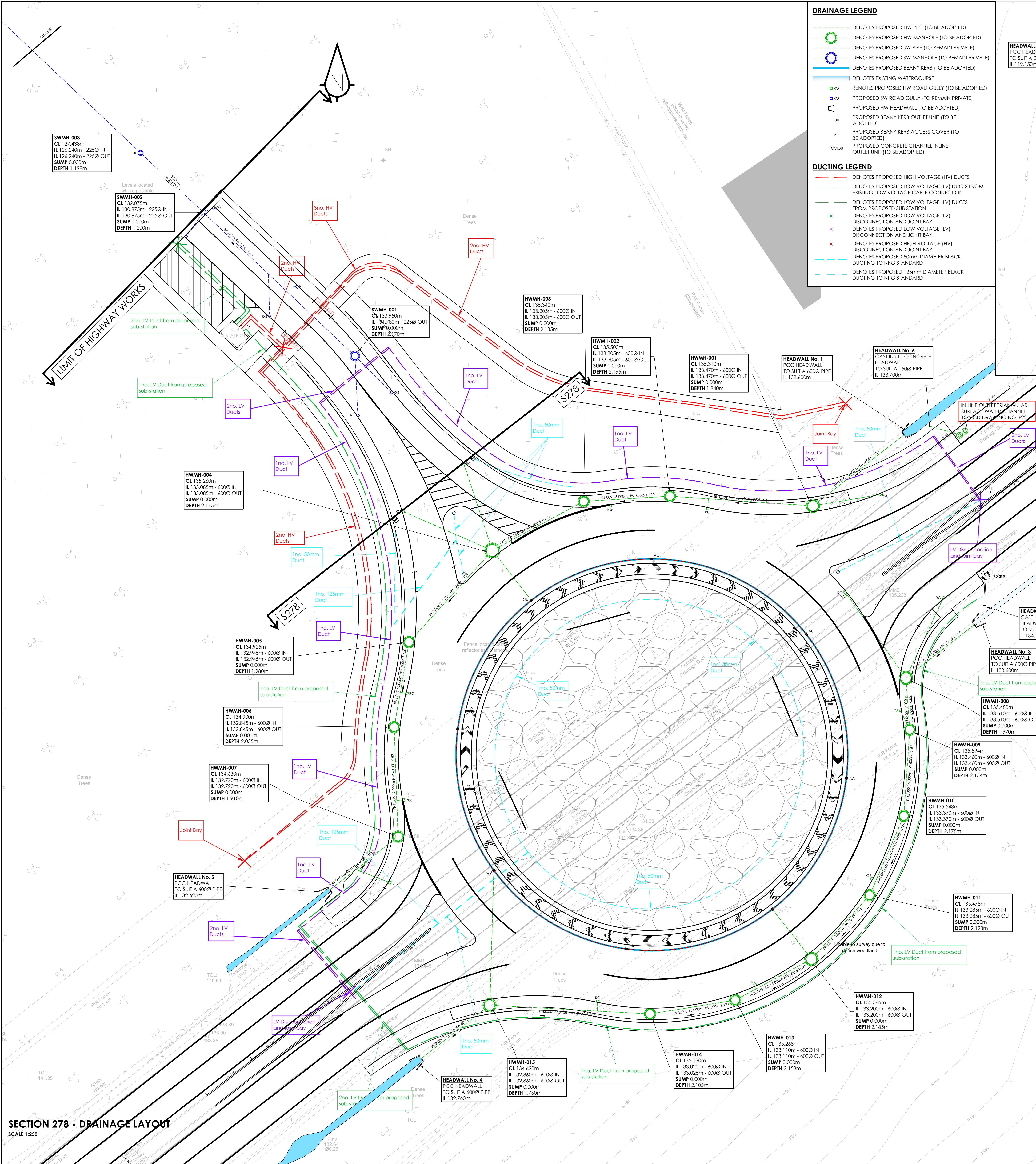




DRAINAGE LEGEND

- DENOTES PROPOSED HW PIPE (TO BE ADOPTED)
- DENOTES PROPOSED HW MANHOLE (TO BE ADOPTED)
- DENOTES PROPOSED SW PIPE (TO REMAIN PRIVATE)
- DENOTES PROPOSED SW MANHOLE (TO REMAIN PRIVATE)
- DENOTES PROPOSED BEANY KERB (TO BE ADOPTED)
- DENOTES EXISTING WATERCOURSE
- RENOTES PROPOSED HW ROAD GULLY (TO BE ADOPTED)
- PROPOSED SW ROAD GULLY (TO REMAIN PRIVATE)
- PROPOSED HW HEADWALL (TO BE ADOPTED)
- PROPOSED BEANY KERB OUTLET UNIT (TO BE ADOPTED)
- PROPOSED BEANY KERB ACCESS COVER (TO BE ADOPTED)
- PROPOSED CONCRETE CHANNEL INLINE OUTLET UNIT (TO BE ADOPTED)

DUCTING LEGEND

- DENOTES PROPOSED HIGH VOLTAGE (HV) DUCTS
- DENOTES PROPOSED LOW VOLTAGE (LV) DUCTS FROM EXISTING LOW VOLTAGE CABLE CONNECTION
- DENOTES PROPOSED LOW VOLTAGE (LV) DUCTS FROM PROPOSED SUB STATION
- DENOTES PROPOSED LOW VOLTAGE (LV) DISCONNECTION AND JOINT BAY
- DENOTES PROPOSED LOW VOLTAGE (LV) DISCONNECTION AND JOINT BAY
- DENOTES PROPOSED HIGH VOLTAGE (HV) DISCONNECTION AND JOINT BAY
- DENOTES PROPOSED 50mm DIAMETER BLACK DUCTING TO NPG STANDARD
- DENOTES PROPOSED 125mm DIAMETER BLACK DUCTING TO NPG STANDARD

SURFACE WATER MANHOLE SCHEDULE									
REF.	COVER LEVEL	INVERT LEVEL	SUMP DEPTH	DEPTH	EASTINGS	NORTHINGS	DIAMETER	TYPE	COVER
HEADWALL NO. 1	133.387m	119.150m - 2250	0.000m	1.074m	435442.991	401321.140	12000	TYPE B	600x600 - CLASS D400
001	133.950m	131.780m - 2250	0.000m	2.170m	435555.524	401214.551	12000	TYPE B	600x600 - CLASS D400
002	132.075m	130.875m - 2250	0.000m	1.200m	435529.206	401239.479	12000	TYPE B	600x600 - CLASS D400
003	127.438m	126.240m - 2250	0.000m	1.198m	435518.316	401249.794	12000	TYPE B	600x600 - CLASS D400
004	123.454m	119.850m - 2250	0.000m	2.114m	435452.973	401311.684	6000	PPIC	450x450 - CLASS D400

HIGHWAY PIPE SCHEDULE							
REF.	LENGTH	FALL	GRADIENT	DIAMETER	U/S INVERT LEVEL	D/S INVERT LEVEL	D/S MANHOLE
1.000	20.000m	0.130m	1:154	6000	133.600m	133.470m	HEADWALL NO. 1
1.001	24.890m	0.165m	1:151	6000	133.470m	133.305m	001
1.002	15.000m	0.100m	1:150	6000	133.305m	133.205m	002
1.003	18.000m	0.120m	1:150	6000	133.205m	133.085m	003
1.004	21.500m	0.140m	1:154	6000	133.085m	132.945m	004
1.005	15.000m	0.100m	1:150	6000	132.945m	132.845m	005
1.006	19.000m	0.125m	1:152	6000	132.845m	132.720m	006
1.007	15.000m	0.100m	1:150	6000	132.720m	132.620m	007
2.000	15.000m	0.090m	1:167	6000	133.600m	133.510m	HEADWALL NO. 3
2.001	9.000m	0.050m	1:180	6000	133.510m	133.460m	008
2.002	15.000m	0.090m	1:167	6000	133.460m	133.370m	009
2.003	15.000m	0.085m	1:176	6000	133.370m	133.285m	010
2.004	15.000m	0.085m	1:176	6000	133.285m	133.200m	011
2.005	15.000m	0.090m	1:167	6000	133.200m	133.110m	012
2.006	15.000m	0.085m	1:176	6000	133.110m	133.025m	013
2.007	27.910m	0.165m	1:169	6000	133.025m	132.860m	014
2.008	15.000m	0.100m	1:150	6000	132.860m	132.760m	015

HIGHWAY MANHOLE SCHEDULE									
REF.	COVER LEVEL	INVERT LEVEL	SUMP DEPTH	DEPTH	EASTINGS	NORTHINGS	DIAMETER	TYPE	COVER
HEADWALL No. 4	N/A	132.760m - 6000	N/A	N/A	435567.074	401092.601	N/A	N/A	N/A
HEADWALL No. 1	N/A	133.600m - 6000	N/A	N/A	435650.804	401200.823	N/A	N/A	N/A
HEADWALL No. 2	N/A	132.620m - 6000	N/A	N/A	435551.185	401121.868	N/A	N/A	N/A
HEADWALL No. 3	N/A	133.600m - 6000	N/A	N/A	435662.998	401167.873	N/A	N/A	N/A
HEADWALL No. 5	N/A	134.100m - 1500	N/A	N/A	435664.784	401171.137	N/A	N/A	N/A
HEADWALL No. 6	N/A	134.300m - 1500	N/A	N/A	435665.092	401210.044	N/A	N/A	N/A
001	135.310m	133.470m - 6000	0.000m	1.840m	435635.041	401188.513	18000	TYPE B	600x600 - CLASS D400
002	135.500m	133.305m - 6000	0.000m	2.195m	435610.208	401190.197	15000	TYPE B	600x600 - CLASS D400
003	135.340m	133.205m - 6000	0.000m	2.135m	435595.235	401189.293	15000	TYPE B	600x600 - CLASS D400
004	135.260m	133.085m - 6000	0.000m	2.175m	435579.379	401180.772	21000	TYPE B	600x600 - CLASS D400
005	134.925m	132.945m - 6000	0.000m	1.980m	435564.915	401164.865	15000	TYPE B	600x600 - CLASS D400
006	134.900m	132.845m - 6000	0.000m	2.055m	435562.332	401150.089	15000	TYPE B	600x600 - CLASS D400
007	134.630m	132.720m - 6000	0.000m	1.910m	435563.007	401131.101	15000	TYPE B	600x600 - CLASS D400
008	135.480m	133.510m - 6000	0.000m	1.970m	435651.176	401158.641	18000	TYPE B	600x600 - CLASS D400
009	135.594m	133.460m - 6000	0.000m	2.134m	435651.846	401149.666	15000	TYPE B	600x600 - CLASS D400
010	135.548m	133.370m - 6000	0.000m	2.178m	435650.808	401134.702	15000	TYPE B	600x600 - CLASS D400
011	135.478m	133.285m - 6000	0.000m	2.193m	435644.878	401120.924	15000	TYPE B	600x600 - CLASS D400
012	135.385m	133.110m - 6000	0.000m	2.185m	435634.773	401109.839	18000	TYPE B	600x600 - CLASS D400
013	135.268m	133.110m - 6000	0.000m	2.158m	435621.569	401102.721	15000	TYPE B	600x600 - CLASS D400
014	135.130m	133.025m - 6000	0.000m	2.105m	435606.764	401100.308	15000	TYPE B	600x600 - CLASS D400
015	134.620m	132.860m - 6000	0.000m	1.760m	435578.896	401101.833	18000	TYPE B	600x600 - CLASS D400

DRAINAGE NOTES

- ANY DRAINAGE TO BE PUT FORWARD FOR ADOPTION EITHER WITHIN THE SITE OR OUTSIDE SHALL BE CONSTRUCTED TO SUIT FOR ADOPTION TEST EXPOS AND ANY SPECIFIC REQUIREMENTS OF THE ADOPTING SEWERAGE/WATER AUTHORITY.
- THE LOCATION, DEPTH AND DRAINAGE DRAINAGE AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DRAINAGE WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE UTILITY COMPANIES.
- THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN OFF INTO EXCAVATIONS AND FROM CROSSLANDS BY MEANS OF SLOPS, PUMPING AND DRAINAGE AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
- ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- ALL EXISTING DRAINAGE LOCATIONS AND LEVELS ARE TO BE CONFIRMED BY THE CONTRACTOR AND THE ENGINEER NOTIFIED BEFORE ANY GRAD RANS ARE CONSTRUCTED.
- THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD ANY EXISTING LIVE DRAINAGE BE FOUND WITHIN THE SITE BOUNDARY SERVING ADJACENT PROPERTIES.
- ALL EXISTING DRAINAGE WITHIN THE SITE NOT REQUIRED FOR THE NEW DEVELOPMENT SHALL BE MAINTAINED DRAIN AND AT LEAST 1.00m DEPTH WHICH ARE IN OPEN GROUND SHOULD AS FAR AS IS PRACTICABLE BE FULLY REMOVED. ALL OTHER PIPES SHOULD BE SEALS AT BOTH ENDS AND AT ANY POINT OF CONNECTION, AND BE GROUT FILLED TO ENSURE THAT RATS CANNOT GAIN ACCESS. LARGER PIPES 2250 OR ABOVE SHOULD BE GROUT FILLED TO PREVENT SUBSIDENCE OR DAMAGE TO BUILDINGS OR SERVICES IN THE EVENT OF COLLAPSE.
- ALL MANHOLE/CHAMBER COVER LEVELS ARE APPROXIMATE AND SHALL BE ADJUSTED ON SITE TO SUIT THE PROPOSED FINISH LEVELS.
- ALL PIPE CONNECTION FROM DRAINAGE CHANNELS AND GULLIES SHALL BE 1500 PIPES AT A MINIMUM GRADIENT OF 1:100 WITH CLASS 2 BEDDING UNDO. ON THE DRAWING.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN NEAR CONFINED SPACES. USE OF EXCAVATIONS AND MACHINERY.
- THE CONTRACTOR SHALL ALLOW FOR OBTAINING ALL APPROVALS FROM THE RELEVANT AUTHORITIES WHEN WORKING IN THE PUBLIC HIGHWAY AND ON THE SEWERAGE SYSTEM.
- THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM WORKING AREAS.
- ALL PIPES SHALL BE Laid WITH LEVEL SORTS AND ALL MANHOLE/INSPECTION CHAMBERS INVERT LEVELS SHOWN ARE FOR THE OUT GOING PIPE UNLESS OTHERWISE INDICATED IN THE DRAWING. PIPE SHALL BE Laid TO THE HIGHER LEVEL AS INDICATED ON THE CONTRACT DRAWINGS. NOTE THAT ALL PIPE GRADIENTS INDICATED ON THE DRAWINGS ARE APPROXIMATE.
- UPON COMPLETION OF THE DRAINAGE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAIN LINES BY JETTING AND REMOVE ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE PUBLIC DRAIN AND/OR WATERCOURSE SYSTEM. ONCE THE DRAINAGE SYSTEM HAS BEEN FULLY CLEANED OUT A CCTV CAMERA CONDITION SURVEY SHALL BE UNDERTAKEN TO ALL CONSTRUCTED DRAINAGE AND SEWER PIPES WITH THE FORGAGE ISSUED TO THE ENGINEER FOR VIEW. THE AS BUILT INVERT AND COVER LEVELS SHALL BE RECORDED BY THE CONTRACTOR AND PASSED ON TO THE ENGINEER FOR REVIEW.

GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP IS TO COMPLY WITH JPC CONSULTANTS STANDARD SPECIFICATION & ALL RELEVANT BRISB & EUROPEAN STANDARDS.
- THE DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, M & E CONSULTANTS AND JPC CONSULTANTS DRAWINGS.
- ANY DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS.

SEWER AND DRAIN TESTING NOTES

- ALL SEWERS AND DRAINS CONSTRUCTED AS PART OF THE CONTRACT SHALL BE TESTED AFTER THEY ARE JOINTED AND BEFORE ANY CONCRETE OR BACKFILLING COMMENCED, OTHER THAN SUCH AS MAY BE NECESSARY FOR STRUCTURAL STABILITY WHILE UNDER TEST.
- TESTING SHALL BE IN ACCORDANCE WITH SIA AND BS EN 1610.
- TESTING OF PIPES UP TO AND INCLUDING 750mm NOMINAL DIAMETER SHALL BE BY MEANS OF AN AIR OR WATER TEST. FOR PIPES LARGER THAN 750mm NOMINAL DIAMETER A VISUAL EXAMINATION SHALL BE CARRIED OUT.
- A WATER TEST SHALL BE CARRIED OUT AFTER THE BACKFILLING IS COMPLETE.
- ADDITIONAL TESTING MAY BE REQUIRED AS INSTRUCTED BY THE WATER COMPANY AND/OR HIGHWAYS INSPECTOR/REPRESENTATIVE.
- AIR TESTS SHALL BE CARRIED OUT IN ACCORDANCE WITH SIA SECTION 5.7.4 AND BS EN 1610.
- WATER TESTS SHALL BE CARRIED OUT IN ACCORDANCE WITH SIA SECTION 5.7.5 AND BS EN 1610.
- VISUAL INSPECTIONS (CCTV SURVEY) SHALL BE CARRIED OUT BY A QUALIFIED AND APPROVED CONTRACTOR, AND IN ACCORDANCE WITH THE "SEWERAGE MODEL CONTRACT DOCUMENT FOR SEWER CONDITION INSPECTIONS".

NOTE
FOR DRAINAGE DETAILS PLEASE REFER TO DRAWING REF: 11700-S278-011

NOTE
NO PLASTIC DRAINAGE TO BE USED. NO GULLY LENGTHS TO BE LESS THAN 1500.

NOTE
ALL NETWORK TO BE MINIMUM CLASS D400 AND 1500mm DEEP FRAMES.

O	AS BUILT	TOD	04/04/22	PJM
N	SWMH-001 CL UPDATED	DAM	06/01/21	PJM
M	CHANGES TO LV AND HV DUCTS	DAM	27/09/21	PJM
L	SWMH-002 AND 003 AMENDED	PJM	23/08/21	PJM
K	SWMH SCHEDULE ADDED	LOB	18/08/21	PJM
J	PROPOSED TRIPLE GULLIES AT END OF NE TIE IN REPLACED WITH OUTLET DETAIL TO HCD P22 FOLLOWING COUNCIL COMMENT	LOB	06/06/21	PJM
I	MANHOLE AT END OF NE TIE IN REPLACED WITH TRIPLE GULLIES DUE TO EXISTING WATER MAIN	LOB	05/06/21	PJM
H	DOUBLE GULLY ON NOSING OF SW CENTRAL RESERVE REMOVED	LOB	02/07/21	PJM
G	SUPERFLUOUS DUCT CROSSINGS REMOVED	LOB	01/07/21	PJM
F	DUCTING FOR TERMINAL SIGNS AND ALSO BOLLARDS IN STUB ARM ADDED	LOB	01/07/21	PJM
E	DUCTING ROAD CROSSING POSITIONS AMENDED, BOLLARD / SIGN DUCTING ADDED	LOB	30/06/21	PJM
D	HV AND LV DUCTING ADDED	LOB	25/06/21	PJM
C	MANHOLE COVER LEVELS AMENDED FOLLOWING APPROVAL TO 3D DESIGN	LOB	09/06/21	PJM
B	VARIOUS CHANGES TO PICK UP MISSED ELEMENTS / REVISED VERTICAL DESIGN	LOB	21/05/21	PJM
A	LAYOUT UPDATED TO EXTENDED SCOPE OF WORK	LOB	24/02/21	PJM

Rev	Amendment	Drawn	Date	Checked

AS BUILT DRAWING

Client: Harworth Group

Project Title: Rockingham Phase 2A & 2B, Hoyland

Drawing Title: Section 278 Drainage And Ducting Layout

Drawn By	PJM	Checked By	KS	Approved By	KS
Scale	1:250	Date	Nov 20		
Drawing Size	A0	Drawing Number	11700-S278-008	Rev	0

© Sanderson Associates (Consulting Engineers) Ltd.