.87		39.77	39.76		39.71	39.71		39.67	39.63		39.62	39.59		39.55	39.43		39.42	39.31		39.03	38.75		38.73	38.5		37.52
INVERT LEVEL	39.83	39.81		39.66	39.64		39.5	39.48		39.34	39.32		39.18	39.16		39.01	38.99		38.85	38.83		38.69	38.67		38.53	38.51		38.39	38.37		38.23	38.21		38.01	37.99		37.79	36.5
SURFACE LEVEL	42.24			42.19			42.15			42.11			42.06			42.02			41.97			41.93			41.89			41.91			41.89			41.65			41.5
ROAD CHAINAGE																																				
PIPE CHAINAGE	287.56	29.04		316.59	28.16		344.76	29.33		374.09	27.4		401.49	29		430.48	28.2		458.68	28.58		487.26	28.31		515.57	23.02		538.59	28.35		566.94	40.35		607.29	38.96		646.25

LINE A04

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

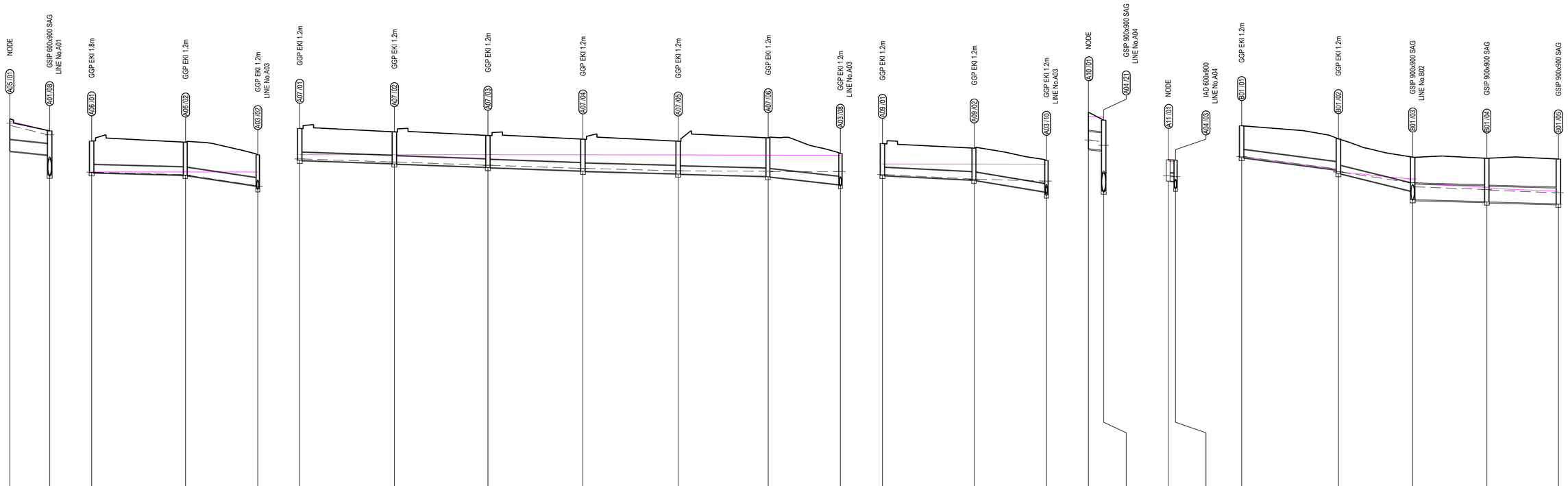
Title: DRAINAGE LONG SECTIONS SHEET 08 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	417	A

Plotted: File Name:C:\12dSolids\ORION-SYNO\1\02-DA-Development Application, 2020\FD\WCS\20-0127-02-DA-417.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



	LINE A05			LINE A06			LINE A07								LINE A09			LINE A10		LINE A11		LINE B01			
PIPE MAX. VELOCITY (m/s)	4.06			0	0		0.66	0.86	0.89	0.93	0.99	1.19			0.67	1.33		3.79		0.68		1.12	1.95	1.57	1.92
DISCHARGE (cu.m/s)	0.88			0	0		0.01	0.02	0.03	0.03	0.04	0.05			0.01	0.01		1.01		0.03		0.01	0.04	0.65	0.68
PIPE SIZE (mm) & CLASS	525RRJ2			375RRJ2	375RRJ2		375RRJ2	375RRJ2	375RRJ2	375RRJ2	375RRJ2	375RRJ2			375RRJ2	375RRJ2		825RRJ2		375RRJ2		375RRJ2	375RRJ2	750RRJ2	750RRJ2
DESIGN GRADE	2%			0.5%	2.88%		0.67%	0.68%	0.69%	0.5%	0.5%	2.17%			0.96%	3.19%		2%		0.5%		2.52%	4.68%	0.5%	0.5%
DATUM R.L	21.0			24.0			23.0								23.0			20.0		23.0		27.0			
DEPTH TO INVERT	1.53	1.15	2.11	1.51 1.56	1.58 1.48	1.62	1.52 1.51	1.53 1.51	1.53 1.51	1.53 1.54	1.56 1.83	1.85 1.48	1.53		1.52 1.51	1.53 1.49	1.65	1.74 1.43	3.38	1.01 1.01	1.34	1.52 1.47	1.65 1.61	2.03 2.06	2.08 2.13
H.G.L. LEVEL	42.64	42.19	41.92	43.41 43.29	43.27 42.77	42.74	43.04 42.89	42.74 42.59	42.47 42.46	42.43 42.43	42.36				42.3 42.09	42.08 41.99	41.75	40.94 40.87	40.23	42.2 42.2	42.2	47.15 46.57	46.42 45.91	45.72 45.58	45.55 45.43
INVERT LEVEL	41.42	41.23	40.27	43.39 43.28	43.26 42.76	42.62	42.98 42.83	42.81 42.65	42.63 42.48	42.46 42.34	42.32 42.22	42.2 41.82	41.77		42.25 42.04	42.02 41.48	41.32	40.53 40.46	38.51	41.99 41.98	41.65	47.1 46.52	46.34 45.52	45.1 45.01	44.99 44.91
SURFACE LEVEL	42.95		42.38	44.89 44.84		44.24	44.49 44.33	44.16 43.98	43.89 44.04				43.3		43.78 43.55		42.97	42.27 41.89		43 42.98		48.62 48	47.13 47.07		47.04
ROAD CHAINAGE																									
PIPE CHAINAGE	0	9.49	9.49	0 22.37	22.37 17.2	39.57	0 22.54	22.54 22.28	44.82 22.62	67.44 22.69	90.13 21.45	111.58 17.21	128.78		0 21.87	21.87 17.2	39.07	0 3.63	3.63	0 1.75	1.75	0 23.04	23.04 17.7	40.74 17.65	58.39 17.05 75.44

ISSUED FOR **DEVELOPMENT APPLICATION**

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

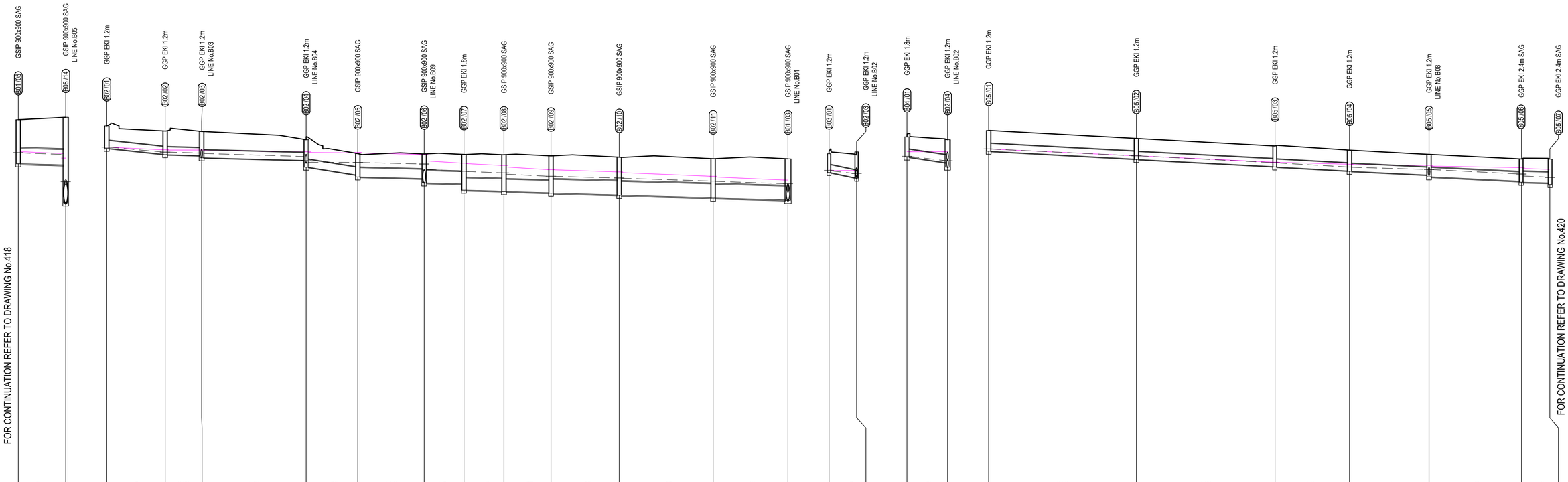
Title: DRAINAGE LONG SECTIONS SHEET 09 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	418	A

Protect File Name:C:\12drSstate\ORION-STN01\02.DA Development Application_2020\TOWS\S20-0127-02-DA-418.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



	LINE B01				LINE B02																								LINE B03		LINE B04		LINE B05						
PIPE MAX. VELOCITY (m/s)	2.04				0.73		0.82		1.04		1.78		1.06		1.72		1.63		1.77		1.59		1.57		1.61				1.17		0.99		0.96		1.36		1.33		1.4		1.39		1.2
DISCHARGE (cu.m/s)	0.68				0.01		0.02		0.07		0.09		0.13		0.46		0.46		0.5		0.54		0.56		0.58				0.04		0.01		0.03		0.07		0.08		0.09		0.17		0.18
PIPE SIZE (mm) & CLASS	750RRJ2				375RRJ2		375RRJ2		375RRJ2		375RRJ2		450RRJ2		600RRJ2		600RRJ2		600RRJ2		675RRJ2		675RRJ2		675RRJ2				375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		375RRJ2		450RRJ2		525RRJ2
DESIGN GRADE	0.5%				2.04%		0.5%		0.5%		3%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%		0.5%				3.82%		2.75%		1.06%		1.03%		1.05%		0.94%		0.96%		0.5%
DATUM R.L	25.0				27.0																								28.0		27.0		26.0										
DEPTH TO INVERT	2.13	2.15	2.32	4.17	1.09	1.13	1.15	1.18	1.29	1.01	1.34	1.04	1.14	1.2	1.42	1.44	1.75	1.78	1.8	1.8	1.82	1.84	1.86	1.9	1.92	2.01	2.03		0.92	1.27	0.99	1.12	1.01	1.01	1.03	1.01	1.03	1.01	1.03	1.01	1.1	1.09	1.14	1.17
H.G.L. LEVEL	45.43	45.42	45.34	43.8	47.7		47.46	47.41	47.39	47.24	46.96	46.95	46.95	46.87	46.62	46.52	46.51	46.44	46.38		46.27	46.19	46.18	46.04	46.03	45.91	45.72		47.54	47.41	47.39	47.25	47.03	46.96	46.61		46.27		45.94	45.93	45.73	45.71	45.61	45.6	45.38	45.29	45.23
INVERT LEVEL	44.91	44.89	44.83	42.98	47.64	47.35	47.33	47.29	47.18	47.05	46.72	46.34	46.24	46.16	45.95	45.9	45.89	45.54	45.52	45.47	45.45	45.36	45.34	45.23	45.21	45.12	45.1		47.46	47.2	47.18	47.21	46.94	46.72	46.5	46.12	46.1	45.75	45.73	45.54	45.52	45.34	45.25	45.03	44.98	44.95
SURFACE LEVEL	47.04			47.15	48.74		48.49		48.47		48.06		47.38		47.37		47.34		47.33		47.27		47.21		47.13		47.13		48.38	48.47		48.2	48.06	47.52		47.12		46.76		46.55		46.34		46.12	
ROAD CHAINAGE																																														
PIPE CHAINAGE	75.44	11.55		87	0	14.23	14.23	8.89	23.13	25.47	48.59	12.59	61.19	16.18	77.37	9.68	87.05	9.76	96.8	11.46	108.26	16.63	124.9	22.88	147.77	18.25	166.02		0	6.73	0	9.91	9.91	0	36.01	36.01	33.79	69.8	18.15	87.95	19.38	107.33	22.53	129.86	6.91

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Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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

For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE VERIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

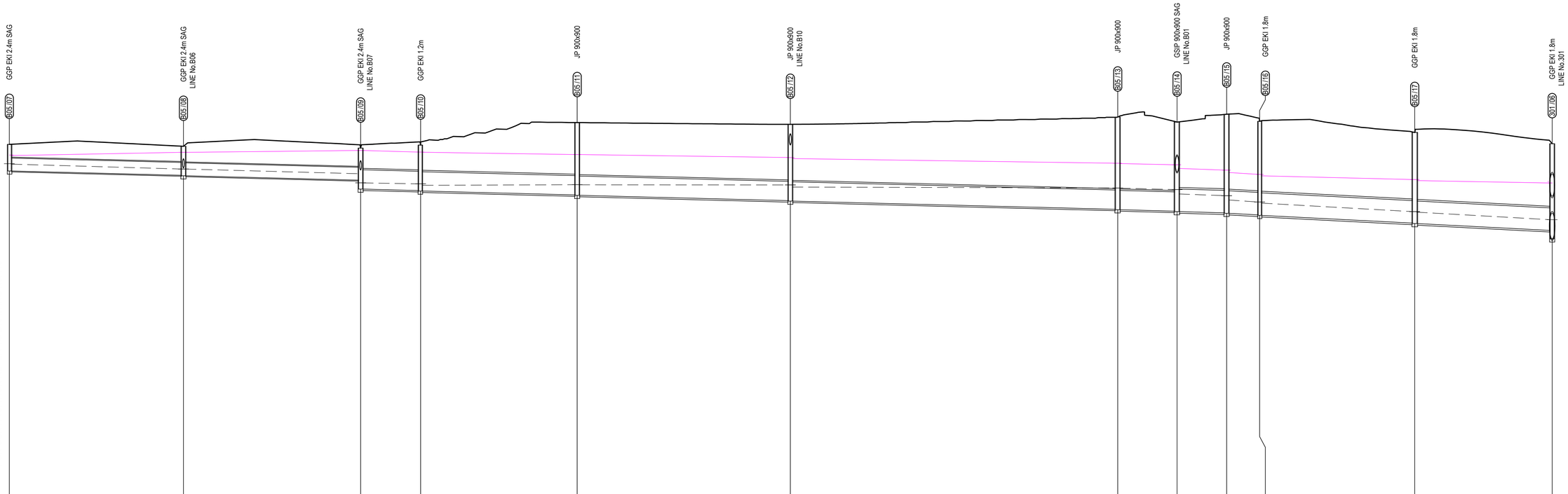
Title: DRAINAGE LONG SECTIONS SHEET 10 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	419	A

Plotted, File Name:C:\12\Estate\ORION_SYN\0102-DA Development Application_2020\12\0127-02-DA-419.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	1.36				1.5			1.46		1.43			1.09			1.39				1.23	1.71	2.14	2.51		2.84	
DISCHARGE (cu.m/s)	0.2				0.22			0.24		0.24			0.28			0.56				0.56	1.2	1.2	1.23		1.23	
PIPE SIZE (mm) & CLASS	600RRJ2				600RRJ2			900RRJ2		900RRJ2			900RRJ2			900RRJ2				900RRJ2	1050RRJ2	1050RRJ2	1050RRJ2		1050RRJ2	
DESIGN GRADE	0.5%				0.5%			0.5%		0.5%			0.5%			0.5%				0.5%	0.5%	1%	1%		1%	
DATUM R.L	25.0																									
DEPTH TO INVERT	1.17	1.24			1.35	1.37			1.5	1.91		2.12	2.14			3.37	3.39			3.56	3.58	4.3	4.32	4.15	4.17	4.6	4.62	4.36	4.38		4.22	4.24		4.04	4.43
H.G.L. LEVEL	45.23	45.19				44.96			44.75	44.32		44.27	44.21				44.23			44.22	44.12	44.08	44.07	44.01	43.8	43.72	43.52	43.43	43.38		42.98	42.95			42.6
INVERT LEVEL	44.95	44.87			44.67	44.65			44.44	44.03		43.96	43.94			43.76	43.74			43.49	43.47	43.09	43.07	43	42.98	42.92	42.9	42.83	42.81		42.44	42.42		42.1	41.71
SURFACE LEVEL	46.11					46.02				45.94			46.08				47.13				47.05		47.39		47.15		47.52		47.19			46.67			46.15
ROAD CHAINAGE																																271.16			303.36
PIPE CHAINAGE	136.77		40.54			177.3		41.24		218.55	13.96		232.51		36.44		268.96		49.63		318.58		394.79	13.81	408.6	11.55	420.15	7.67	427.82		36.09	463.92		32	495.92

LINE B05

ISSUED FOR **DEVELOPMENT APPLICATION**

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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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SCALE 1:500 (A1) SCALE 1:1000 (A3)
0 1 2 3 4 5 6 7 8 9 10
SCALE 1:100 (A1) SCALE 1:200 (A3)

For: sydney business park

By: Orion Consulting
SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

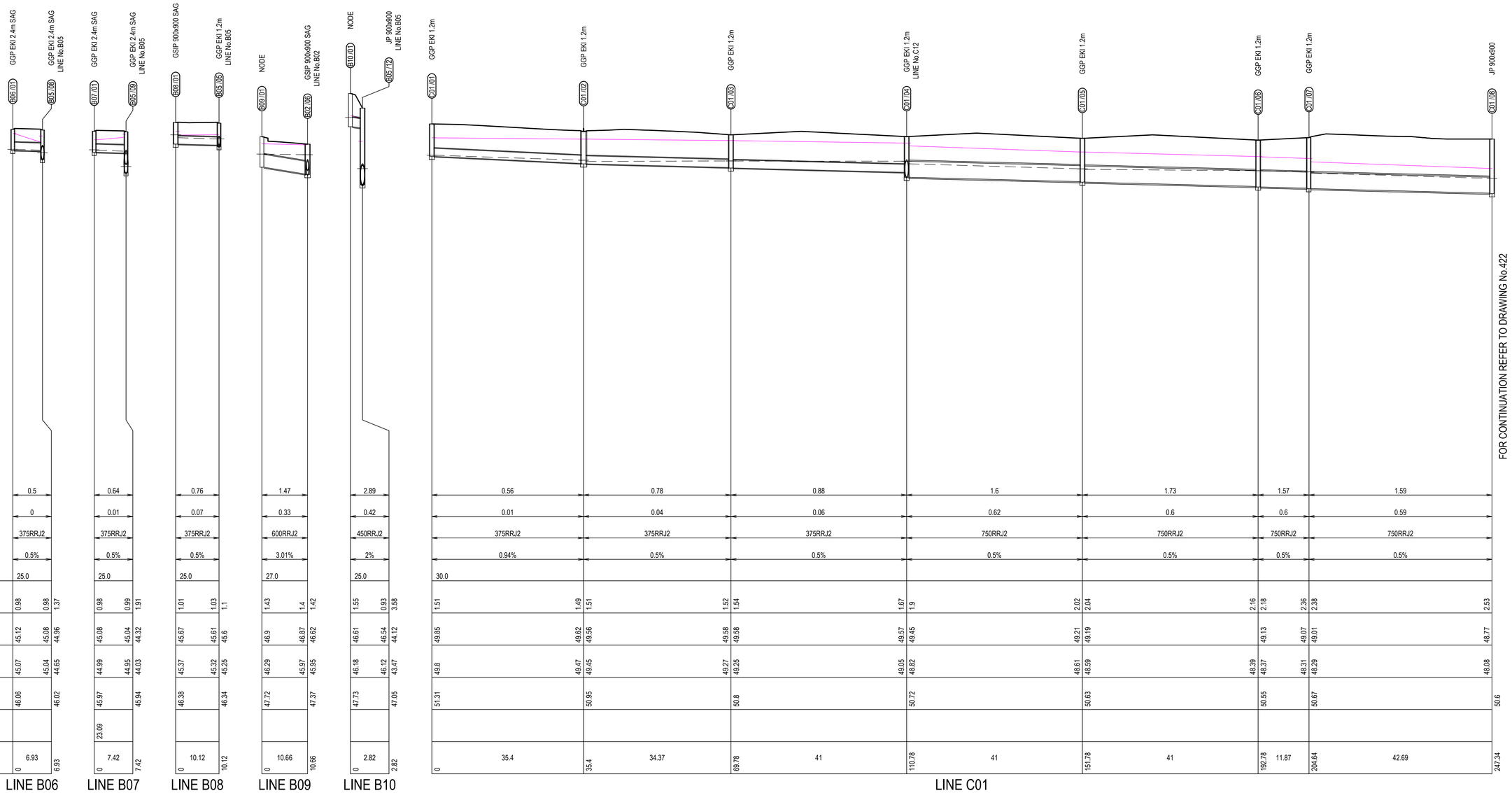
Title: DRAINAGE LONG SECTIONS SHEET 11 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	420	A

Plotted, File Name:C:\12d\Sotas\ORION-SYNGI\12d-DA Development Application_2020\FOWS\20-0127-02-DA-420.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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

For: sydney business park

By: Orion Consulting
SUSTAINABLE VERIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 **PO Box:**7936, BAULKHAM HILLS NSW 2153 **T:**(02) 8660 0035 **E:**info@orionconsulting.com.au

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: DRAINAGE LONG SECTIONS SHEET 12 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	421	A

Plotted: File Name:C:\12\Estate\ORION SYN\0102-DA Development Application - 2020\7\DWGS\20-0127-02-DA-421.dwg

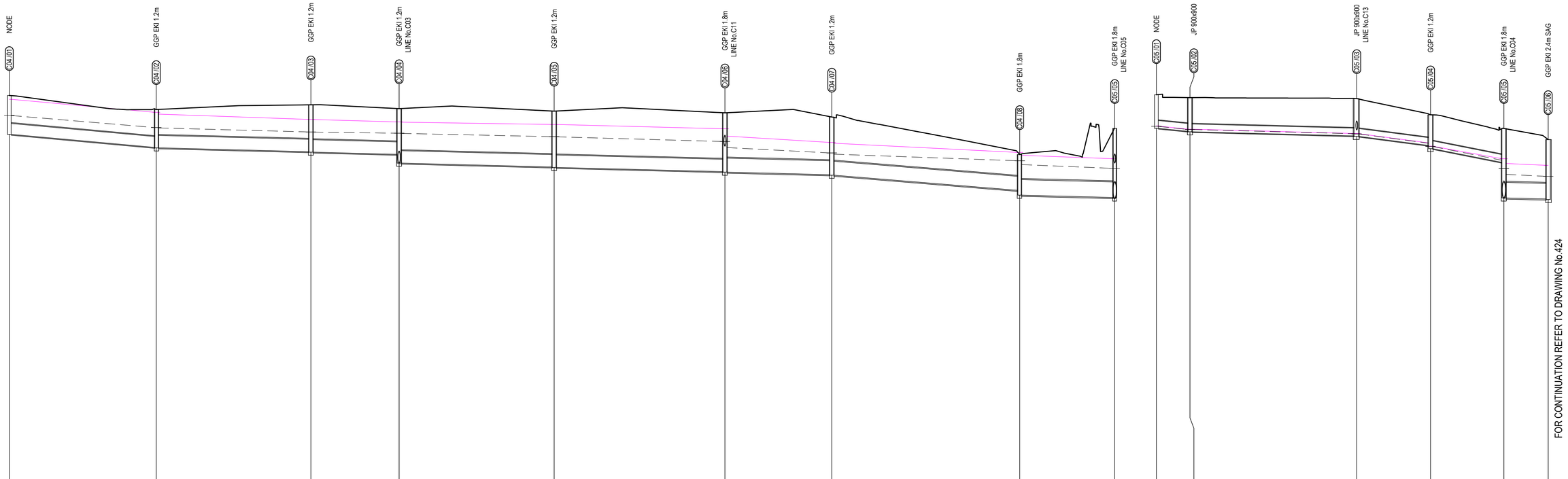
LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	

| | | |

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



PIPE MAX. VELOCITY (m/s)	1.5			1.44			1.69			1.4			1.44			2.04			2.69			1.66			1.06			0.84			1.82			2.15			1.8		
DISCHARGE (cu.m/s)	0.28			0.33			0.32			0.36			0.41			0.71			0.71			0.73			0.02			0.02			0.05			0.05			0.8		
PIPE SIZE (mm) & CLASS	525RRJ2			600RRJ2			600RRJ2			600RRJ2			600RRJ2			675RRJ2			675RRJ2			750RRJ2			375RRJ2			375RRJ2			375RRJ2			375RRJ2			750RRJ2		
DESIGN GRADE	1.78%			0.5%			0.5%			0.5%			0.5%			0.5%			1.61%			0.5%			1.79%			0.5%			2.48%			3.75%			0.5%		
DATUM R.L	28.0																								28.0															
DEPTH TO INVERT	1.87		1.82	1.84		2.25	2.27		2.2	2.62		2.68	2.7		2.83	2.85		2.78	2.8		1.72	1.95		3.34	1.61	1.62	1.64		1.8	1.82		1.47	1.63		1.63	3.34		2.86		
H.G.L. LEVEL	50.03		49.45	49.43		49.24	49.23		49.18	49.17		49.01	49		48.78	48.49		48.23	48.17		47.85	47.67		47.49	47.2	49.5		49.36		49.15	49.14		48.7	48.54		47.88	47.2		47.1		
INVERT LEVEL	49.12		48.49	48.47		48.29	48.27		48.16	47.74		47.55	47.53		47.33	47.31		47.18	47.16		46.43	46.2		46.09	46.07	49.41	49.27	49.25		49.05	49.03		48.59	48.43		47.78	46.07		46.01		
SURFACE LEVEL	50.99			50.32			50.54			50.36			50.24			50.16			49.95			48.15			49.41	51.02		50.89			50.84			50.06			49.41			48.87	
ROAD CHAINAGE																						68.12																			
PIPE CHAINAGE	0	35.28		35.28	37.12		72.4	21.18		93.58	37.22		130.8	41		171.8	25.65		197.45	45.12		242.58	22.81		265.38	0	8.06	8.06	40.04		48.1	17.72		65.81	17.61		83.42	10.64		94.06	

LINE C04

LINE C05

ISSUED FOR **DEVELOPMENT APPLICATION**

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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

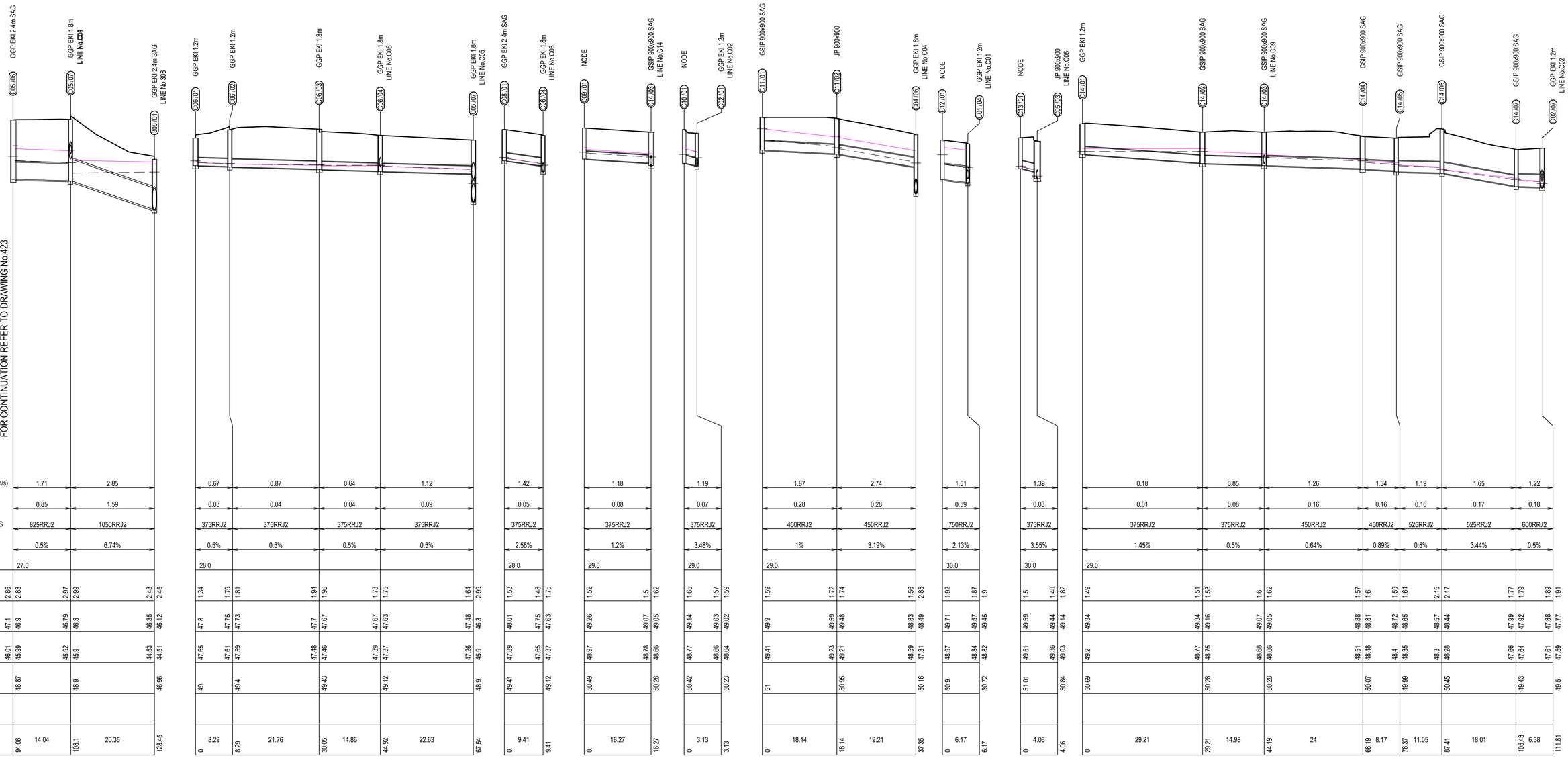
Title: DRAINAGE LONG SECTIONS SHEET 14 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	423	A

Plotted: File Name:C:\12d\Sotas\ORION-SYNO\120-DA Development Application_2020\TD\WS20-0127-02-SK-423.dwg

LEGEND

PROPOSED PIPE	
FINISHED DESIGN SURFACE LEVEL	
1:20 YR ARI YEAR HGL LEVEL	
100 YEAR HGL LEVEL	



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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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For: sydney business park

By: Orion Consulting
ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE ASSESSORS ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project: STAGE 3 SYDNEY BUSINESS PARK, MARSDEN PARK ROAD & DRAINAGE DESIGN

Title: DRAINAGE LONG SECTIONS SHEET 15 OF 15

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	424	A

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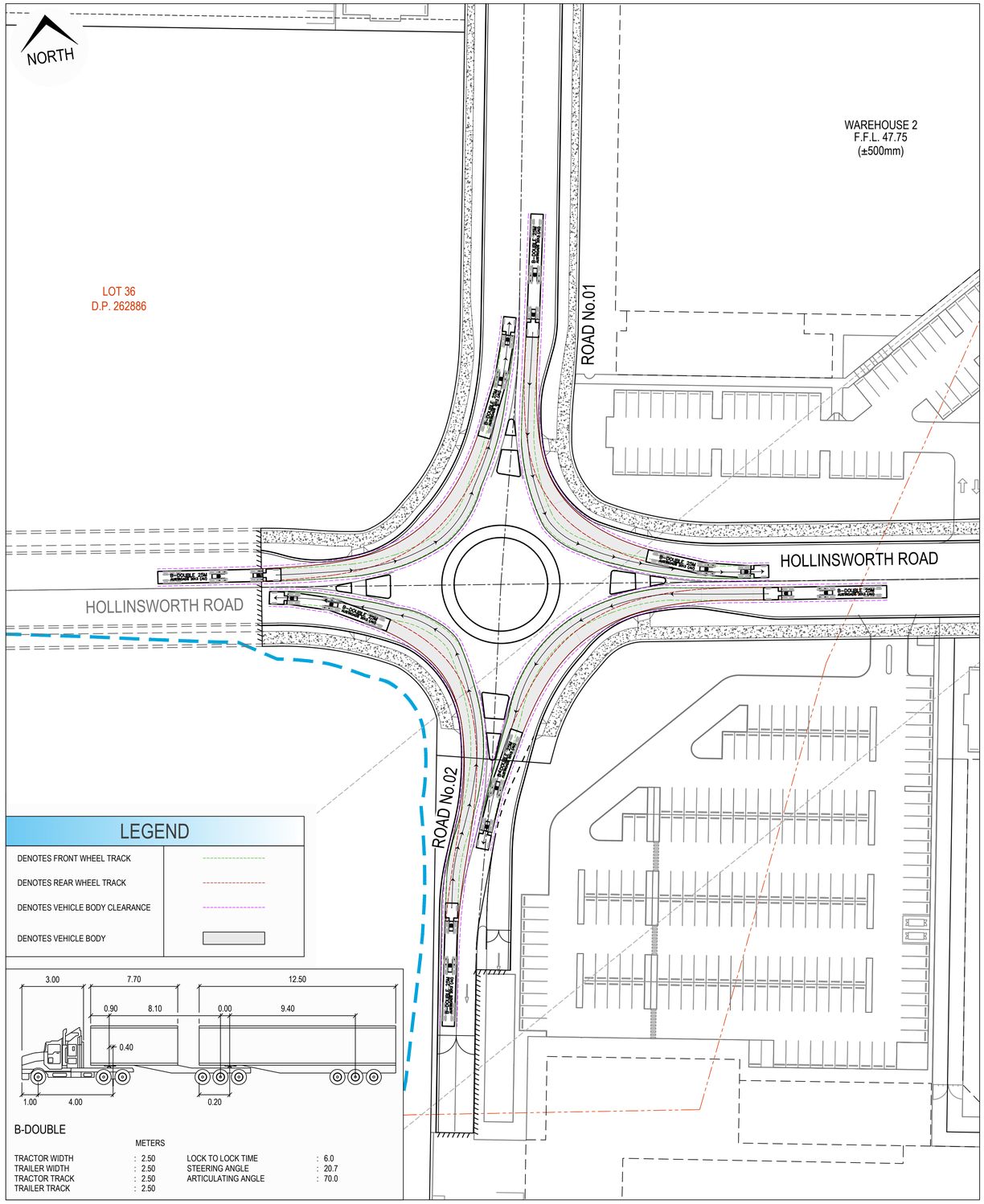
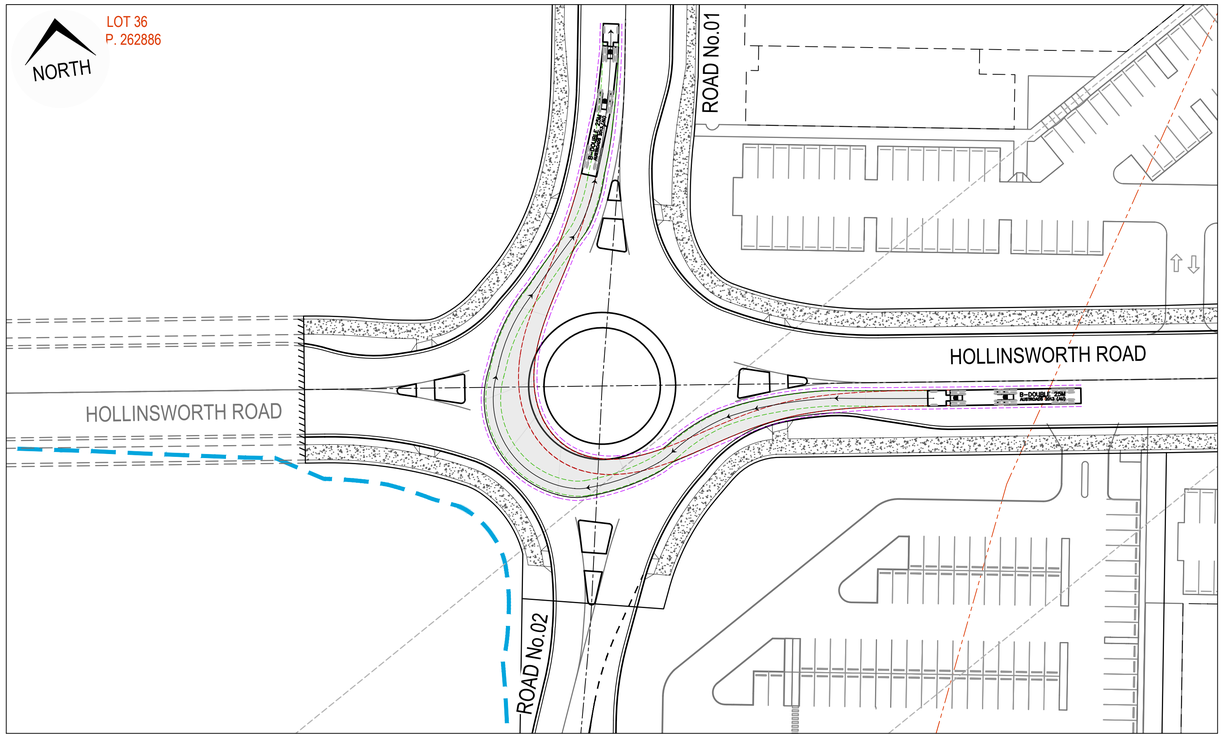


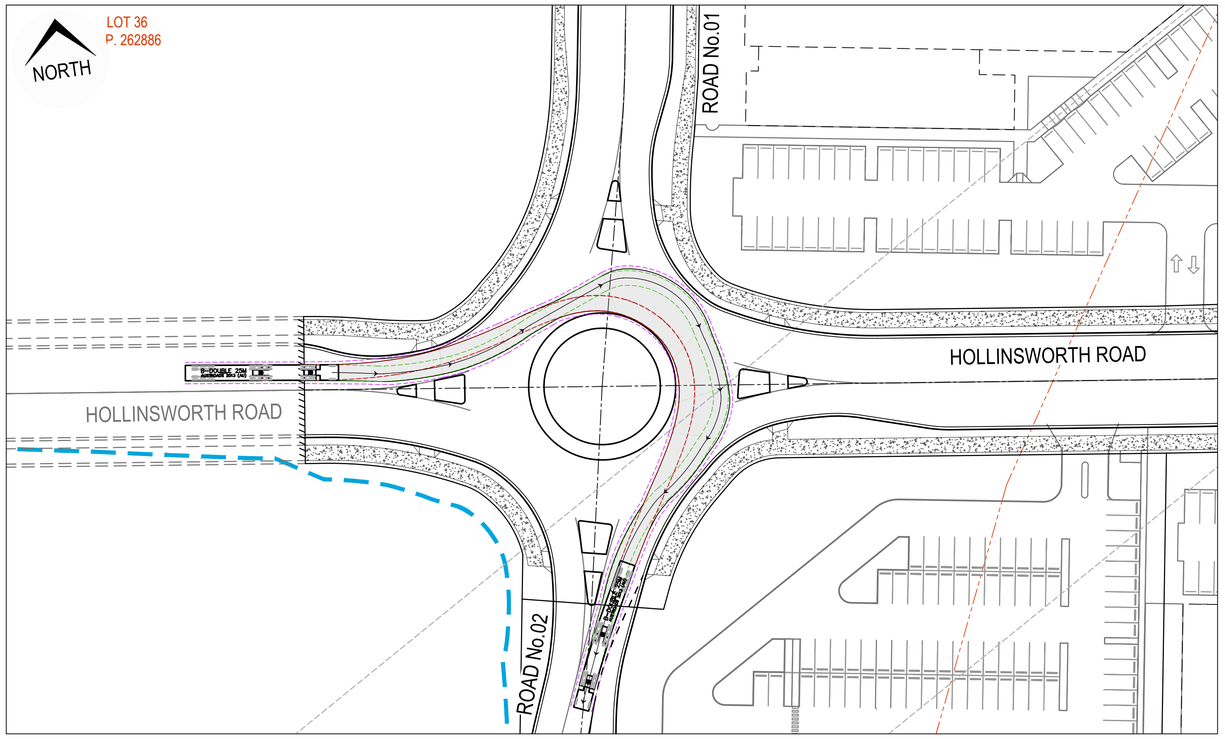
LEGEND

DENOTES FRONT WHEEL TRACK	
DENOTES REAR WHEEL TRACK	
DENOTES VEHICLE BODY CLEARANCE	
DENOTES VEHICLE BODY	

B-DOUBLE

	METERS		
TRACTOR WIDTH	: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 20.7
TRACTOR TRACK	: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		





ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

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A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
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SCALE 1:500 (A1) SCALE 1:1000 (A3)

For: sydney business park

By: Orion Consulting
SUSTAINABLE VERIFICATION ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER
ABN:25 604 069 981 **PO Box:**7936, BAULKHAM HILLS NSW 2153 **T:**(02) 8660 0035 **E:**info@orionconsulting.com.au

Project:
STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title:
ROUNDABOUT VEHICLE
TURNING PATH PLAN
SHEET 01 OF 03

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	600	A

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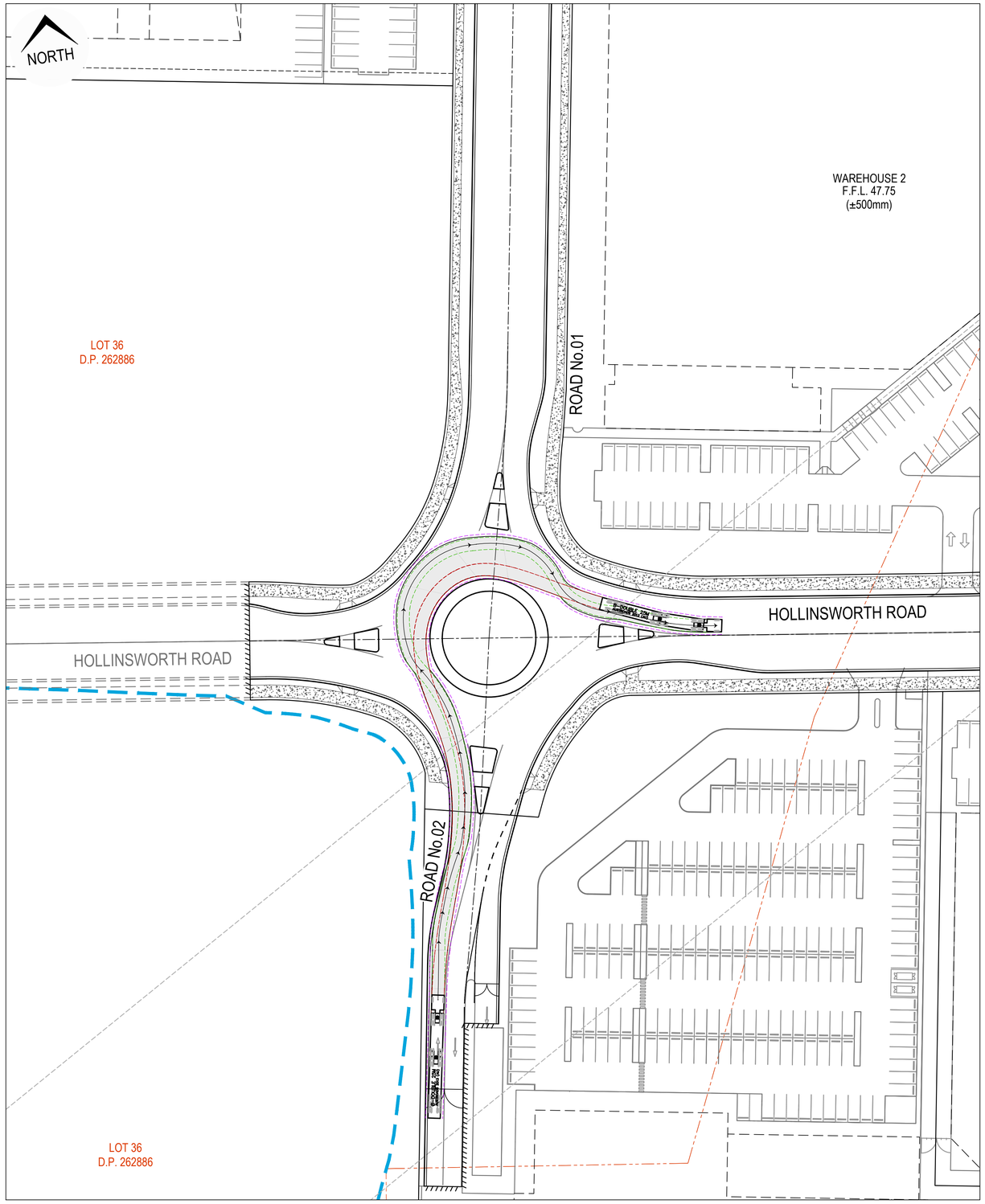

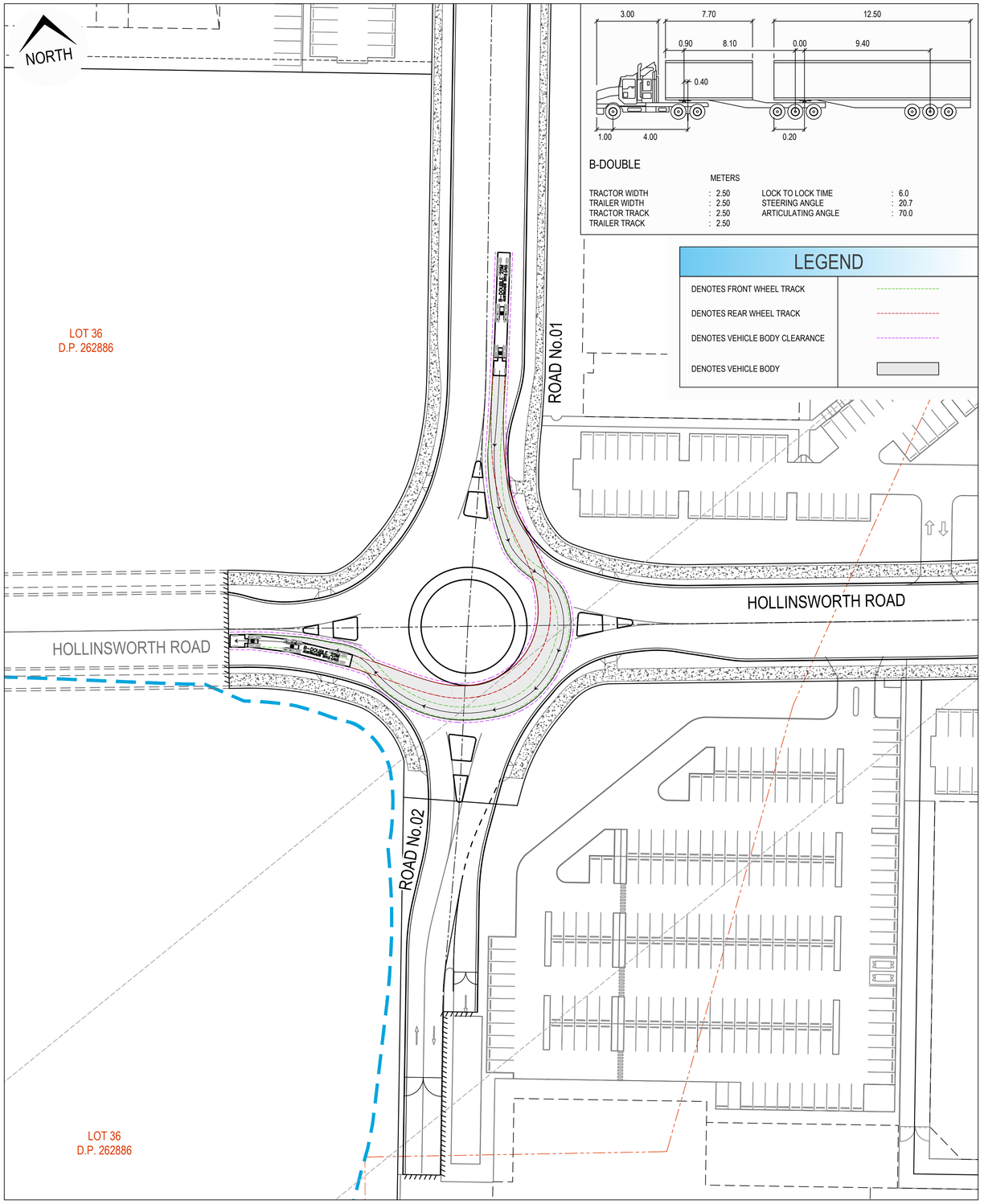

B-DOUBLE

METERS

TRACTOR WIDTH	: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 20.7
TRACTOR TRACK	: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

LEGEND

DENOTES FRONT WHEEL TRACK	
DENOTES REAR WHEEL TRACK	
DENOTES VEHICLE BODY CLEARANCE	
DENOTES VEHICLE BODY	

ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)

For: sydney business park

By: Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE CERTIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project:
STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title:
ROUNDABOUT VEHICLE TURNING PATH PLAN
SHEET 02 OF 03

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	601	A

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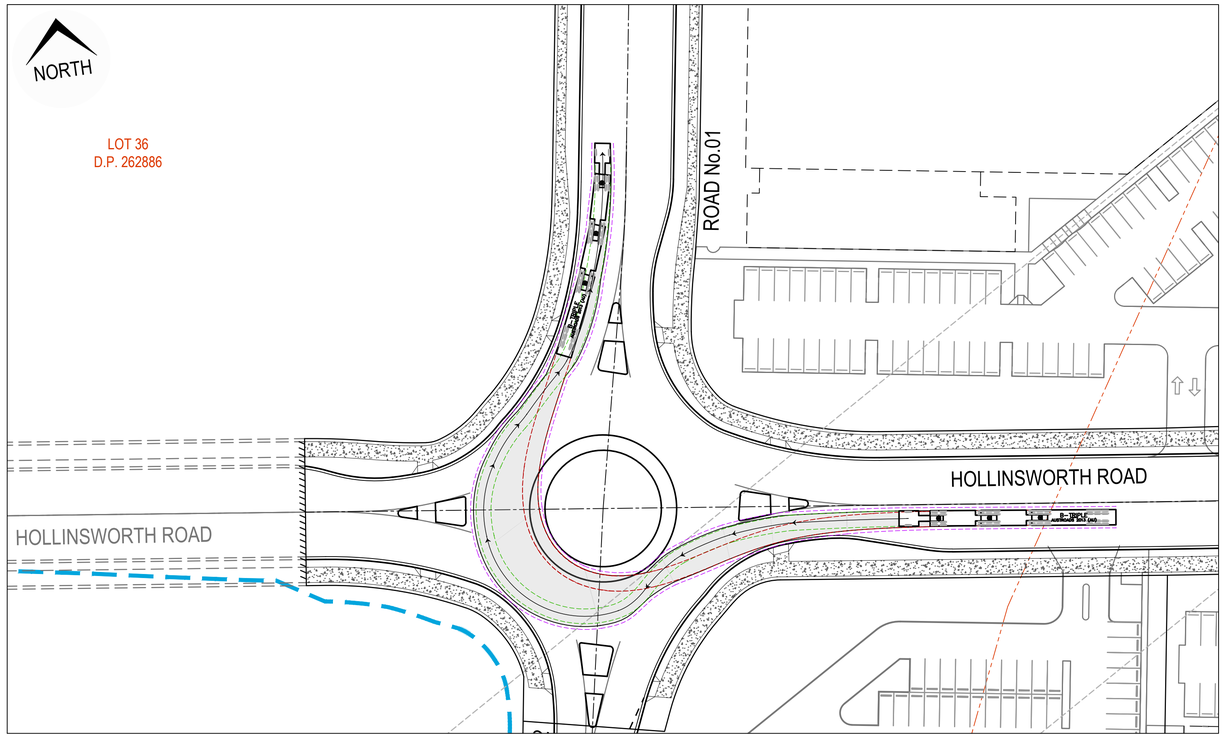

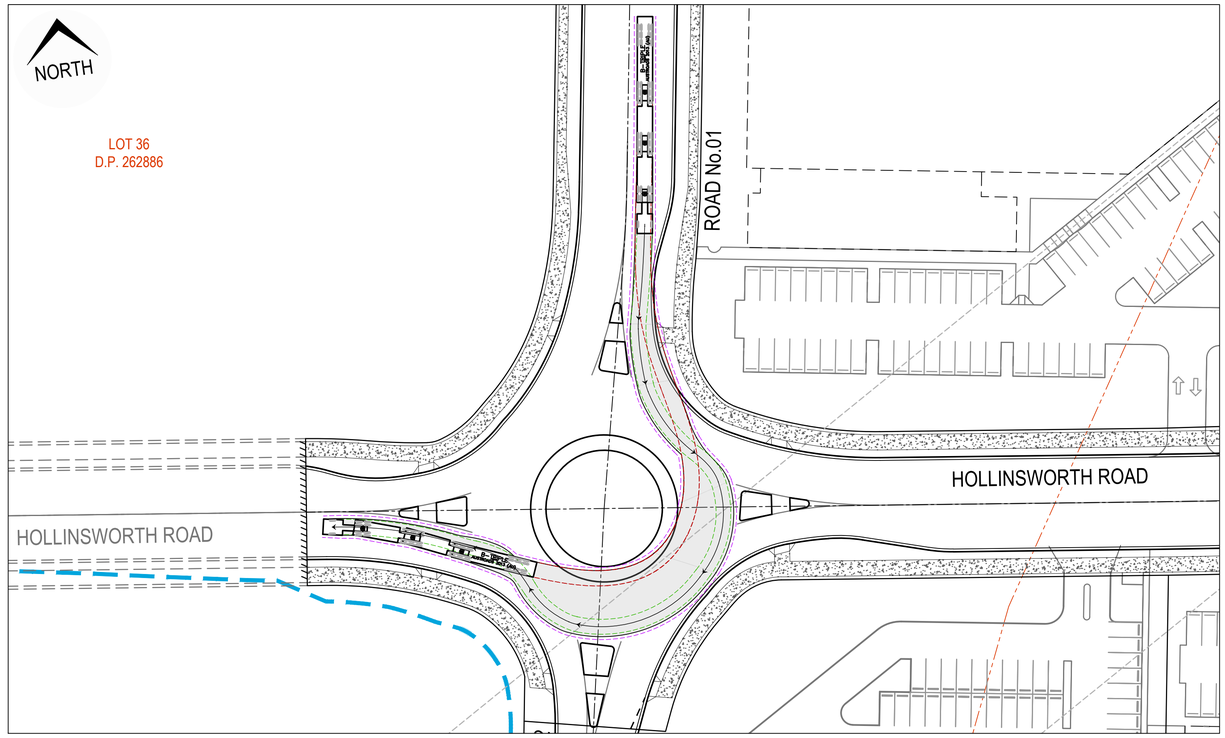

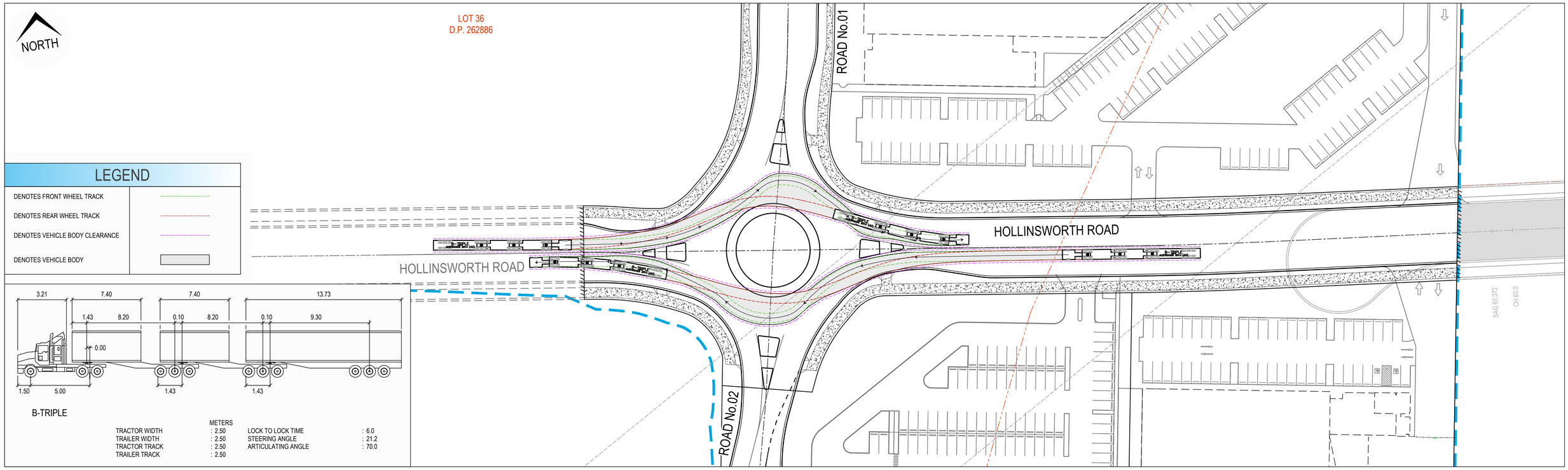

ISSUED FOR **DEVELOPMENT APPLICATION**

NOT FOR CONSTRUCTION

Rev	Drawn	Design	Appd.	Date	Revision Description
A	MS	DH	MP	31/07/2020	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:
0 5 10 15 20 25 30 35 40 45 50
SCALE 1:500 (A1) SCALE 1:1000 (A3)

For: sydney business park

By: Orion Consulting
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SUSTAINABLE VERIFICATION ✓ISO 9001 JAS-ANZ WWW.JAS-ANZ.ORG/REGISTER

Project:
STAGE 3
SYDNEY BUSINESS PARK,
MARSDEN PARK
ROAD & DRAINAGE DESIGN

Title:
ROUNDABOUT VEHICLE TURNING PATH PLAN
SHEET 03 OF 03

Project No.	Set No.	Milestone	Plan	Revision
20-0127	02	DA	602	A

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