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- DRAWING BASED ON:
 - HAWKINS BROWN GA DRAWING 'BEMP-HBA-P1-B2-DR-A-20_0100'
 - HAWKINS BROWN DRAWING 'BEMP-HBA-ZZ-XX-M3-A-00-0001-Floor Plan-Level B2'
 - HAWKINS BROWN DRAWING 'BEMP-HBA-AW-ZZ-M3-A-00-0001-Floor Plan-E_AW_LG'
 - PLINCKE DRAWING BEMP-PLI-SW-ZZ-DR-L-0017.

KEY:

- SITE BOUNDARY
- PLANNING BOUNDARY
- SPOT LEVELS
- PROPOSED FALL

P02	UPDATED PLANNING ISSUE	30.11 2020	MES AL	PC
P01	PLANNING ISSUE	05.07 2019	MES AL	PC
Rev	Description	Date	By Chk	App

PLANNING

256 GRAYS INN ROAD

RAMBOLL

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FLOOD ROUTING
PLAN

Project No:	Scale (@A1):	Drawn:	Date:
1620004664	1:250	MH	JULY 2019
Drawing No:	Rev:		
BEMP-RAM-SW-00-DR-C-51-0101	P02		

THESE NOTES ARE BASED ON THE USE OF EXPERIENCED AND COMPETENT CONTRACTORS CARRYING OUT THE WORK USING AN APPROVED SAFE METHOD OF WORKING

- KEY TO HEALTH AND SAFETY SYMBOLS
- INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION
 - INDICATES A RESIDUAL RISK FOR INFORMATION
 - INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION
 - INDICATES A RESIDUAL RISK AS A WARNING

- HYDRAULIC MODELING RESULTS SHOW NO FLOODING FOR 1:100 YEAR STORM EVENT PLUS 40% CLIMATE CHANGE
- LEVELS GRADED TO ENSURE ANY FLOODING IS ROUTED AWAY FROM THE BUILDINGS
- LEVELS GRADED TOWARDS PROPOSED CHANNEL DRAINS AND THRESHOLD DRAINS
- REFER TO LANDSCAPE ARCHITECT LEVEL PLAN DRAWING FOR FURTHER DETAILS

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- FOR DETAILS OF DEPTH, NUMBER OF BRANCHES AND PIPE SIZES REFER TO RAMBOLL DRAINAGE LAYOUTS AND MANHOLE SCHEDULE.
- COVER FRAMES TO BE EITHER BEDDED ON 2-4 COURSES AS NECESSARY OF CLASS B ENGINEERING BRICKS AND HAUNCHED IN CLASS 1 CEMENT 1:3.
- WHEN DEPTH FROM COVER LEVEL TO TOP OF BENCHING EXCEEDS 1000mm DOUBLE STEP IRONS TO BS 13101:2002 TO BE PROVIDED EXCEPT WITHIN RESTRICTED ACCESS POLYPROPYLENE INSPECTION CHAMBERS.
- BENCHING SHALL BE FORMED IN HIGH STRENGTH CONCRETE WITH TOPPING MAXIMUM 20mm THICK TROWELLED SMOOTH TO A GRADIENT OF 1:10, MINIMUM GRADIENT 1:30. BENCHING NOSE RADIUS TO BE 20mm.
- ALL PRECAST CONCRETE COMPONENTS SHALL BE IN ACCORDANCE WITH BS 5911 PART 1 AND INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- WHERE PRECAST CONCRETE MANHOLES ARE POSITIONED UNDER MAIN ROADS OR AREAS SUBJECT TO VEHICULAR MOVEMENT THEY ARE TO BE SURROUNDED IN A MINIMUM 225MM THICKNESS OF CONCRETE, STRUCTURAL ENGINEER TO CONFIRM TYPE.
- SINGLE SEAL MANHOLE COVER AND FRAMES ARE TO BE PROVIDED ON EXTERNAL FOUL AND SURFACE WATER DRAINAGE UNLESS NOTED OTHERWISE ON THE DRAWINGS, SCHEDULES OR SPECIFICATIONS. ALL INTERNAL FOUL MANHOLE COVERS TO BE DOUBLE SEALED AND BOLTED DOWN UNLESS NOTED OTHERWISE.
- ALL MANHOLE COVERS TO ALIGN WITH EXTERNAL PAVING FINISHES.
- HYDROPHILIC SEALANT TO BE PROVIDED AT EACH PIPE CONNECTIONS WITH INSPECTION CHAMBERS AND MANHOLES.
- INSTALLATION OF PROPRIETARY PRODUCTS ARE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- EXTERNAL COVER LEVELS, PAVEMENT FINISHES AND FLOOR FINISHES TO BE PROVIDED BY ARCHITECT.

P04	UPDATED PLANNING ISSUE	18.11 2020	MES AL	PC
P03	STAGE 4 ISSUE	23.08 2019	MES AL	PC
P02	PLANNING ISSUE	17.05 2019	MES AL	PC
P01	STAGE 3 ISSUE	15.03 2019	AL MM	PC
Rev	Description	Date	BY CHK	App

PLANNING

256 GRAYS INN ROAD



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SURFACE AND FOUL WATER DRAINAGE DETAILS SHEET 2

Project No:	Scale (@A1):	Drawn:	Date:
1620004664	NTS	JZ	MAR 2019
Drawing No:	Rev:		
BEMP-RAM-SW-XX-DR-C-50-0101	P04		

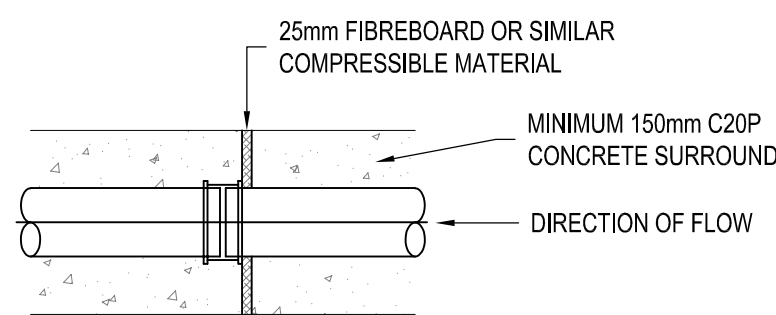
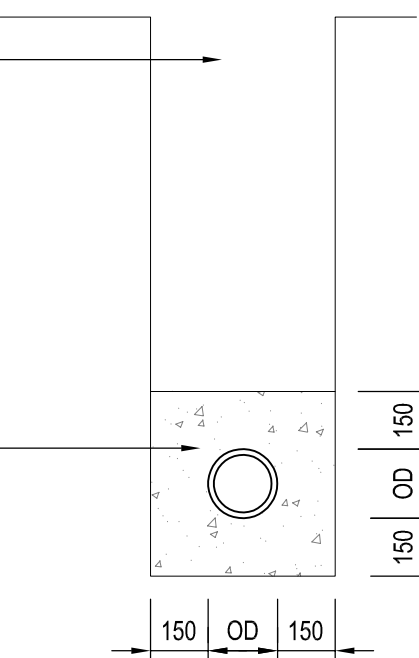
CLASS Z CONCRETE BED AND SURROUND

TRENCH BACKFILL:

- UNDER ROADS AND FOOTPATHS USE TYPE 1 GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO THE UNDERSIDE OF SURFACING CONSTRUCTION.
- ELSEWHERE USE SELECTED EXCAVATED MATERIALS COMPACTED IN 150mm LAYERS

CONCRETE BED AND SURROUND SHALL BE INTERRUPTED AT EACH PIPE JOINT USING 25mm THICK FIBRE BOARD TO THE FULL AREA OF THE CONCRETE - SEE DETAIL BELOW

USE CLASS Z CONCRETE BED AND SURROUND UNDER ALL FOUNDATIONS AND FLOOR SLABS, WHERE COVER TO CROWN OF PIPE IS LESS THAN 0.75m IN VEHICULAR ACCESS AREAS, AND WHERE PIPES ARE LAID WITHIN 1.0m OF FOUNDATIONS



CLASS S GRANULAR BED AND SURROUND

TRENCH BACKFILL:

- UNDER ROADS AND FOOTPATHS USE TYPE 1 GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO THE UNDERSIDE OF SURFACING CONSTRUCTION.
- ELSEWHERE USE SELECTED EXCAVATED MATERIALS COMPACTED IN 150mm LAYERS

FIRST 300mm OF BACKFILL ABOVE CROWN OF PIPE TO BE FREE FROM STONES EXCEEDING 40mm

MINIMUM 150mm BED AND SURROUND AS DETAILED IN TABLE BELOW

USE CLASS S BED AND SURROUND WHERE COVER TO PIPE IS BETWEEN 0.75m AND 1.2m IN VEHICULAR ACCESS AREAS AND LESS THAN 0.45m UNDER FOOTPATHS/PAVED AREAS

PIPE DIAMETER:	BEDDING MATERIAL:
1000	10mm SINGLE SIZE AGGREGATE
1010 - 1500	10mm OR 14mm SINGLE SIZE AGGREGATE
1510 - 5000	10mm, 14mm OR 20mm SINGLE SIZE AGGREGATE

NOTE: THE ABOVE MATERIALS ARE FOR GUIDANCE OTHER BEDDING MATERIALS CAN BE USED IN ACCORDANCE WITH THE PIPE MANUFACTURES RECOMMENDATIONS I.E. SINTERED PULVERISED FUEL ASH AND AIR COOLED BLAST FURNACE SLAGS

CLASS B GRANULAR BED AND SURROUND

TRENCH BACKFILL:

- UNDER ROADS AND FOOTPATHS USE TYPE 1 GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO THE UNDERSIDE OF SURFACING CONSTRUCTION.
- ELSEWHERE USE SELECTED EXCAVATED MATERIALS COMPACTED IN 150mm LAYERS.

FIRST 300mm OF BACKFILL ABOVE CROWN OF PIPE TO BE FREE FROM STONES EXCEEDING 40mm

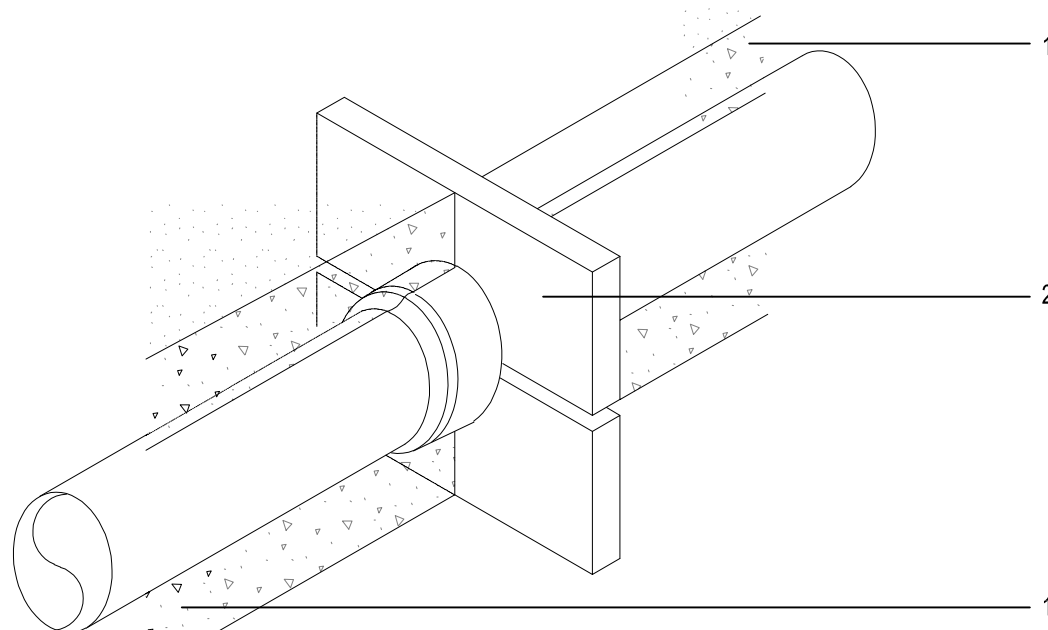
MINIMUM 150mm BED AND SURROUND AS DETAILED IN TABLE BELOW

CLASS B BED TO BE USED WHERE COVER TO CROWN OF PIPE IS GREATER THAN 1.2m IN VEHICULAR ACCESS AREAS AND 0.45m IN FOOTPATHS/PAVED AREAS

PIPE DIAMETER:	BEDDING MATERIAL:
1000	10mm SINGLE SIZE AGGREGATE
1010 - 1500	10mm OR 14mm SINGLE SIZE AGGREGATE
1510 - 5000	10mm, 14mm OR 20mm SINGLE SIZE AGGREGATE
5010 AND ABOVE	10mm, 14mm, 20mm OR 40mm SINGLE SIZE CRUSHED ROCK

NOTE: THE ABOVE MATERIALS ARE FOR GUIDANCE OTHER BEDDING MATERIALS CAN BE USED IN ACCORDANCE WITH THE PIPE MANUFACTURES RECOMMENDATIONS I.E. SINTERED PULVERISED FUEL ASH AND AIR COOLED BLAST FURNACE SLAGS

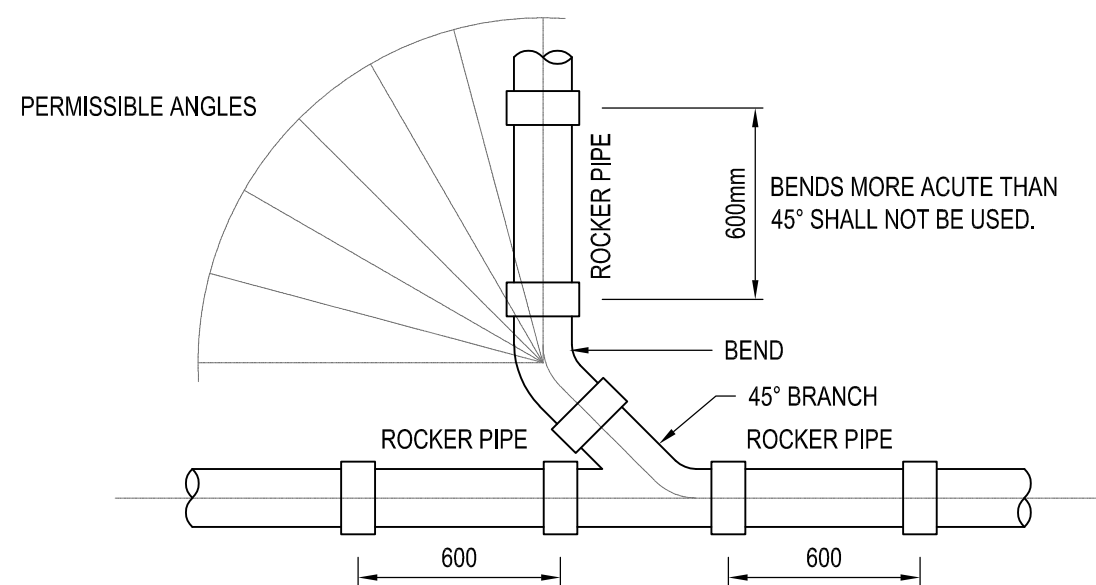
DRAIN WITH CONCRETE SURROUND



DESCRIPTION:

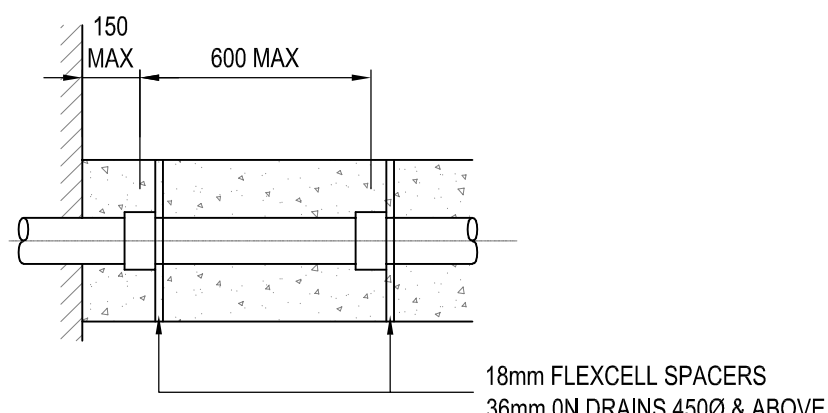
- 150mm MINIMUM THICK CONCRETE SURROUND.
- COMPRESSIBLE MATERIAL EITHER FIBRE BOARD OR POLYSTYRENE 18mm MINIMUM THICKNESS

OBLIQUE JUNCTION ARRANGEMENT

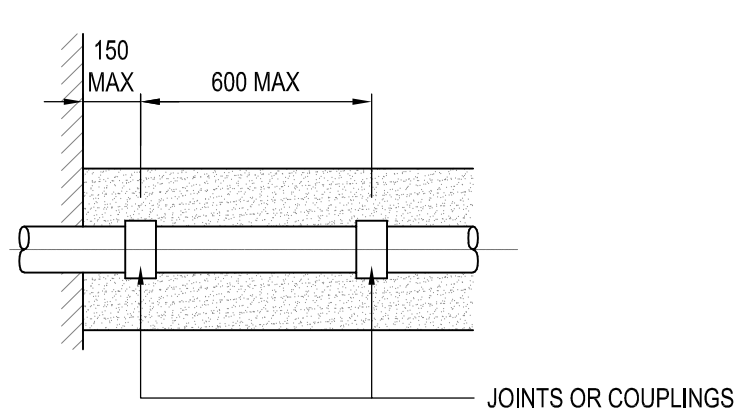


ROCKER PIPE ASSEMBLY

THESE DETAILS APPLY TO ALL DRAINS AT FIXED POINTS I.E. AT FACE OF STRUCTURE, CHAMBERS ETC.

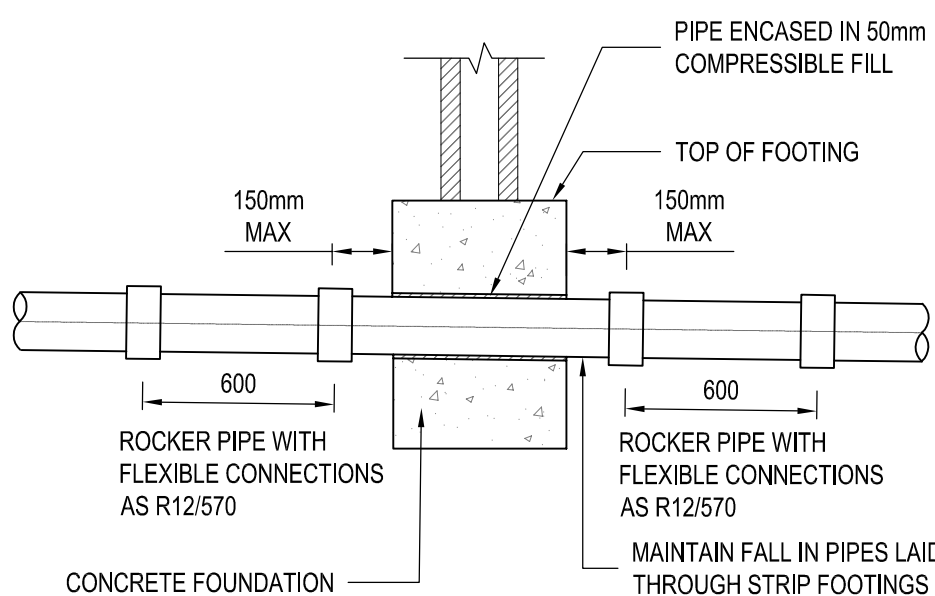


DETAIL 2
DRAIN WITH CONCRETE SURROUND

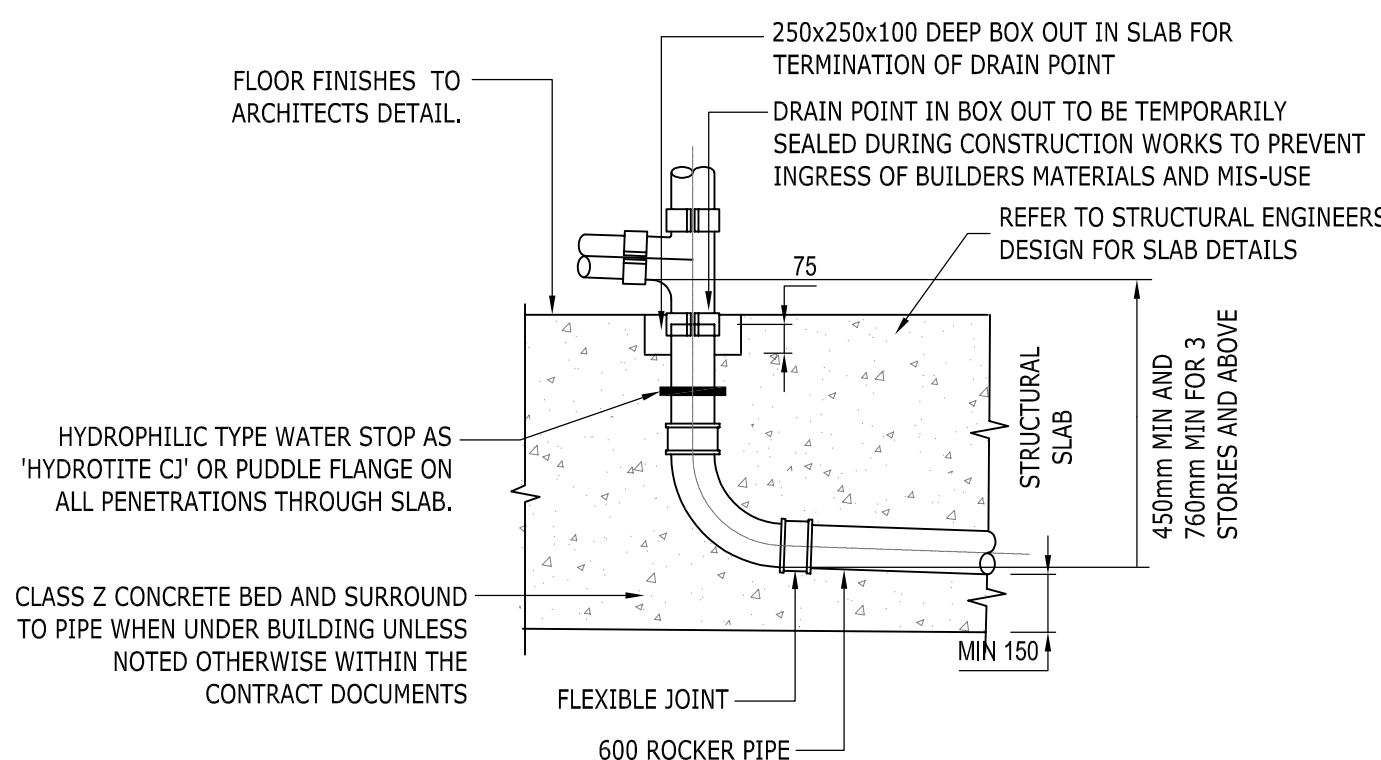


DETAIL 1
DRAIN WITH GRANULAR SURROUND

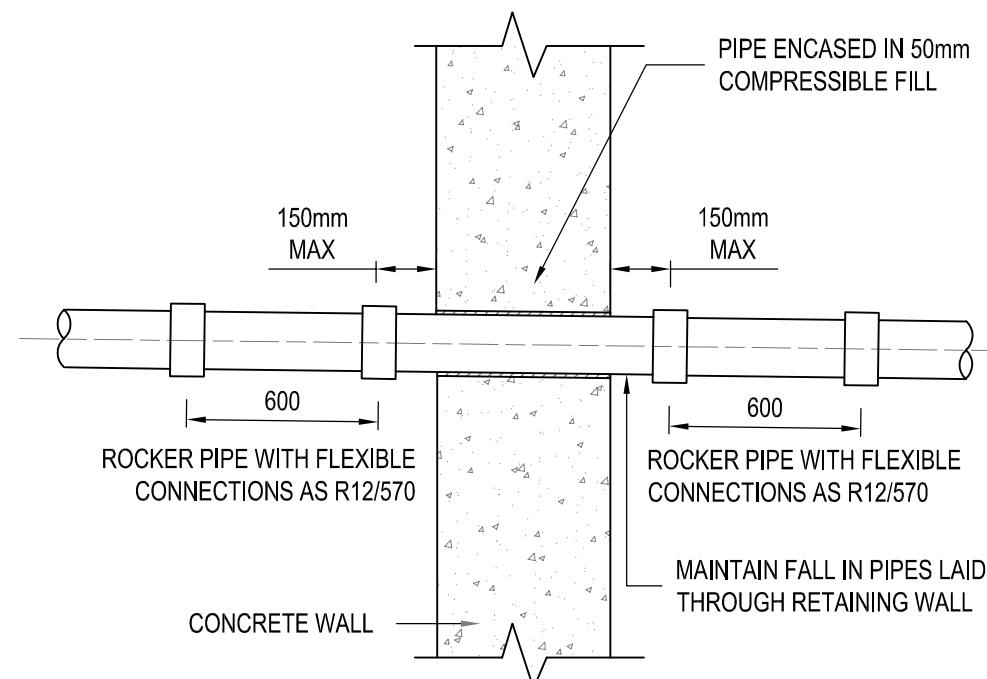
TYPICAL DRAIN/STRIP FOOTING PENETRATION



TYPICAL DRAIN POINT DETAIL

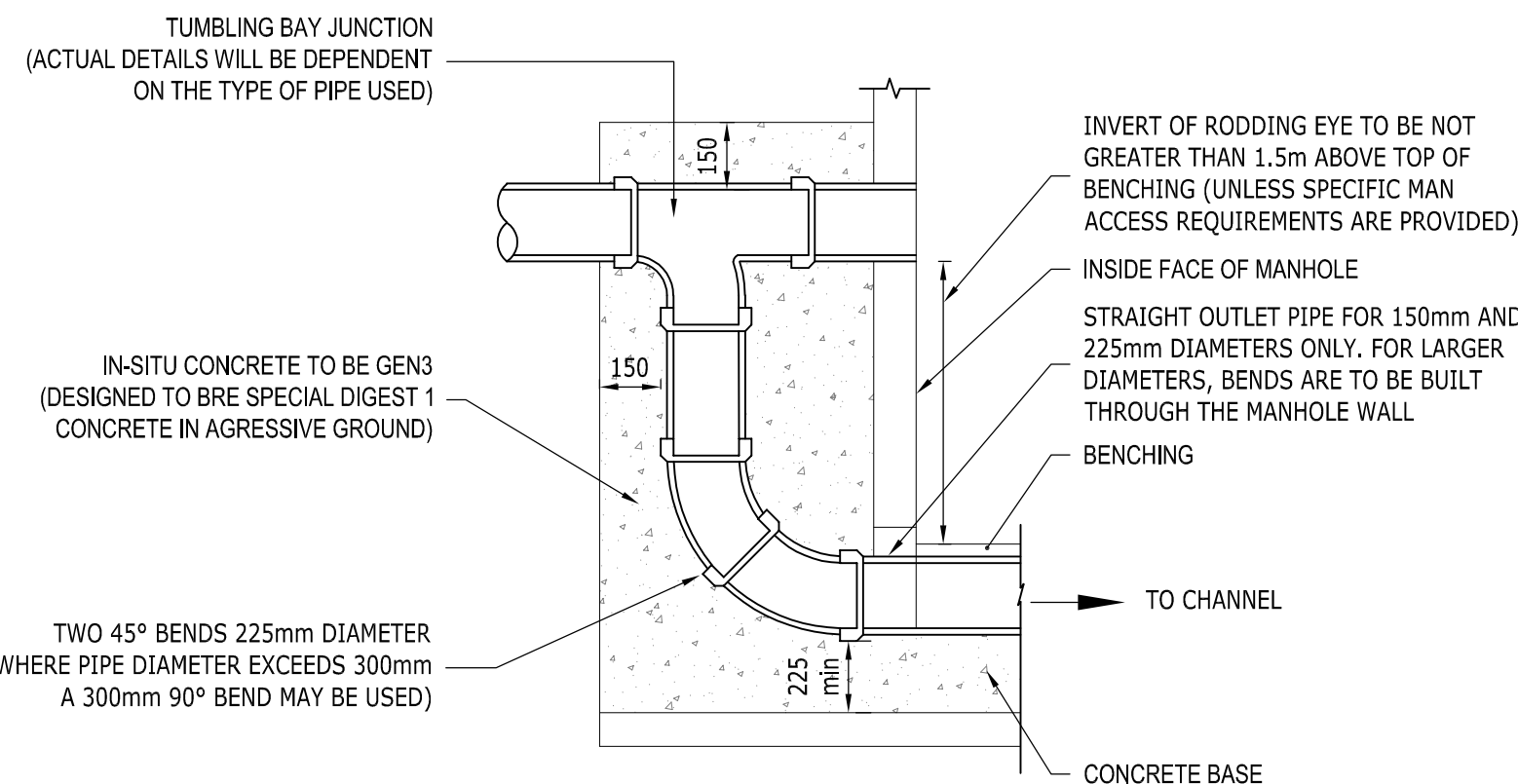


PIPE PENETRATION THROUGH A CONCRETE WALL

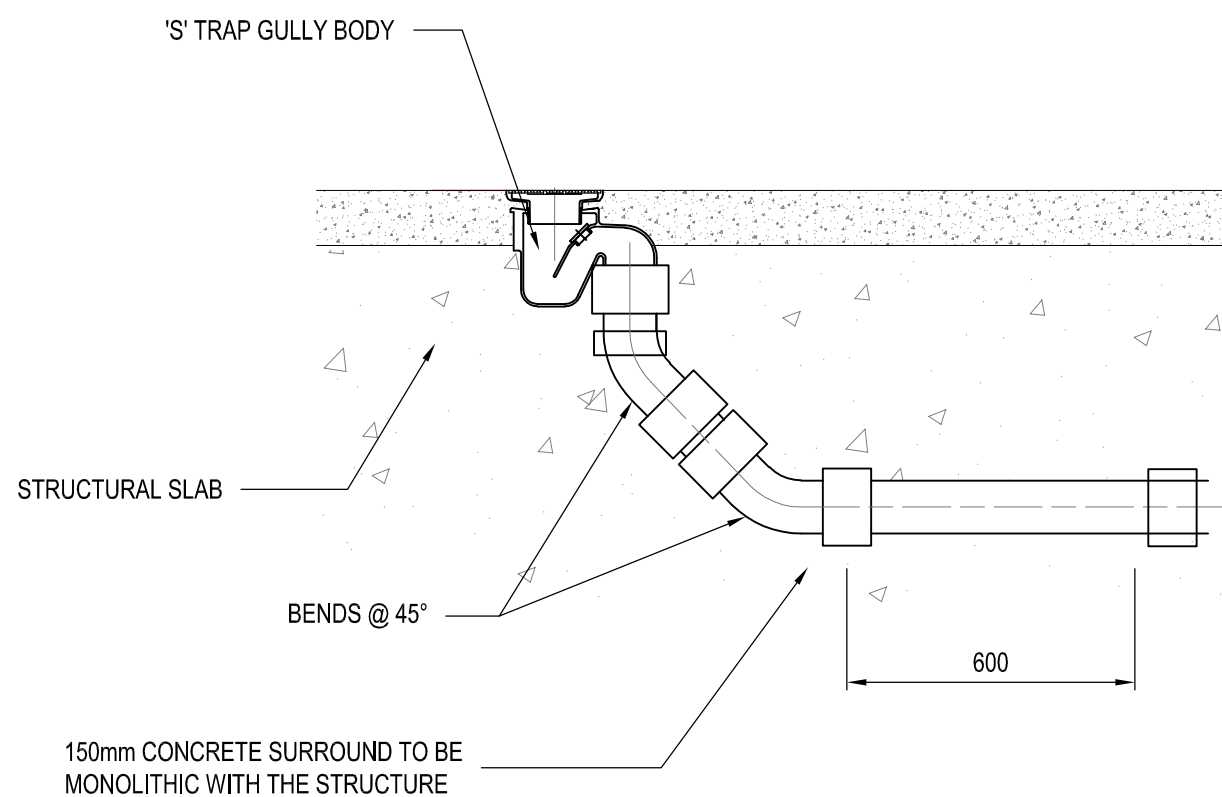


BACKDROP DETAIL

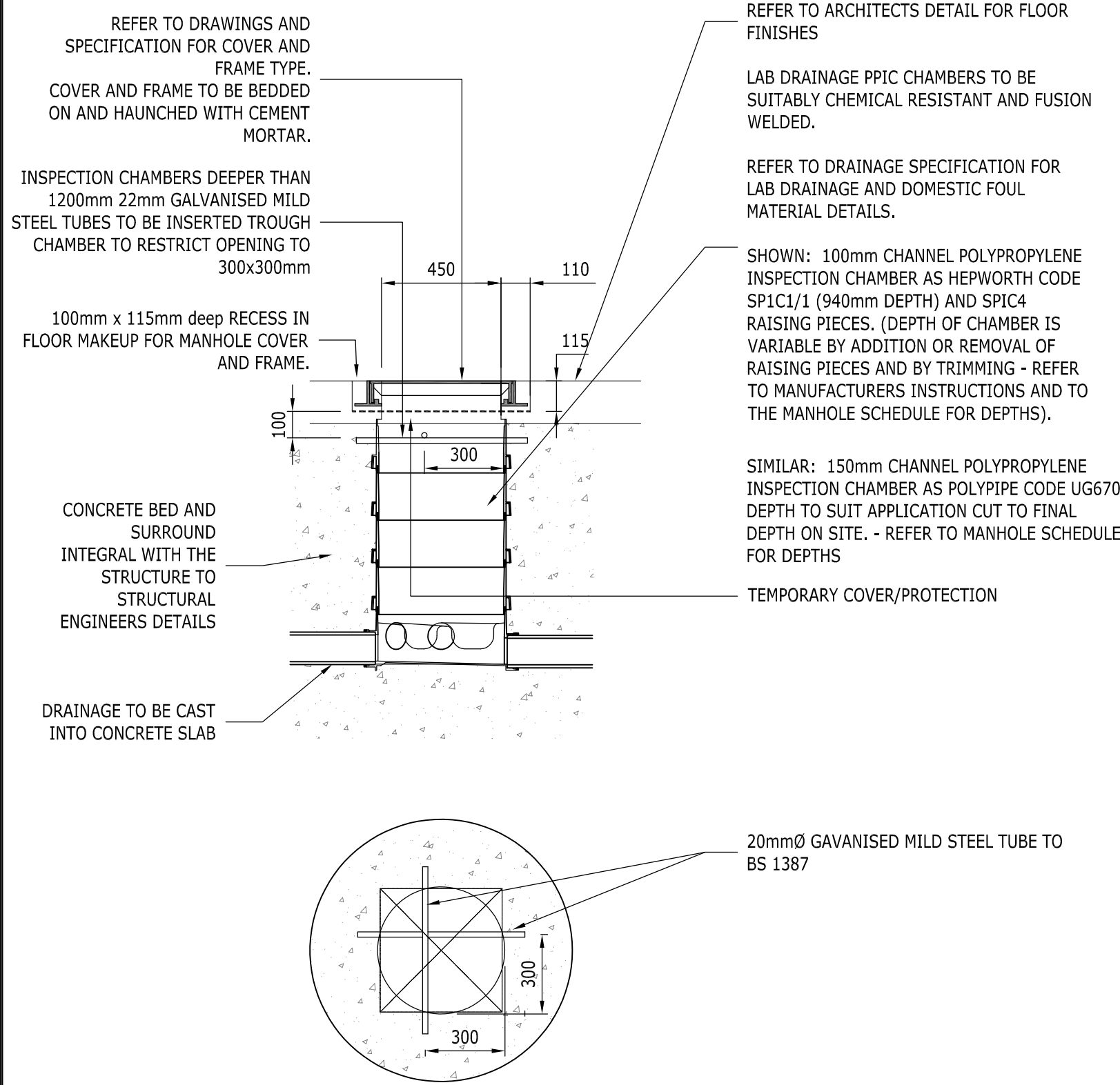
EXTERNAL VERTICAL BACKDROP



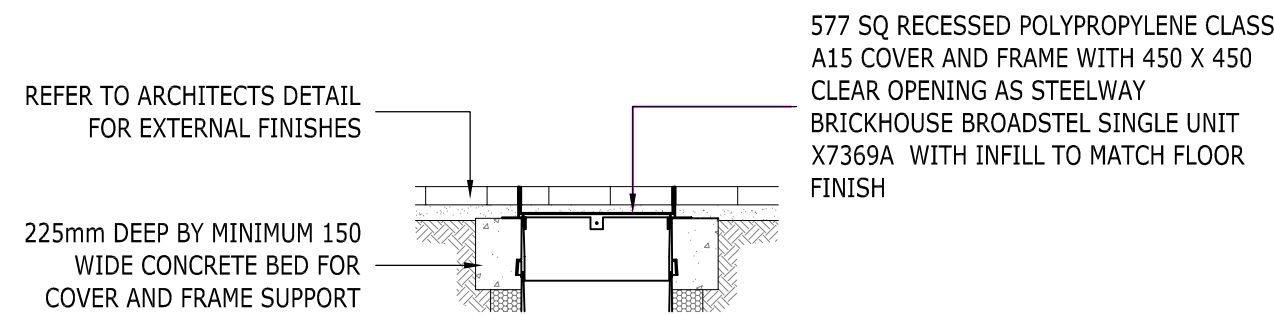
PLANT/SERVICE AREA TRAPPED FLOOR GULLY CAST INTO SLAB / PILE CAP



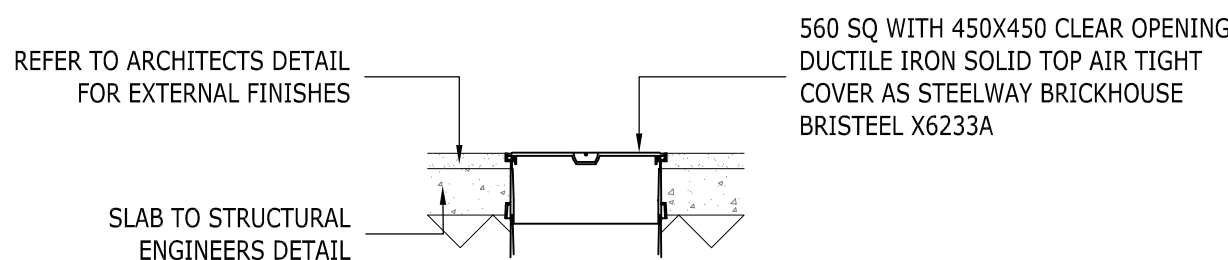
POLYPROYLENE INSPECTION CHAMBERS INTERNAL LOCATION



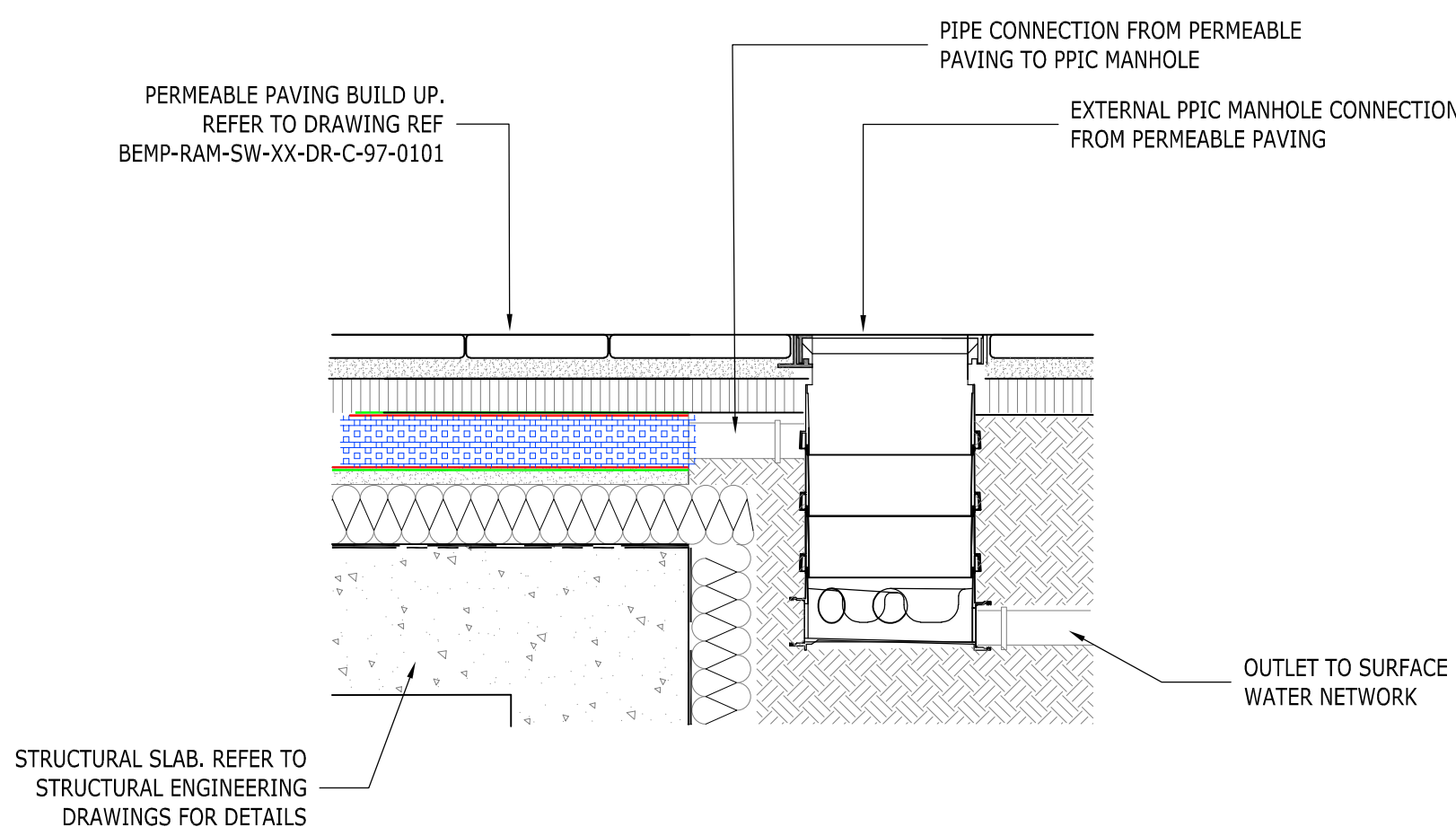
POLYPROPYLENE INSPECTION CHAMBERS COVER OPTION DETAILS



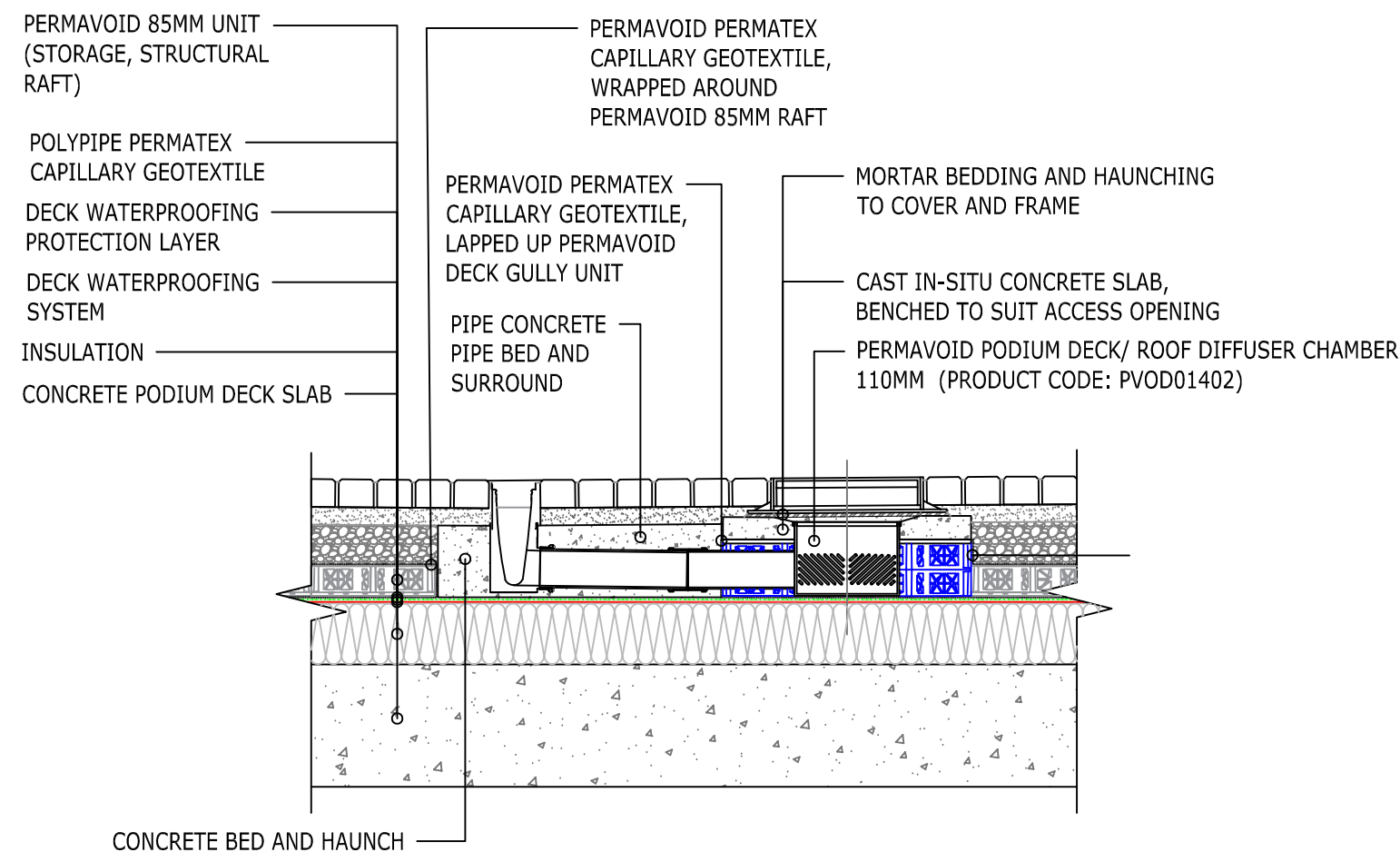
INTERNAL WITH RECESSED COVER



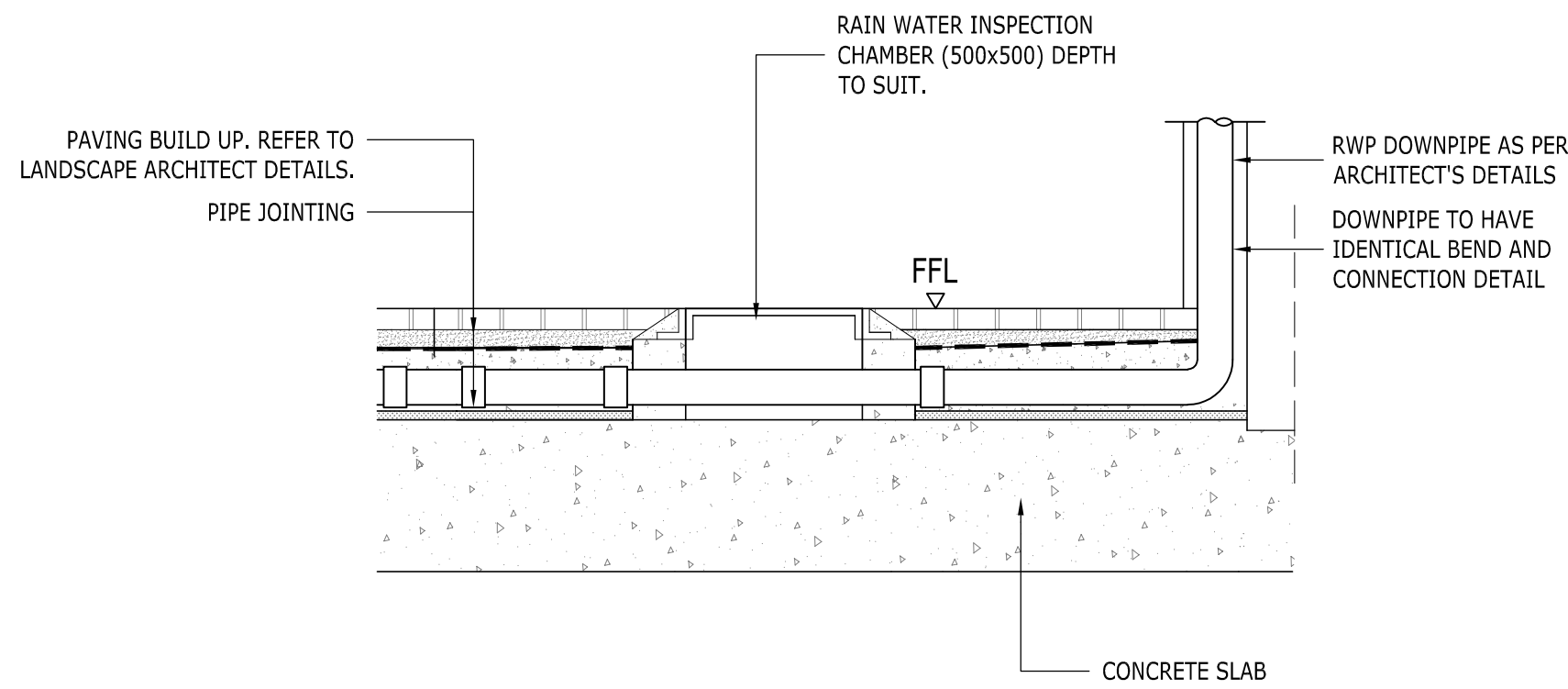
INTERNAL AIR TIGHT COVER



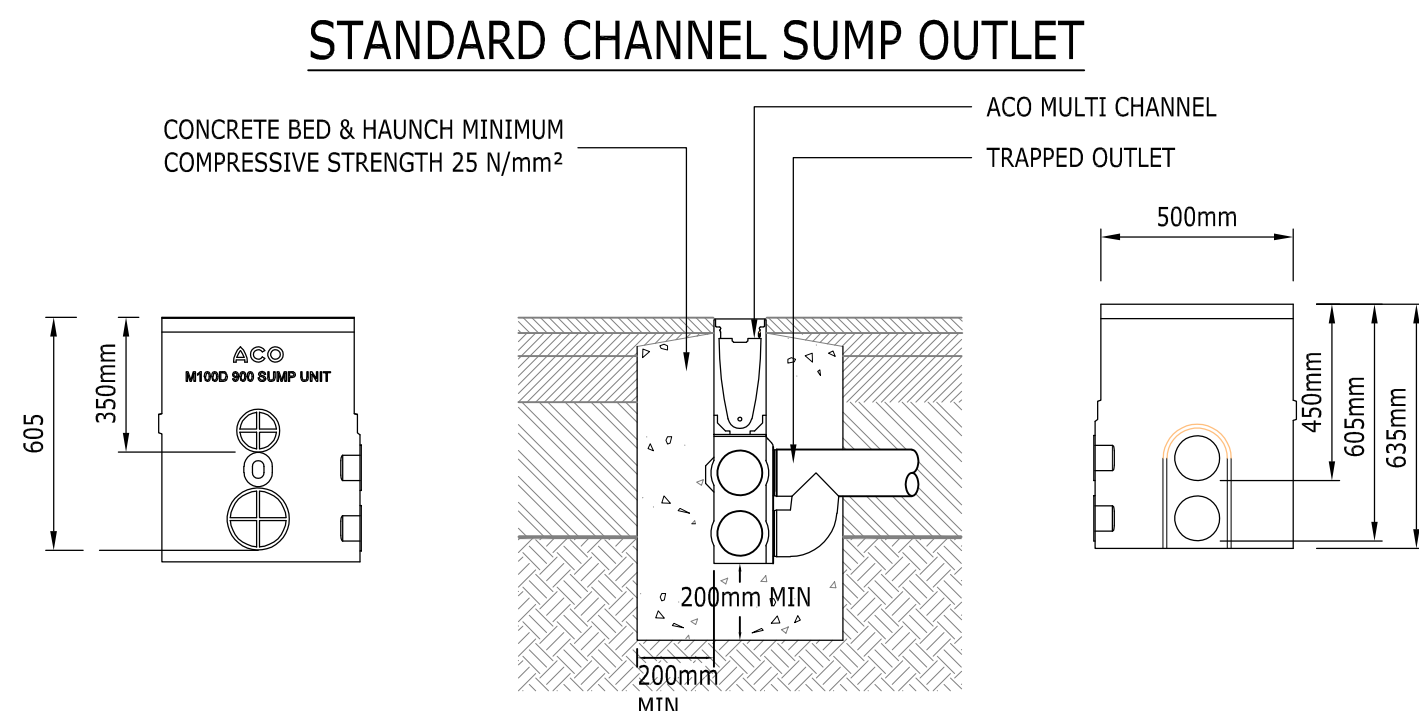
OUTFALL FROM PERMEABLE PAVING



TYPICAL PERMAVOID 85mm PODIUM DECK/ ROOF DIFFUSER CHAMBER - SLOT CHANNEL

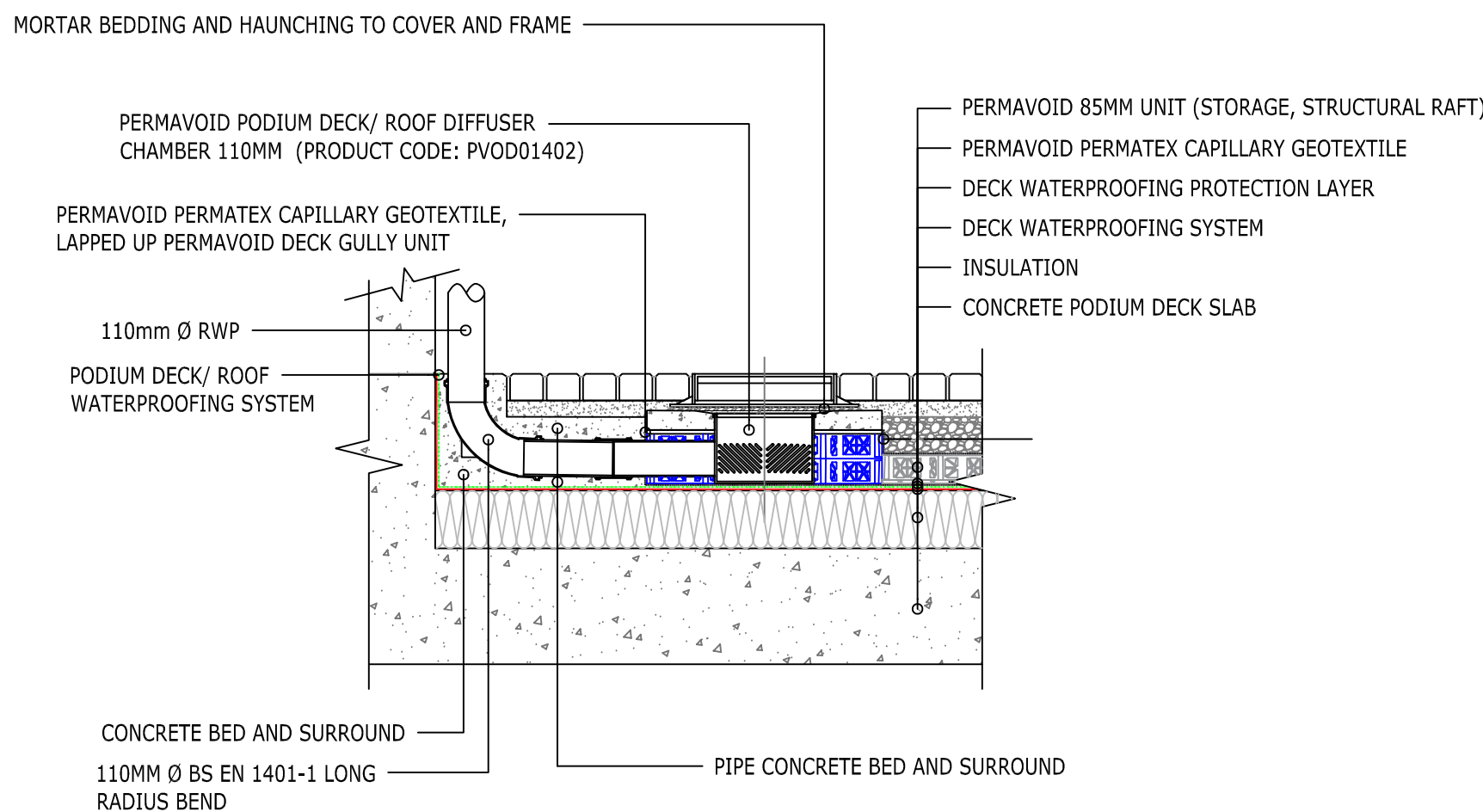
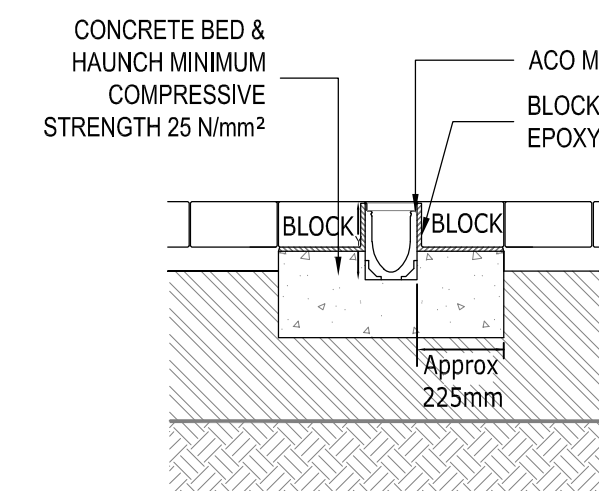


PODIUM INSPECTION CHAMBER



STANDARD CHANNEL SUMP OUTLET

BLOCK PAVEMENT M100D CHANNEL



TYPICAL PERMAVOID 85mm PODIUM DECK/ ROOF DIFFUSER CHAMBER - 110mm Ø RWP

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P03	UPDATED PLANNING ISSUE	18.11 2020	MS AL	PC
P02	STAGE 4 UPDATE	10.01 2020	AL MM	PC
P01	STAGE 4 ISSUE	23.08 2019	AL MM	PC
Rev	Description	Date	BY	App

PLANNING

256 GRAYS INN ROAD

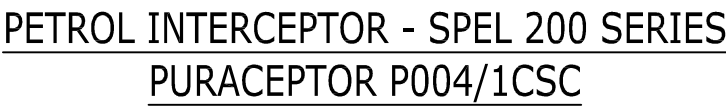


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SURFACE AND FOUL WATER DRAINAGE DETAILS SHEET 3

Project No:	Scale (8A1):	Drawn:	Date:
1620004664	NTS	AL	AUG 2019
Drawing No:	Rev:		
BEMP-RAM-SW-XX-DR-C-50-0102	P03		

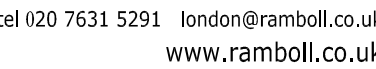
1. DO NOT SCALE FROM THIS DRAWING.
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5. FOR DETAILS OF DEPTH,NUMBER OF BRANCHES AND PIPE SIZES REFER TO RAMBOLL DRAINAGE LAYOUTS AND MANHOLE SCHEDULE.
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7. WHEN DEPTH FROM COVER LEVEL TO TOP OF BENCHING EXCEEDS 1000mm DOUBLE STEP IRONS TO BS 13101:2002 TO BE PROVIDED EXCEPT WITHIN RESTRICTED ACCESS POLYPROPYLENE INSPECTION CHAMBERS.
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9. ALL PRECAST CONCRETE COMPONENTS SHALL BE IN ACCORDANCE WITH BS 5911 PART 1 AND INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
5. WHERE PRECAST CONCRETE MANHOLES ARE POSITIONED UNDER MAIN ROADS OR AREAS SUBJECT TO VEHICULAR MOVEMENT THEY ARE TO BE SURROUNDED IN A MINIMUM 225MM THICKNESS OF CONCRETE, STRUCTURAL ENGINEER TO CONFIRM TYPE.
1. SINGLE SEAL MANHOLE COVER AND FRAMES ARE TO BE PROVIDED ON EXTERNAL FOUL AND SURFACE WATER DRAINAGE UNLESS NOTED OTHERWISE ON THE DRAWINGS,SCHEDULES OR SPECIFICATIONS. ALL INTERNAL FOUL MANHOLE COVERS TO BE DOUBLE SEALED AND BOLTED DOWN UNLESS NOTED OTHERWISE.
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9. HYDROPHILIC SEALANT TO BE PROVIDED AT EACH PIPE CONNECTIONS WITH INSPECTION CHAMBERS AND MANHOLES.
0. INSTALLATION OF PROPRIETARY PRODUCTS ARE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
1. EXTERNAL COVER LEVELS,PAVEMENT FINISHES AND FLOOR FINISHES TO BE PROVIDED BY ARCHITECT.
2. ATTENUATION TANK SETTING OUT POINTS TO BE PROVIDED AT A NEXT DESIGN STAGE.



01	UPDATED PLANNING ISSUE	15.03 2019	MES AL	PC
ev	Description	Date	By Chk	App

PLANNING

256 GRAYS INN ROAD



SURFACE AND FOUL WATER
DRAINAGE DETAILS
SHEET 4

Project No: 1620004664	Scale (@A1): 1:25	Drawn: MES	Date: NOV 20
Drawing No: BEMP-RAM-SW-XX-DR-C-50-0103			Rev: P01