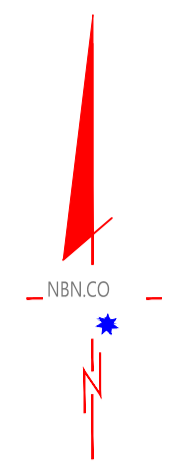


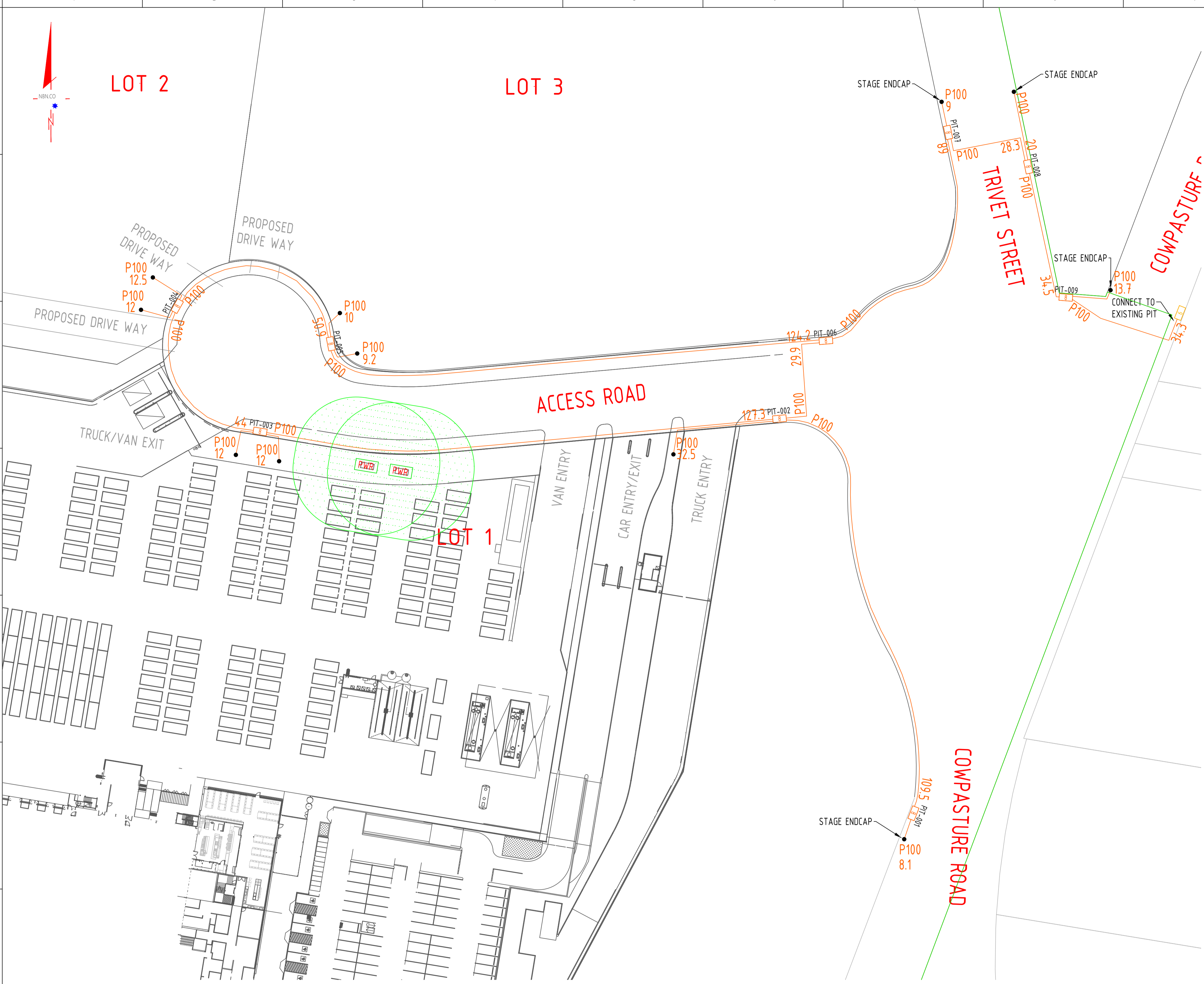
SEARs Requirements	Electrical	Telecommunications	Water	Sewer
<i>A detailed written and/or graphical description of infrastructure required on the site including any electrical substation/s and on-site switch yard/s</i>	As part of the creation of the Estate Road and subdivision HV capacity has been provisioned along the frontage of both lots according to Endeavour Energy's terms and conditions associated with Subdivision of lots larger than 3,500m ² . Therefore, HV Capacity has been provided to the frontage. Space allocation has been made within the site plan to allow for a substation to be placed in the future once application is made to Endeavour Energy.	As part of the creation of the Estate Road and subdivision (approved under SSD7664) NBN pits with lead in-conduits were established to provide Fibre Connection to each of the proposed lots. Therefore, NBN have provisioned for Fibre at the Estate Road.	The subject lot has been provided with a frontage to a Sydney Water DN150 watermain constructed under the Section 73 application for the original subdivision DA. Both buildings have direct frontage should separate domestic and fire services be proposed	The subject lot has been provided with 2 points of connection to a Sydney Water DN225 sewer main constructed under the Section 73 application for the original subdivision DA. Both buildings have separate connections should lot consolidation not be undertaken.
<i>Identification of any infrastructure upgrades required off-site to facilitate the development (if required) and describe approval process to ensure that the upgrades will be implemented in a timely manner and maintained and</i>	An application for connection of load will be required to provide a Substation of suitable capacity and in a suitable location determined by your final tenant demand and the site layout. The application and connection can be a condition of consent required to be completed prior to occupation.	An application and design from the pit in the Estate Road to the comms cupboard within each building will be required to allow NBN to pull fibre from the Estate Road into each building, which is the normal process. The application and connection can be a condition of consent required to be completed prior to occupation.	An application to connect into the watermain created above will be required.	An application to connect into the watermain created above will be required.
<i>an assessment of the impacts of the development on existing utility infrastructure and service provider assets surrounding the site, and a description of how any potential impacts would be avoided and minimised.</i>	Additional works beyond what has been provisioned for would only occur of the future occupant of the warehouses required abnormal additional requirements, in this scenario Endeavour Energy's Zone Substation is located a couple hundred meters aware with spare conduit to it.	There is no impact on existing telecommunications infrastructure. If the requirements change there is an opportunity to connect to Telstra Assets located in the Estate Road which can cater to additional demand.	There is no impact on existing infrastructure.	There is no impact on existing infrastructure.



LOT 2

LOT 3

LOT 1



SITE PLAN - SCALE 1:500

SDU Development Information

Development Name:
COWPASTURE ROAD, WETERILL PARK

Developer Company:
CHARTER HALL

Development Address:
130-156 COWPASTURE ROAD, HORSLEY PARK

Authorised Rep:
STEPHEN ALLAN
Phone: 02 8814 1299
E-Mail: STEVE@JDG.COM.AU

nbn Reference Number: STG-W000136513

Stage Number: 1

Design Revision: B

- NOTES:
1. ALL PIT & PIPE INFRASTRUCTURE IS TO BE INSTALLED ACCORDING TO NBN Co's STANDARDS
 2. ALL CONSTRUCTION TO BE INSTALLED IN SHARED TRENCH UNLESS OTHERWISE SHOWN.
 3. CONDUITS INSTALLED IN SHARED TRENCHES MUST NOT BE VERTICALLY ABOVE OR BELOW OTHER UTILITIES. CONDUITS MAY BE INSTALLED WITHIN THE ENDEAVOUR ENERGY ASSET ALLOCATION IF MANDATORY SEPARATION IS MAINTAINED AT ALL TIMES. MINIMUM SEPARATIONS ARE:
- LV CABLES ~ 100mm
- HV CABLES ~ 300mm
- GAS MAIN (≤φ75mm) ~ 150mm
- GAS MAIN (≥φ110mm) ~ 300mm

BILL OF MATERIAL

NO OF LOTS: 3

PITS		DUCTS		
SIZE	QTY	SIZE	QTY	MTRS
2	0	P100	21	801.9
5	0	P50	0	0
6	0	P20	0	0
8	9			
9	0			

TOTAL NUMBER OF PITS: 9
 TOTAL NUMBER OF MANHOLES: 0
 TOTAL NUMBER OF CONDUITS: 21
 TOTAL LENGTH OF CONDUITS: 801.9

- REFER FIGURE 1 - TYPICAL CROSS SECTION DIAGRAM.
4. NO PITS TO BE INSTALLED WITHIN 15m FROM ANY SUBSTATION.
 5. PITS TO BE INSTALLED CLEAR OF PROPOSED DRIVEWAYS

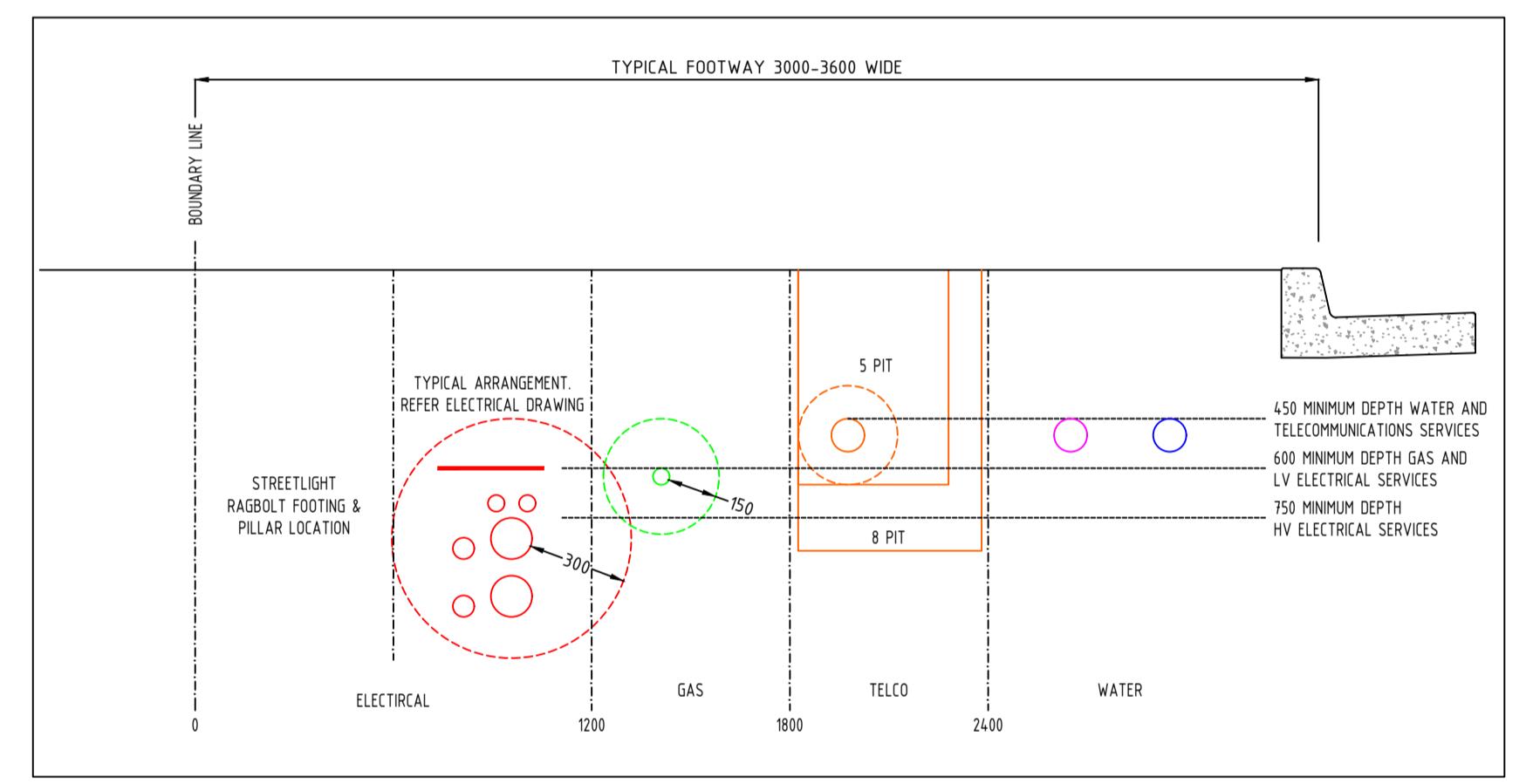
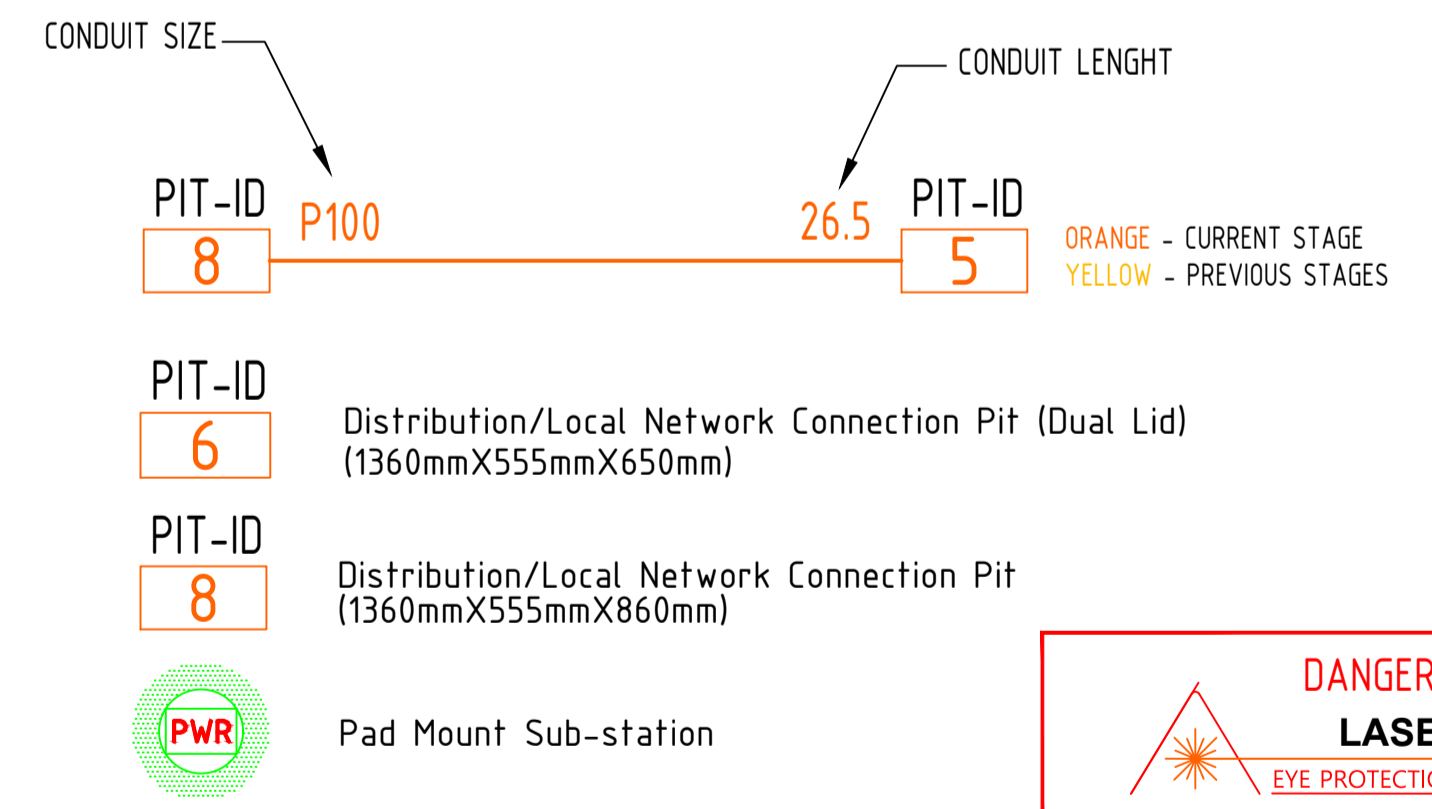


FIGURE 1 - TYPICAL SOCC CROSS SECTION



DANGER LASER BEAM
EYE PROTECTION MUST BE WORN

SAFETY FIRST SAFETY STARTS WITH YOU

STAFF WORKING ON THIS ESTIMATE PLEASE NOTE: The location of other authorities services which may affect this work have not been obtained by the estimator. Constructor to obtain service information before commencing.



REV	DATE	DRAFTER	DESCRIPTION	APPROVED
B	11/01/2021	OLAVO BUENO	FOR CONSTRUCTION	NBNCO
A	30/11/20	OLAVO BUENO	INITIAL ISSUE	FRANK KRANJC

STRICTLY CONFIDENTIAL

NBNCO APPROVAL RECORD:

SIGNATURE	DATE
DD	
WD	
AB	

QUALITY RECORD:

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nbn Australia's broadband network

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Norwest NSW 2153
PO Box 8114, Norwest NSW 2153

JDG Consulting
P: +612 8814 1299
E: jdg@jdg.com.au
W: www.jdg.com.au



DRAWING TITLE:
STG-W000136513
130-156 COWPASTURE ROAD
HORSLEY PARK
PIT AND PIPE

ENABLE#: 284898

STATE: NSW REGION:

FSA: SAM: ADA:

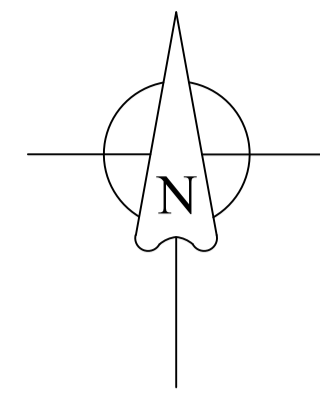
PROJECT No: 3723

CADREF No: STG-W000136513

SCALE 1:500 SHEET No. 1 OF 1 REV. B

1 2 3 4 5 6 7 8 9 10 11 12

CHECK FOR OTHER SERVICES BEFORE BORING OR EXCAVATING



LEGEND

- EXISTING POLE SUBSTATION
- EXISTING PADMOUNT SUBSTATION
- EXISTING OVERHEAD CONDUCTOR
- HIGH VOLTAGE TRENCHING
- LOW VOLTAGE TRENCHING
- EXISTING DUCTS
- INSTALL DUCTS
- EXISTING POLE LOCATION
- NEW COLUMN LOCATION
- EXISTING SL LANTERN
- NEW STREET LIGHT LANTERN
- REPLACE STREET LIGHT LANTERN
- UNDER SLUNG LINK
- AIR BREAK SWITCH CLOSED
- LV LINK OPEN

NOTE:
STREET LIGHT COLUMNS C1 - C8 & C12 TO BE INSTALLED AT 350mm FROM PROPERTY BOUNDARY.
STREET LIGHT COLUMNS C9 & C11 TO BE INSTALLED AT 1.2m FROM BACK OF KERB.
STREET LIGHT COLUMNS C10 & C13 TO BE INSTALLED AT 0.5m FROM BACK OF KERB

REPLACE EXISTING STREET LIGHT AND BRACKET ON POLE 16

PULL DOWN EXISTING HV UGOH ON POLE 7 AND STJ WITH NEW 240mm² Cu. 3C. INSTALL NEW HV UGOH ON POLE 7. REFER TO HV CIRCUIT.

REPLACE EXISTING LANTERN

REMOVE SL UGOH AND LANTERN FROM POLE 789153. RECONNECT SL CABLE TO NEW C13

REPLACE EXISTING LANTERN



Cadastre: © Land and Property Information 2016

AMENDMENTS
ORIGINAL ISSUE
DRAFT No. 01

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

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TEMPLATE VERSION No. 5.0

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REFERENCE DRAWING'S

GENERAL	WORK ORDERS
OVERHEAD	
UNDERGROUND	
SUBSTATIONS	

CAP / SAMP No.	UIS0903
AM PROJ. No.	2020/00442/001
HV SWITCHING	
UBD/PENGUIN REF	
GIS MAP No	U825291
HV OP DIAGRAM	WEST WETHERILL PK
LOCAL GOV AREA	FAIRFIELD

ORIGINAL SCALE AS NOTED	
DRAWN	M.T.K
DATE	15/10/2020
CH'D	S.A

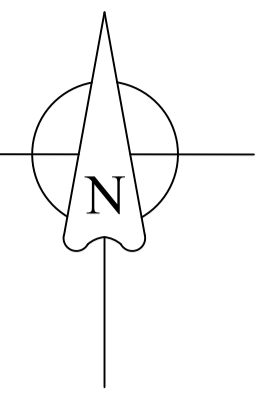
DO NOT SCALE DIMENSIONS IN METRES

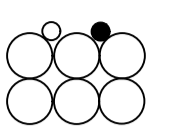
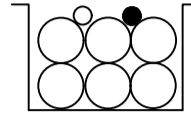
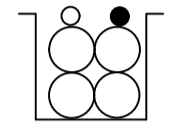
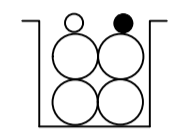
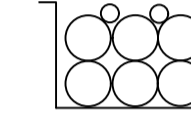
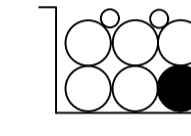
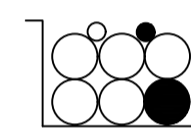
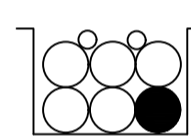
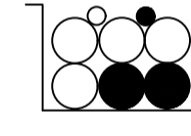
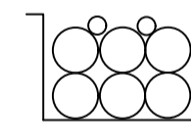
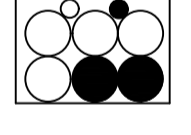
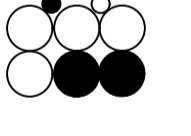
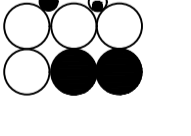
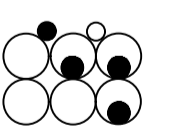
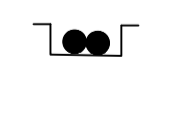
130-156 COWPASTURE ROAD
WETHERILL PARK
ENDEAVOUR ENERGY CAP No: UIS0903
INDUSTRIAL SUBDIVISION

Endeavour Energy

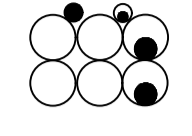
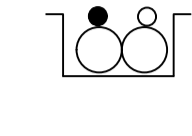
A1 XXX A

SHEET No 1 OF 4 SHEETS



DUCT BREAKDOWN TABLE					
ROUTE	CONFIGURATION	ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	
A - B		EXISTING DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	48m	NIL	48m @ \$6/m = \$288.00
B - C	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	92m		NIL
C - D		NEW ROAD CROSSING 2 X 50mm DUCTS 4 X 125mm DUCTS	26m	NIL	NIL
D - E		NEW DUCTS 2 X 50mm DUCTS 4 X 125mm DUCTS	13m	NIL	NIL
C - F	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	11m		NIL
F - G	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	132m	NIL	NIL
G - H	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	222m	NIL	NIL
F - H		NEW ROAD CROSSING 2 X 50mm DUCTS 6 X 125mm DUCTS	21m		NIL
H - I	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	36m		NIL
I - J	PROPERTY BOUNDARY 	NEW DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	32m		NIL
I - K		NEW ROAD CROSSING 2 X 50mm DUCTS 6 X 125mm DUCTS	18m	NIL	NIL
K - L		EXISTING DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	14m	NIL	NIL
L - M		EXISTING DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	12m	NIL	NIL
M - N		EXISTING DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	15m	NIL	NIL
K - O		NEW DUCTS 2 X 50mm DUCTS	6m	NIL	NIL

- SPARE DUCT (50mm)
- 50mm DUCT WITH NEW CABLE
- ◐ 50mm DUCT WITH EXISTING CABLE
- SPARE DUCT (125mm)
- 125mm DUCT WITH NEW CABLE
- ◐ 125mm DUCT WITH EXISTING CABLE

DUCT BREAKDOWN TABLE					
ROUTE	CONFIGURATION	ROUTE LENGTH	EE REIMBURSEMENT CHARGES	EXISTING DUCT USAGE CHARGES	
P - Q		EXISTING DUCTS 2 X 50mm DUCTS 6 X 125mm DUCTS	19m	NIL	NIL
Q - R		NEW DUCTS 2 X 50mm DUCTS 2 X 125mm DUCTS	29m	NIL	NIL
		746m	NIL	48m @ \$6/m = \$288.00	

AMENDMENTS
 ORIGINAL
 ISSUE
 DRAFT No. 01

PRELIMINARY DRAWING - NOT FOR CONSTRUCTION

Electricity Infrastructure and Building Engineering Consultants
 Level 3 ASP #2508
 35/5-7 Inglewood Place
 Norwest NSW 2153
 PO Box 8114,
 Norwest BC NSW 2153
 DESIGN REF: 3723



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 UB/D/PENGUIN REF
 GIS MAP No U825291
 HV OP DIAGRAM WEST WETHERILL PK
 LOCAL GOV AREA FAIRFIELD

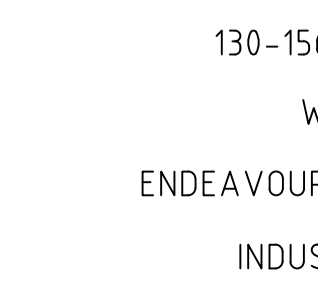
GENERAL
 OVERHEAD
 UNDERGROUND
 SUBSTATIONS

ORIGINAL SCALE AS NOTED
 DRAWN M.T.K
 DATE 15/10/2020
 CH'D S.A

DO NOT SCALE DIMENSIONS IN METRES

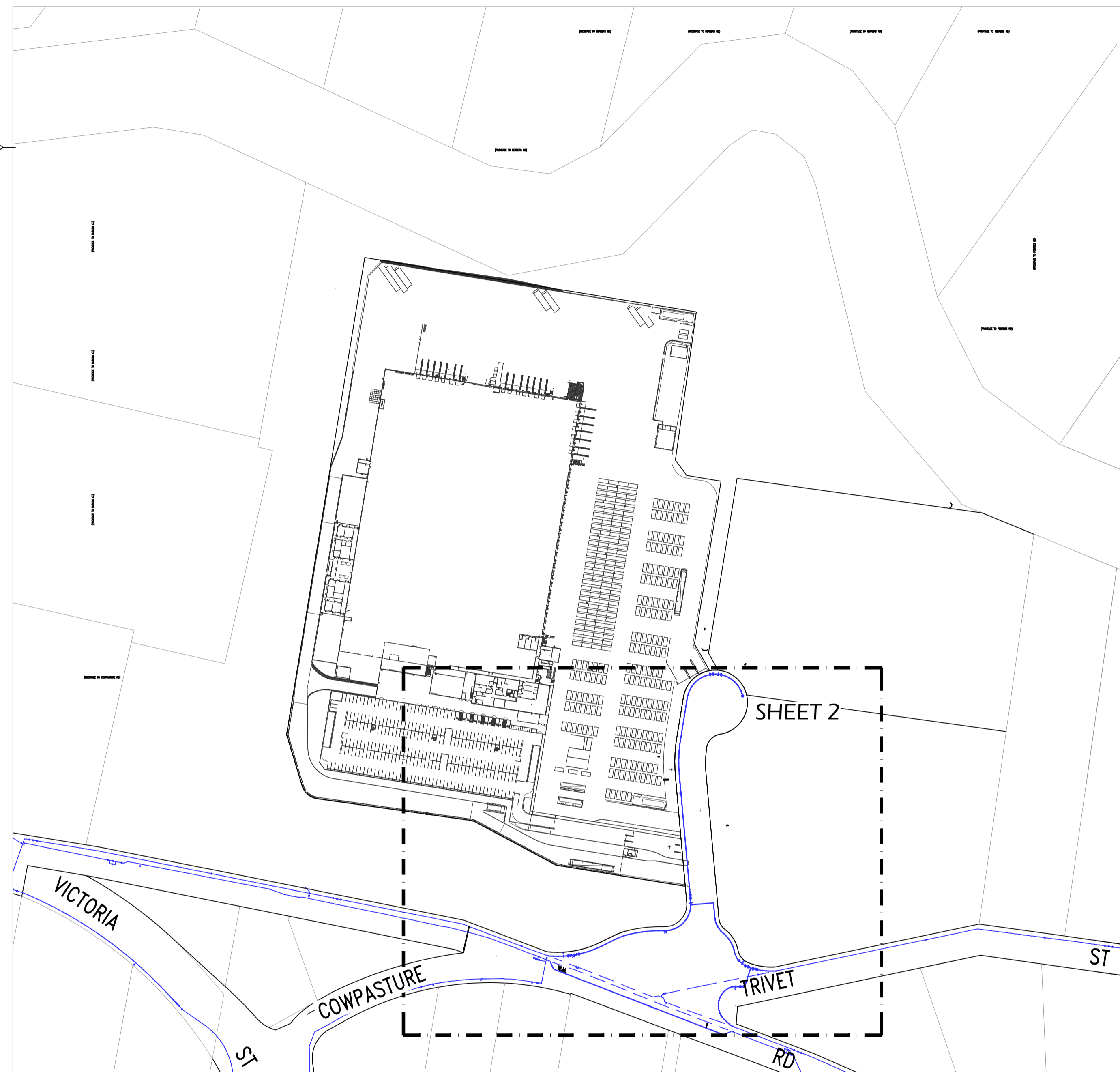
DESIGN S.A

130-156 COWPASTURE ROAD
 WETHERILL PARK
 ENDEAVOUR ENERGY CAP No: UIS0903
 INDUSTRIAL SUBDIVISION



A1 XXX A

SHEET No 2 OF 4 SHEETS



LOCALITY PLAN
NOT TO SCALE

NOTES :-

- WATER SERVICING COORDINATOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
SHOP 7 & 8 M CENTRE
40 STERLING ROAD MINCHINBURY NSW 2770
Ph: (02) 9853 0200
FOR: CHARTER HALL HOLDINGS PTY LTD
LVL 20, 1 MARTIN PL, SYDNEY NSW 2000
Ph: 0419 675 711
- ALL WORKS & MATERIALS ARE TO BE IN ACCORDANCE WITH THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 (SYDNEY WATER EDITION - 2014).
- ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS.
- THE CONSTRUCTOR IS TO DETERMINE THE LOCATION & LEVEL OF EXISTING SERVICES BY POTHOLING PRIOR TO CONSTRUCTION. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS. CONSTRUCTOR IS TO NOTIFY THE DESIGNER SHOULD ANY POTENTIAL CLASHES OR MINIMUM CLEARANCES IN ACCORDANCE WITH TABLE 5.5 OF THE WATER SUPPLY CODE OF AUSTRALIA WSA 03-2011-3.1 (SYDNEY WATER EDITION 2014) CANNOT BE ACHIEVED.
- CONSTRUCTOR TO CONFIRM LEVEL & LOCATION OF ALL EXISTING WATER MAINS AT CONNECTION POINTS BY POTHOLING AND SURVEY PRIOR TO CONSTRUCTION. CONSTRUCTOR MUST NOTIFY THE DESIGNER IMMEDIATELY IF THE LEVELS OF THE DN375 CONNECTION POINTS VARY FROM THE CALCULATED LEVELS AS PER LONG SECTION.
- MAIN TO BE LAID GENERALLY 2.6m P.L. AT STANDARD DEPTH BELOW TOP OF KERB EXCEPT WHERE OTHERWISE SHOWN.
- MAINLAYING NOT TO PROCEED PRIOR TO FORMATION OF FOOTWAYS TO FINISHED SURFACE LEVELS.
- BENDS (EXCLUDING DN375 MAIN) TO BE ANCHORED IN ACCORDANCE WITH DTC-1110 (Issue A - 31/1/12).
 - TAPERS TO BE ANCHORED IN ACCORDANCE WITH DTC-1112 (Issue B - 29/2/12).
 - TEES TO BE ANCHORED IN ACCORDANCE WITH DTC-1113 (Issue B - 29/2/12).
 - HYDRANT BENDS TO BE ANCHORED IN ACCORDANCE WITH DTC-1114 (Issue A - 31/1/12).
 - DN250 VALVES TO BE ANCHORED IN ACCORDANCE WITH DTC-1115 (Issue B - 29/2/12) U.N.O.
 - STORMWATER CROSSINGS WHERE NOTED TO BE IN ACCORDANCE WITH DTC-1124 (Issue A - 31/1/12).
- ROAD CROSSINGS & MAINS IN CARRIAGEWAYS TO HAVE STABILISED SAND (20:1 MIX) TRENCH BACKFILL TO SUB-GRADE LEVEL ONLY.
- BURIED FITTINGS ARE NOT TO BE BACKFILLED UNTIL W.A.C. DETAILS HAVE BEEN OBTAINED BY THE DESIGNER & APPROVAL FOR BACKFILLING GIVEN BY THE W.S.C.
- DN375 D.I.C.L. MAIN TO BE LAID GENERALLY AT 1.2m COVER TO PROPOSED SURFACE LEVEL (REFER LONG SECTION). MAIN TO BE EMBEDDED IN STABILISED SAND (20:1 MIX) AND TRENCH BACKFILL TO FUTURE SUBGRADE LEVEL. PIPE TO BE LAID CENTRALLY UNDER STORMWATER PIPES WITH PIPE COLLARS MIN 1.5m CLEAR.
- DISCONNECT APPROX. 125m OF DN315 P.E. MAIN (2010) 'A'-'B'-'C', 75m OF DN100 C.I.C.L. MAIN (1969) 'B'-'D' AND 127m OF D.I.C.L. (2012) 'E'-'F'. RECOVER SURFACE FITTINGS & TRANSFER SERVICES (WHERE REQUIRED). DISUSED MAIN TO BE GROUT FILLED (LOW STRENGTH - <5MPa) OR BROKEN OUT.
- ALL PROPERTY SERVICES MUST BE CONSTRUCTED TO SYDNEY WATER'S INSTALLATION REQUIREMENTS BY A LICENSED PLUMBER. THE WORKS MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT SYDNEY WATER PROPERTY SERVICE INSTALLATIONS TECHNICAL REQUIREMENTS, NSW CODE OF PRACTICE FOR PLUMBING & DRAINAGE AND AS/NZ3500. SIZE & TYPE OF WATER SERVICE CONNECTIONS/DISCONNECTIONS ARE TO BE DETERMINED ON-SITE DURING CONSTRUCTION (INCLUDING FIRE SERVICES). NOTE: ALL EXISTING PROPERTY SERVICES HAVE NOT BEEN SHOWN. CONSTRUCTOR TO DETERMINE LOCATION AND SIZE OF ALL PROPERTY SERVICE CONNECTIONS. ALL NEW PROPERTY SERVICE ROAD CROSSINGS TO BE INSTALLED IN CONSULTATION WITH THE AFFECTED PROPERTY OWNERS.
- THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE WATER SUPPLY CODE OF AUSTRALIA ARE:
TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TESTS TRENCH FILL ZONE: NIL TESTS (REFER NOTE 9)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TESTS TRENCH FILL ZONE: 5 TESTS
- ALL P.E. MAINS TO BE BUTT WELDED IN ACCORDANCE WITH WSA 01-2001 POLYETHYLENE PIPELINE CODE (ELECTROFUSED JOINTS MAY ONLY BE USED TO CONNECT TO EXISTING P.E. MAINS).

04	SYDNEY WATER COMMENTS	G.L.	27/01/21
03	QA REVIEW, ISSUE TO SYDNEY WATER	G.L.	10/11/20
02	DESIGN UPDATED, ISSUE FOR TENDER	G.L.	27/10/20
01	DRAFT ISSUE FOR REVIEW	G.L.	06/08/20

No.	REVISION DESCRIPTION	BY	DATE
PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS SYDNEY WATER CORPORATION			
	SEWER: ---S---	20/10/20	DBYD
	PROP. SEWER: ---S---	3/8/20	RARI
	EXIST. ELECTRICITY: ---E---	20/10/20	DBYD
	PROP. ELECTRICITY: ---E---	20/10/20	ENG
	DISUSED ELECTRICITY: ---E---	20/10/20	ENG
	EXIST. COMMS: ---COMMS---	20/10/20	DBYD
	PROP. COMMS: ---COMMS---	20/10/20	ENG
	DISUSED COMMS: ---COMMS---	20/10/20	ENG

UTILITIES				WORK AS CONSTRUCTED CERTIFICATION			
TYPE	DATE	REF.	TYPE	DATE	REF.	DEVELOPER	CONSTRUCTOR
STORMWATER: SWD ---SWD---	20/10/20	DBYD	PROP. STORMWATER: SWD ---SWD---	20/10/20	ENG	WATER SERVICE CO-ORDINATOR	COMPLETED
							W.A.C. PREPARED
						DESIGNER	

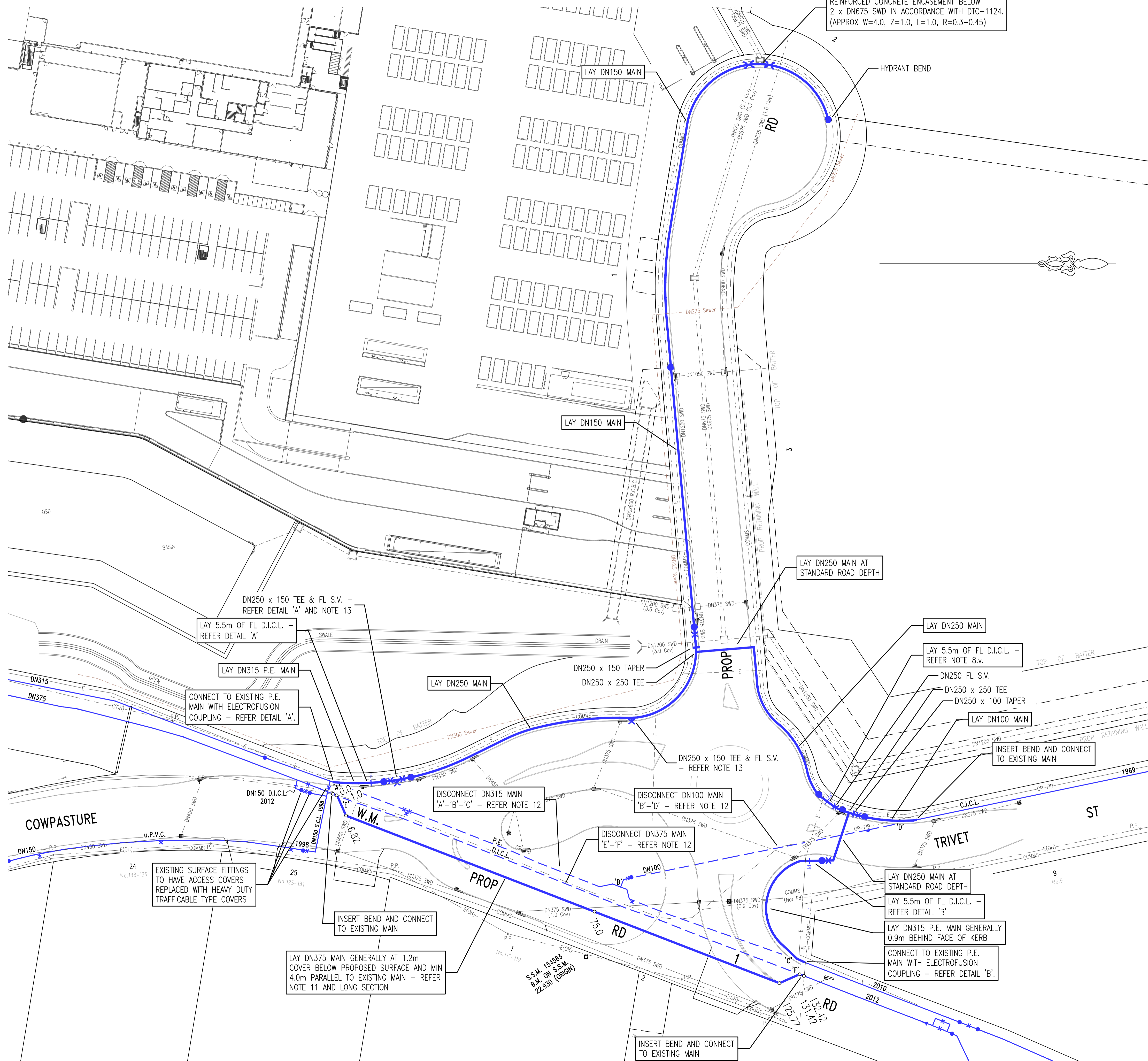
PIPE SCHEDULE	
SIZE (DN)	TYPE CLASS LENGTH PIPE JOINING METHOD / NOTES
100	P.V.C. PN16 20.0
150	P.V.C. PN16 185.0
150	D.I.C.L. PN35 5.0
250	P.V.C. PN16 180.0
250	D.I.C.L. FL 18.9
315	PE100 PN16 40.0
375	D.I.C.L. PN35 132.42

GDA2020	
AUSTRALIAN HEIGHT DATUM	
SCALES	
PLAN	1:500
CROSS SECTIONS	NATURAL
LENGTHS, DEPTHS & LEVELS ARE IN METRES.	

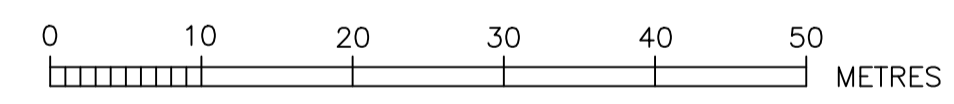
NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.
U.B. DIRECTORY . . . 208-B15 Version 8 Digital . . .
SHEET: 1 OF 3

SYDNEY WATER CORPORATION Case No.184391pw POTABLE WATER MAIN EXTENSION COWPASTURE ROAD WETHERILL PARK FAIRFIELD
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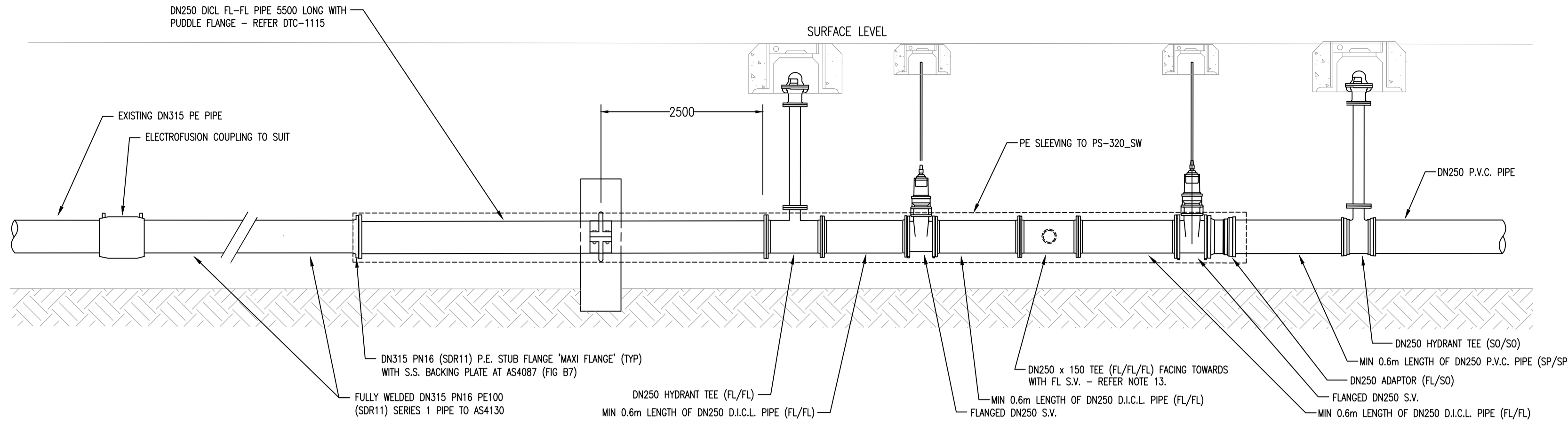
RAR (Infrastructure) Pty Ltd
Date: 29 / 03 / 2021
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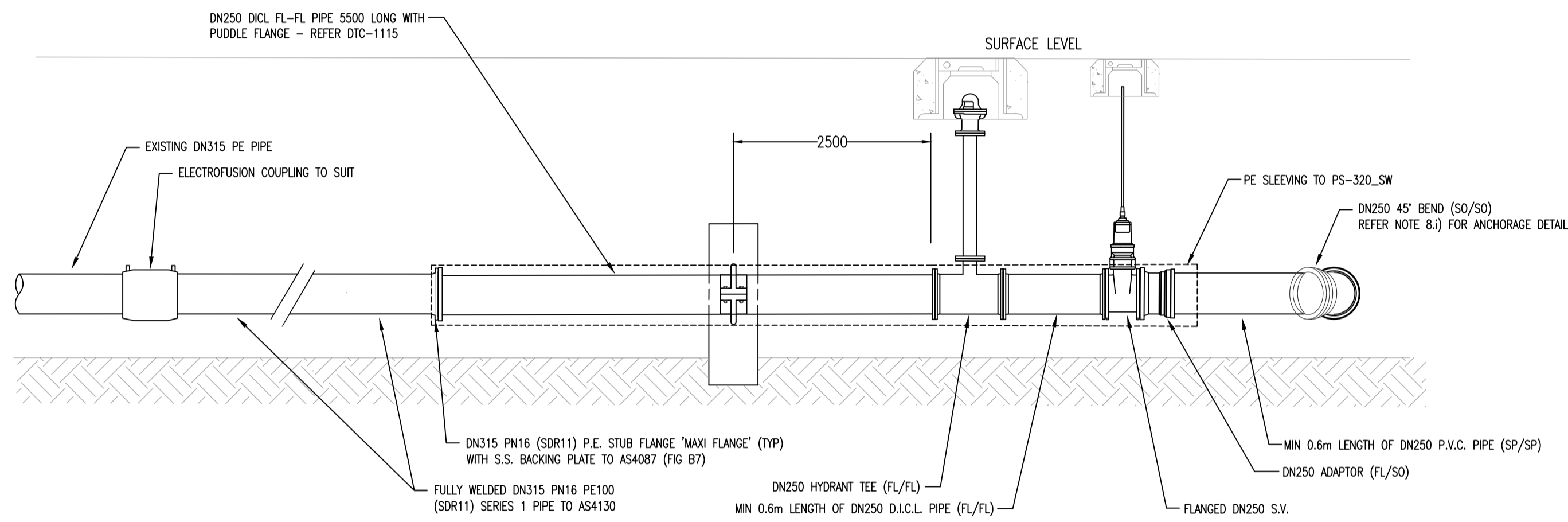
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WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION	
DEVELOPER		
W.S.C.	.....	
CONSTRUCTOR	.....	
COMPLETED	.....	
W.A.C. PREPARED	.....	Case No.184391PW	SHT 2 OF 3 SHTS.
DESIGNER	.....	SYDNEY WATER CORPORATION	
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		FOR DETAILS OF SERVICES SEE SHEET 1	



DETAIL 'A'
DN250 S.V. / PE PIPE ANCHORAGE DETAIL
NOT TO SCALE



DETAIL 'B'
DN250 S.V. / PE ANCHORAGE DETAIL
NOT TO SCALE

THRUST BLOCK AREAS & DIMENSIONS FOR 11.25° HORIZONTAL BENDS

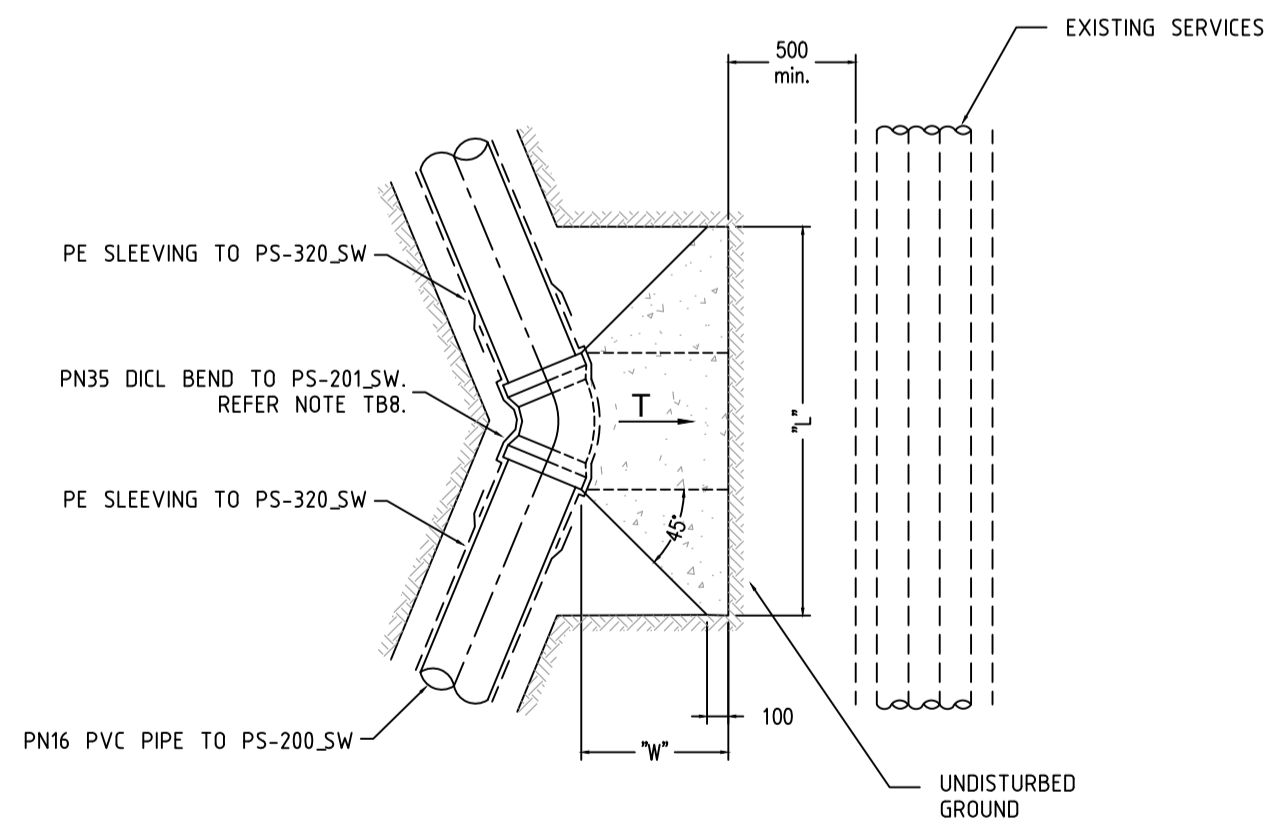
DN	OD	DESIGN PRESSURE HEAD	TEST PRESSURE HEAD	THRUST T	SOIL AHBP	REQUIRED BEARING AREA	W	H	L
(mm)	(mm)	(m)	(m)	(kN)	(kPa)	(sq.m)	(mm)	(mm)	(mm)
375	426	120	150	4.11	50	0.83	500	800	1100
375	426	120	150	4.11	100	0.42	500	650	900
375	426	120	150	4.11	200	0.21	450	650	900

THRUST BLOCK AREAS & DIMENSIONS FOR 22.5° HORIZONTAL BENDS

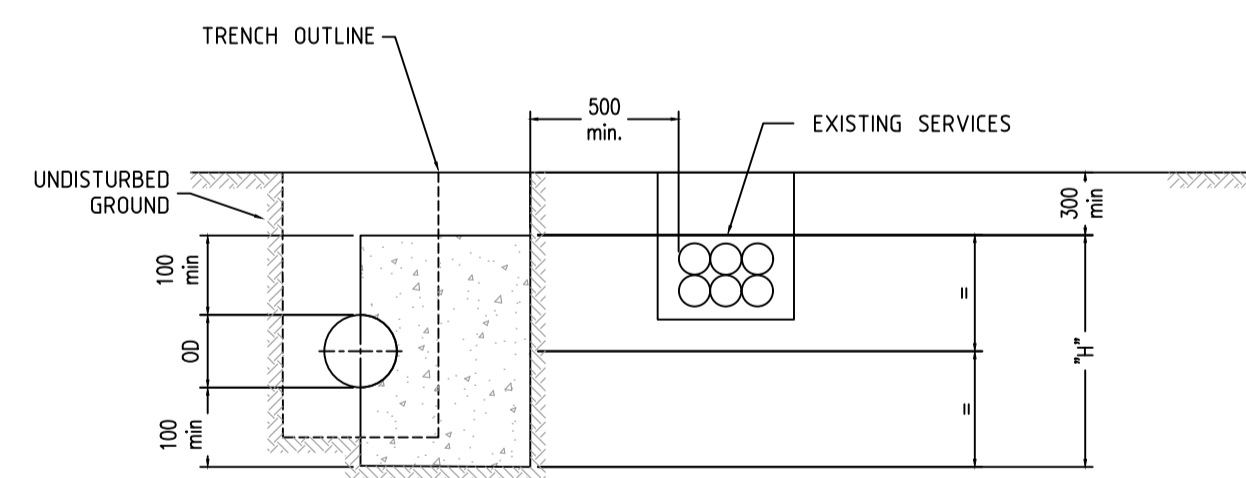
DN	OD	DESIGN PRESSURE HEAD	TEST PRESSURE HEAD	THRUST T	SOIL AHBP	REQUIRED BEARING AREA	W	H	L
(mm)	(mm)	(m)	(m)	(kN)	(kPa)	(sq.m)	(mm)	(mm)	(mm)
375	426	120	150	8.18	50	1.64	600	1100	1500
375	426	120	150	8.18	100	0.82	500	800	1100
375	426	120	150	8.18	200	0.41	450	650	900

THRUST BLOCK AREAS & DIMENSIONS FOR 45° HORIZONTAL BENDS

DN	OD	DESIGN PRESSURE HEAD	TEST PRESSURE HEAD	THRUST T	SOIL AHBP	REQUIRED BEARING AREA	W	H	L
(mm)	(mm)	(m)	(m)	(kN)	(kPa)	(sq.m)	(mm)	(mm)	(mm)
375	426	120	150	160.5	50	SPECIAL DESIGN			
375	426	120	150	160.5	100	1.61	600	1100	1500
375	426	120	150	160.5	200	0.81	500	800	1100



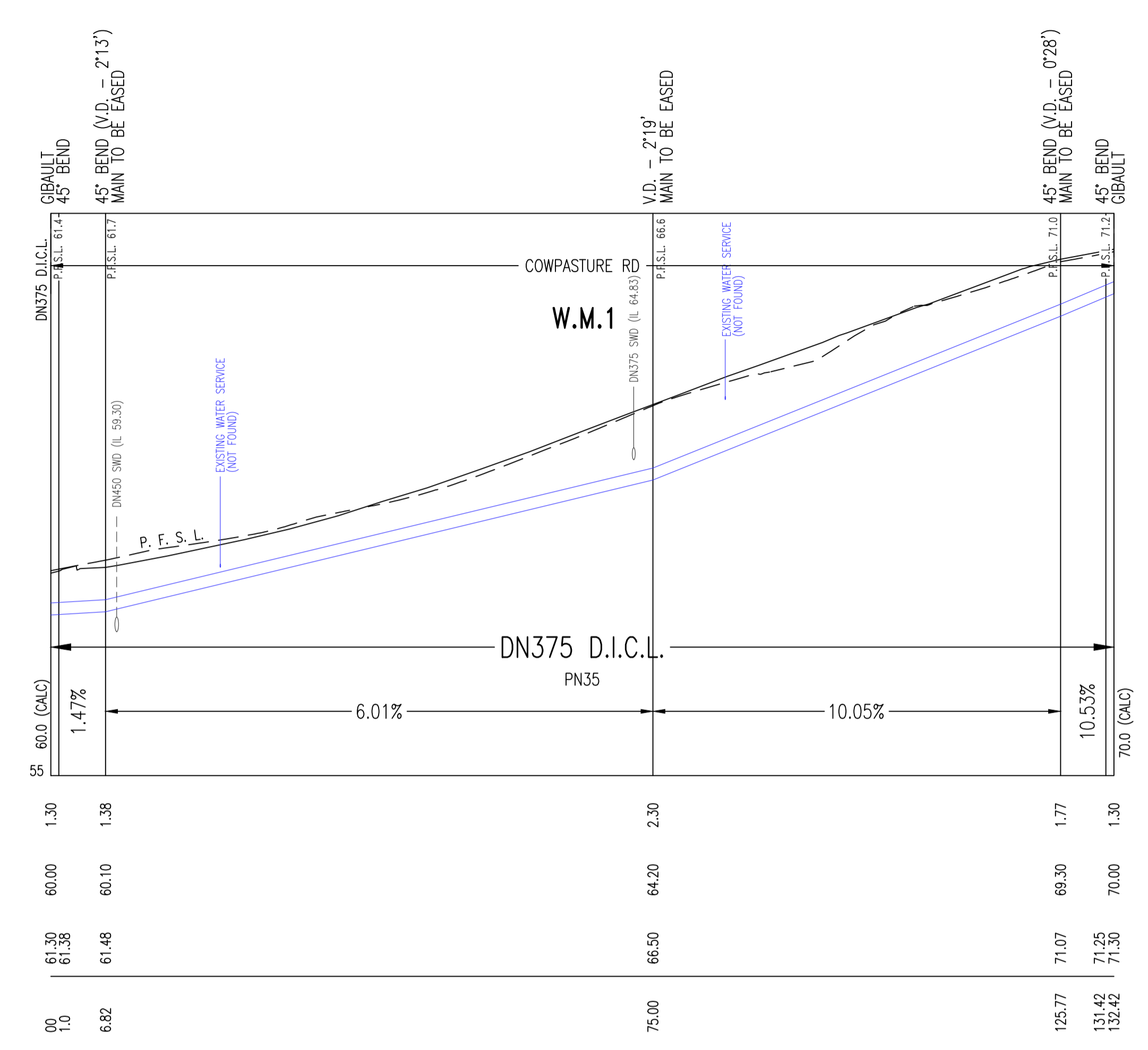
HORIZONTAL BEND THRUST BLOCK (DN375 MAIN)
PLAN
NOT TO SCALE



HORIZONTAL BEND THRUST BLOCK (DN375 MAIN)
ELEVATION
NOT TO SCALE

RAR (Infrastructure) Pty Ltd
Date: 29 / 03 / 2021
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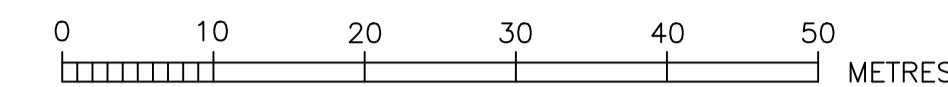
DEFLECTION
FITTING
PIPE SIZE
GRADE
DATUM
DEPTH TO INVERT
INVERT LEVEL
EXISTING SURFACE LEVEL
CHAINAGE



THRUST BLOCK NOTES:

- TB1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- TB2. THRUST BLOCK DESIGNED TO WITHSTAND A DESIGN PRESSURE OF 120m AND A TEST PRESSURE OF 150m HEAD OF WATER.
- TB3. NOTE NOT REQUIRED.
- TB4. THE ALLOWABLE HORIZONTAL BEARING PRESSURE (AHBP) OF UNDISTURBED NATURAL SOIL TO BE DETERMINED BY A SUITABLY EXPERIENCED GEOTECHNICAL ENGINEER PRIOR TO CASTING THRUST BLOCKS.
- TB5. CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. THRUST BLOCKS NOT TO INTERFERE WITH OTHER SERVICES.
- TB6. DO NOT USE THRUST BLOCKS AS SPECIFIED IN THIS DRAWING WHERE AHBP < 50kPa.
- TB7. DO NOT USE THRUST BLOCKS AS SPECIFIED IN THIS DRAWING WITHIN 5m OF AN EMBANKMENT, CUTTING OR RETAINING WALL. DESIGNER TO BE NOTIFIED IF THESE CONDITIONS ARISE.
- TB8. ALL DI FITTINGS AND PIPES TO BE WRAPPED IN POLYETHYLENE SLEEVING TAPE 700 LONG PE SLEEVING TO END OF DI.C.L PIPE TO BE ENCASED 150 FROM SOCKET FACE TO OVERLAP PE SLEEVED DI.C.L PIPE.
- TB9. CONCRETE SHALL BE CLASS N25 TO PS-327_SW. SLUMP SHALL BE IN THE RANGE 80mm - 120mm. MAXIMUM NOMINAL AGGREGATE SIZE SHALL BE 20mm.
- TB10. CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa OR BE CURED FOR A MINIMUM OF 28 DAYS PRIOR TO APPLICATION OF THRUST LOADS.
- TB11. THRUST BLOCK DESIGNS SHOWN ON THIS DRAWING ARE NOT SUITABLE FOR USE IN AGGRESSIVE OR CONTAMINATED SOILS.

WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION	
DEVELOPER	.....	
W.S.C.	.....	
CONSTRUCTOR	.....	
COMPLETED	.....	
W.A.C. PREPARED	.....	Case No.184391PW	SHT 3 OF 3 SHTS.
DESIGNER	.....	SYDNEY WATER CORPORATION	
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		FOR DETAILS OF SERVICES SEE SHEET 1	



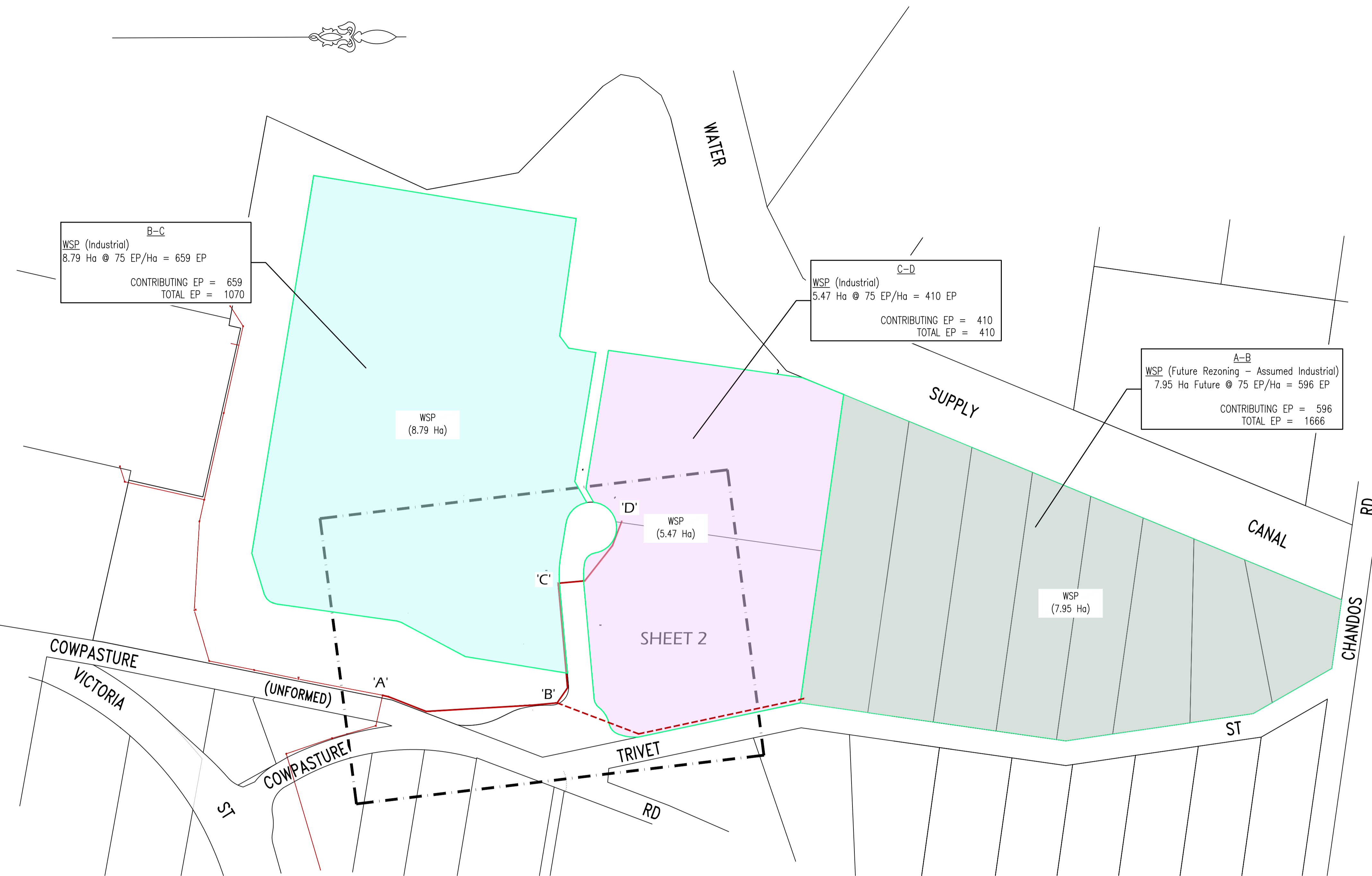
NOTES :-

- WATER SERVICING COORDINATOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
SHOP 7 & 8 M CENTRE
40 STERLING ROAD MINCHINBURY NSW 2770
Ph: (02) 9853 0200

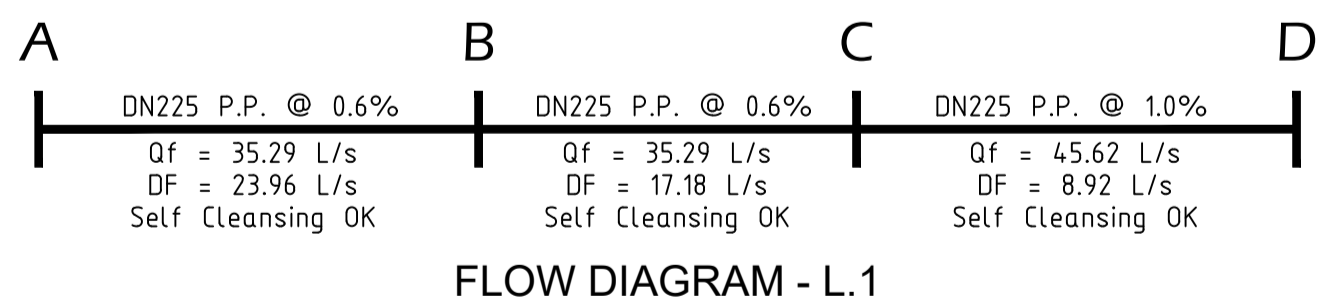
DESIGN: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
SHOP 7 & 8 M CENTRE
40 STERLING ROAD MINCHINBURY NSW 2770
Ph: (02) 9853 0200

SURVEY: MONTEATH & POWYS
486 PACIFIC HWY, ST LEONARDS NSW 2065
Ph: (02) 9436 4210

FOR: CHARTER HALL HOLDINGS PTY LTD
LVL 20, 1 MARTIN PL, SYDNEY NSW 2000
Ph: 0419 675 711
- ALL WORKS & MATERIALS ARE TO BE IN ACCORDANCE WITH THE SEWERAGE CODE OF AUSTRALIA WSA 02-2002-2.2 (SYDNEY WATER EDITION - Version 4).
- ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS.
- THE CONSTRUCTOR IS TO DETERMINE LEVELS & LOCATIONS OF SERVICES PRIOR TO CONSTRUCTION.
- ALL LOTS WERE VACANT AT TIME OF SURVEY.
- THE CONSTRUCTOR SHALL VERIFY ANY EXISTING INVERT LEVELS PRIOR TO CONSTRUCTION.
- ROAD CROSSINGS & MAINS IN CARRIAGEWAYS SHALL HAVE STABILISED SAND (20:1 MIX) TRENCH BACKFILL TO SUB-GRADE LEVEL ONLY.
- ALL STRUCTURES TO BE IN ACCORDANCE WITH MAINTENANCE STRUCTURE SCHEDULE.
- ALL STRUCTURES TO BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS. THE CONSTRUCTOR IS TO LAISE WITH THE SITE SUPERINTENDENT TO VERIFY ALL FINAL LEVELS.
- PIPES TO BE CONCRETE ENCASED (SUPPORT TYPE 12u) SHOWN ACCORDINGLY.
- AREAS HATCHED THUS NOT DRAINED.
- DRAINAGE LIMITS ARE TO PROPOSED FINISHED SURFACE LEVELS.
- PROPERTY CONNECTION SEWERS TO BE INSTALLED IN ACCORDANCE WITH SEW-1151-S.
- FOR DESIGN/GRADING PURPOSES, ALL MAINTENANCE SHAFTS IN EXCESS OF 30' ARE ASSUMED TO BE AYMR00 'C.A.M.S.' TYPE WITH 30mm CROSSFALL. SHOULD THE CONSTRUCTOR NOT UTILISE THIS FITTING, THE W.S.C. MUST BE INFORMED IN WRITING.
- CUSTOMER DRAIN CONNECTIONS CONSTRUCTED CONCURRENTLY WITH THE NEW SEWER MUST BE CONSTRUCTED BY A LICENSED PLUMBER. THE WORKS MUST BE INSTALLED IN ACCORDANCE WITH THE CURRENT NSW CODE OF PRACTICE FOR PLUMBING AND DRAINAGE AND AS/NZS3500. THE CUSTOMER DRAIN RISER MUST NOT EXTEND TO THE SURFACE. A MINIMUM OF 500mm COVER MUST BE MAINTAINED TO PROTECT THE RISER & JUNCTION FROM DAMAGE. THE CUSTOMER DRAIN CONNECTION MUST BE INSPECTED BY A N.S.W. FAIR TRADING PLUMBING INSPECTION ASSURANCE SERVICE (PIAS) OFFICER PRIOR TO BACKFILL.
- THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE SEWERAGE CODE OF AUSTRALIA (CLAUSE 22.3.4.4) ARE:
TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TESTS TRENCH FILL ZONE: NIL TESTS (SEE NOTE 7)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TESTS TRENCH FILL ZONE: 17 TESTS / 900mm LAYER (4 LOCATIONS)
MAINTENANCE STRUCTURES:
1 TEST / 1m LAYER WITHIN 300mm OF EACH M.H. OR M.S.



LOCALITY AND CATCHMENT PLAN
SCALE 1:2000

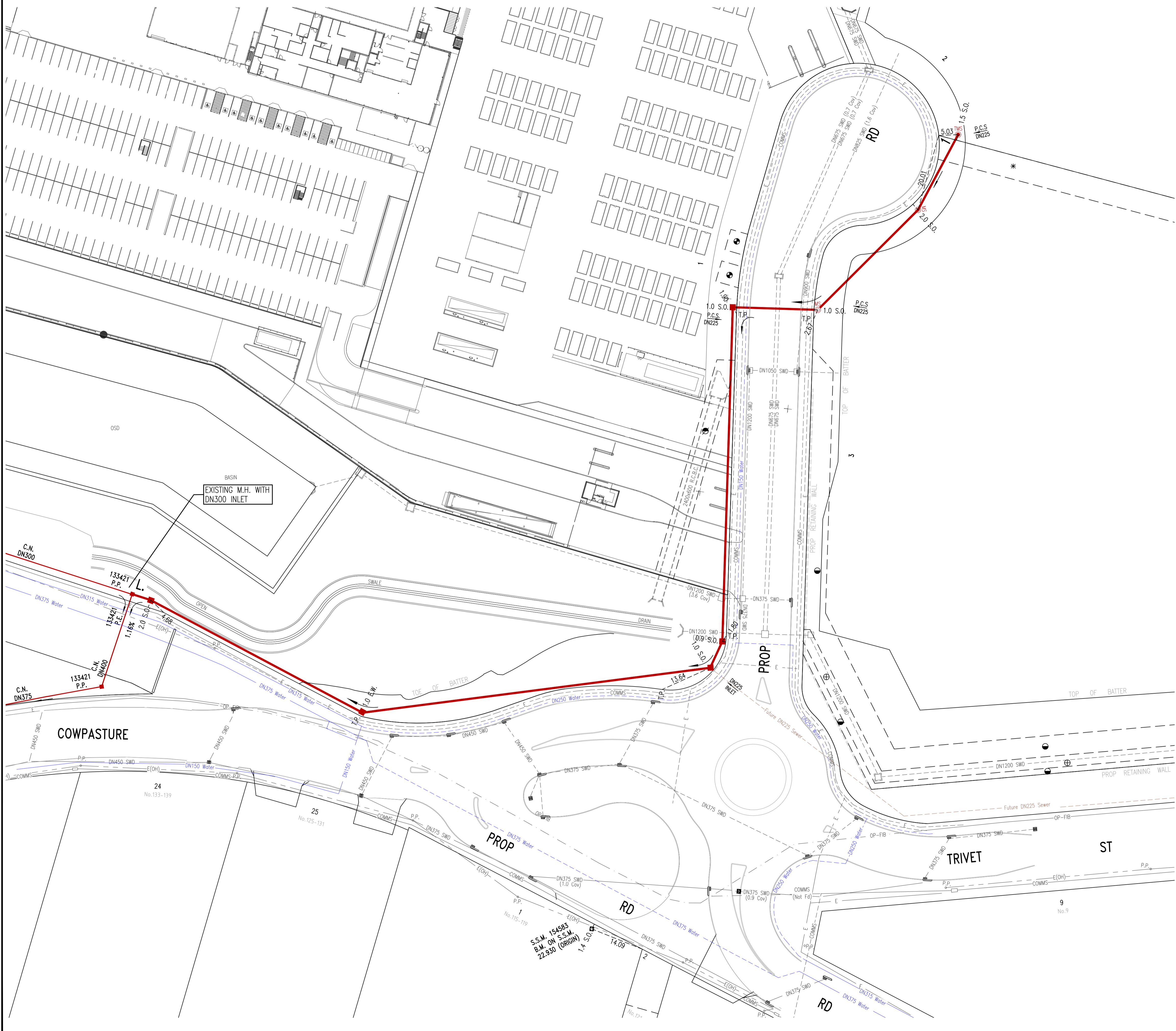


RAR (Infrastructure) Pty Ltd
Date: 29 / 03 / 2021
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04	REVISED CATCHMENT FLOWS AND PIPE SIZING	G.L.	14/12/20
03	QA REVIEW, ISSUE TO SYDNEY WATER	G.L.	11/11/20
02	DESIGN UPDATED, ISSUE FOR TENDER	G.L.	22/10/20
01	CONCEPT ISSUE FOR REVIEW	G.L.	03/08/20

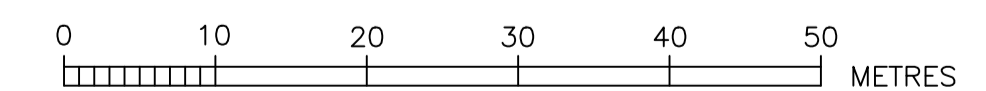
No.	REVISION DESCRIPTION	BY	DATE

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS SYDNEY WATER CORPORATION				UTILITIES				WORK AS CONSTRUCTED CERTIFICATION				PIPE SCHEDULE				GDA2020 AUSTRALIAN HEIGHT DATUM		NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. THIS PLAN IS NOT NECESSARILY UP TO DATE OR CORRECT AND SYDNEY WATER ACCEPTS NO RESPONSIBILITY.	
SEWER:	---	20/10/20	DBYD	STORMWATER:	---	20/10/20	ENG	DEVELOPER											
EXIST. ELECTRICITY:	---	20/10/20	DBYD	PROP. STORMWATER:	---	20/10/20	ENG	WATER SERVICE CO-ORDINATOR											
PROP. ELECTRICITY:	---	20/10/20	DBYD	WATER: DN100 Water	---	20/10/20	DBYD	CONSTRUCTOR											
DISUSED ELECTRICITY:	---	20/10/20	ENG	PROP. WATER: DN100 Water	---	20/10/20	RAR	COMPLETED											
EXIST. COMMS:	---	20/10/20	DBYD					DESIGNER											
PROP. COMMS:	---	20/10/20	ENG					I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS.											
DISUSED COMMS:	---	20/10/20	ENG																

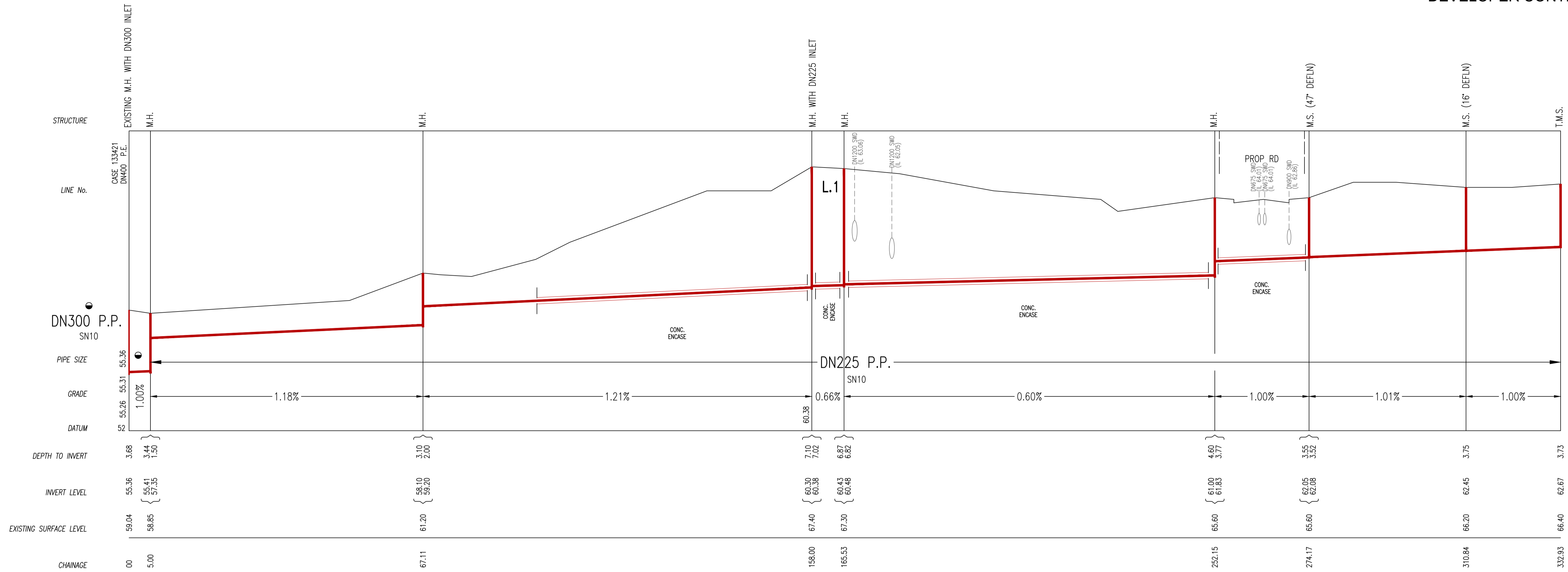


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- - EASEMENT FOR OVERLAND STORMWATER FLOW 10 WIDE AND VARIABLE
- ⊕ - EASEMENT TO DRAIN WATER 3 WIDE
- ⊕ - EASEMENT FOR FIRE SERVICES ACCESS 6 WIDE
- ⊕ - EASEMENT TO DRAIN WATER 5 WIDE
- ⊕ - EASEMENT FOR ELECTRICITY PURPOSES AND ACCESS THERETO



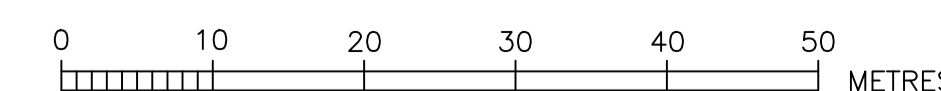
WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION	
DEVELOPER	W.S.C.		
CONSTRUCTOR	COMPLETED		
W.A.C. PREPARED		Case No.184391ww	SHT 2 OF 3 SHTS.
DESIGNER		SYDNEY WATER CORPORATION	
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MAINTENANCE STRUCTURE SCHEDULE
(REFER NOTE 9)

LINE NO.	CHAINAGE	TYPE	DN RISER	CLASS OF COVER	MATERIAL	COMMENTS
1	00	M.H.	-	-	-	EXISTING M.H. WITH DN300 INLET
1	5.00	M.H.	1050	B	CAST IN-SITU	DTC-2203(B) (18/3/15)
1	67.11	M.H.	1050	B	CAST IN-SITU	DTC-2203(B) (18/3/15)
1	158.00	M.H.	1200	B	CAST IN-SITU	DTC-2200(F) (18/3/15)
1	165.53	M.H.	1200	B	CAST IN-SITU	DTC-2200(F) (18/3/15)
1	252.15	M.H.	1050	B	CAST IN-SITU	DTC-2203(B) (18/3/15)
1	274.17	M.S.	225	B	PVC-U	AYMROO 'C.A.M.S.' TYPE
2	310.84	M.S.	225	B	PVC-U	M.S. WITH NO CROSSFALL
2	332.93	T.M.S.	225	B	PVC-U	-

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CONSTRUCTOR	COMPLETED		
DESIGNER	W.A.C. PREPARED	Case No.184391ww	SHT 3 OF 3 SHTS.
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