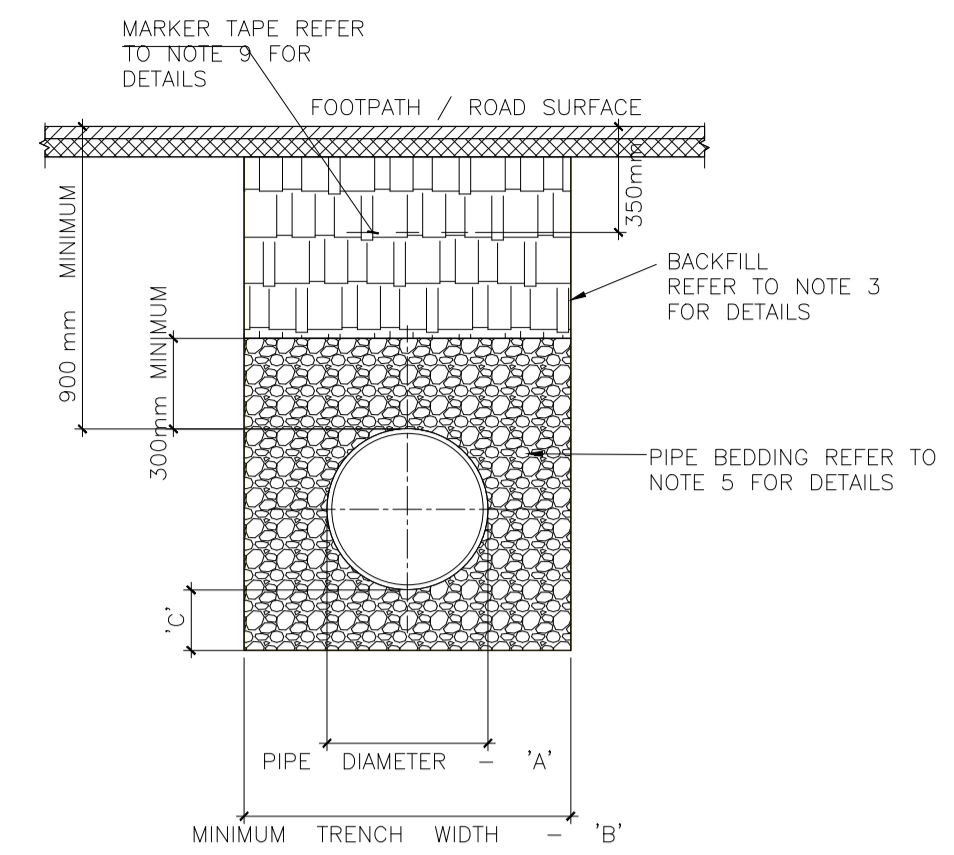


CROSS SECTION IN GRASSED AREAS



CROSS SECTION IN ROADWAYS

WATERMAIN BEDDING DETAILS

PIPE DIAMETER 'A' (mm)	TRENCH WIDTH 'B' (mm)
< 80	500
100	500
150	600
200	600
250	750
300	750
350	750
400	900
450	900

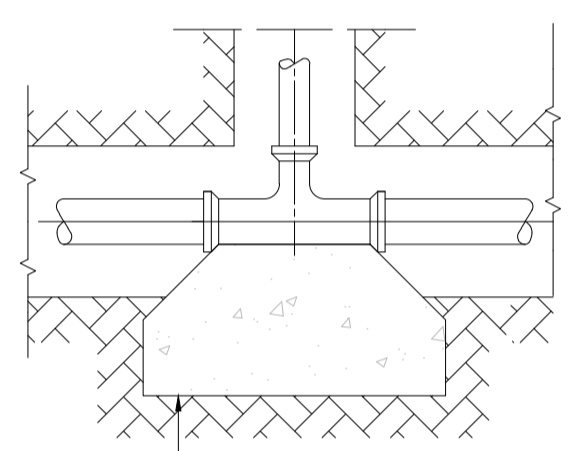
PIPE DIAMETER 'A' (mm)	DEPTH OF BEDDING 'C' (mm)
< 200	150
> 250	200

NO PART OF THIS DRAWING MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR STORED IN ANY RETRIEVAL SYSTEM OF ANY NATURE WITHOUT THE WRITTEN PERMISSION OF MALONE O'REGAN CONSULTING ENGINEERS AS COPYRIGHT HOLDER EXCEPT AS AGREED FOR USE ON THE PROJECT FOR WHICH THE DRAWING WAS ORIGINALLY ISSUED.

A. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS.
 B. ALL DIMENSIONS IN mm UNLESS NOTED.
 C. DO NOT SCALE DIMENSIONS.
 D. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. DISCREPANCIES SHALL BE REPORTED TO THIS OFFICE IN WRITING.

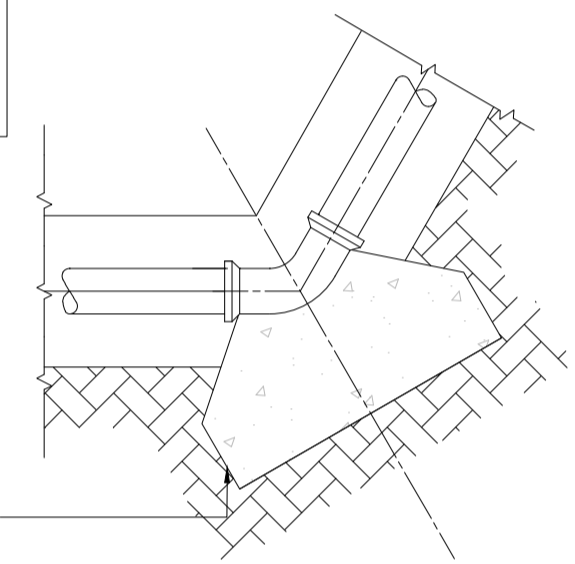
LOCAL AUTHORITY / COUNTY COUNCIL GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF HOUSING MANUAL TO TAKE PRECEDENCE WHERE ANY CONFLICT OCCURS.

- ALL DIMENSIONS IN MILLIMETRES (MM) UNLESS NOTED OTHERWISE.
- THE MINIMUM DEPTH OF COVER FROM THE FINISHED GROUND LEVEL TO THE EXTERNAL CROWN OF THE PIPE SHALL BE 750MM FOR SERVICE CONNECTIONS, 800MM FOR WATER MAINS. GREATER DEPTHS OF COVER AND/OR PIPE STRENGTH AND/OR A HIGHER CLASS OF BEDDING MATERIAL MAY BE REQUIRED WHERE HIGH TRAFFIC LOADING IS ANTICIPATED. THE MAXIMUM COVER SHOULD NOT EXCEED 1,200MM WHERE PRACTICABLE.
- CLAUSE 804 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE WATER MAIN IS LOCATED IN ROADS, FOOTPATHS OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1M OF THE PAVED EDGE OF THE ROADWAY. CLAUSE 804 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS.
- SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.
- PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGN 4-08-01 GRANULAR MATERIAL SHALL BE 14MM TO 5MM GRADED AGGREGATE OR 10MM SINGLE SIZED AGGREGATE TO IS EN 12620.
- IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED OUT AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 804 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL WRAPPED IN GEO-TEXTILE WRAPPING. ALTERNATIVELY, SPECIAL PIPE SUPPORT ARRANGEMENTS, INCLUDING PILING ETC. MAY BE REQUIRED WHERE THE DEPTH OF SOFT MATERIAL IS EXCESSIVE. SUCH ARRANGEMENTS SHALL BE SUBJECT TO ASSESSMENT BY IRISH WATER BEFORE ADVANCING WITH THE WORK.
- PIPES SHALL NOT BE SUPPORTED ON STONES OR ROCKS, OR ANY HARD OBJECT AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150MM BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH CLAUSE 804 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.
- SHOULD MINIMUM COVER NOT BE ACHIEVABLE, CONCRETE GRADE C8/10 SHALL BE USED AS BACKFILL MATERIAL.
- MARKER TAPE TO BE 400MM WIDE BLUE POLYETHYLENE MATERIAL IN ACCORDANCE WITH EN 12163. PLASTIC PIPES SHALL HAVE WARNING TAPE INCORPORATED A REINFORCED BAND BRACING WIRE. SERVICE PIPES SHALL HAVE 200MM WIDE MESH TAPE. MARKER TAPE TO BE LAID AT A DISTANCE OF 350MM FROM SURFACE OF THE ROAD.
- WHERE PRACTICAL MARKER PLATES SHALL BE FIXED TO ADJACENT WALLS OR ALTERNATIVELY ATTACHED TO MARKER POSTS.
- PLATES TO BE FIXED IN POSITION USING WALL PLUGS AND STAINLESS STEEL SCREWS.
- MARKER PLATES TO BE MANUFACTURED IN ACCORDANCE WITH BS 3251.
- FOR HYDRANT PLATE ALL CHARACTERS SHOULD BE BLACK AND THE REMAINDER OF THE FRONT FACE SHOULD CONFORM TO COLOUR REFERENCE NO. 309 (CANARY YELLOW) OF BS 381C.
- PIPE DIAMETER ON HYDRANT PLATE TO REFER TO WATERMAIN NOT BRANCH.
- SLUICE VALVE, AIR VALVE, SCOUR VALVE AND METER PLATES SHOULD BE CAST IRON. ALL CHARACTERS SHOULD BE BLACK ON WHITE PAINT BACKGROUND.
- CONCRETE SURROUND TO MARKER POST TO BE GRADE C25 / 30 AND IN ACCORDANCE WITH IS EN 206/2013.
- PLASTIC MARKER POSTS ARE NOT ACCEPTABLE.
- ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



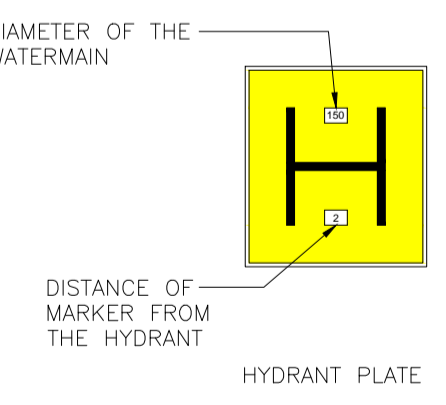
THRUST BLOCK TYPE 1.
SCALE 1:25

NOTE: FOR THRUST BLOCK DETAILS AND SIZES REFER TO IRISH WATER DETAIL STD-W-28

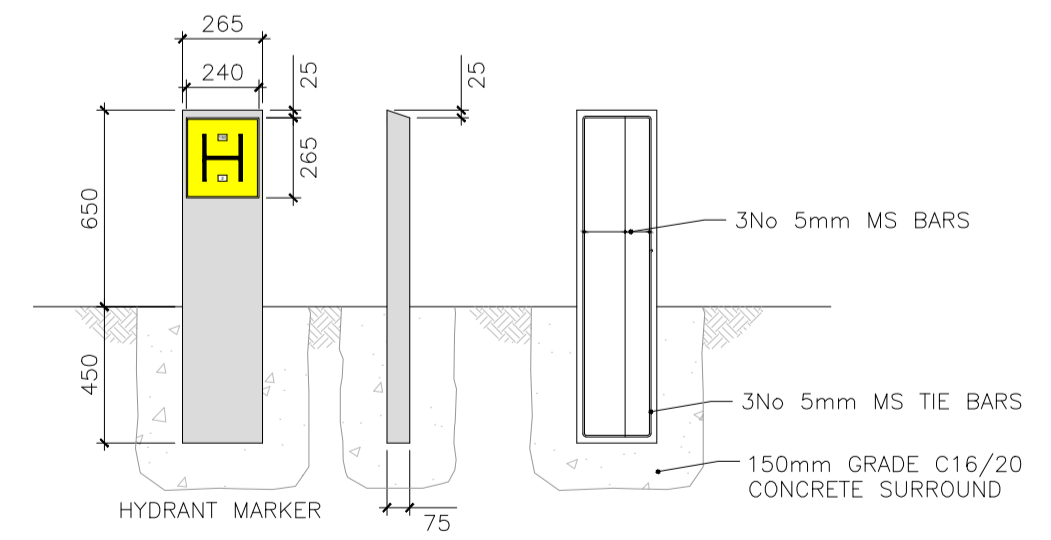


THRUST BLOCK TYPE 2.
SCALE 1:25

NOTE: A HYDRANT INDICATOR PLATE TO BS 3251:1975 SHALL BE FITTED ON BOUNDARY WALL OR ON MARKER AGAINST ANY FENCE AT MIN. 450mm OVER FOOTPATH SURFACE LEVEL. THEY SHOULD SHOW THE DIAMETER OF THE WATERMAIN IN MILLIMETRES ON THE UPPER PART OF THE PLATE AND THE DISTANCE IN METRES OF THE MARKER FROM THE HYDRANT ON THE LOWER PART OF THE PLATE AS SHOWN BELOW.

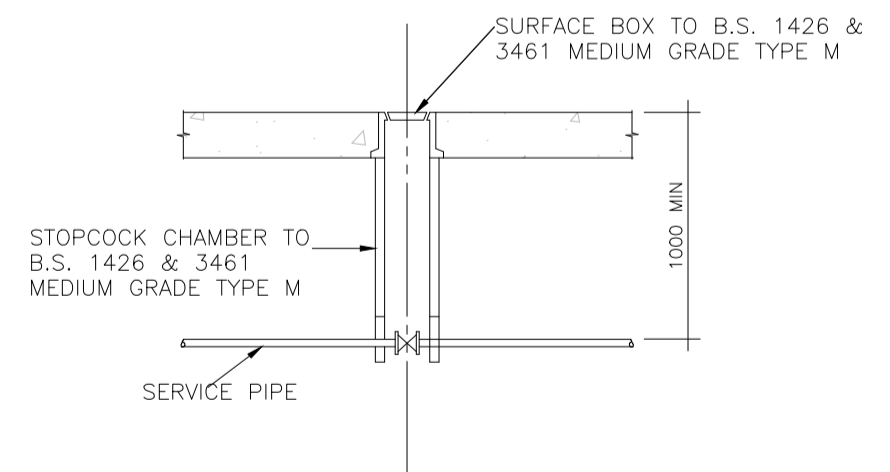


NOTE: WHERE REQUIRED A HYDRANT INDICATOR PLATE IS FIXED TO A MARKER POST. CONSTRUCTED AS SHOWN BELOW.



FIRE HYDRANT DETAILS
SCALE 1:25

- 100 AV 2 AIR VALVE
- 100 WM 2 WATER MAIN
- 100 SV 2 SLUICE VALVE
- 100 ScV 2 SCOUR VALVE
- 100 PRV/PSV 2 PRESSURE REDUCING/SUSTAINING VALVE
- 100 Me 2 METER



STOPCOCK CHAMBER
SCALE 1:25

P	PART 8 PLANNING ISSUE	06.04.17	KD	ND
REV	DESCRIPTION	DATE	DRWN BY	CHKD BY
P	PART 8 PLANNING			

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CLIENT NAME	KILDARE COUNTY COUNCIL	DRAWING NAME	SITE DEVELOPMENT DETAILS								
JOB NAME	PROPOSED DEVELOPMENT OF 74 NO. RESIDENTIAL UNITS AT CRADDOCKSTOWN ROAD, CRADDOCKSTOWN DEMESNE, NAAS, CO. KILDARE	SHEET SIZE	A1	SCALE	SHOWN	DATE	JAN '17	DRWN BY	KD	ENGR	ND
JOB NUMBER	SHB1-CRA-CS-MOR-DR-127	REVISION	P	DATE		DATE		DRWN BY	KD	ENGR	ND