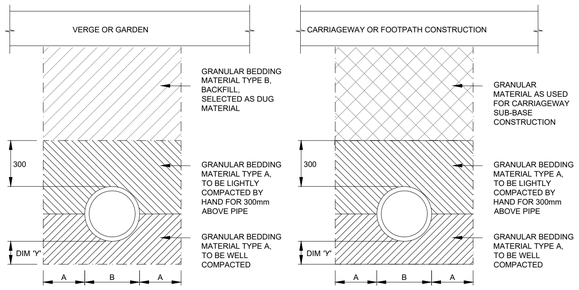
MATERIAL DESIGNATED TYPE A TO BE ANGULAR GRAVEL OR CRUSHED ROCK GRADED IN ACCORDANCE WITH BS 882 OR AIR COOLED BLAST FURNACE SLAG TO BS 1047 OR SINTERED PULVERISED FUEL ASH TO BS 3797 SELECTED ACCORDING TO PIPE SIZE AS FOLLOWS:-

| NOMINAL SIZE OF PIPES (mm) | MAXIMUM PARTICAL SIZE (mm) | IMPORTED GRANULAR MATERIALS |
|---|---|---|
| 100-125 | 10 | 10mm NOMINAL SINGLE SIZE |
| 150-200 | 15 | 10 or 14mm SINGLE SIZE<br>14mm to 5mm GRADED |
| 225-300 | 20 | 10, 14 or 20mm SINGLE SIZE<br>14mm to 5mm GRADED<br>20mm to 5mm GRADED |
| 375-500 | 20 | 14 or 20mm SINGLE SIZE<br>14mm to 5mm GRADED<br>20mm to 5mm GRADED |
| > 500 | 40 | 14, 20 or 40mm SINGLE SIZE<br>14mm to 5mm GRADED<br>20mm to 5mm GRADED<br>40mm to 5mm GRADED |

MATERIAL DESIGNATED TYPE B: USED UNDER GARDENS AND VERGES TO BE UNIFORM READILY COMPACTABLE MATERIAL, FREE FROM TREE ROOTS, VEGETABLE MATTER, RUBBISH AND FROZEN SOIL, AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES LARGER THAN 37mm. BEDDING TO BE COMPACTED IN 225mm LAYERS.

MATERIAL DESIGNATED TYPE B: USED UNDER ROADS AND FOOTPATHS TO BE GRANULAR MATERIAL AS USED FOR CARRIAGEWAY SUB-BASE CONSTRUCTION.



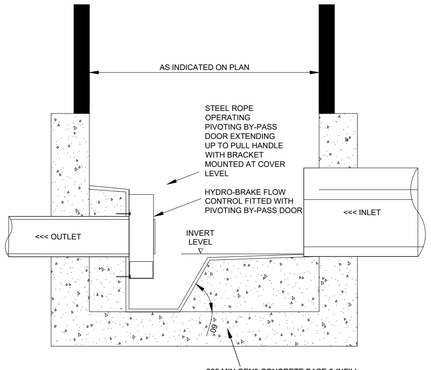

NOTE: A=B/4 BUT WITH A MIN OF 200mm AROUND THE BARRELS AND A MIN OF 150mm AROUND THE SOCKETS

**CLASS S - UNDER VERGE OR GARDEN**

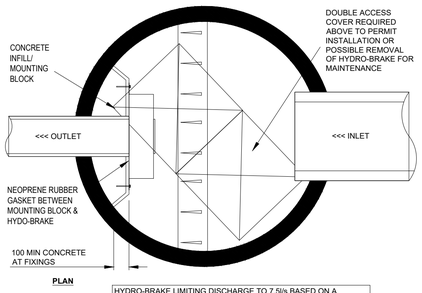



**CLASS S - UNDER CARRIAGEWAY OR FOOTPATH**

## PIPE BEDDING MATERIAL DETAILS




**SECTION**

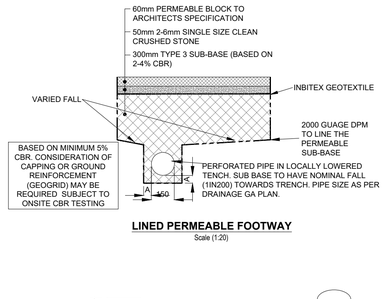



**PLAN**

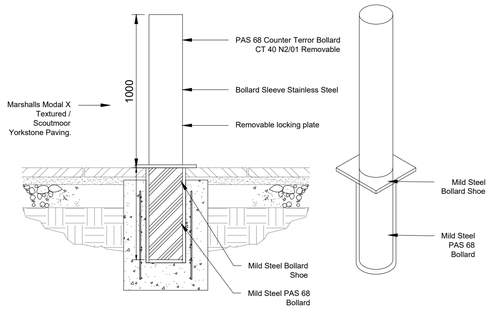
HYDRO-BRAKE LIMITING DISCHARGE TO 7.5l/s BASED ON A DESIGN HEAD OF 1.050m. CLT-SHE-0127-7500-1050-7500.

NOTE: IF AN ALTERNATIVE PRODUCT IS USED THIS WILL AFFECT THE STORAGE REQUIREMENTS & SUMP CONFIGURATION

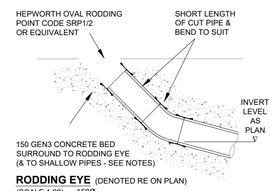
**INDICATIVE FLOW CONTROL CHAMBER**
(SCALE 1:20)



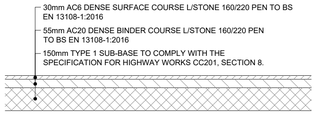

**LINED PERMEABLE FOOTWAY**
Scale (1:20)



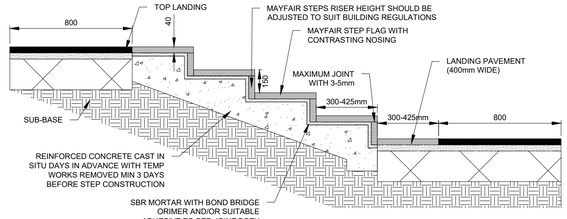

**MARSHALLS RHINO GUARD - STAINLESS STEEL REMOVEABLE PROTECTIVE BOLLARD**
Scale 1:20




**RODDING EYE** (DENOTED RE ON PLAN)
(SCALE 1:20) 150Ø




**FOOTWAY/VEHICLE CROSSOVER DETAIL TO BARNSLEY MB COUNCIL SPECIFICATION**
Scale (1:20)




**40mm STEP FLAGS - TYPICAL DETAIL**
(SCALE 1:20)

Table 1 - Foundation Class 2

| CBR% | Modulus(MPa) | Capping (mm) | + | Sub-base (mm) | | Sub-base (mm) |
|---|---|---|---|---|---|---|
| 2.5 | 30 | 425 | + | 250 | OR | 420 |
| 3 | 35 | 380 | + | 230 | | 370 |
| 5 | 50 | 250 | + | 200 | | 270 |
| 7 | 60 | 230 | + | 170 | | 250 |
| 10 | 75 | 200 | + | 150 | | 225 |
| 12 | 85 | 180 | + | 150 | | 215 |

**Construction Notes:**

1. Table 1 is based on CD 225 Revision 1 (Fig 3.18 and Fig 3.20).
2. Pavement foundation classes selection are based on CD225 Table 3.7.
   Foundation Class 1 ≥50MPa
   Foundation Class 2 ≥100MPa
   Foundation Class 3 ≥200MPa
   Foundation Class 4 ≥400MPa
3. Bond coat in accordance with BS 594987 should be applied to ensure effective bonding of the asphalt layers.
4. If the binder course is subjected to an extensive period of trafficking before the surface course is applied, a recipe mixture containing a higher bitumen content will be more durable/resistant to fretting/ravelling under traffic.
5. Where laid to either a 90 or 45 degree herringbone pattern, the edge perimeter should be laid with one single row of stretcher bond set parallel to the edge restraint. Where block pavers are laid abutting drainage channels, gulley grates, etc. the upper surface of the block pavers should be set 3-6mm above the grating. Manufacturer's declared value markings W3 and S4 are acceptable. Where W3 is 1.0kg/m2 or less and S4 is 45 or more based on 'C scale unit' (for abrasion, class A2 = maximum result is 23mm, class A1 = no performance determined).
6. A 38mm thickness of graded 15/20mm unbound aggregate to BS EN 13242 (gravel), well rolled and compacted, should be used.
7. Asphalt constructors should be certified in accordance with the National Highway Sector Schemes for Quality Management in Highway Works - Scheme 16.
8. Frost susceptible soils are present overall construction shall be a minimum of 450mm. Where the standard detail is less the sub-base thickness shall be increased as necessary.
9. All details are based on a sub-base solution, in accordance with Table 3. If a capping layer is specified then sub-base thickness can be reduced. CD225-Rev1 Foundations Chapter 3 Capping and Sub-base gives guidance on capping and sub base thickness design based on CBR/Modulus values and with and without a capping layer.
10. Geotextile layer to be laid, within foundation layer 50mm from formation.
11. Wearing course colour to Architect's/Client's specification.

## DRAINAGE

1. ALL DRAINAGE WORKS TO BE CONSTRUCTED FROM THE OUTFALL TOWARDS THE HEAD OF RUN TO ENSURE THE OUTFALL CAN BE ACHIEVED.
2. ALL EXISTING DRAINS & SERVICES (LINE & LEVELS) TO BE CHECKED & CONFIRMED BY THE CONTRACTOR PRIOR COMMENCEMENT OF ANY ON SITE DRAINAGE WORKS. ANY DISCREPANCY IN LEVELS IS TO BE REPORTED IMMEDIATELY TO APP.
3. ALL DRAINAGE WORK TO BE IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 & TO THE SATISFACTION OF THE BUILDING INSPECTOR.
4. ALL PROPRIETARY ITEMS TO BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S DETAILS, INSTRUCTIONS & SPECIFICATIONS.
5. ALL COVER LEVELS ARE APPROXIMATE. EXACT LEVELS TO BE DETERMINED FROM THE EXTERNAL WORKS LAYOUT.
6. INVERT LEVELS QUOTED AT MANHOLES & INSPECTION CHAMBERS ARE THOSE OF THE LARGEST CONNECTED PIPE DIAMETER. PIPES AT CHAMBERS TO BE LAID WITH SOFFITS LEVEL UNLESS NOTED OTHERWISE.
7. PIPE GRADIENTS WHERE STATED ARE APPROXIMATE - LEVELS AT THE CHAMBERS TAKE PRECEDENT.
8. REFER TO ARCHITECT'S DRAWINGS FOR PRECISE LOCATION OF ALL RAINWATER PIPES, INTERNAL CONNECTIONS ETC.
9. ALL INTERNAL CONNECTIONS TO HAVE AN ABOVE-FLOOR ACCESS POINT TO ENABLE FUTURE ACCESS FOR MAINTENANCE.
10. PIPES & FITTINGS TO BE:
    - CONCRETE PIPES & ANCILLARY PRODUCTS TO BS 5911:2022 & BS EN 1916:2002.
    - VITRIFIED CLAY PIPES & FITTINGS TO BS EN 295:2013
    - DUCTILE IRON TO BS EN 598:2007 & BS ISO 4179:2005.
    - PERFORATED VITRIFIED CLAY PIPES FOR LAND DRAINAGE TO BS 1196.
    - PLASTIC PIPES FOR LAND DRAINAGE TO BS 4962:1982.
    - PLASTIC PIPING SYSTEMS FOR NON-PRESSURE UNDERGROUND DRAINAGE & SEWAGE TO BS EN 1401 & BS 4660 – SOLID WALL, STRUCTURED WALL PIPES TO BS EN 13476.
    - PRECAST CONCRETE MANHOLE UNITS TO BS EN 1917:2002.
    - PLASTIC INSPECTION CHAMBERS FOR DRAINS & SEWERS TO BS EN 13598-1:2010.
    - GULLY & MANHOLE TOPS FOR VEHICULAR & PEDESTRIAN AREAS TO BS EN 124:1994.
    - DRAINAGE CHANNELS FOR VEHICULAR & PEDESTRIAN AREAS TO BS EN 1433:2002.
11. ALL MANHOLE COVERS, ROAD GULLY COVERS & FRAMES TO COMPLY WITH BS EN124 NON ROCKING TYPE.

    UNLESS NOTED OTHERWISE USE CLASS:

    A15 FOR USE IN PEDESTRIAN AREAS WHERE VEHICLES HAVE NO ACCESS.

    B125 FOR USE IN CAR PARKS & PEDESTRIAN AREAS WHERE INFREQUENT LIGHT VEHICLE ACCESS IS LIKELY (INCLUDING DRIVEWAYS).

    C250 FOR ACCESS COVERS & GULLY GRATINGS IN AREAS OF SLOW MOVING, HEAVY TRAFFIC; ALSO FOR GULLY GRATINGS IN CARRIAGEWAY WITHIN 500mm OF KERB & UP TO 200mm INTO THE FOOTWAY.

    D400 FOR USE IN CARRIAGEWAYS OF ROADS & PARKING AREAS ACCESSED BY ALL TYPES OF VEHICLES.

    E600 FOR USE IN AREAS WHERE HIGH WHEEL LOADS ARE PRESENT.

    F900 FOR USE IN AREAS WHERE EXTREMELY HIGH WHEEL LOADS ARE PRESENT SUCH AS AIRCRAFT PAVEMENTS, DOCKS, HEAVY INDUSTRIAL SITES.
12. MANHOLES IN INTERNAL AREAS REQUIRE DOUBLE SEALED COVERS WITH LOCKING SCREWS, RECESSED WHERE REQUIRED TO ACCOMMODATE FLOOR FINISHES TO ARCHITECT'S SPECIFICATION.
13. PIPE BEDDING

    USE CLASS S BEDDING UNLESS NOTED OTHERWISE. NB PROTECT AGAINST CONSTRUCTION TRAFFIC AS NECESSARY

    USE CLASS Z CONCRETE BED & SURROUND OR CONCRETE SLAB PROTECTION AS FOLLOWS:
    - CLASS 120 CLAYWARE OR CLASS M CONCRETE (100 - 600Ø PIPES)

      LANDSCAPING - LESS THAN 600mm COVER TO CROWN.

      HARDSTANDING - LESS THAN 1200mm COVER TO CROWN
    - PLASTIC (100 - 300Ø PIPES)

      LANDSCAPING - LESS THAN 600mm COVER TO CROWN.

      HARDSTANDING - LESS THAN 900mm COVER TO CROWN
14. PIPES BELOW CONCRETE GROUND FLOOR SLABS:

    WHERE THE CROWN OF THE PIPE IS WITHIN 300mm OF THE UNDERSIDE OF SLAB, SPECIAL PROTECTION TO BE PROVIDED IN ACCORDANCE WITH BUILDING REGULATIONS H1 2.44 OR 150mm GEN3 CONCRETE BED & SURROUND CAST INTEGRALLY WITH SLAB.

    OTHERWISE USE CLASS S BEDDING.
15. MAIN BACKFILL TO BE WELL COMPACTED IN 150mm LAYERS OF:

    SELECTED BACKFILL MATERIAL IN ALL SOFT LANDSCAPED AREAS

    TYPE 1 GRANULAR MATERIAL IN ALL HARDSTANDING AREAS & PUBLIC HIGHWAYS
16. BACKFILL TO DRAINS NEAR FOUNDATIONS TO BE IN ACCORDANCE WITH BUILDING REGULATIONS H1 DIAGRAMS 8 & 12.
17. CCTV TO BE CARRIED OUT TO VERIFY CONDITION OF ANY DRAINAGE TO BE RE-USED.

## Notes

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## GENERAL NOTES

1. THE STRUCTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT CLIENT, ARCHITECT, SERVICES ENGINEER, AND SPECIALIST CONTRACTOR DRAWINGS, REPORTS AND SPECIFICATIONS.
2. FOR SETTING OUT AND LEVELS REFER TO ARCHITECTS DRAWINGS.
3. FOR THE PURPOSE OF CONSTRUCTION ALL DRAWINGS MUST NOT BE SCALED AND ONLY WRITTEN OR CALCULATED DIMENSIONS USED. LEVEL DATUMS TO BE CONFIRMED BY THE ARCHITECT.
4. ANY REVISIONS TO THE LAYOUT DETAILS REQUIRED BY THE CONTRACTOR TO BE AGREED AND APPROVED BY THE ALIGN PROPERTY PARTNERS ENGINEER.
5. FINISHED FLOOR LEVELS TO BE DETERMINED.
6. ALL PROPRIETARY PRODUCTS ARE TO BE USED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND REQUIREMENTS.
7. GENERALLY, ONLY KNOWN PENETRATIONS, HOLES, POCKETS AND RECESSES ETC. WITH ANY DIMENSIONS GREATER THAN 150 ARE SHOWN ON THE DRAWINGS. FOR CONFIRMATION OF THESE AND FOR DETAILS OF SMALLER HOLES PLUS INSERTS, FIXINGS ETC. REFERENCE SHALL BE MADE TO THE ARCHITECTS, SERVICES ENGINEER'S OR THE RELEVANT SUBCONTRACTOR'S BUILDERS WORK DRAWINGS.
8. THE CONTRACTOR SHALL ENSURE THAT TEMPORARY LOADS ONTO THE NEW STRUCTURES/DRAINAGE SHALL BE LESS THAN THOSE FOR WHICH IT HAS BEEN DESIGNED.
9. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND CHECKING THE SETTING OUT OF GRIDLINES, LEVELS AND DATUMS.
10. ANY DISCREPANCIES BETWEEN THE STRUCTURAL AND ARCHITECTURAL DRAWINGS SHOULD IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR.
11. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT NOISE, VIBRATION AND DUST RESULTING FROM THE WORKS ARE KEPT WITHIN REASONABLE LIMITS.
12. THE CONTRACTOR IS TO ALLOW A MINIMUM OF 10 WORKING DAYS IN THEIR PROGRAMME FOR THE REVIEW OF ANY CONTRACTOR'S DESIGN PORTIONS OF WORK FOR REVIEW BY THE ALIGN PROPERTY PARTNERS ENGINEER.
13. IRRESPECTIVE OF ANY NAMED MANUFACTURERS OF ANY PRODUCT/MATERIAL NOTED ON DRAWINGS, THE CONTRACTOR IS FREE TO PROPOSE AN EQUAL OR APPROVED PRODUCT/MATERIAL PROVIDED THAT ANY SUCH CHANGE TO THE SPECIFICATION MEETS A SIMILAR LEVEL OF PERFORMANCE AND IS NOTED ON ALL M TENDER RETURNS AND DOCUMENTATION FOR ALIGN PROPERTY PARTNERS.

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align PROPERTY SERVICES
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Client: BARNSLEY METROPOLITAN BOROUGH COUNCIL

Project Name: THE CRESCENT, CUDWORTH
DEMOLITION & CREATION OF URBAN PARK

Drawing Title: EXTERNAL WORKS CONSTRUCTION DETAILS

Purpose: PRELIMINARY

| Scale | Drawn | Checked | Approved |
|---|---|---|---|
| AS SHOWN | JSM | ZS | LF |
| Original Size | Date | Date | Date |
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