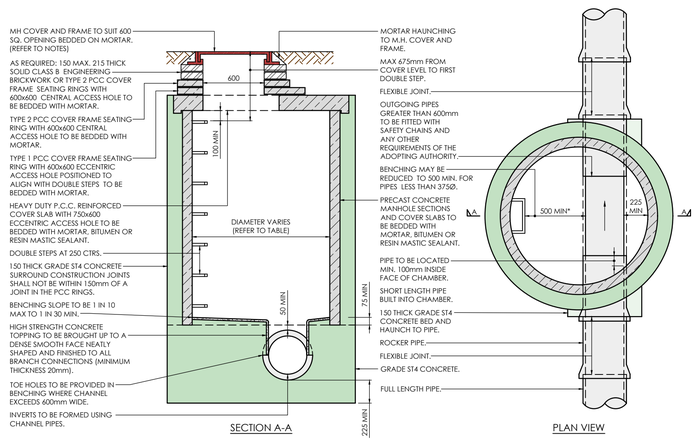


SECTION A-A

PLAN VIEW

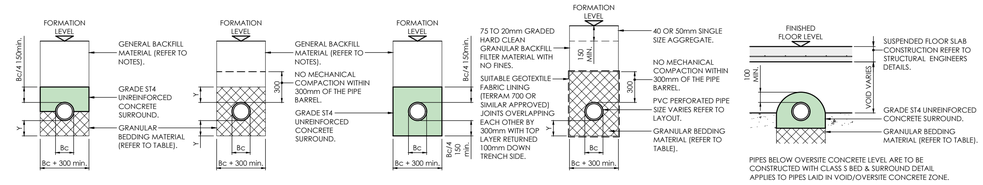
SHORT AND ROCKER PIPE LENGTHS APPLICABLE TO ALL MANHOLE TYPES	
NOMINAL SIZE	EFFECTIVE LENGTH
150mm - 600mm	600mm
675mm - 750mm	1000mm
825mm AND ABOVE	1250mm

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

REFER TO STRUCTURAL ENGINEERS DRAWING FOR DETAILS OF MANHOLE COVER LOCATED IN THE GROUND FLOOR SLABS A RECESSED COVERS SHOULD BE USED TO ACCEPT THE ARCHITECTS REQUIRED FINISHES.

TABLE APPLICABLE TO MANHOLE TYPES A & B (CHAMBER SIZES ARE MINIMUM REQUIRED. SEE LAYOUT FOR VARIATIONS, IF ANY)	
DIA. OF LARGEST PIPE IN MH	CHAMBER SECTION INT. DIA.
LESS THAN 375mm	1200mm
375mm - 450mm	1500mm
500mm - 700mm	1500mm
750mm - 900mm	1800mm
1000mm	2100mm

TYPICAL MANHOLE DETAIL:
TYPE 'B' DEPTH TO SOFFIT OF PIPE 1.45 TO 3.00m



CLASS A BEDDING DETAIL (REFER TO NOTES)

CLASS S BEDDING DETAIL (REFER TO NOTES)

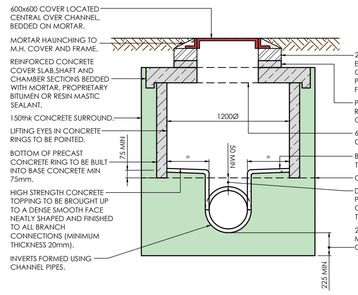
CLASS Z BEDDING DETAIL (REFER TO NOTES)

FILTER DRAIN DETAIL (REFER TO NOTES)

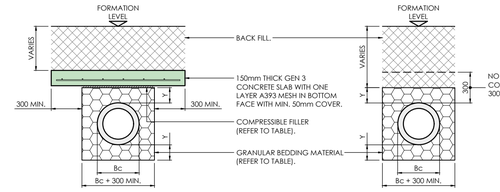
PIPES BELOW OVERSITE CONCRETE LEVEL ARE TO BE CONSTRUCTED WITH CLASS S BED & SURROUND DETAIL. APPLIES TO PIPES LAID IN VOID/OVERSITE CONCRETE ZONE.

CLASS Zx BEDDING DETAIL (REFER TO NOTES)

RIGID PIPE TRENCH BEDDING DETAILS
(NOT TO SCALE)

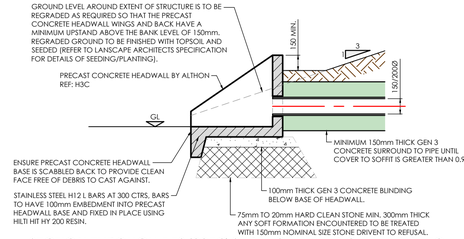


TYPICAL MANHOLE DETAIL:
TYPE 'E' DEPTH TO SOFFIT OF PIPE 1.05 TO 1.50m
(FOR PIPES UP TO AND INCLUDING 375Ø)



TYPICAL PROTECTION DETAIL FOR PIPES LAID AT SHALLOW DEPTHS
SCALE 1:20

CLASS S BEDDING DETAIL
SCALE 1:20



SECTION THROUGH 150/225Ø SURFACE WATER OUTLET PIPE TO HIGHWAY DRAINAGE DITCH
SCALE 1:20

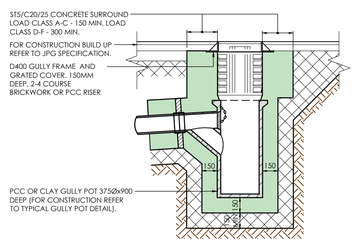
GRANULAR BEDDING MATERIAL (ALL AGGREGATES TO TABLE 4 OF BS 882 : 1983)		
NOMINAL PIPE DIA.	SINGLE SIZED	GRADE
150mm	10mm OR 14mm	14mm - 5mm
200mm - 300mm	10mm, 14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
375mm - 525mm	14mm OR 20mm	14mm - 5mm OR 20mm - 5mm
GREATER THAN 525	14mm, 12mm OR 40mm	14mm - 5mm, 20mm - 5mm OR 40mm - 5mm

PIPE TRENCH BEDDING NOTES:

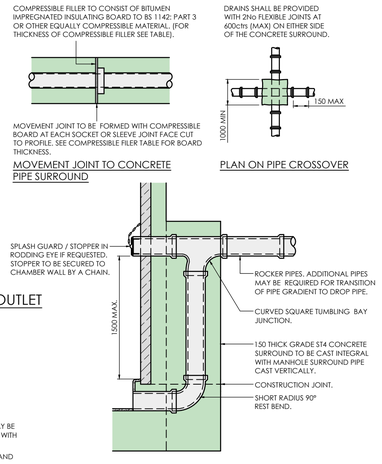
Bc = OUTSIDE DIAMETER OF PIPE BARREL.
Y = FOR UNIFORM SOILS: SLEEVE JOINTED PIPES, MIN. 50mm OR 1/6Bc, WHICHEVER IS THE GREATER. SOCKETED PIPE, MIN.100mm OR 1/6Bc, WHICHEVER IS THE GREATER UNDER BARRELS AND NOT LESS THAN 50mm UNDER SOCKETS.

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.

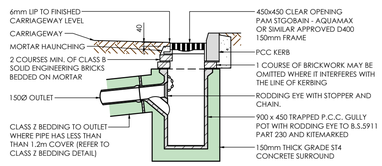
COMPRESSIBLE FILLER TABLE (BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142: PART 3)	
NOMINAL PIPE DIA.	THICKNESS OF COMPRESSIBLE FILLER
LESS THAN 450mm	18mm
450mm - 1200mm	36mm
GREATER THAN 1200mm	54mm



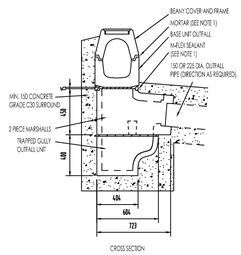
TYPICAL SECTION THROUGH DRAINAGE CHANNEL OUTLET
(ACO UNIVERSAL GULLY OUTLET)



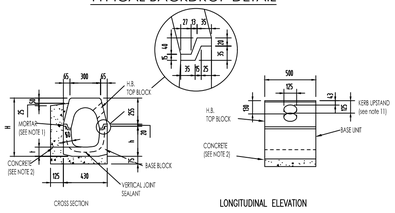
TYPICAL BACKDROP DETAIL



TYPICAL ROAD GULLY DETAIL

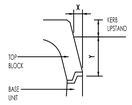


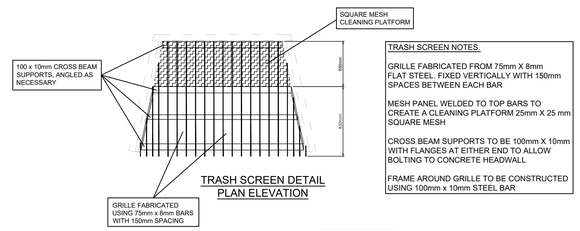
OUTFALL USING MARSHALLS GULLY OUTFALL



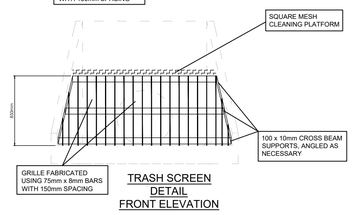
HALF BATTERED TOP WITH BASE 295

BASE UNIT	H	h	t	DEPTH: c/way CHANNEL TO INVERT (125 KERB UPSTAND)
BASE 205	480	205	70	285
BASE 295	570	295	90	355
BASE 365	640	365	90	425
BASE 630	905	630	75	705

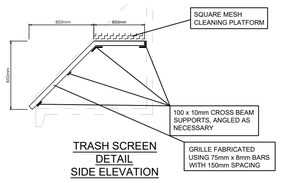




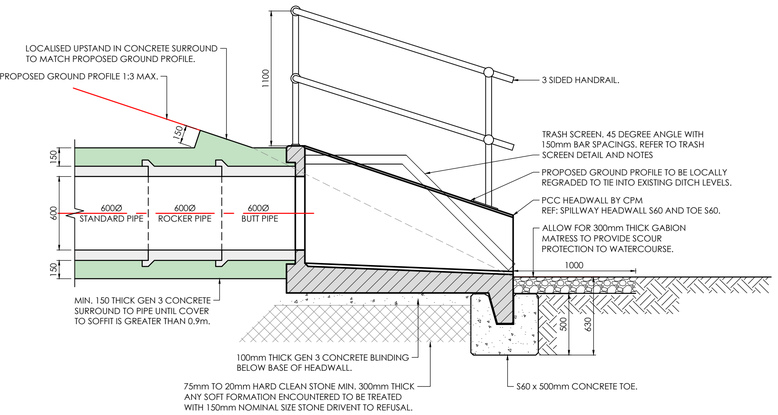
TRASH SCREEN DETAIL PLAN ELEVATION



TRASH SCREEN DETAIL FRONT ELEVATION



TRASH SCREEN DETAIL SIDE ELEVATION



SECTION THROUGH 600Ø SURFACE WATER OUTLET PIPE TO WATERCOURSE
SCALE 1:20

DRAINAGE NOTES

1. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS EN 752:2008 DRAINAGE AND SEWER SYSTEMS OUTSIDE BUILDINGS, THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS.
2. ANY DRAINAGE TO BE PUT FORWARD FOR ADOPTION EITHER WITHIN THE SITE OR OUTSIDE SHALL BE CONSTRUCTED TO SEWERS FOR ADOPTION LATEST EDITION AND ANY SPECIFIC REQUIREMENTS OF THE ADOPTING SEWERAGE/WATER AUTHORITY.
3. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE UTILITY COMPANIES.
5. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
6. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
7. ALL EXISTING DRAINAGE LOCATIONS AND LEVELS ARE TO BE CONFIRMED BY THE CONTRACTOR AND THE ENGINEER NOTIFIED BEFORE ANY DRAIN RUNS ARE CONSTRUCTED.
8. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD ANY EXISTING LIVE DRAINAGE BE FOUND WITHIN THE SITE BOUNDARY SERVING ADJACENT PROPERTIES.
9. ALL EXISTING DRAINAGE WITHIN THE SITE NOT REQUIRED FOR THE NEW DEVELOPMENT SHALL BE ABANDONED. DRAINS AND SEWER LESS THAN 1.500m DEEP WHICH ARE IN OPEN GROUND SHOULD AS FAR AS IS PRACTICABLE BE FULLY REMOVED ALL OTHER PIPES SHOULD BE SEALED AT BOTH ENDS AND AT ANY POINT OF CONNECTION, AND BE GROUT FILLED TO ENSURE THAT RATS CANNOT GAIN ACCESS. LARGER PIPES 225Ø OR ABOVE SHOULD BE GROUT FILLED TO PREVENT SUBSIDENCE OR DAMAGE TO BUILDINGS OR SERVICES IN THE EVENT OF COLLAPSE.
10. ALL MANHOLE/CHAMBER COVER LEVELS ARE APPROXIMATE AND SHALL BE ADJUSTED ON SITE TO SUIT THE PROPOSED FINISHED LEVELS.
11. ALL PIPE CONNECTION FROM DRAINAGE CHANNELS AND GULLIES SHALL BE 150Ø PIPES AT A MINIMUM GRADIENT OF 1:100 WITH CLASS Z BEDDING UNO. ON THE DRAWING.
12. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS AND MACHINERY.
13. THE CONTRACTOR SHALL ALLOW FOR OBTAINING ALL APPROVALS FROM THE RELEVANT AUTHORITIES WHEN WORKING IN THE PUBLIC HIGHWAY AND ON THE SEWERAGE SYSTEM.
14. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM WORKING AREAS.
15. ALL PIPES SHALL BE LAID WITH LEVEL SOFFITS AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUT GOING PIPE (UNLESS OTHERWISE INDICATED IN THE DRAWING). PIPE RUNS SHALL BE LAID TO THE INVERT LEVELS AS DETAILED ON THE CONTRACT DRAWINGS. (NOTE THAT ALL PIPE GRADIENTS INDICATED ON THE DRAWINGS ARE APPROXIMATE).
16. UPON COMPLETION OF THE DRAINAGE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAIN RUNS BY JETTING AND REMOVE ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE PUBLIC SEWER AND/OR WATERCOURSE SYSTEM. ONCE THE DRAINAGE SYSTEM HAS BEEN FULLY CLEANED OUT A CCTV CAMERA CONDITION SURVEY SHALL BE UNDERTAKEN TO ALL CONSTRUCTED DRAINAGE AND SEWER PIPES WITH THE FOOTAGE ISSUED TO THE ENGINEER FOR VIEW. THE AS BUILT INVERT AND COVER LEVELS SHALL BE RECORDED BY THE CONTRACTOR AND PASSED ON TO THE ENGINEER FOR REVIEW.
17. ALL ADOPTABLE SEWER WORKS AND MATERIAL TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 6TH EDITION, THE RELEVANT BRITISH/EUROPEAN AND BMBC STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
18. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
19. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF BMBC BEFORE ANY SEWER WORKS ARE CARRIED OUT.
20. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY BMBC INSPECTOR. 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 BMBC SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITEMARKED COVER SLAB OPENING SIZES.
21. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
22. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
23. "SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES (PLEASE ALSO REFER TO FIGURE 2.3 ON PAGE 33 IN "SEWERS FOR ADOPTION" 6TH EDITION FOR RESTRICTIONS ON TREE PLANTING ADJACENT TO SEWERS)".
24. 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 PROVIDE ABOVE GRANULAR BED AND SURROUND.
25. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENTOF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
26. 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.

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DO NOT SCALE
N O T E S

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP IS TO COMPLY WITH JPG CONSULTANTS STANDARD SPECIFICATION & ALL RELEVANT BRITISH & EUROPEAN STANDARDS.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, M & E CONSULTANTS AND JPG CONSULTANTS DRAWINGS.
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO COMMENCEMENT OF WORKS.

BEANY BLOCK NOTES

1. MORTARS SHALL BE:
   1.1. A MORTAR CLASS 12 CEMENT MORTAR TO BS EN 998-2 FOR BEDDING THE TOP BLOCKS
   1.2. MARSHALLS' M-FLEX FOR BEDDING BASE BLOCK OUTFALLS ONTO THE BEANY TRAPPED GULLY UNIT SECTIONS
2. CONCRETE BED, HAUNCH AND SURROUND SHALL BE:
   2.1. A MIX ST1 CONCRETE TO BS 8500-1&2 AND BS EN 206-1 FOR BASE BLOCKS USED WITHIN THE NORMAL KERB APPLICATION.
   2.2. A MIX ST4 CONCRETE TO BS 8500-1&2 AND BS EN 206-1 FOR BEANY TRAPPED GULLY, SILT TRAPS, CATCH PITS AND OUTFALL DETAILS.
3. MARSHALLS' VERTICAL JOINT SEALANT, M-SEAL, SHALL BE APPLIED TO ALL BASE BLOCKS.
4. BEANY BLOCK ACCESS COVERS AND FRAMES ARE HINGED AND HANDED TO THE DIRECTION OF THE TRAFFIC, SPECIFIED "NEARSIDE" AND "OFFSIDE".

REV	DESCRIPTION	DATE	BY
P04	P04 - TRASH SCREEN DETAIL AMENDED. PPIC PLASTIC MANHOLE REMOVED. GULLY COVER DETAIL AMENDED	24.05.20	RMR
P03	TRASH SCREEN DETAIL ADDED UN-REQUIRED DETAILS REMOVED. NOTES UPDATED.	20.05.20	RMR
P02	HEADWALL FOR GULLY OUTFALLS ADDED CONCRETE PROTECTION COVER SLAB DETAIL ADDED	15.05.20	RMR
P01	FIRST ISSUE.	12.03.20	LSG

Project
ROCKINGHAM 2&3
HOYLAND

Drawing Title
DRAINAGE STANDARD DETAILS

TENDER ISSUE

Architect
THE HARRIS PARTNERSHIP

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JPG Project Ref	Scale at A1	Date	Checked	Drawn
4652-2	1:30	12.03.20	GB	LSG

4652-2 - JPG - XX - 00 - DR - D - 1610 | S4 | P04