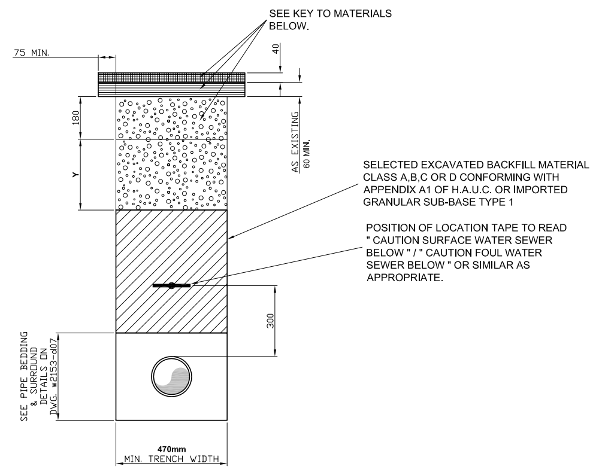

SEE KEY TO MATERIALS BELOW.
75 MIN.
40
180
Y
AS EXISTING
60 MIN.
SELECTED EXCAVATED BACKFILL MATERIAL CLASS A,B,C OR D CONFORMING WITH APPENDIX A1 OF H.A.U.C. OR IMPORTED GRANULAR SUB-BASE TYPE 1
POSITION OF LOCATION TAPE TO READ " CAUTION SURFACE WATER SEWER BELOW " / " CAUTION FOUL WATER SEWER BELOW " OR SIMILAR AS APPROPRIATE.
300
SEE PIPE BEDDING & SURROUND DETAILS ON DWG. w2153-d07
470mm
MIN. TRENCH WIDTH

TRENCH REINSTATEMENT WHERE 160mm OSMA ULTRARIB PIPE IS LAID IN TYPE 4 FLEXIBLE CARRIAGEWAY - ADOPTING METHOD 'A' (ALL PERMANENT)

NOTES

1. THIS DETAIL IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION, BILL OF QUANTITIES, NEW ROAD AND STREETWORKS ACT 1991:- SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS (H.A.U.C.).
2. SELECTED BACKFILL MATERIAL IS TO BE OBTAINED FROM EXCAVATED MATERIAL WHERE POSSIBLE PROVIDED THAT THIS MATERIAL COMPLIES WITH CLASS A,B,C OR D AS LAID OUT IN APPENDIX A1 OF H.A.U.C. ANY IMPORTED MATERIAL TO MAKE UP ANY DEFICIENCY IS TO BE TYPE 1 GRANULAR SUB-BASE MATERIAL.
3. FULL COMPACTION OF MATERIALS SHALL BE IN ACCORDANCE WITH APPENDIX A8 OF H.A.U.C.
4. VERTICAL JOINT BETWEEN NEW AND EXISTING ROAD SURFACES TO BE PAINTED WITH BITUMEN TO A THICKNESS NOT EXCEEDING 40mm.
5. FOR ALTERNATIVE REINSTATEMENT DETAILS REFER TO APPENDIX A9 OF H.A.U.C.
6. WHERE 10mm SMASC IS USED THE THICKNESS IS REDUCED TO 30mm AND THE BINDER COURSE ADJUSTED ACCORDINGLY.
7. WHERE THE ROAD HAS BEEN CONSTRUCTED, BY THE AUTHORITY,TO DOT HD/24/96 DESIGN STANDARDS THE REINSTATEMENT SHALL MATCH, AS A MINIMUM, THE EXISTING ROAD CONSTRUCTION THICKNESSES.
8. FOR TABLES SEE BELOW.
9. KEY TO MATERIALS.

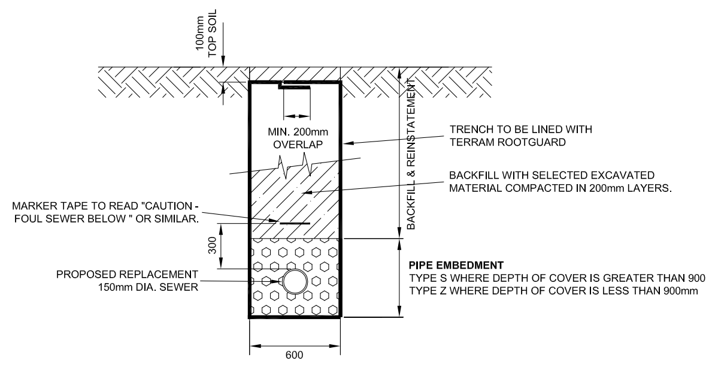
▦ HRASC
CGSC
SMASC
PCSC
▤ HRABC
DBC
PCBC
○ GSB 1

FOR FULL DEFINITIONS REFER TO APPENDIX A2 OF H.A.U.C.

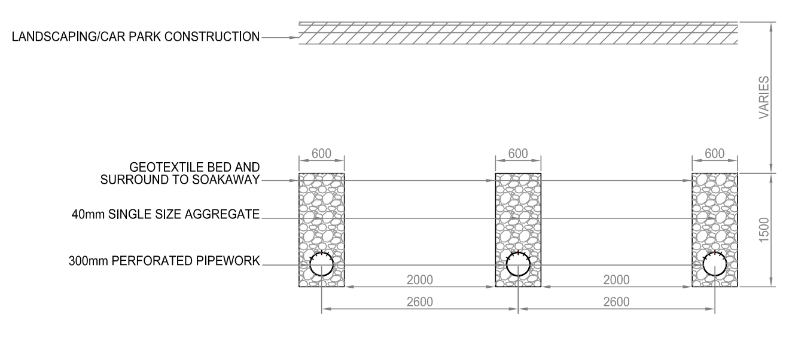
CLASS A GRADED MATERIAL IS PERMITTED ALTERNATIVE.

DEPTH OF GRANULAR SUB-BASE TYPE 1 (Y)

TYPE OF UNDERLYING BACKFILL	DIMENSION Y
CLASS A - GRADED-GRANULAR	150mm
CLASS B - GRANULAR	200mm
CLASS C - COHESIVE-GRANULAR	250mm
CLASS D - COHESIVE	300mm

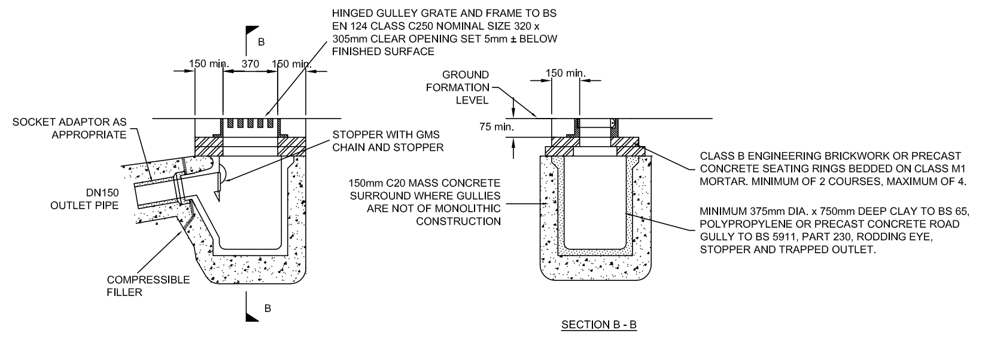

100mm TOP SOIL
MIN. 200mm OVERLAP
TRENCH TO BE LINED WITH TERRAM ROOTGUARD
BACKFILL WITH SELECTED EXCAVATED MATERIAL COMPACTED IN 200mm LAYERS.
BACKFILL & REINSTATEMENT
MARKER TAPE TO READ "CAUTION - FOUL SEWER BELOW " OR SIMILAR.
300
PROPOSED REPLACEMENT 150mm DIA. SEWER
PIPE EMBEDMENT
TYPE S WHERE DEPTH OF COVER IS GREATER THAN 900mm
TYPE Z WHERE DEPTH OF COVER IS LESS THAN 900mm
600

TRENCH REINSTATEMENT DETAIL WITHIN ROOT PROTECTION ZONE (UP TO 1.5m DEEP TRENCH)


LANDSCAPING/CAR PARK CONSTRUCTION
GEOTEXTILE BED AND SURROUND TO SOAKAWAY
40mm SINGLE SIZE AGGREGATE
300mm PERFORATED PIPEWORK
600
600
600
VARIES
1500
2000
2000
2600
2600

SECTION Z-Z TYPICAL SOAKAWAY DETAIL

SCALE 1:50


HINGED GULLEY GRATE AND FRAME TO BS EN 124 CLASS C250 NOMINAL SIZE 320 x 305mm CLEAR OPENING SET 5mm ± BELOW FINISHED SURFACE
B
150 min.
370
150 min.
SOCKET ADAPTOR AS APPROPRIATE
STOPPER WITH GMS CHAIN AND STOPPER
DN150 OUTLET PIPE
COMPRESSIBLE FILLER
B
GROUND FORMATION LEVEL
150 min.
75 min.
150mm C20 MASS CONCRETE SURROUND WHERE GULLIES ARE NOT OF MONOLITHIC CONSTRUCTION
CLASS B ENGINEERING BRICKWORK OR PRECAST CONCRETE SEATING RINGS BEDDED ON CLASS M1 MORTAR. MINIMUM OF 2 COURSES, MAXIMUM OF 4.
MINIMUM 375mm DIA. x 750mm DEEP CLAY TO BS 65, POLYPROPYLENE OR PRECAST CONCRETE ROAD GULLY TO BS 5911, PART 230, RODDING EYE, STOPPER AND TRAPPED OUTLET.
SECTION B - B

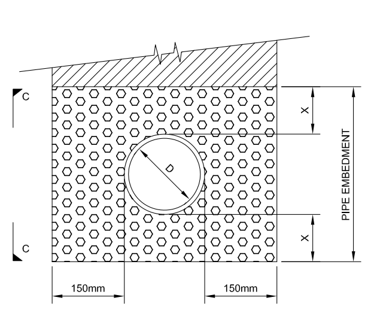
GULLEY TYPICAL DETAIL

NOTES

1. IN WET SOILS GRANULAR MATERIAL TO BE SURROUNDED BY FILTER FABRIC.
2. KEY TO MATERIALS:

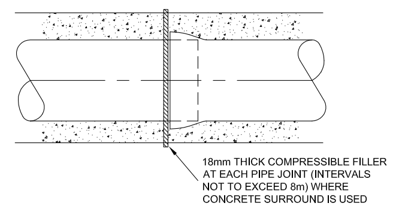
▨ BACKFILL MATERIAL. SEE RELEVANT TRENCH REINSTATEMENT DETAIL.

⬡ TYPE S PROCESSED GRANULAR MATERIAL TO BS 882 OR CONCRETE SURROUND (REFER TO CONTRACT DRAWINGS AND TABLE BELOW)

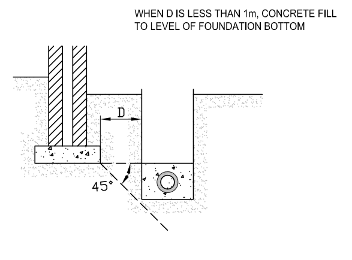


EMBEDMENT TYPE	D	SURROUND MATERIAL (mm)
TYPE S SURROUND	100mm	10 SINGLE SIZE GRANULAR MATERIAL TO BS 882
	150mm	10/14 SINGLE SIZE OR 14>5 GRADED GRANULAR MATERIAL TO BS 882
CONCRETE SURROUND	100mm 150mm	GRADE C20 CONCRETE WITH 20mm NOMINAL MAX. SIZE AGGREGATE

PIPE EMBEDMENT FOR OSMADRAIN AND ULTRARIB PIPES


18mm THICK COMPRESSIBLE FILLER AT EACH PIPE JOINT (INTERVALS NOT TO EXCEED 8m) WHERE CONCRETE SURROUND IS USED

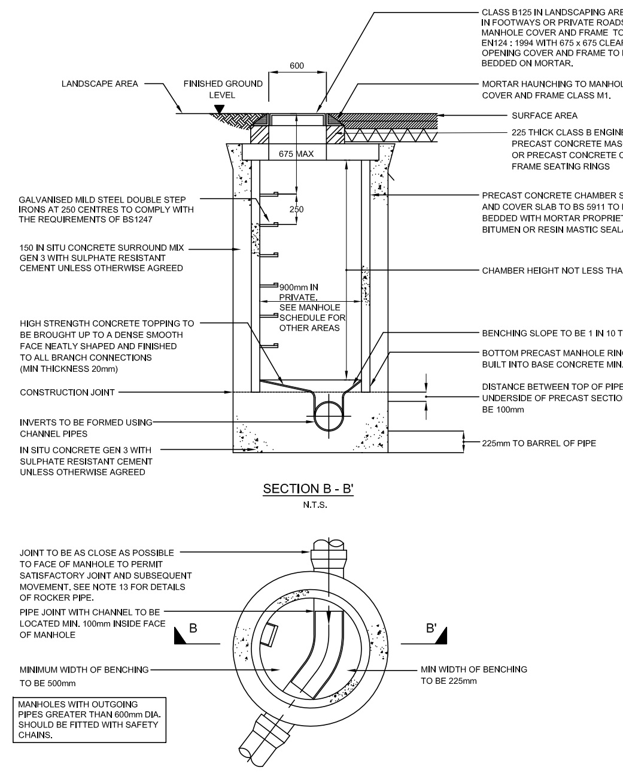
SECTION C - C


WHEN D IS LESS THAN 1m, CONCRETE FILL TO LEVEL OF FOUNDATION BOTTOM
D
45°

WORKS IN CLOSE PROXIMITY TO HOUSE FOUNDATIONS

NOTES

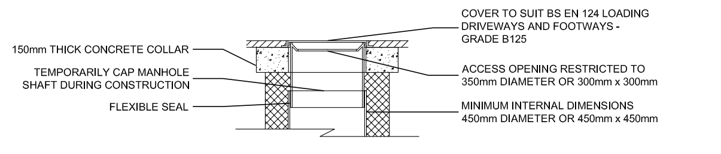
1. WHERE THE EXCAVATION COULD POTENTIALLY BE WITHIN THE 45° DISPERSION LINE OF THE HOUSE FOUNDATIONS FULL TRENCH SUPPORT SHALL BE INTRODUCED IN ACCORDANCE WITH A METHOD STATEMENT AGREED WITH THE ENGINEER SUPERVISING THE WORKS.
2. UNTIL THE FINAL SURFACE IS PLACED, DO NOT ALLOW HEAVY TRAFFIC TO CROSS THE TRENCHES. USE STEEL PLATES OR TIMBER SLEEPERS TO BRIDGE THE TRENCH WHERE SUCH TRAFFIC IS UNAVOIDABLE.
3. TRENCHES WITHIN 1m OF LOAD BEARING WALLS SHOULD BE FILLED WITH CONCRETE AT LEAST TO LEVEL OF UNDERSIDE OF THE FOUNDATION. WHERE THE DISTANCE IS MORE THAN 1m FROM THE WALL, THE CONCRETE FILL SHOULD BE TO A LEVEL BELOW THE UNDERSIDE OF THE FOUNDATION EQUAL TO THE DISTANCE FROM THE WALL TO THE NEARSIDE OF THE TRENCH, LESS 150mm.


CLASS B125 IN LANDSCAPING AREAS, D400 IN FOOTWAYS OR PRIVATE ROADS AREAS. MANHOLE COVER AND FRAME TO BS EN124 : 1994 WITH 675 x 675 CLEAR OPENING COVER AND FRAME TO BE BEDDED ON MORTAR.
600
LANDSCAPE AREA
FINISHED GROUND LEVEL
MORTAR HAUNCHING TO MANHOLE COVER AND FRAME CLASS M1.
SURFACE AREA
225 THICK CLASS B ENGINEERING BRICKS, PRECAST CONCRETE MASONRY UNITS OR PRECAST CONCRETE COVER FRAME SEATING RINGS
675 MAX
GALVANISED MILD STEEL DOUBLE STEP IRONS AT 250 CENTRES TO COMPLY WITH THE REQUIREMENTS OF BS1247
250
PRECAST CONCRETE CHAMBER SECTIONS AND COVER SLAB TO BS 5911 TO BE BEDDED WITH MORTAR PROPRIETARY BITUMEN OR RESIN MASTIC SEALANT
150 IN SITU CONCRETE SURROUND MIX GEN 3 WITH SULPHATE RESISTANT CEMENT UNLESS OTHERWISE AGREED
CHAMBER HEIGHT NOT LESS THAN 900mm
900mm IN PRIVATE. SEE MANHOLE SCHEDULE FOR OTHER AREAS
HIGH STRENGTH CONCRETE TOPPING TO BE BROUGHT UP TO A DENSE SMOOTH FACE NEATLY SHAPED AND FINISHED TO ALL BRANCH CONNECTIONS (MIN THICKNESS 20mm)
BENCHING SLOPE TO BE 1 IN 10 TO 1 IN 30
BOTTOM PRECAST MANHOLE RING TO BE BUILT INTO BASE CONCRETE MIN. 100mm
CONSTRUCTION JOINT
DISTANCE BETWEEN TOP OF PIPE AND UNDERSIDE OF PRECAST SECTION TO BE 100mm
INVERTS TO BE FORMED USING CHANNEL PIPES
225mm TO BARREL OF PIPE
IN SITU CONCRETE GEN 3 WITH SULPHATE RESISTANT CEMENT UNLESS OTHERWISE AGREED
SECTION B - B'
N.T.S.
JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF MANHOLE TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT. SEE NOTE 13 FOR DETAILS OF ROCKER PIPE.
PIPE JOINT WITH CHANNEL TO BE LOCATED MIN. 100mm INSIDE FACE OF MANHOLE
B
B'
MINIMUM WIDTH OF BENCHING TO BE 500mm
MIN WIDTH OF BENCHING TO BE 225mm
MANHOLES WITH OUTGOING PIPES GREATER THAN 600mm DIA. SHOULD BE FITTED WITH SAFETY CHAINS.

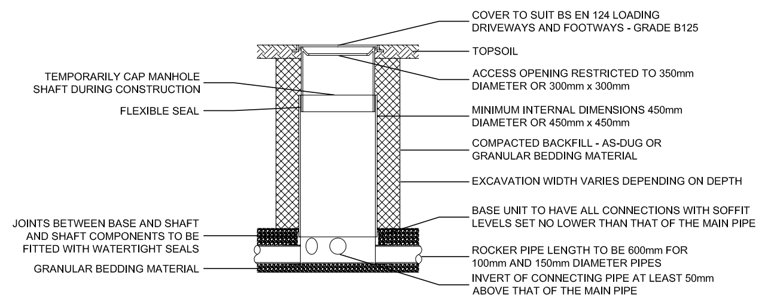
TYPICAL TYPE B MANHOLE

DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 1.0m TO 3m

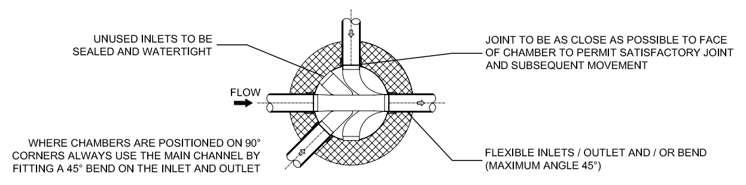
N.T.S.


COVER TO SUIT BS EN 124 LOADING DRIVEWAYS AND FOOTWAYS - GRADE B125
150mm THICK CONCRETE COLLAR
TEMPORARILY CAP MANHOLE SHAFT DURING CONSTRUCTION
ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm
FLEXIBLE SEAL
MINIMUM INTERNAL DIMENSIONS 450mm DIAMETER OR 450mm x 450mm

SECTION THROUGH CHAMBER WHERE SITED IN DOMESTIC DRIVEWAYS OR FOOTWAYS


COVER TO SUIT BS EN 124 LOADING DRIVEWAYS AND FOOTWAYS - GRADE B125
TOPSOIL
TEMPORARILY CAP MANHOLE SHAFT DURING CONSTRUCTION
ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm
FLEXIBLE SEAL
MINIMUM INTERNAL DIMENSIONS 450mm DIAMETER OR 450mm x 450mm
COMPACTED BACKFILL - AS-DUG OR GRANULAR BEDDING MATERIAL
EXCAVATION WIDTH VARIES DEPENDING ON DEPTH
JOINTS BETWEEN BASE AND SHAFT AND SHAFT COMPONENTS TO BE FITTED WITH WATERTIGHT SEALS
BASE UNIT TO HAVE ALL CONNECTIONS WITH SOFFIT LEVELS SET NO LOWER THAN THAT OF THE MAIN PIPE
ROCKER PIPE LENGTH TO BE 600mm FOR 100mm AND 150mm DIAMETER PIPES
GRANULAR BEDDING MATERIAL
INVERT OF CONNECTING PIPE AT LEAST 50mm ABOVE THAT OF THE MAIN PIPE

SECTION THROUGH CHAMBER WHERE SITED IN SOFT LANDSCAPED AREAS


UNUSED INLETS TO BE SEALED AND WATERTIGHT
JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF CHAMBER TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT
FLOW
WHERE CHAMBERS ARE POSITIONED ON 90° CORNERS ALWAYS USE THE MAIN CHANNEL BY FITTING A 45° BEND ON THE INLET AND OUTLET
FLEXIBLE INLETS / OUTLET AND / OR BEND (MAXIMUM ANGLE 45°)

PLAN THROUGH PIPEWORK

450mm FLEXIBLE CHAMBER TYPICAL DETAIL

TABLE APPLIES FOR TRENCHES UNDER CARRIAGEWAY AND IN LANDSCAPED AREAS

PIPE DIA/TYPE	TRENCH WIDTH Bd	APPROX. EXT PIPE DIA Bc	BEDDING THICKNESS Y
150	600	190	100
225	700	280	100
300	850	380	100
450	1150	575	100
525	1200	670	125
600	1350	770	130
900	1900	1100	185

NOTES

1. All dimensions in millimetres unless stated otherwise.
2. All private drainage works are to comply with the requirements of BS 752 building drainage and Building Regulations 2000 Approved Document H 2002 edition. All adoptable drainage to comply with the requirements of Dwr Cymru Welsh Water and Sewers for Adoption (7th edition).
3. This drawing to be read in conjunction with all other engineering drawings and details and contract documentation.
4. Any discrepancies in the details shown to be reported to the employer's representative/engineer prior to construction.
5. Location and levels of existing drainage runs must be checked on site prior to the commencement of any drainage works.
6. All existing services to be located prior to the commencement of any drainage works. Where necessary protection or diversions to be undertaken to avoid conflict with the proposed works.
7. Typical pipe bedding to drainage where depth to soffit is greater than 600mm in landscaped areas and greater than 1200mm in adoptable highways and 900mm in other trafficked areas is to be class S.
8. Backfill to drainage trenches under carriageways to be type 1 sub—base material, elsewhere backfill to be free draining readily compatible material, free from rubbish and organic matter, frozen soil clay lumps and large stones. to be compacted in layers not exceeding 150mm thick.
9. Concrete mixes indicated on this drawing are designated mixes conforming to BS 8500—1, 2002.
10. A flexible joint shall be provided as close as is feasible to outside face of any structure into which a pipe is built, compatible with the satisfactory completion and subsequent movement of the joint. the length of the next pipe (rocker pipe) away from the structure shall be as shown in the table below.

NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH (m)
150-600	0.6
675-750	1.0
825 AND OVER	1.25

REV	DATE	DESCRIPTION
A	10/06/14	FIRST ISSUE

CLIENT

ANWYL
HOMES & CONSTRUCTION

waterco consultants

Waterco Ltd.
Eden Court, Ruthin LL15 1NJ
01824 702220 fax 705244
www.waterco.co.uk

SCHEME

CHIRK COURT
PHASE 2

TITLE

STANDARD DETAILS

STATUS

APPROVAL

DRAWN	CHECKED	APPROVED	SCALE
AR	TM	MM	N.T.S. @ A1

DRAWING NO.	REV
w2173-d04	A