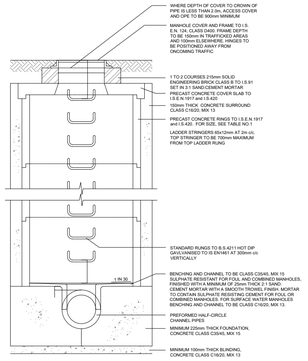
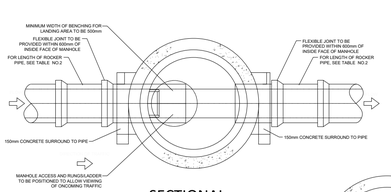


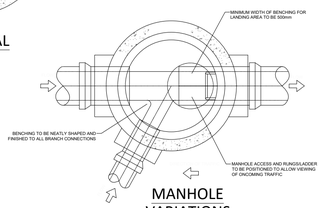
DEPTH OF COVER TO CROWN
1.0m MIN TO 3.0m MAX



SECTIONAL PLAN

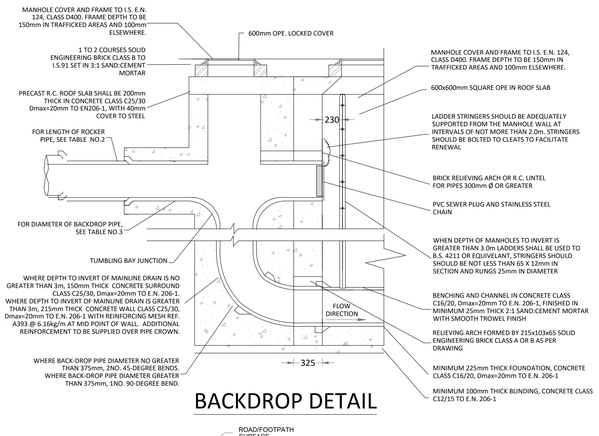
TABLE NO. 1	
DIA. OF LARGEST PIPE IN MH (mm)	MINIMUM INTERNAL DIAMETER OF MH (mm)
	TYPE J
LESS THAN 600	1200
600	1350
675	1350
750	1350
900	1500
1050	2100
1200	2100

TABLE NO. 2	
DIA. OF PIPE (mm)	LENGTH OF ROCKER PIPE (mm)
150-600	600
675-750	1000
>750	1250

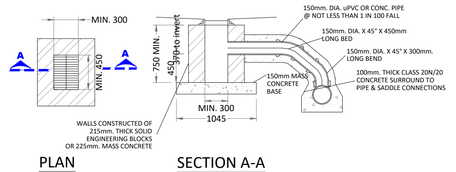


MANHOLE VARIATIONS

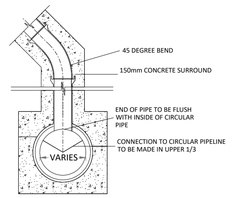
MANHOLE TYPE J
(1200mm - 2100mm Ø)



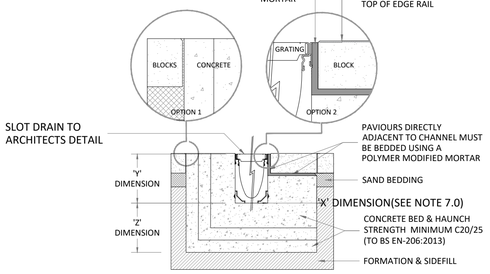
BACKDROP DETAIL



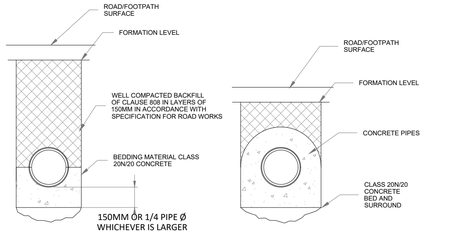
GULLY DETAIL



SADDLE CONNECTION TO CIRCULAR SEWER

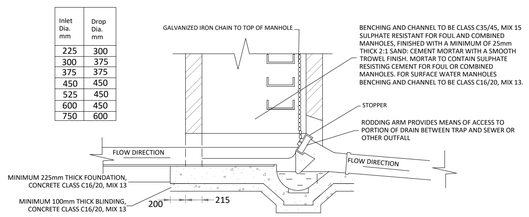


DRAINAGE CHANNEL BEDDING DETAIL
SCALE 1:20



ROAD & FOOTPATH PIPE BEDDING DETAILS

Inlet Dia. mm	Drop Dia. mm
225	300
300	375
375	375
450	450
525	450
600	450
750	600



INTERCEPTOR TRAP DETAIL
FOR PIPE DIA. 150, 225, 300, 375,
450, 525, 600 & 750mm

LOAD CLASS		A15	B125	C250	D400*
MINIMUM DIMENSIONS(mm)	X	100	150	150	200
	Y	FULL CHANNEL HEIGHT (LESS Y2 WHERE APPLICABLE)			
	Z	100	150	150	200
MAXIMUM DIMENSIONS(mm)	Y2	35	35	35	35
	Y3	100	60	60	60

*e.g.PARKING AREAS FOR ALL TYPES OF ROAD VEHICLE.
NOT SUITABLE FOR CARRIAGEWAY OF ROADS OR INDUSTRIAL AREAS.

1.0 LOAD CLASS

INSTALLATION RECOMMENDATIONS SHOWN ARE ACO MINIMUM RECOMMENDATIONS FOR BS EN 1433:2002 LOAD CLASS REQUIREMENTS.

2.0 GROUND CONDITIONS

THE LONG TERM PERFORMANCE OF A CHANNEL INSTALLATION TO SUSTAIN VERTICAL AND LATERAL LOADS DEPENDS UPON A) GROUND CONDITIONS B) STABILITY OF THE ADJACENT PAVEMENT AND C) A DURABLE CONCRETE BED AND SURROUND. THE RECOMMENDED INSTALLATION DETAIL MAY REQUIRE THE MINIMUM DIMENSIONS TO BE REVISED TO ACHIEVE SITE SPECIFIC LOAD CLASS REQUIREMENTS (REFERRED TO IN 1.0 ABOVE).

3.0 CUTTING AND JOINTING

MITRE JOINTS ARE FORMED BY CUTTING THE CHANNELS TO THE REQUIRED ANGLE AND BUTTING THEM TOGETHER WITH APPROPRIATE SEALANT (E.G. SIKAFLEX 11FC OR SIMILAR) OR ACO REPAIR KIT. WHERE POSSIBLE 90° JOINTS AND T'S SHOULD BE FORMED SO THAT GRATINGS DO NOT HAVE TO BE CUT. ANGLES CAN BE FORMED BY CONNECTING THEM USING PROPRIETARY PVCU PIPEWORK ATTACHED TO ACO INLET/OUTLET ENDCAPS. FOR FURTHER DETAILS PLEASE CONTACT ACO DESIGN SERVICES TEAM.

NOTE: FOR LOAD CLASSES HIGHER THAN C 250, MITRED JOINTS ARE NOT RECOMMENDED IN VEHICULAR AREAS. WHERE REQUESTED ACO CAN CUSTOM MANUFACTURE ANGLED JUNCTIONS TO ORDER.

4.0 ISOLATION JOINTS

THE CHANNEL MUST BE ISOLATED FROM THE SURROUNDING ENVIRONMENT. AN ISOLATION JOINT MUST BE POSITIONED UP TO 1500mm FROM THE CHANNEL WALL. ANY DOWEL BARS MUST BE LOCATED NO NEARER THAN 150mm FROM THE CHANNEL WALL. OTHER ISOLATION JOINTS IN SURROUNDING SLAB MUST BE CONTINUED THROUGH THE CHANNEL. ADDITIONAL CRACK CONTROL MAY BE REQUIRED TO COMPLY WITH SPECIFIER REQUIREMENTS.

5.0 INSTALLATION INTO IN-SITU SLAB

WHERE A CHANNEL IS TO BE INSTALLED INTO AN EXISTING CONCRETE SLAB IT IS NECESSARY TO CUT A SUITABLY SIZED POCKET IN THE SLAB. THE CHANNEL WILL THEN NEED TO BE BEDDED IN POLYMER MODIFIED MORTAR OF 25mm MINIMUM THICKNESS (THIS MAY VARY DEPENDING ON THE TYPE OF MORTAR USED). ENGINEERING ADVICE MAY BE NECESSARY.

6.0 TEMPORARY INSTALLATION

A CHANNEL INSTALLATION IS NOT COMPLETE UNTIL THE FINAL SURFACING IS LAID. IN ANY TEMPORARY CONDITION, I.E. WITH THE CHANNEL WALLS PROJECTING ABOVE ADJACENT GROUND, SITE TRAFFIC SHOULD NOT CROSS CHANNELS. LOOSE BOARDS, STONE FILL OR COVER PLATES WILL NOT PROTECT THE CHANNEL WALLS OR GRATING. A TEMPORARY CHANNEL CROSSING SHOULD BE FORMED BY RAISING THE GROUND LEVEL LOCALLY, TO 3 - 6mm ABOVE TOP OF EDGE RAIL, EITHER SIDE OF A CHANNEL FOR A DISTANCE OF 750 TO 1000mm, TO FORM RAMPS. NOTE THAT THE CHANNEL LOAD CLASS SHOULD BE ADEQUATE TO CARRY THE SITE TRAFFIC.

7.0 BLOCK PAVEMENTS

THE CHANNEL MUST BE SUPPORTED LATERALLY. BLOCKS LAID DIRECTLY AGAINST A CHANNEL MUST BE LAID AS A SOLDIER COURSE AND RESTRAINED FROM MOVEMENT BY BEDDING SECURELY ON THE CONCRETE HAUNCH E.G. BY USING A POLYMER MODIFIED MORTAR FOR BED AND PERPENDICULAR JOINTS (E.G. RONAFIX MORTAR MIX C OR SIMILAR). BLOCKS OR SLABS BEDDED ON SAND REMOTE FROM THE CHANNEL SHOULD BE SET AT A HIGHER LEVEL TO COMPENSATE FOR POSSIBLE SETTLEMENT OF THE PAVING IN SERVICE.

8.0 GRATE LOCKING SYSTEM

GRATINGS SHOULD BE SECURELY FIXED TO THE CHANNEL, WHERE REQUIRED, USING AN APPROPRIATE GRATE LOCK SYSTEM (WHERE AVAILABLE).

9.0 CHANNEL PROTECTION

AVOID CONTACT BETWEEN COMPACTION EQUIPMENT AND TOP OF ACO CHANNEL EDGE RAIL. THE INSTALLER MUST ENSURE THAT THE FINISHED SURFACE LEVEL LIES ABOVE THE TOP OF THE EDGE RAIL (BY AT LEAST 3-6mm). COVERING OR PROTECTING THE GRATING, BEFORE CONCRETING THE HAUNCH OR LAYING BLOCKS, REMOVES THE TIME AND COST ASSOCIATED WITH CLEANING THE CHANNEL AND GRATING OF CEMENT MATERIAL AND EMBEDDED STONES. (PLEASE NOTE THAT ACO CHANNELS MUST BE INSTALLED WITH THE GRATING IN PLACE TO PREVENT DEFORMATION OF THE CHANNEL).

10.0 WATERTIGHT INSTALLATION TO BS EN 1433:2002

WHERE ACO CHANNEL JOINTS/FITTINGS AND CHANNEL/PAVEMENT INTERFACES ARE TO BE SEALED, AN APPROPRIATE SEALANT SHOULD BE USED (E.G. SIKAFLEX 11FC OR SIMILAR). GUIDANCE ON THE NECESSARY SURFACE PREPARATION AND/OR PRIMING SHOULD BE SOUGHT FROM THE SEALANT MANUFACTURER.

FOR GUIDANCE A TYPICAL METHOD OF APPLICATION FOLLOWS:

- THE END FACES OF THE CHANNELS ARE TO BE SOUND AND FREE FROM DUST, OIL, AND GREASE, WITH ANY LOOSE MATERIAL OR DIRT REMOVED, E.G. BY MECHANICAL WIRE BRUSH. NO WATER DROPS SHOULD BE EVIDENT.
- USING A STANDARD CARTRIDGE GUN, APPLY THE SEALANT EVENLY AND WITH NO FLAWS. THE DETAIL ON THE ENDS OF A CHANNEL VARIES FROM ONE PRODUCT TO ANOTHER:
  - PRODUCTS WITH A BASICALLY FLAT FACE - APPLY THE SEALANT IN A LAYER APPROXIMATELY 5mm THICK TO ONE FACE OF THE JOINT.
  - PRODUCTS WITH A SEALING GROOVE WITHIN THE END FACE - APPLY THE SEALANT IN A BEAD OF APPROXIMATELY 10mm DIAMETER INTO THE SEALING GROOVE.
  - PRODUCTS WITH A SEALING GROOVE FOLLOWING THE INSIDE SHAPE OF THE CHANNEL - APPLY THE SEALANT TO THE END FACE OF THE CHANNEL AND TO THE SEALANT GROOVE, SUCH THAT WHEN THE JOINT IS COMPLETED, THE SEALANT WILL BOTH COVER THE END FACE AND FILL THE GROOVE.
  - THE CHANNEL UNIT SHOULD BE PLACED ON THE PREPARED CONCRETE BEDDING AND PRESSED AGAINST THE PREVIOUSLY PLACED CHANNEL UNIT. A SEALED JOINT OF APPROXIMATELY 1-2mm WIDTH SHOULD BE FORMED BETWEEN ADJACENT CHANNEL UNITS.
  - EXCESS SEALANT SHOULD BE WIPED FROM THE INSIDE FACE OF THE CHANNEL TO LEAVE A SMOOTH FINISH.
  - THE SEALANT IS TO BE LEFT TO CURE FOR 24 HOURS, DURING WHICH TIME THE SEALANT SHOULD BE KEPT AS DRY AS POSSIBLE.

NOTE: GALVANIZED STEEL AND IRON PRODUCTS HAVE GOOD CORROSION RESISTANCE TO CONCRETE AND MORTAR PRODUCTS BUT MAY EXPERIENCE CORROSION IF HIGH CHLORIDE AND/OR SULPHATE CONTENT IS PRESENT. USE ONLY GOOD QUALITY CONCRETE AND CONSIDER USING CORROSION INHIBITORS WHERE NECESSARY. THE USE OF PROTECTIVE COATINGS, SUCH AS PAINT, CAN MINIMISE THE RISK OF CORROSION.

NOTES:

1. DO NOT SCALE FROM THIS DRAWING. USE STATED DIMENSIONS ONLY. IF IN DOUBT, CONSULT THE ENGINEER.
2. LEVELS REFER TO O.S. DATUM MALIN HEAD.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.
4. FOR ALL INLETS, OUTLETS AND BRANCHES MATCH CROWN LEVELS UNLESS INDICATED OTHERWISE ELSEWHERE.
5. BLINDING CONCRETE SHALL BE CLASS C12/15 TO E.N. 206-1. BLINDING SHALL BE A MINIMUM THICKNESS OF 100mm.
6. FOUNDATION CONCRETE SHALL BE CLASS C16/20 Dmax=20mm TO E.N. 206-1. FOUNDATIONS SHALL BE A MINIMUM THICKNESS OF 225mm.
7. COVER SLABS AND REDUCING SLABS TO BE CONSTRUCTED TO I.S. E.N. 1917 AND I.S. 420 2004
8. MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK CONCRETE CLASS C16/20 Dmax=40mm TO E.N. 206-1
9. BENCHING AND PIPE CHANNEL PIPE SURROUND - CONCRETE CLASS C16/20 Dmax=20mm TO E.N. 206-1.
10. BENCHING FINISHED IN MINIMUM 25mm THICK 2:1 SAND:CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
11. 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CLASS B TO I.S.91:1983 SET IN 3:1 SAND: CEMENT MORTAR.
12. MANHOLE COVERS AND FRAMES TO BE CLASS D400 OR E600 TO I.S. E.N. 124. 150mm DEEP FRAME FOR ROADS AND 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), COVER AND FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL, COVER TO HAVE A MINIMUM MASS OF 140kg/m^2, FRAME BEARING AREA SHALL BE 80,000mm^2 MINIMUM, FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURES INSTRUCTIONS.
13. MANHOLE COVERS, FRAMES, REGULATING COURSES AND SLAB OPES TO PROVIDE CLEAR OPENING OF 600mmX600mm (OR 600mm DIAMETER). WHERE DEPTH OF COVER TO CROWN OF PIPE IS LESS THAN 2.0m, CLEAR OPENING TO BE 900mmX900mm (OR 900mm DIAMETER).
14. SAFETY CHAINS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON-CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2 OR EQUIVALENT.
15. STANDARD RUNGS AT 300mm c/c VERTICALLY AND GALVANIZED TO THE LATEST VERSION OF B.S. 729 OR EQUIVALENT. NOTE: STEPS IRONS ARE NOT ACCEPTABLE.
16. LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
17. DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm.
18. ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC SHALL BE HOT DIP GALVANIZED TO B.S.729 OR EQUIVALENT.
19. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS / ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
20. SHORT LENGTH PIPE AND PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
21. BLOCK WORK SHALL BE BEDDED AND JOINTED USING MORTAR TO I.S. 406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
22. RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
23. ALL MANHOLES TO BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.

TABLE NO. 2	
DIA. OF PIPE (mm)	LENGTH OF ROCKER PIPE (mm)
150-600	600
675-750	1000
>750	1250

TABLE NO.3	
Diameter of Incoming Pipe (mm)	Diameter of Backdrop Pipe (mm)
100	100
150	150
225	300
300	375
375	375
450	450
525	450
600	450
750	600

ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN. CLASS A OR B), OR IN-SITU CONCRETE FOR 1 METRE ABOVE BENCHING LEVEL. BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DESIGN TEAM DRAWINGS AND SPECIFICATIONS.
- FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS. DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
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Rev No.	Date	Revision Note	Drn by	Chkd by
P01	16.01.25	SUITABLE FOR INFORMATION	RC	IC
P02	03.11.26	SUITABLE FOR STAGE APPROVAL - TENDER	MC	IC

Rev No.	Date	Revision Note	Drn by	Chkd by

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Client: TIPPERARY COUNTY COUNCIL
Project: TIPPERARY COURTHOUSE

Title: DRAINAGE DETAILS

Code	Originator	Zone	Level	Type	Role	Number	Status	Revision
O708	OCSC	ZZ	ZZ	ZZ	S	0510	S4	P02

Date:JAN'25 Scale @ A1:AS NOTED Drn by:RC Chkd by:IC Aprvd by:PH