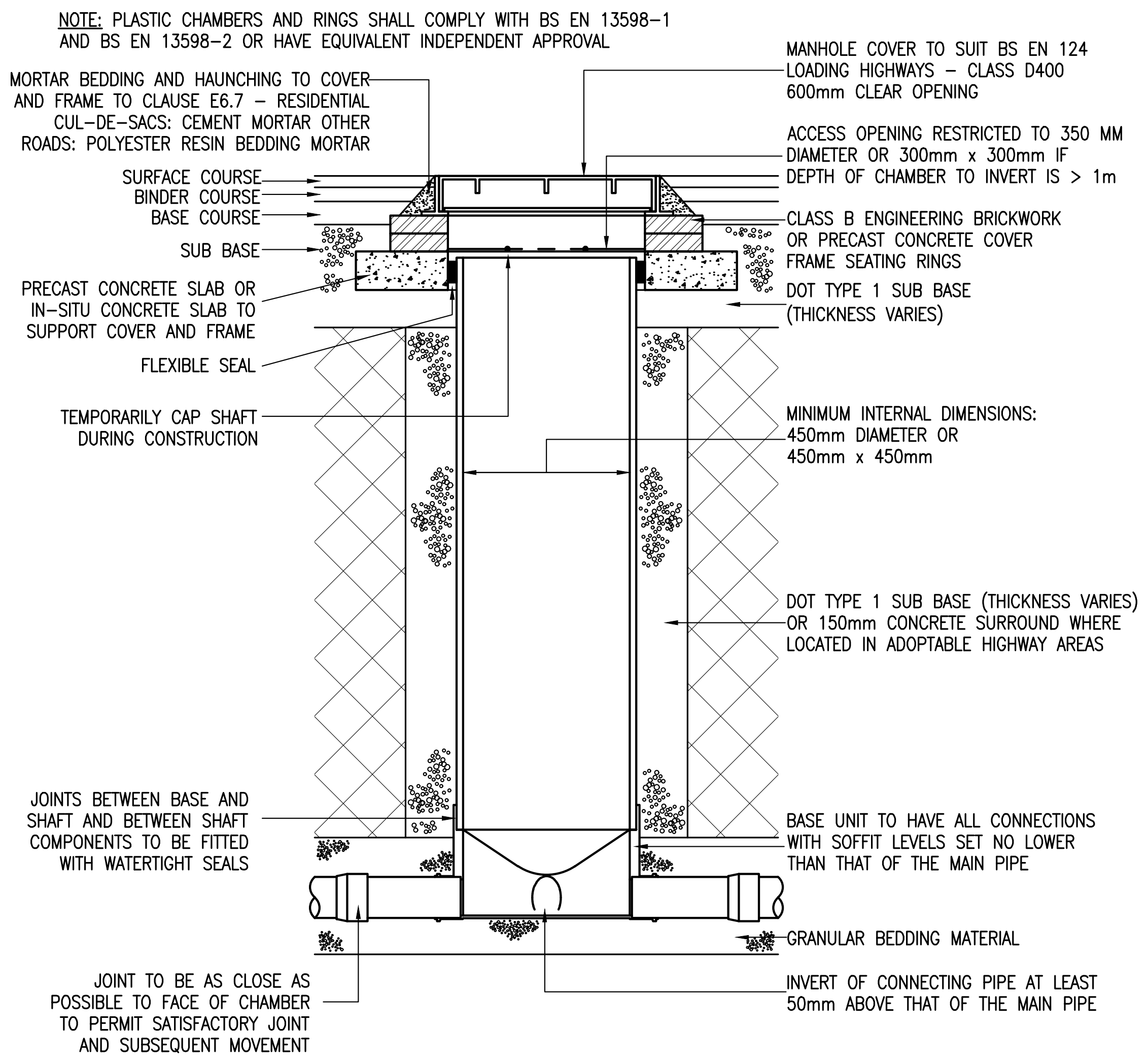
29/05/2024 15:22:36

M:\RCA Job Files\217 Job\21713 – New Child Care Unit, Waun Wen, Cwmafan, Neath Port Talbot SA12 9TB – TRJ\F – RCA Civil Drawings\2455_21713-RCA-01-XX-DR-C-03 Document Reference: RCA A1 Landscape Version 1

DO NOT SCALE



NOTE: PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598–1 AND BS EN 13598–2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO CLAUSE E6.7 – RESIDENTIAL CUL–DE–SACS: CEMENT MORTAR OTHER ROADS: POLYESTER RESIN BEDDING MORTAR

PRECAST CONCRETE SLAB OR IN–SITU CONCRETE SLAB TO SUPPORT COVER AND FRAME

TEMPORARILY CAP SHAFT DURING CONSTRUCTION

JOINTS BETWEEN BASE AND SHAFT AND BETWEEN SHAFT COMPONENTS TO BE FITTED WITH WATERTIGHT SEALS

JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF CHAMBER TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT

MANHOLE COVER TO SUIT BS EN 124 LOADING HIGHWAYS – CLASS D400 600mm CLEAR OPENING

ACCESS OPENING RESTRICTED TO 350 MM DIAMETER OR 300mm x 300mm IF DEPTH OF CHAMBER TO INVERT IS > 1m

CLASS B ENGINEERING BRICKWORK OR PRECAST CONCRETE COVER FRAME SEATING RINGS

DOT TYPE 1 SUB BASE (THICKNESS VARIES)

MINIMUM INTERNAL DIMENSIONS: 450mm DIAMETER OR 450mm x 450mm

DOT TYPE 1 SUB BASE (THICKNESS VARIES) OR 150mm CONCRETE SURROUND WHERE LOCATED IN ADOPTABLE HIGHWAY AREAS

BASE UNIT TO HAVE ALL CONNECTIONS WITH SOFFIT LEVELS SET NO LOWER THAN THAT OF THE MAIN PIPE

INVERT OF CONNECTING PIPE AT LEAST 50mm ABOVE THAT OF THE MAIN PIPE

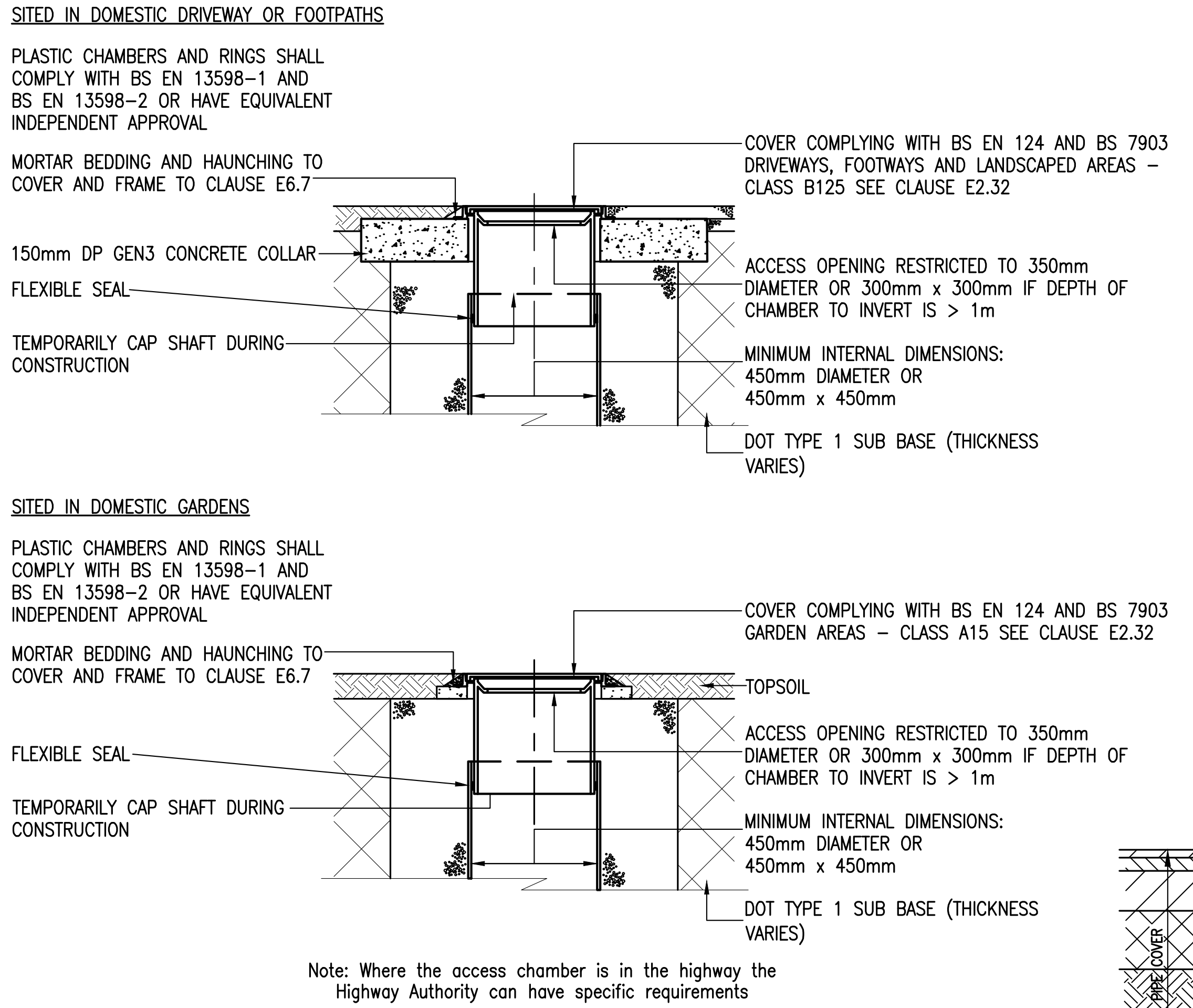
TYPICAL INSPECTION CHAMBER DETAIL – TYPE 3

(FLEXIBLE MATERIAL DETAIL)

MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE IN AREAS SUBJECT TO VEHICLE LOADING 3m, NON–ENTRY

FIGURE B.17
ALTERNATIVE TOP DETAILS FOR LIGHT VEHICLE LOADING AND LANDSCAPED AREAS - TYPE 3 (Flexible material detail)

Maximum depth from cover level to soffit of pipe in areas subject to vehicle loading 3 m, non–entry



SITED IN DOMESTIC DRIVEWAY OR FOOTPATHS

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598–1 AND BS EN 13598–2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO CLAUSE E6.7

150mm DP GEN3 CONCRETE COLLAR

FLEXIBLE SEAL

TEMPORARILY CAP SHAFT DURING CONSTRUCTION

COVER COMPLYING WITH BS EN 124 AND BS 7903 DRIVEWAYS, FOOTWAYS AND LANDSCAPED AREAS – CLASS B125 SEE CLAUSE E2.32

ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm IF DEPTH OF CHAMBER TO INVERT IS > 1m

MINIMUM INTERNAL DIMENSIONS: 450mm DIAMETER OR 450mm x 450mm

DOT TYPE 1 SUB BASE (THICKNESS VARIES)

SITED IN DOMESTIC GARDENS

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598–1 AND BS EN 13598–2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO CLAUSE E6.7

FLEXIBLE SEAL

TEMPORARILY CAP SHAFT DURING CONSTRUCTION

COVER COMPLYING WITH BS EN 124 AND BS 7903 GARDEN AREAS – CLASS A15 SEE CLAUSE E2.32

TOPSOIL

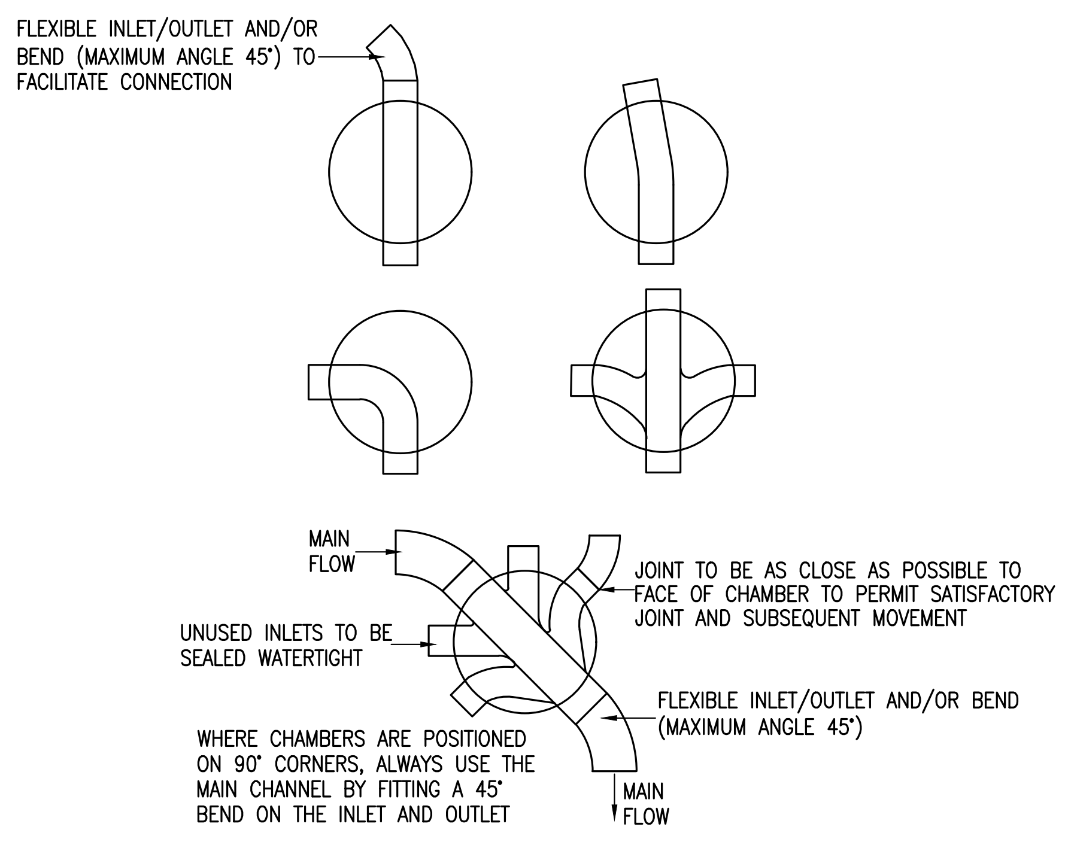
ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm IF DEPTH OF CHAMBER TO INVERT IS > 1m

MINIMUM INTERNAL DIMENSIONS: 450mm DIAMETER OR 450mm x 450mm

DOT TYPE 1 SUB BASE (THICKNESS VARIES)

Note: Where the access chamber is in the highway the Highway Authority can have specific requirements

FIGURE B.20
ALTERNATIVE BASE LAYOUTS FOR TYPE 3 CHAMBERS



FLEXIBLE INLET/OUTLET AND/OR BEND (MAXIMUM ANGLE 45°) TO FACILITATE CONNECTION

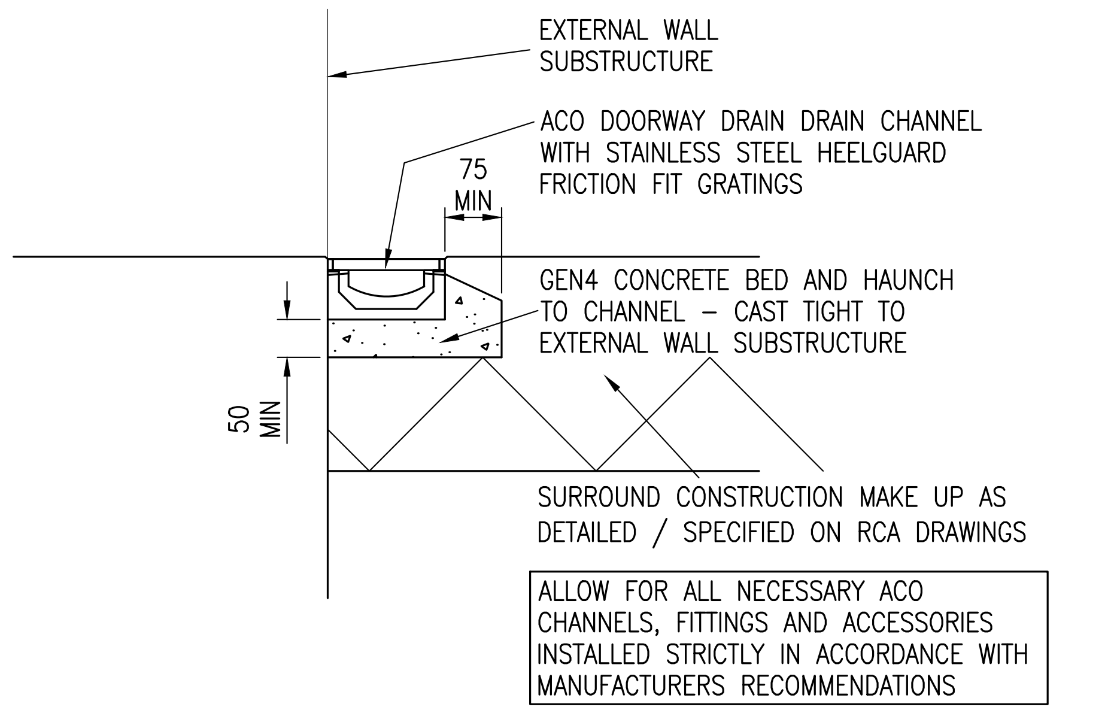
UNUSED INLETS TO BE SEALED WATERTIGHT

JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF CHAMBER TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT

FLEXIBLE INLET/OUTLET AND/OR BEND (MAXIMUM ANGLE 45°)

WHERE CHAMBERS ARE POSITIONED ON 90° CORNERS, ALWAYS USE THE MAIN CHANNEL BY FITTING A 45° BEND ON THE INLET AND OUTLET

NOTE: WHERE A BEND IS USED IMMEDIATELY OUTSIDE THE MANHOLE, THIS MAY BE USED AS THE ROCKER PIPE



EXTERNAL WALL SUBSTRUCTURE

ACO DOORWAY DRAIN DRAIN CHANNEL WITH STAINLESS STEEL HEELGUARD FRICTION FIT GRATINGS

GEN4 CONCRETE BED AND HAUNCH TO CHANNEL – CAST TIGHT TO EXTERNAL WALL SUBSTRUCTURE

SURROUND CONSTRUCTION MAKE UP AS DETAILED / SPECIFIED ON RCA DRAWINGS

ALLOW FOR ALL NECESSARY ACO CHANNELS, FITTINGS AND ACCESSORIES INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

ACO DOORWAY DRAIN CHANNEL INSTALLATION SECTION AT PEDESTRIAN DOORS

SCALE 1:10

1. THIS DRAWING IS COPYRIGHT AND SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RCA AND ARCHITECTS DRAWINGS AND SPECIFICATIONS RELATING TO THIS PROJECT AND SEWERS FOR ADOPTION 7th EDITION, DCWW ADDENDUM DOCUMENTS, SPECIFICATION FOR HIGHWAY WORKS AND POWYS COUNTY COUNCIL TECHNICAL SPECIFICATIONS.

2. ALL DIMENSIONS SHALL BE CHECKED PRIOR TO CONSTRUCTION OR MANUFACTURE. ANY DISCREPANCY TO BE REPORTED TO THE ENGINEERS IMMEDIATELY.

3. DO NOT SCALE THIS CAD DRAWING WORK TO FIGURED DIMENSIONS ONLY – IF IN DOUBT ASK.

4. ALL DIMENSIONS ARE IN mm (MILLIMETRES) UNLESS OTHERWISE STATED.

5. MATERIALS AND WORKMANSHIP – ALL WORK SHALL COMPLY WITH THE CURRENT RELEVANT BRITISH STANDARDS, BUILDING REGULATIONS, HEATH & SAFETY REGULATIONS, SEWERS FOR ADOPTION AND THE SPECIFICATIONS SHOWN.

6. PIPEWORK TO CONFORM TO THE FOLLOWING – PLASTIC PVC–U DRAINAGE SYSTEMS WITH FLEXIBLE JOINTS TO BS4660 OR BS5481.

7. FLEXIBLE JOINTS SHALL BE PROVIDED TO ALL PIPES WITHIN 600mm OF INNER FACE OF MANHOLE. PROJECTING PIPES SHALL BE SURROUNDED WITH 150mm GRADE GEN3/C20/ST4 CONCRETE CAST MONOLITHICALLY WITH THE MANHOLE BASE.

8. PIPES SHALL HAVE GRANULAR BED AND SURROUND UNLESS OTHERWISE DETAILED. GRANULAR MATERIAL SHALL CONFORM TO BS882 (TABLE 1) AND SHOULD BE CAREFULLY PLACED AND CONSOLIDATED BY HAND IN THIN LAYERS.

9. ALL PIPEWORK CONNECTIONS AT MANHOLES SHALL BE SOFFIT TO SOFFIT. APART FROM AT OFFLINE ATTENUATED STORAGE – SEE LONGITUDINAL SECTIONS / CHAMBER SCHEDULES.

10. MANHOLE COVERS SHALL BE CO–ORDINATED WITH THE SURROUNDING AREA AND SHALL BE AS SPECIFIED ON THE DRAWINGS.

11. TOLERANCES – COVERS SHALL BE SET AT, OR NOT MORE THAN 5mm BELOW THE SURROUNDING LEVEL IN PAVED AREAS. INVERTS SHALL BE WITHIN 5mm OF GIVEN LEVEL, AND MAY NOT CAUSE THE AS–LAID GRADIENT OF THE PIPES TO VARY FROM THAT GIVEN ON THE DRAWING BY MORE THAN 10%.

12. ADOPTABLE SEWERS LAID IN NON–ADOPTABLE AREAS I.E. GARDENS SHALL BE WITHIN AN EASEMENT ZONE AS PLAN. NO BUILDING SHALL BE CONSTRUCTED WITHIN THIS EASEMENT ZONE.

13. SPURS CONSTRUCTED FOR FUTURE DEVELOPMENTS TO BE "STOPPED UP" AT BLANK END TO PREVENT GROUND WATER INFILTRATION.

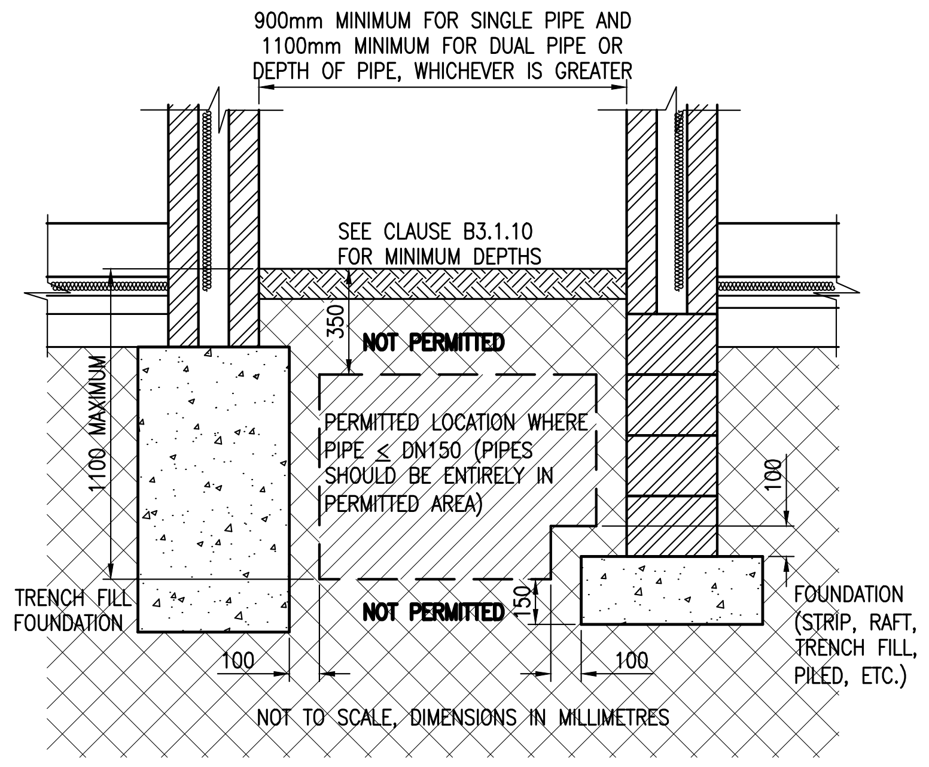
TABLE C

NOMINAL PIPE DIAMETER (mm)	THICKNESS OF COMPRESSIBLE FILLER (mm)
LESS THAN 450	18
450 – 1200	36
EXCEEDING 1200	54

TABLE D PIPE BEDDING

PIPE DIAMETER (mm)	GRANULAR MATERIAL SIZE (mm)
100	10 NOMINAL SINGLE SIZE
150	10 OR 14 NOMINAL SINGLE SIZE
150 – 500	10, 14 OR 20 NOMINAL SINGLE SIZE
OVER 500	10, 14, 20 OR 40 NOMINAL SINGLE SIZE

FIGURE B.2
ADDITIONAL DETAIL - PERMITTED LOCATION OF SEWERS AND LATERAL DRAINS BETWEEN BUILDINGS
(where Figure B.1 is not applicable only)



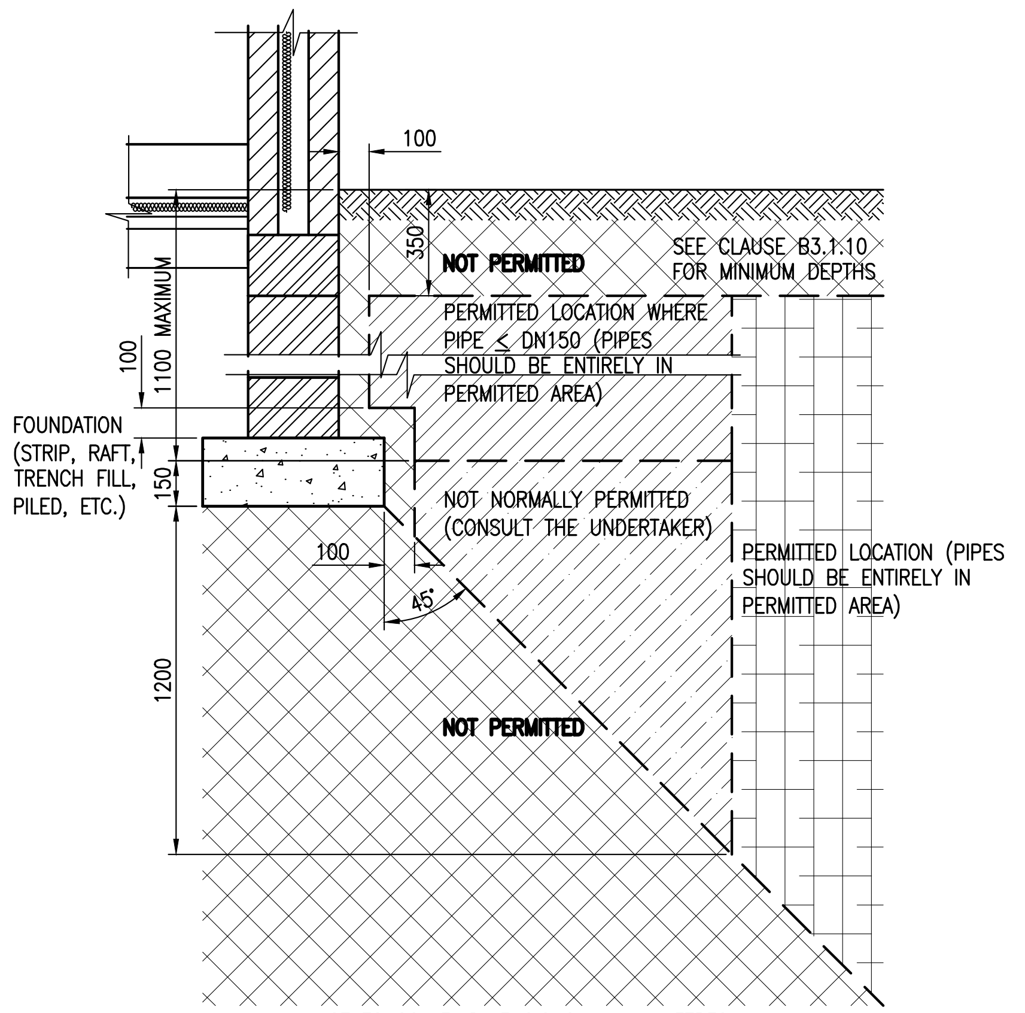
900mm MINIMUM FOR SINGLE PIPE AND 1100mm MINIMUM FOR DUAL PIPE OR DEPTH OF PIPE, WHICHEVER IS GREATER

SEE CLAUSE B3.1.10 FOR MINIMUM DEPTHS

PERMITTED LOCATION WHERE PIPE ≤ DN150 (PIPES SHOULD BE ENTIRELY IN PERMITTED AREA)

NOT TO SCALE, DIMENSIONS IN MILLIMETRES

FIGURE B.1
PERMITTED LOCATION OF SEWERS AND LATERAL DRAINS IN PROXIMITY TO BUILDINGS



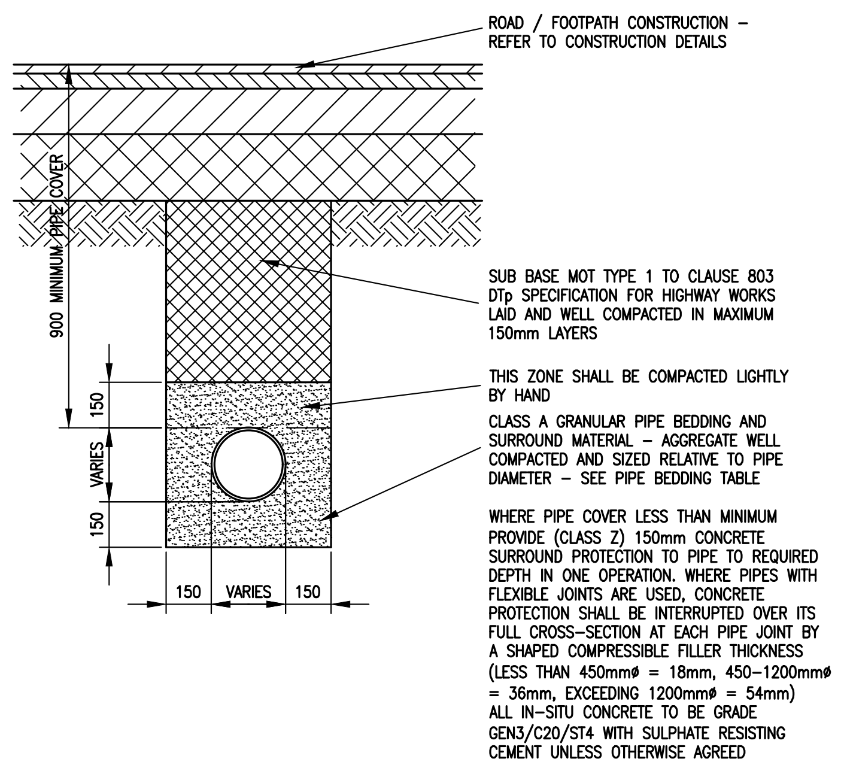
SEE CLAUSE B3.1.10 FOR MINIMUM DEPTHS

PERMITTED LOCATION WHERE PIPE ≤ DN150 (PIPES SHOULD BE ENTIRELY IN PERMITTED AREA)

NOT NORMALLY PERMITTED (CONSULT THE UNDERTAKER)

PERMITTED LOCATION (PIPES SHOULD BE ENTIRELY IN PERMITTED AREA)

NOT TO SCALE, DIMENSIONS IN MILLIMETRES



ROAD / FOOTPATH CONSTRUCTION – REFER TO CONSTRUCTION DETAILS

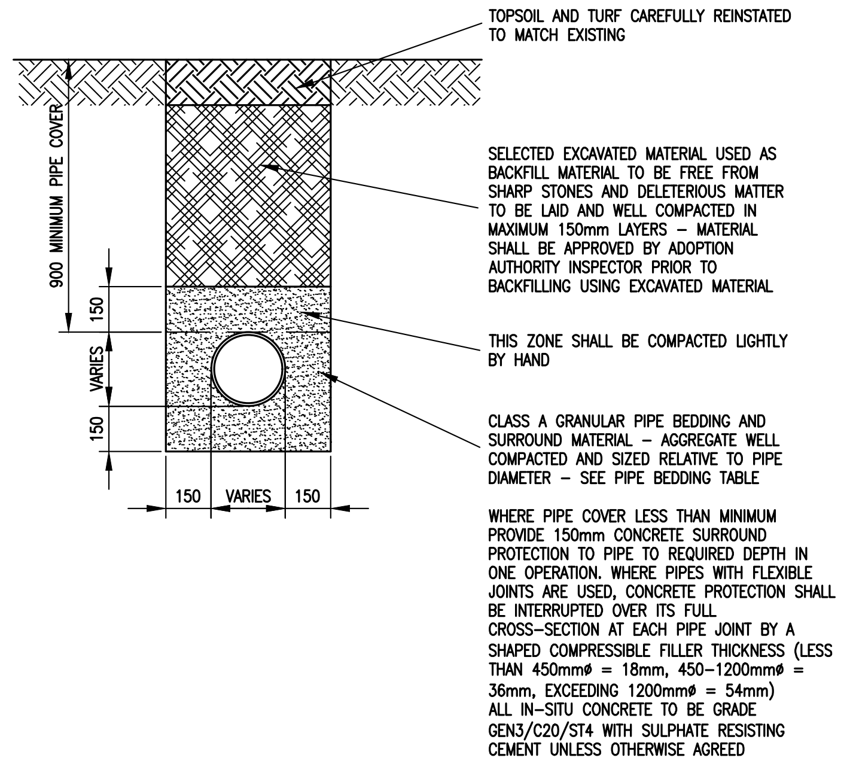
SUB BASE MOT TYPE 1 TO CLAUSE 803 DTp SPECIFICATION FOR HIGHWAY WORKS LAID AND WELL COMPACTED IN MAXIMUM 150mm LAYERS

THIS ZONE SHALL BE COMPACTED LIGHTLY BY HAND

CLASS A GRANULAR PIPE BEDDING AND SURROUND MATERIAL – AGGREGATE WELL COMPACTED AND SIZED RELATIVE TO PIPE DIAMETER – SEE PIPE BEDDING TABLE

WHERE PIPE COVER LESS THAN MINIMUM PROVIDE (CLASS Z) 150mm CONCRETE SURROUND PROTECTION TO PIPE TO REQUIRED DEPTH IN ONE OPERATION. WHERE PIPES WITH FLEXIBLE JOINTS ARE USED, CONCRETE PROTECTION SHALL BE INTERRUPTED OVER ITS FULL CROSS–SECTION AT EACH PIPE JOINT BY A SHAPED COMPRESSIBLE FILLER THICKNESS (LESS THAN 450mmø = 18mm, 450–1200mmø = 36mm, EXCEEDING 1200mmø = 54mm) ALL IN–SITU CONCRETE TO BE GRADE GEN3/C20/ST4 WITH SULPHATE RESISTING CEMENT UNLESS OTHERWISE AGREED

TYPICAL SEWER TRENCH DETAIL (CLASS S)
SEWER LAID IN NEW
ROADS / FOOTPATHS / HARD LANDSCAPING / ETC



TOPSOIL AND TURF CAREFULLY REINSTATED TO MATCH EXISTING

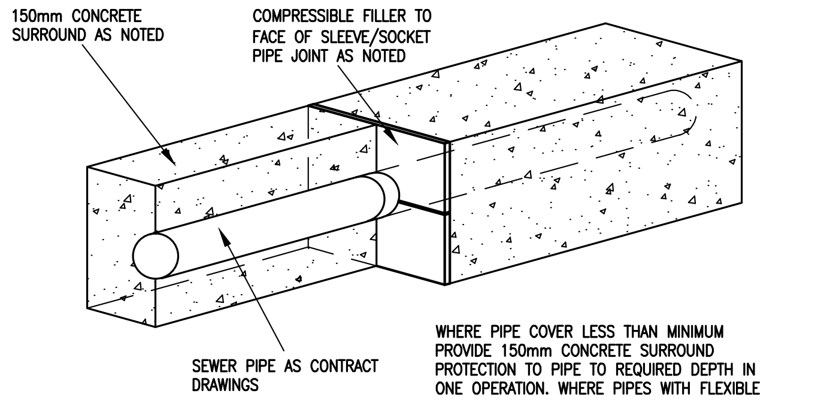
SELECTED EXCAVATED MATERIAL USED AS BACKFILL MATERIAL TO BE FREE FROM SHARP STONES AND DELETERIOUS MATTER TO BE LAID AND WELL COMPACTED IN MAXIMUM 150mm LAYERS – MATERIAL SHALL BE APPROVED BY ADOPTION AUTHORITY INSPECTOR PRIOR TO BACKFILLING USING EXCAVATED MATERIAL

THIS ZONE SHALL BE COMPACTED LIGHTLY BY HAND

CLASS A GRANULAR PIPE BEDDING AND SURROUND MATERIAL – AGGREGATE WELL COMPACTED AND SIZED RELATIVE TO PIPE DIAMETER – SEE PIPE BEDDING TABLE

WHERE PIPE COVER LESS THAN MINIMUM PROVIDE 150mm CONCRETE SURROUND PROTECTION TO PIPE TO REQUIRED DEPTH IN ONE OPERATION. WHERE PIPES WITH FLEXIBLE JOINTS ARE USED, CONCRETE PROTECTION SHALL BE INTERRUPTED OVER ITS FULL CROSS–SECTION AT EACH PIPE JOINT BY A SHAPED COMPRESSIBLE FILLER THICKNESS (LESS THAN 450mmø = 18mm, 450–1200mmø = 36mm, EXCEEDING 1200mmø = 54mm) ALL IN–SITU CONCRETE TO BE GRADE GEN3/C20/ST4 WITH SULPHATE RESISTING CEMENT UNLESS OTHERWISE AGREED

TYPICAL SEWER TRENCH DETAIL
SEWER LAID IN GARDENS / SOFT LANDSCAPING / ETC.



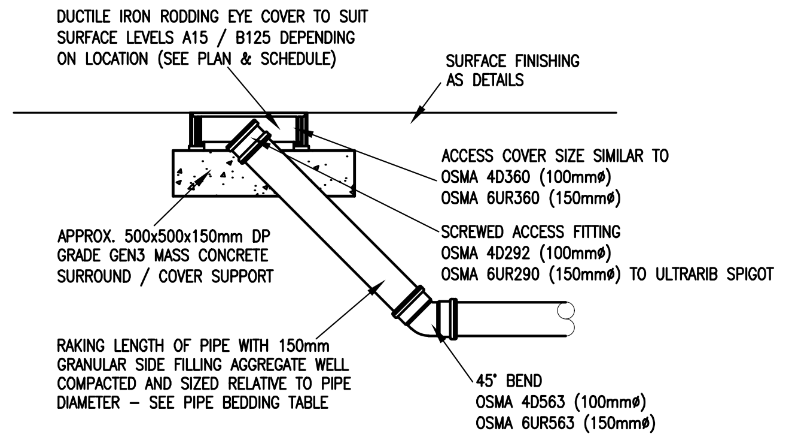
150mm CONCRETE SURROUND AS NOTED

COMPRESSIBLE FILLER TO FACE OF SLEEVE/SOCKET PIPE JOINT AS NOTED

SEWER PIPE AS CONTRACT DRAWINGS

WHERE PIPE COVER LESS THAN MINIMUM PROVIDE 150mm CONCRETE SURROUND PROTECTION TO PIPE TO REQUIRED DEPTH IN ONE OPERATION. WHERE PIPES WITH FLEXIBLE JOINTS ARE USED, CONCRETE PROTECTION SHALL BE INTERRUPTED OVER ITS FULL CROSS–SECTION AT EACH PIPE JOINT BY A SHAPED COMPRESSIBLE FILLER THICKNESS (LESS THAN 450mmø = 18mm, 450–1200mmø = 36mm, EXCEEDING 1200mmø = 54mm) ALL IN–SITU CONCRETE TO BE GRADE GEN3/C20/ST4 WITH SULPHATE RESISTING CEMENT UNLESS OTHERWISE AGREED

TYPICAL FLEXIBLE JOINT IN CONCRETE SURROUND (ISOMETRIC)
(CLASS Z)



DUCTILE IRON RODDING EYE COVER TO SUIT SURFACE LEVELS A15 / B125 DEPENDING ON LOCATION (SEE PLAN & SCHEDULE)

SURFACE FINISHING AS DETAILS

ACCESS COVER SIZE SIMILAR TO OSMA 4D360 (100mmø) OSMA 6UR360 (150mmø)

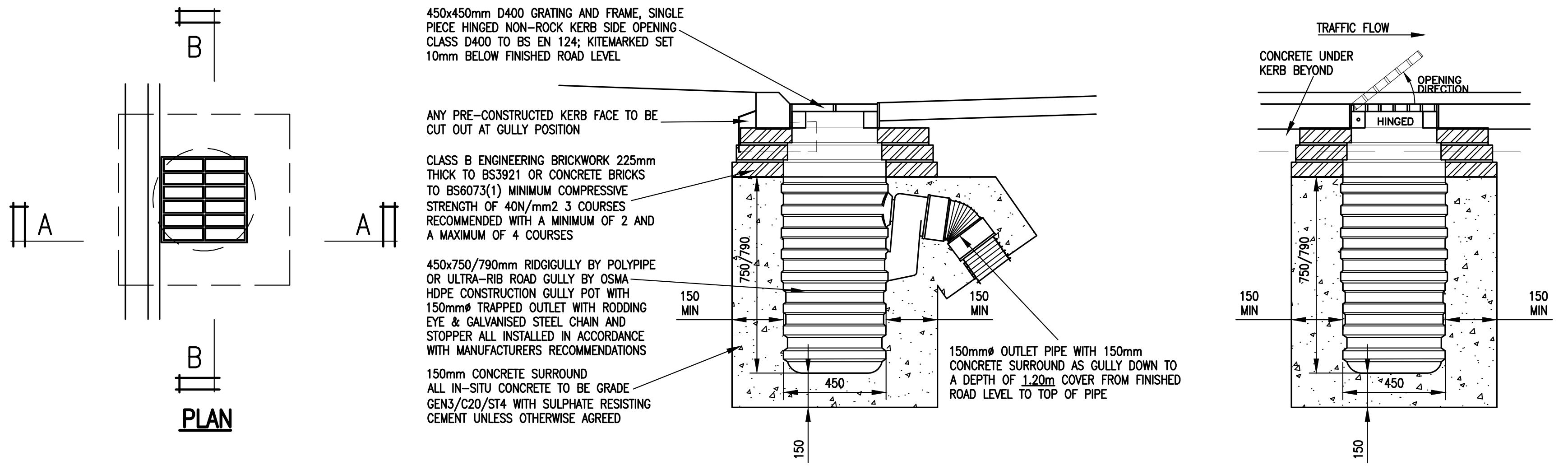
SCREWED ACCESS FITTING OSMA 4D292 (100mmø) OSMA 6UR290 (150mmø) TO ULTRARIB SPIGOT

APPROX. 500x500x150mm DP GRADE GEN3 MASS CONCRETE SURROUND / COVER SUPPORT

RAKING LENGTH OF PIPE WITH 150mm GRANULAR SIDE FILLING AGGREGATE WELL COMPACTED AND SIZED RELATIVE TO PIPE DIAMETER – SEE PIPE BEDDING TABLE

45° BEND OSMA 4D563 (100mmø) OSMA 6UR563 (150mmø)

TYPICAL RODDING ACCESS POINT DETAIL



450x450mm D400 GRATING AND FRAME, SINGLE PIECE HINGED NON–ROCK KERB SIDE OPENING CLASS D400 TO BS EN 124; KITEMARKED SET 10mm BELOW FINISHED ROAD LEVEL

ANY PRE–CONSTRUCTED KERB FACE TO BE CUT OUT AT GULLY POSITION

CLASS B ENGINEERING BRICKWORK 225mm THICK TO BS3921 OR CONCRETE BRICKS TO BS6073(1) MINIMUM COMPRESSIVE STRENGTH OF 40N/mm2 3 COURSES RECOMMENDED WITH A MINIMUM OF 2 AND A MAXIMUM OF 4 COURSES

450x750/790mm RIDGIGULLY BY POLYPIPE OR ULTRA–RIB ROAD GULLY BY OSMA HDPE CONSTRUCTION GULLY POT WITH 150mmø TRAPPED OUTLET WITH RODDING EYE & GALVANISED STEEL CHAIN AND STOPPER ALL INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

150mm CONCRETE SURROUND ALL IN–SITU CONCRETE TO BE GRADE GEN3/C20/ST4 WITH SULPHATE RESISTING CEMENT UNLESS OTHERWISE AGREED

150mmø OUTLET PIPE WITH 150mm CONCRETE SURROUND AS GULLY DOWN TO A DEPTH OF 1.20m COVER FROM FINISHED ROAD LEVEL TO TOP OF PIPE

PLAN

SECTION A–A

SECTION B–B

TYPICAL 450x750/790mm POLYETHYLENE ROAD GULLY DETAILS

NOTES (CONTINUED)

ALL FIGURED LEVELS ARE RELATED TO LAND SURVEY DATUM AS RCA DRAWING NUMBER JOB NUMBER/01 UNLESS NOTED OTHERWISE.

ALL FIGURED DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL WORKS SHALL BE IN ACCORDANCE WITH CURRENT RELEVANT SECTIONS OF:

- SPECIFICATION FOR HIGHWAY WORKS
- DESIGN MANUAL FOR ROADS AND BRIDGES
- LOCAL AUTHORITY HIGHWAY ADOPTION REQUIREMENTS
- LOCAL AUTHORITY SAB APPROVAL AND REQUIREMENTS
- SEWERS FOR ADOPTION 7th EDITION
- BUILDING REGULATIONS
- BRITISH STANDARDS
- NEW ROADS AND STREET WORKS ACT
- HEALTH AND SAFETY REGULATIONS
- GOOD PRACTICE

IT IS KNOWN THAT EXISTING UTILITY COMPANY UNDERGROUND SERVICES AND APPARATUS IS PRESENT WITHIN THE PROPOSED WORKS AREA THE CONTRACTOR SHOULD ALLOW FOR ALL NECESSARY INVESTIGATIVE WORK (CAT DETECTION, TRIAL HOLES, ETC.) TO DETERMINE ROUTE AND DEPTH OF ALL UNDERGROUND SERVICES TO AVOID DAMAGE AND PRESERVE SUPPLIES TO EXISTING DWELLINGS / PREMISES.

NOTES:

THE PROPERTY OF THIS DRAWING AND DESIGN IS VESTED IN ROGER CASEY ASSOCIATES AND MUST NOT BE COPIED OR REPRODUCED IN ANY WAY WITHOUT THE WRITTEN CONSENT OF ROGER CASEY ASSOCIATES.

THE CONTRACTOR IS TO CHECK ALL LEVELS AND DIMENSIONS BEFORE WORK COMMENCES, AND ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE CONSULTANTS.

WORK TO FIGURED DIMENSIONS IN PREFERENCE TO SCALING.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ROGER CASEY ASSOCIATES DRAWINGS AND SPECIFICATIONS AND ALL OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS RELATING TO THIS PROJECT.

THE CONTRACTOR IS EXPECTED TO SUPPLY AND DO EVERYTHING NECESSARY FOR THE PROPER EXECUTION OF THE WORKS THAT MAY BE REASONABLY INFERRED FROM THE DRAWINGS AND SPECIFICATION, WHETHER REFERRED TO IN DETAIL OR NOT, WITHOUT EXTRA PAYMENT IN RESPECT THEREOF.

C01	CONSTRUCTION ISSUE	PWJL	PWJL	29/05/24
P01	FULL SAB APPLICATION ISSUE	PWJL	PWJL	23/11/23
REV.	DESCRIPTION	DRAWN	CHECK	DATE

DRAWING STATUS:

A1 - CONSTRUCTION

Roger Casey Associates
Consulting Civil & Structural Engineers

Ty Mansel, 6 Mansel Street,
Carmarthen,
Carmarthenshire SA31 1PX

T: 01267 222 646

Units 10 & 11, Merlin's Court,
Winch Lane, Haverfordwest,
Pembrokeshire SA61 1SB

T: 01437 762 795

E: office@rca-eng.co.uk

W: www.rca-eng.co.uk

CLIENT:

TRJ Adeiladu ar Sylfaen Gadarn
Building on a Firm Foundation
www.trjltd.co.uk

PROJECT:
NEW CHILD CARE UNIT
WAUN WEN, CWMAFAN,
NEATH PORT TALBOT SA12 9TB

DRAWING TITLE:

DRAINAGE CONSTRUCTION
DETAILS - SHEET 1 OF 2

ORIGINAL DRAWING A1
© Roger Casey Associates Limited 2024

RCA PROJECT REFERENCE No.: 21713

DRAWN BY:	DESIGN BY:	CHECKED BY:	DATE:	SCALE:
PWJL	PWJL	RSC	29/06/23	1:25/20/10

DRAWING No.: 2455 -RCA- 01- ZZ- DR -C- 03

REVISION: C01