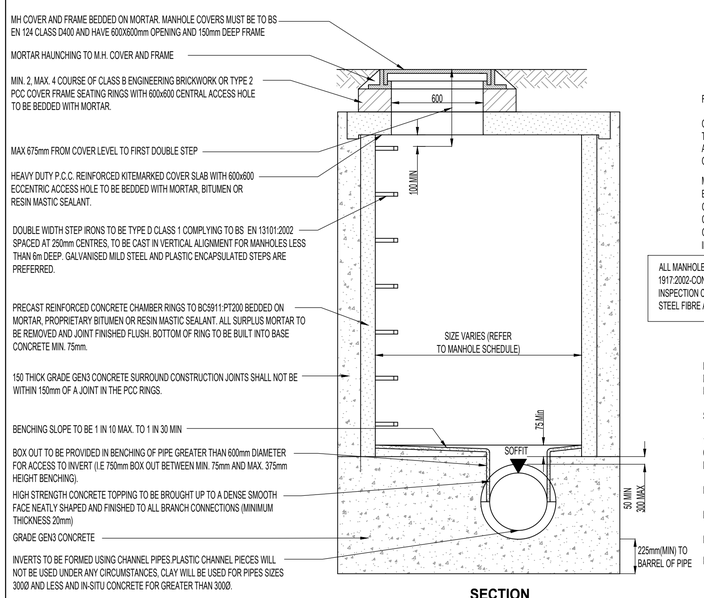
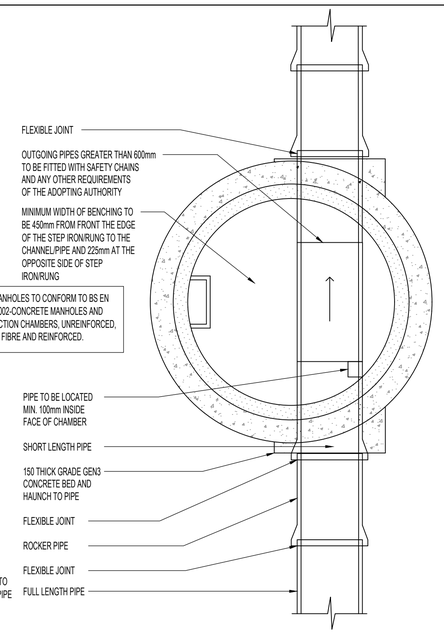


SECTION



ALL MANHOLES TO CONFORM TO BS EN 1917:2002-CONCRETE MANHOLES AND INSPECTION CHAMBERS, UNREINFORCED, STEEL FIBRE AND REINFORCED.

PLAN APPLICABLE TO TYPE A, B & C MANHOLES

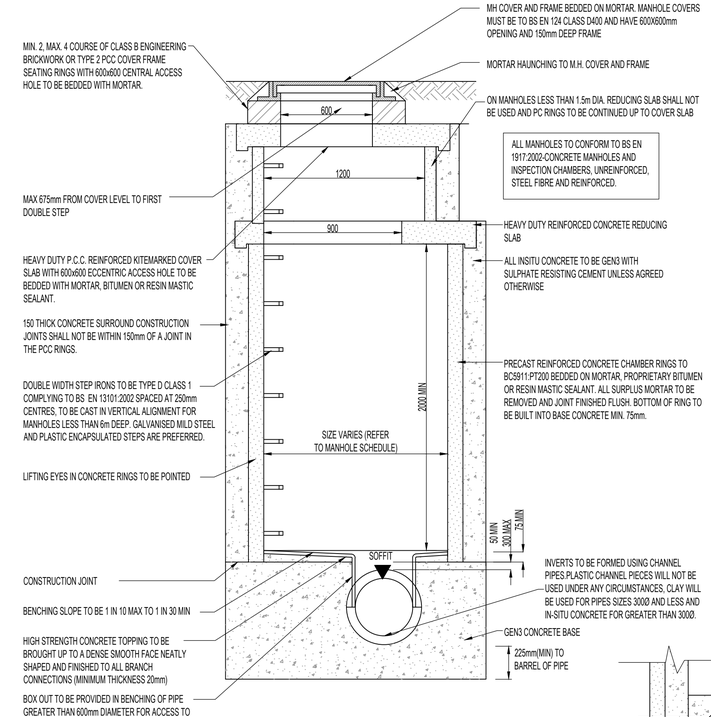
PLAN

TYPE B MANHOLE DETAILS MAY BE APPLIED TO TYPE A MANHOLES FOR CHAMBER DIAMETERS LESS THAN 1500Ø UP TO 6.0m DEPTH TO SOFFIT.

TYPICAL MANHOLE DETAIL - TYPE B
DEPTH TO SOFFIT OF PIPE 1.5m TO 3.0m

NOMINAL SIZE	EFFECTIVE LENGTH (mm)
150 TO 600	600
675 TO 675	1000
825 AND ABOVE	1250

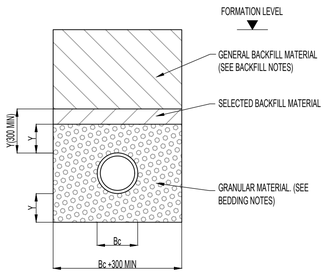
SHORT AND ROCKER PIPE LENGTHS TABLE APPLICABLE TO ALL MANHOLE TYPES



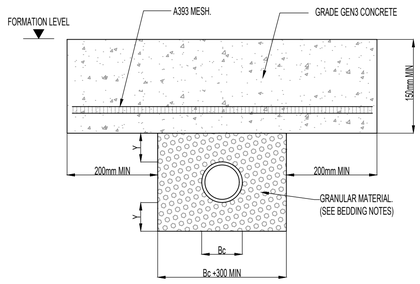
TYPICAL MANHOLE DETAIL - TYPE A
DEPTH TO SOFFIT OF PIPE 3.0m TO 6.0m

SEWER TRENCHES IN ADOPTABLE CARRIAGEWAYS ARE TO BE BACKFILLED WITH TYPE 2 GRANULAR MATERIAL UNLESS OTHERWISE AGREED WITH THE ADOPTING HIGHWAY AUTHORITY.

WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) CONCRETE SLAB SHOULD BE PROVIDE ABOVE GRANULAR BED AND SURROUND.



CLASS S DETAIL



RC SLAB OVER DETAIL

PIPE TRENCH BEDDING DETAILS

NOTES

A) Bc = OUTSIDE DIAMETER OF PIPE BARREL.

B) Y = FOR UNIFORM SOILS:
SLEEVE JOINTED PIPES, MIN. 150mm. SOCKETED PIPE, MIN. 150mm OR 1/6Bc WHICHEVER IS THE GREATER.

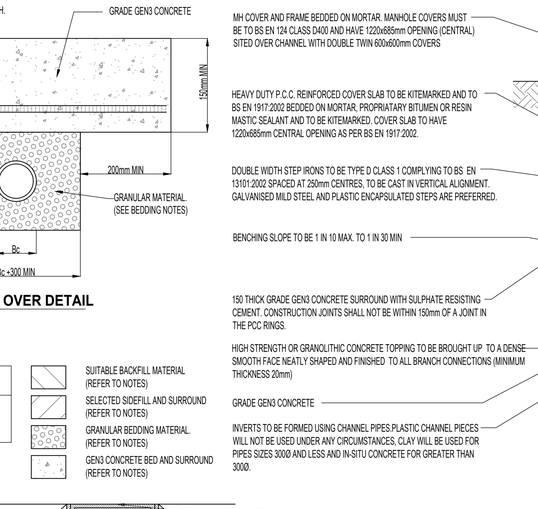
Y = FOR ROCK OR MIXED SOILS CONTAINING ROCK BANDS, BOULDERS, STONES OR OTHER IRREGULAR HARD SPOTS:
SLEEVE JOINTED PIPES, MIN. 150mm OR 1/4Bc, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN. 200mm OR 1/4Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 150mm UNDER SOCKETS.

NOMINAL PIPE DIA. (mm)	THICKNESS OF COMPRESSIBLE FILLER (mm)
LESS THAN 450	18
450 TO 1200	36
GREATER THAN 1200	54

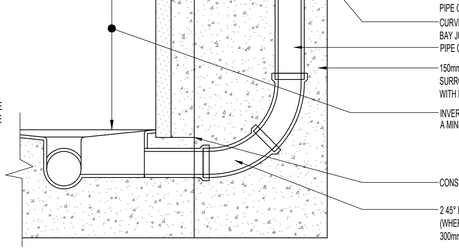
COMPRESSIBLE FILLER TABLE

(BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142: PART 3)

SUITABLE BACKFILL MATERIAL (REFER TO NOTES)
SELECTED SIDEFILL AND SURROUND (REFER TO NOTES)
GRANULAR BEDDING MATERIAL. (REFER TO NOTES)
GEN3 CONCRETE BED AND SURROUND (REFER TO NOTES)



TYPICAL MANHOLE DETAIL - TYPE C
MAX DEPTH TO SOFFIT OF PIPE < 1.5m



TYPICAL VERTICAL BACKDROP MANHOLE DETAIL
(NOTE: CONSTRUCTION DETAILS AS STANDARD PPC MANHOLE.)

GENERAL NOTES

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION "SEWERS FOR ADOPTION - CODES ADDITION " AND THE ADOPTING WATER AUTHORITY SPECIFICATIONS/ SPECIAL REQUIREMENTS.

INSITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 4027, UNLESS AGREED WITH THE ADOPTING AUTHORITY.

CONCRETE

FOR DESIGNED, DESIGNATED OR STANDARDISED PRESCRIBED CONCRETE REFER TO BS EN 206-1 AND BS 8500.

PIPES

CONCRETE PIPES TO BE TO BS EN 1916 & BS 5911-1, CLAYWARE PIPES TO BE TO BS EN 295.

THERMOPLASTICS STRUCTURED WALL PIPE SHALL COMPLY WITH THE RELEVANT PROVISIONS OF 'WIS 4-35-01'. PIPES SHALL BE BSI KITEMARKED OR HAVE EQUIVALENT THIRD PARTY CERTIFICATION. PIPES SHALL BE CLASS 8kN/m2 NOMINAL SHORT TERM RING STIFFNESS

BACKFILL TO TRENCHES -WITHIN HIGHWAYS

ALL TRENCHES SITUATED WITHIN HIGHWAYS OR PROSPECTIVE HIGHWAYS TO BE BACKFILLED IN ACCORDANCE WITH THE LOCAL HIGHWAY AUTHORITY REQUIREMENTS OR IF NONE AVAILABLE IN ACCORDANCE WITH WITH CLAUSE 3.6.4 OF CESWI, i.e. HAUC SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS APPENDIX A1 CLASSES A,B,C,D.

BACKFILL TO TRENCHES -OUTSIDE HIGHWAYS BELOW HARD PAVED AREAS

BACKFILL TO BE SAME AS WITHIN HIGHWAYS

BACKFILL TO TRENCHES - SOFT AREAS

SIDEFILL TO COMPLY WITH SPECIFICATION FOR HIGHWAY WORKS CLASS 8.

BACKFILL TO COMPLY WITH SPECIFICATION FOR HIGHWAY WORKS CLASS 1, 2 OR 3

SEE BACKFILL TO TRENCHES BELOW HARD PAVED AREA

PIPE BEDDING AND FILL MATERIAL

UNLESS OTHERWISE STATED BEDDING TO ALL PIPES TO BE CLASS "S".

NOMINAL BORE OF PIPE (mm)	ALTERNATIVE AGGREGATE SIZES (mm)	
	SINGLE-SIZED	GRADED
150	10 or 14	14 to 5
200-300	10, 14 or 20	14 to 5 or 20 to 5
375-525	14 or 20	14 to 5 or 20 to 5
EXCEEDING 525	14, 20 or 40	14 to 5, 20 to 5 or 40 to 5

REFERENCE SHOULD BE MADE TO BS 882 TABLE 4.

SELECTED FILL TYPE 'B' SHALL COMPLY WITH CLAUSE 2.49 OF CESWI.

SHORT PIPES AT CHAMBERS/ROCKER PIPES

NOT WITHSTANDING SPECIFIC REQUIREMENTS FOR INDIVIDUAL CHAMBER TYPES ALL PIPES LEADING TO AND FROM CHAMBERS MUST MEET THE REQUIREMENTS OF CLAUSE 5.19 OF CESWI.

MANHOLE CHAMBERS

ALL PIPES SHALL BE LAID SOFFIT TO SOFFIT UNLESS STATED OTHERWISE ON THE MANHOLE SCHEDULE. MANHOLES, SOAKAWAYS & COVER SLABS TO BE BS EN 1917 AND BS 5911-3.

MANHOLE COVERS

ALL MANHOLE COVERS SHOULD BE BUILT IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF BS EN124 (KITEMARKED) AND BE BEDDED AND HAUNCHED IN MORTAR. ALL COVERS TO ADOPTABLE MANHOLES SHALL BE MARKED FW OR SW IF ON A FOUL OR SURFACE WATER SEWER RESPECTIVELY. THEY SHALL BE COATED WITH BLACK BITUMINOUS COMPOSITION IN ACCORDANCE WITH BS EN124.

WHERE THERE IS DOUBT AS TO WHICH COVER SHOULD BE USED, A STRONGER CLASS SHOULD BE SELECTED.

CLASS B125 COVERS MUST NOT BE COATED IN PLASTIC AND MUST HAVE LIFTING EYES SUITABLY SIZED TO ACCOMMODATE STANDARD LIFTING KEYS. SCREW DOWN COVERS ARE NOT ACCEPTABLE.

INFILL COVERS SHALL NOT BE USED. WHERE A COVER IS LOCATED IN BLOCK PAVING, THE FRAME SHALL BE 150 DEEP.

FRAMES FOR MANHOLES SHALL BE BEDDED IN POLYESTER RESIN BEDDING MORTAR IN NRSWA CATEGORIES I, II OR III.

JOINTS TO MANHOLE RINGS AND SLABS.

ALL MANHOLE RINGS AND SLABS SHALL BE JOINTED WITH MORTAR, PROPRIETARY BITUMEN OR RESIN MASTIC SEALANT.

ALL MANHOLE FRAMES TO BE SET PARALLEL TO ADJACENT KERBS OR NEAREST BUILDINGS. MANHOLE COVERS AND FRAMES TO BE FLUSH WITH SURFACE ±5mm MAX.

CONCRETE PROTECTION TO PIPES

TO BE IN ACCORDANCE WITH CLAUSE 5.3 OF CESWI. AT THE DISCRETION OF THE ENGINEER, AWAY FROM CHAMBERS AND WHERE GROUND CONDITIONS PERMIT THE LENGTH OF UNINTERRUPTED CONCRETE PROTECTION MAY BE INCREASED TO 8m.

COMPRESSIBLE FILLER FOR PIPELINES.

TO BE USED TO INTERRUPT CONCRETE PROTECTION TO PIPELINES AND SHALL COMPLY WITH CLAUSE 2.19 OF CESWI.

TRENCH WIDTH

NOTE THE MAXIMUM TRENCH WIDTH MUST NOT BE EXCEEDED. IF THE WIDTH IS EXCEEDED THE CONTRACTOR MUST SUBMIT REVISED BEDDING PROPOSALS TO THE CLIENT.

SOFT SPOTS AND OVERDIG

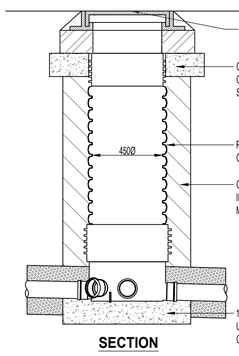
SOFT SPOTS SHALL BE REMOVED FROM THE BOTTOM OF THE TRENCH AND OTHER EXCAVATIONS AND THEN BE REFILLED TO FORMATION LEVEL WITH THE SAME MATERIAL AS THE PERMANENT WORK WHICH IS TO REST ON THAT FORMATION. OVERDIG SHALL BE TREATED IN THE SAME MANNER AT CONTRACTORS EXPENSE.

GROUP	COVER CLASS	USAGE (FIGURE 9a)	MIN. THICKNESS OF STEEL PROTECTION* mm (TABLE 3)
1	B125	PEDESTRIANS AND CAR PARKING ZONES	3
2	C250	FOR GULLY TOPS INSTALLED IN THE KERBSIDE CHANNELS	5
3	D400	AREAS FOR ALL TYPES OF ROAD VEHICLES	6

* WITHOUT THE THICKNESS OF THE ADDITIONAL CORROSION PROTECTION.

TABLE AND FIGURE REFERENCE ARE TO BS EN124.

THIS DRAWING IS SUBJECT TO THE APPROVAL OF: THE WATER AUTHORITY

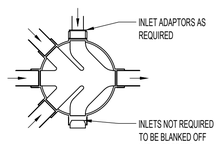


SECTION

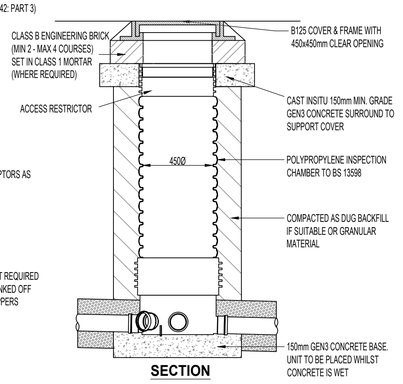
TYPICAL POLYPROPYLENE DEMARCATION CHAMBER - TYPE D (PPIC) DEPTH UP TO 1.2m

(SCALE 1:20)

REDUCE ACCESS TO BE APPLIED TO DEPTHS GREATER THAN 1.2m



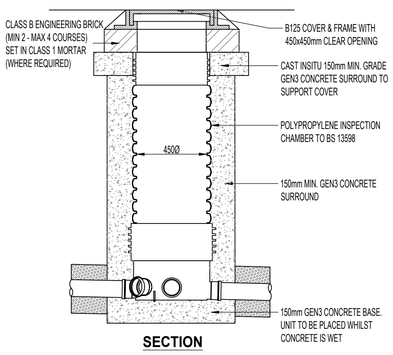
TYPICAL PLAN



SECTION

TYPICAL POLYPROPYLENE DEMARCATION CHAMBER - TYPE D (RAPPIC) DEPTH OF 1.2m TO 3.0m

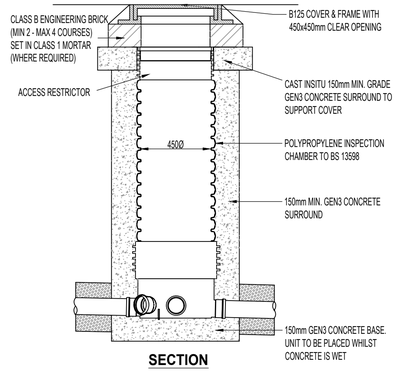
(SCALE 1:20)



SECTION

TYPICAL POLYPROPYLENE DEMARCATION CHAMBER - TYPE D (PPIC) DEPTH UP TO 1.2m (LOCATED IN DRIVEWAYS)

(SCALE 1:20)



SECTION

TYPICAL POLYPROPYLENE DEMARCATION CHAMBER - TYPE D (RAPPIC) DEPTH OF 1.2m TO 3.0m (LOCATED IN DRIVEWAYS)

(SCALE 1:20)

ADOPTABLE DRAINAGE NOTES:

(THESE NOTES APPLY TO ALL ADOPTABLE DRAINAGE WORKS)

ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "DESIGN AND CONSTRUCTION GUIDANCE (DCG)/CODE FOR ADOPTION", THE RELEVANT BRITISH / EUROPEAN AND THE ADOPTING WATER AUTHORITIES STANDARDS / REQUIREMENTS / ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.

MANHOLE COVERS MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.

COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY THE ADOPTING WATER AUTHORITY. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN TO 600mm x 600mm FOR THE SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.

SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.

SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES.

SEWERS TO BE LAID IN CLASS "S" BEDDING (150mm GRANULAR BED AND SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.

BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).

THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.

ADOPTABLE PLASTIC SEWER PIPES TO BE BSI KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS EN 13476). ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. CLAYWARE CHANNELS SHOULD BE USED IN MANHOLES AS PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINNISH CANNOT BE OBTAINED ON THE BENCHING.

THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100mm DIA 40kN/m, 150mm DIA 40kN/m, 225mm DIA 45kN/m AND 300mm DIA 72kN/m. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE - (CLASS 120 TO EN 1916/BS5911-1 2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN 13476.

THE CLEARANCE OF THE CROSSOVER POINTS (MIN 300mm) BETWEEN THE SURFACE WATER SEWERS, FOUL WATERS SEWERS, RISING MAINS AND OTHER SERVICES SHOULD BE SUFFICIENT CLEARANCE TO PROVIDE 150mm GRANULAR BED AND SURROUND AROUND BOTH PIPES. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES, APPROX. 300mm: IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.

Rev	Date	Amendments	By

Drawing Status.

TENDER PACK

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Client

MILLER HOMES

Project

HERMITAGE PARK, LEPTON

Drawing Title.

STANDARD DRAINAGE DETAILS

Drawn: JOH | Scale: NTS @ A1
Checked: RD | Date: MAY 2025

Drawing No. 1223 - 122 | Rev. -

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