

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION. IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO DRAWING.

Drainage Notes:

- This drawing is to be read in conjunction with all relevant architects and engineers drawings and specifications.
- Do not scale this drawing. Any ambiguities, omissions or errors on drawings shall be brought to the engineers attention immediately. All dimensions must be checked / verified on site.
- Design based on available topographical survey and cctv survey information at the time of design.
- All drainage works to be in accordance with the Civil Engineering Specification for the Water Industry (CESWI) as included in Sewer Sector Guidance (SSG), the requirements of The Building Regulations: Approved Document H (Part H) and Current drainage Specification.
- All dimensions are in mm and levels in m above Ordnance datum unless otherwise noted. Diameters are expressed in millimetres and denoted by a Ø symbol.
- It is advised that the contractor survey retained existing drainage prior to commencement to confirm location and condition, with clearing to facilitate survey if required.
- Existing sewer locations where the proposed drainage is to connect, are to be surveyed and exact levels confirmed and provided to engineer prior to commencement of works.
- All existing services to be located prior to commencement of any drainage works, and where necessary protection or diversions to be undertaken to avoid conflict with the proposed work.
- All existing drains to be abandoned shall be either removed or grouted up if not possible. Grouting to be performed by capping at ends / connectors and filling the remaining void with grout, in accordance with CESWI.
- All soft spots to be removed from bottom of excavations and to be refilled to formation level in accordance with groundworks specifications.
- Recessed ground must be filled in accordance with groundworks specifications and consolidated before any sewer works are carried out.
- All private drainage works to be in accordance with CESWI, BS EN 752 2017 Drain And Sewer Systems Outside Buildings and the Part H.
- All drains, unless agreed otherwise stated, shall be:
 - 100mm to 300mm diameter to be verified only.
 - All diameters given are nominal internal pipe diameters.
- Pipe materials in accordance with the following:
 - All vitrified clay pipes to BS EN 255-1.
 - All concrete pipes to be to BS EN 1916.
 - All concrete manholes to be to BS EN 1917.
- As an alternative the contractor may use an approved unplasticised polythylene (UPVC).
- All private drainage pipes with a cover of less than 600mm in non-trafficated areas and less than 1200mm in trafficated areas to have a concrete protection slab or be bedded and surrounded in concrete (Class 2). Compressible material shall be provided at every pipe joint. Where cover exceeds this depth, pipes are typically bedded and surrounded in Class 5. Refer to pipe embedment details drawing for specific types.
- Backfill to drainage trenches under hardstanding areas to be Type 1 sub base material, elsewhere backfill to be free draining readily compressible material free from debris, organic matter, frozen soil clay lumps and large stones. To be compacted in layers not exceeding 150mm thick.
- Bedding and backfill materials to conform to the requirements of WIS 4-08-02 (Table A2).
- Where foul drains run above surface drains, concrete protection may be required at crossings to prevent any potential contamination.
- The first pipe out of manholes to be as short as practicable so as to provide a flexible joint as close as possible to the outside face of the concrete surround and connected to a length of rooker pipe.
- All connections passing through bases or edge beams to be in sealed sleeves. Alternatively connections may be cast-in with flexible joints not greater than 150mm from face of concrete.
- Where drainage pipes are less than 300mm below the underside of the ground floor slab, concrete encasement is required (Class 2). Compressible joints are to be provided at every pipe joint within the concrete.
- Where pipes are more than 300mm below the underside of the slab, Class 5 bedding is acceptable.
- Drain pipes to be laid in maximum 3 metres lengths unless there is a specific operational need to lay longer lengths.
- Plastic channel sections will not be permitted within manhole chambers. Clayware channels shall be used within manholes for pipe sizes up to and including 300mm diameter.
- All new connections into existing manholes (or into existing sewers) to be 'soffit level' unless otherwise noted.
- Substrate resistant cement (C20-DC2) and precast concrete products must be used or a laboratory report provided to prove that such precautions are not required subject to SI.
- Sewers must have 5m clearance from trees and hedges or to have suitable root protection in accordance with SSG requirements.
- The chamber size of manholes with more than one connection in them may need to be increased to accommodate the connections and bends.
- All internal drainage connections are provided to the penetration positions shown on architect and M&E Drawings. Refer to dimensioned locations on architect's ground floor setting-out plans.
- Rainwater and foul water pop-up locations and sizes to be confirmed by others.
- All underground foul drainage should be suitably vented at or near to the head of line.
- All access fittings, stacks, RHPs and gullies to be roddable. All to have low level rodding access plates unless an alternative means of access is agreed. Access point to be above any ground floor connected appliance spill level.
- Large access fitting required above ground where greater than 12m up to 22m to a junction. Small access fitting required up to 12m to a junction.
- All gully and channel drain outlets and termination points to be trapped and roddable. Internal gullies and channel drains to be specified by others.
- All branch connections to be made with sweep bends in the direction of flow in the main sewer.
- Where no WCs are connected upstream, under slab foul water drainage to be laid at 140 mm. After the connection of at least 1m WC, a min. fall of 150 applies.
- All internal covers to have mechanically pinned corners and be double sealed with recessed trap fly finishes.
- All manhole covers in backfills and external paving areas to have recessed covers of the appropriate grade to accept architects paving proposal.
- Unless noted otherwise in the manhole schedule, all manhole, gully and channel covers (internally) should be the following specification:
 - B125 load class in pedestrian areas.
 - D400 load class in vehicular areas.
- Cover levels, gully positions, and building locations are approximate and shall be confirmed by architect/landscape architect. Contractor to allow for adjustment to suit agreed positions and finished levels, and confirm all cover levels on site.
- Outlet connection(s) subject to agreement with the approving authority.
- The contractor shall comply with the following:
 - (i) All operations should be carried out in accordance with the general health and safety policy of the developer as required by sections 2 of the Health and Safety at Work Act 1974 and in particular: The Construction (Health, Safety and Welfare) Regulations 1996.
 - (ii) The local authority and utility companies are to be notified prior to commencement of work on site.
 - (iii) Prior to construction the actual positions and depths of services likely to be affected by the works should be established by means of hand dig in close liaison with the utility companies. The contractor shall immediately advise the engineer of any services exposed which may affect the design.
 - (iv) All operatives working on the highway works must have street works accreditation.
- The contractor shall be responsible for ensuring that pipes are adequately protected from concentrated loading by construction traffic during the construction period.
- The contractor shall allow for the protection, temporary and permanent support, and temporary and permanent diversion works, as necessary to all existing services.
- The contractor shall allow for keeping trenches and excavations as dry as practicable by pumping from temporary sumps and de-watering as appropriate. The point and method of discharge to be agreed with the drainage authority & LPA and environment agency.
- It is advised that drainage works are to be constructed from the outfall towards the head of run to ensure the outfall can be achieved.
- All drains to be CCTV surveyed on completion of the works.
- Cessae traps should be provided above ground within an enzyme treatment system, by appropriate specialist designer.

DESIGN STAGE RIBA 4 OUTPUT
Further design coordination required pending topographical survey and the resultant landscape architect layout.

Curtins
Units 24-25 Riverside Place X Village Lound Road Kendal LA9 7PH
01539 524 823
kenda@curtins.com
www.curtins.com

Status: SUITABLE FOR INFORMATION S2

Client: STORY



Project: MILLOM IRON LINE

Dwg Title:

DRAINAGE DETAILS
SHEET 1

Drawn By: AMG Designed By: GW Checked By: GW

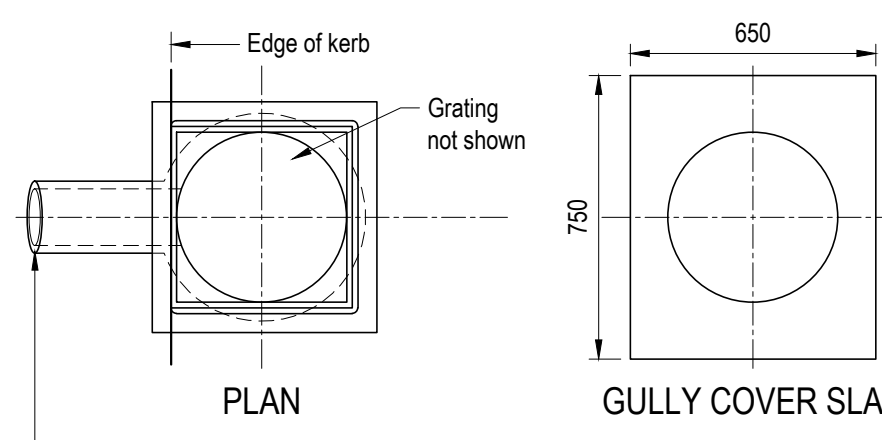
Date: JULY 23 Scales @ A3 AS SHOWN

Project No - Originator - Function - Spatial - Form - Discipline - Number Revision

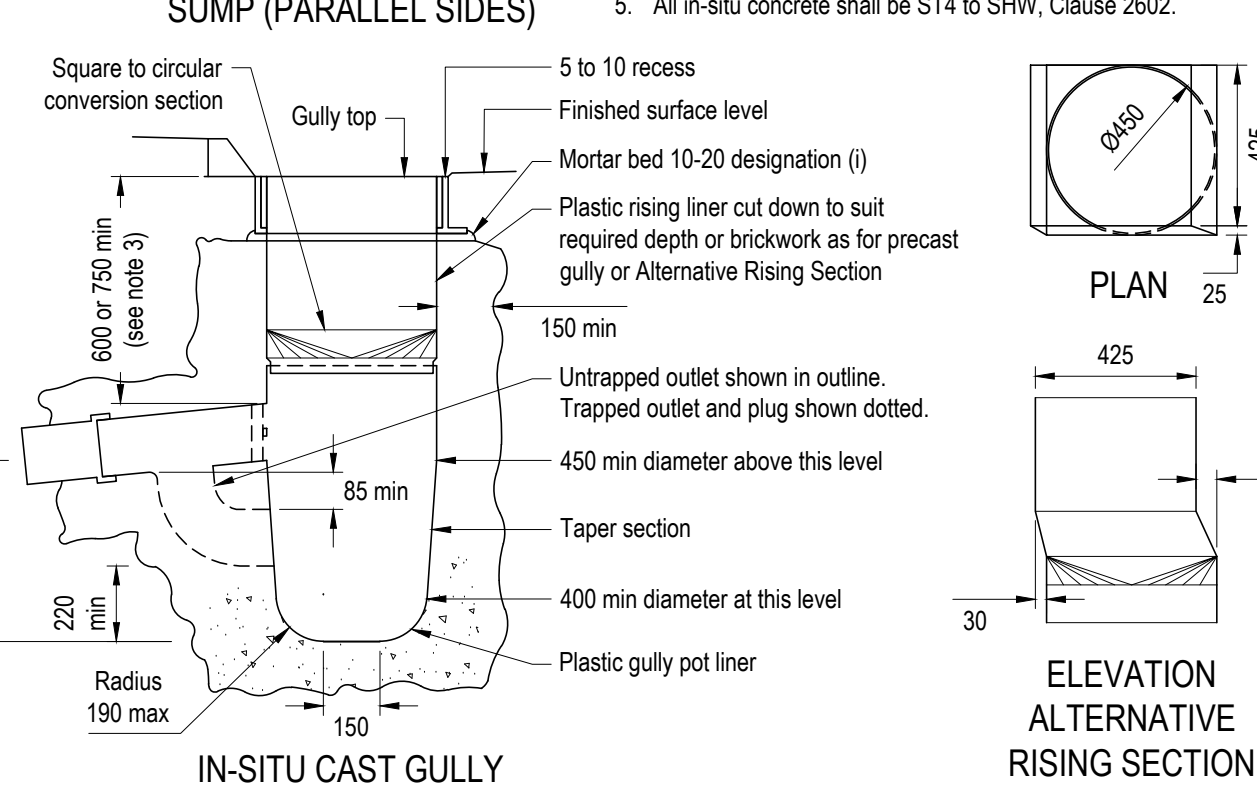
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NOTES

- Precast concrete gullies and cover slabs shall be to BS 5911-6.
- When an in-situ cast gully has a trap, the stoppers shall comply with the requirements of BS 5911-4 and BS EN 1917.
- The minimum depth from top of the grating to the top of the gully outlet is to be 750 when the connecting pipe is under carriageway or hard shoulder and 600 elsewhere.
- A plastic internal shutter shall be used as shown, bedded on an in-situ concrete slab of 150 minimum thickness and surrounded by concrete 150 minimum thickness extending to the sides of the excavation.
- All in-situ concrete shall be ST4 to SHW, Clause 2602.



ALTERNATIVE IN-SITU CAST SUMP (PARALLEL SIDES)

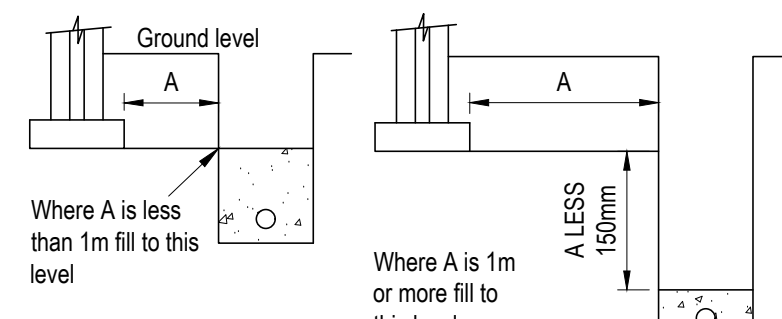


HIGHWAY GULLIES

Design code: MHCV Volume 3 Section 1 - Highway Construction Details - F Series - Drainage - Figures F13 and F14
Preferred gully material is precast concrete.
(Scale 1:20)

TYPICAL VERTICAL BACKDROP DETAIL (RIGID MATERIALS)

For use in manhole types A to D
Design code: SSG Appendix C Figure 16
(Scale 1:20)

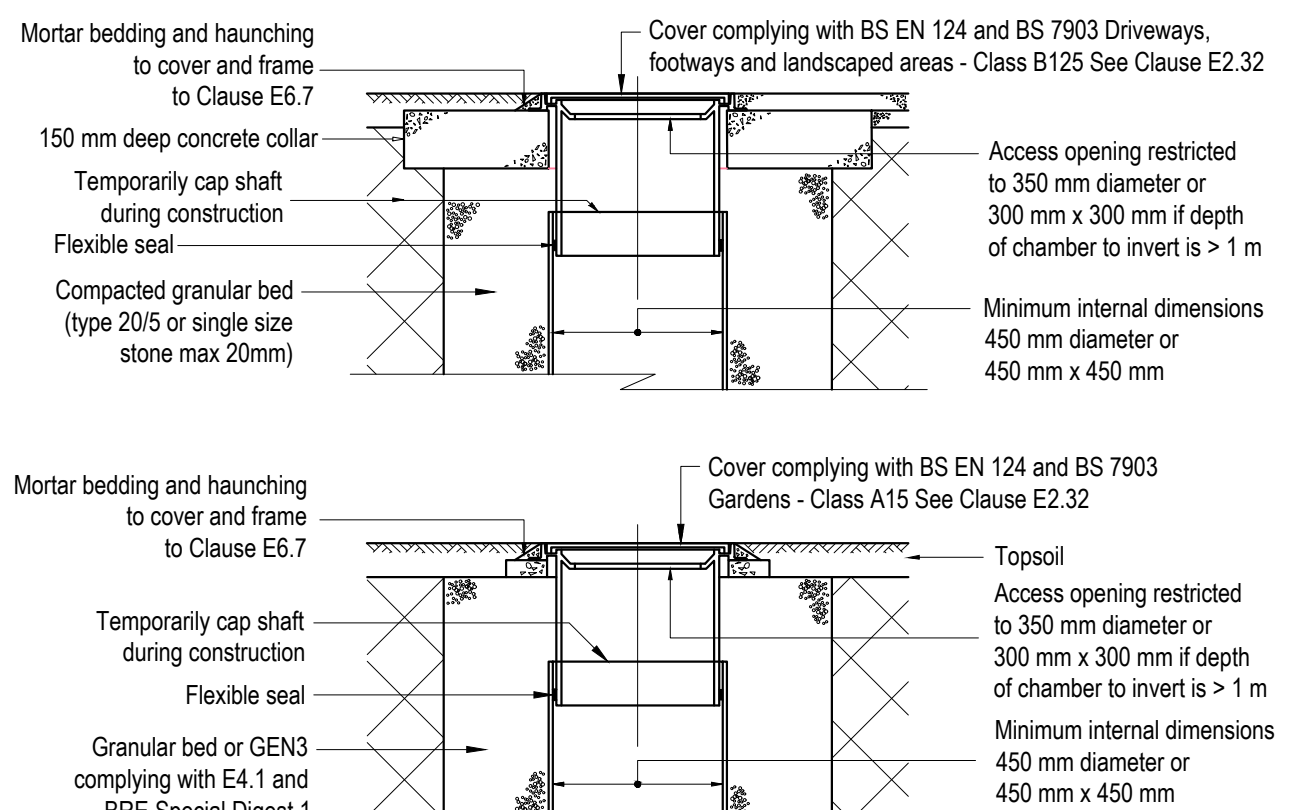


PIPE RUNS NEAR BUILDINGS

Based on Building Regulations H1 Diagrams 8 & 12
(Not to scale)

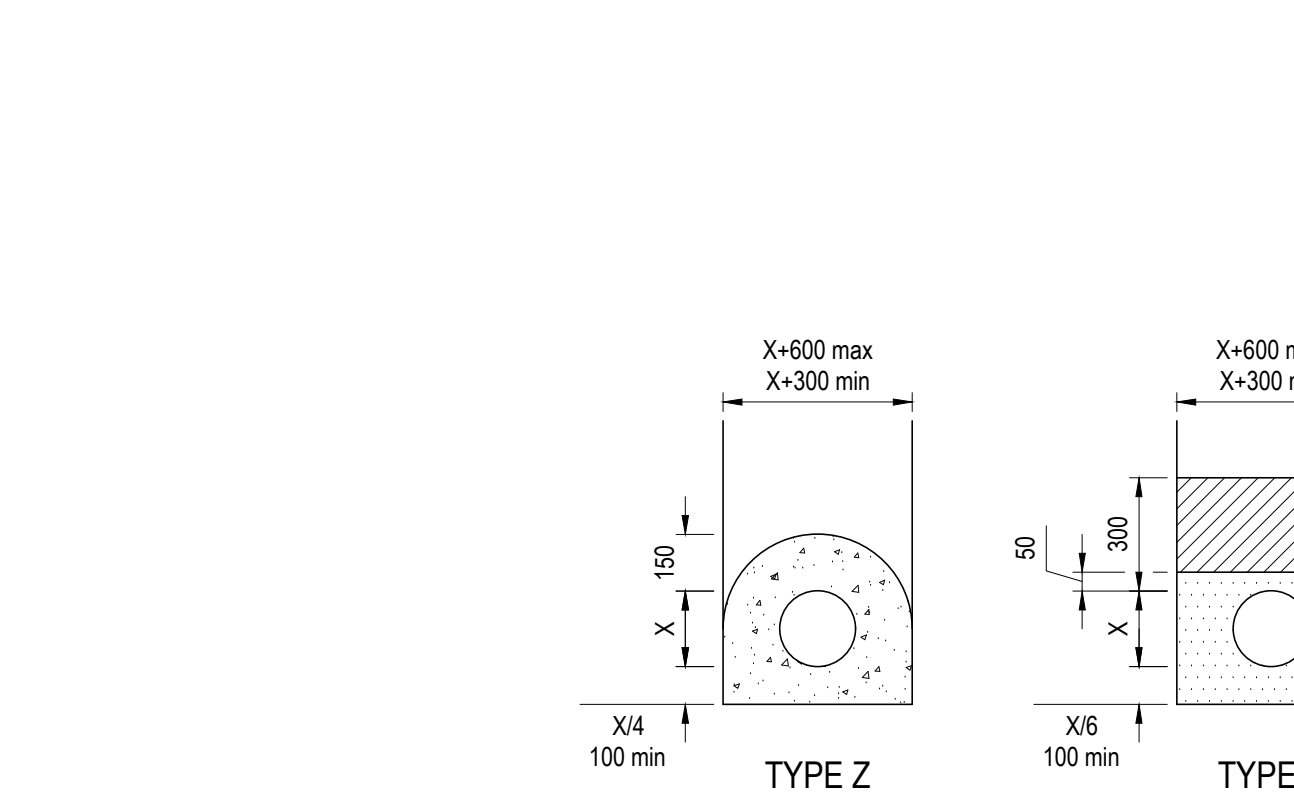
TYPICAL INSPECTION CHAMBER DETAIL - TYPE D

Depth from cover level to soffit of pipe up to 3m
Flexible material construction for use in areas subject to vehicle loading
Design code: SSG Appendix C Figure 9-18 (see Part E for clauses)
(Scale 1:20)

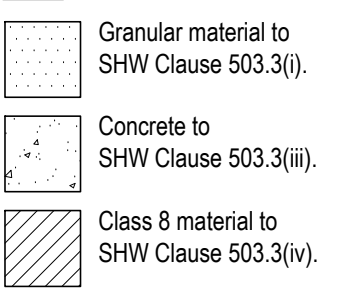


TYPICAL INSPECTION CHAMBER DETAIL - TYPE D

Flexible material construction alternative top details for use in areas of light vehicle loading or landscaped areas
Design code: SSG Appendix C Figure 9-19 (see Part E for clauses)
(Scale 1:20)



KEY



NOTES

- Dimension X is the external diameter of the pipe.
- The minimum or maximum width of the trench applied on and below a line 300mm above the outside top of the pipe. Above the 300mm line the trench backfill shall be as described in SHW Clause 505.
- The concrete bed or surround may extend to the sides of the trench or be of minimum width. Class 8 material is to be used to fill any voids so formed.
- For Type Z trench the concrete cover may be formed to a radius batter or horizontal or surface. Min. cover of concrete shall be 150.

TRENCH AND BEDDING DETAILS

Design code: MHCV Volume 3 Section 1 - Highway Construction Details - F Series - Drainage - Figures F1
(Scale 1:20)



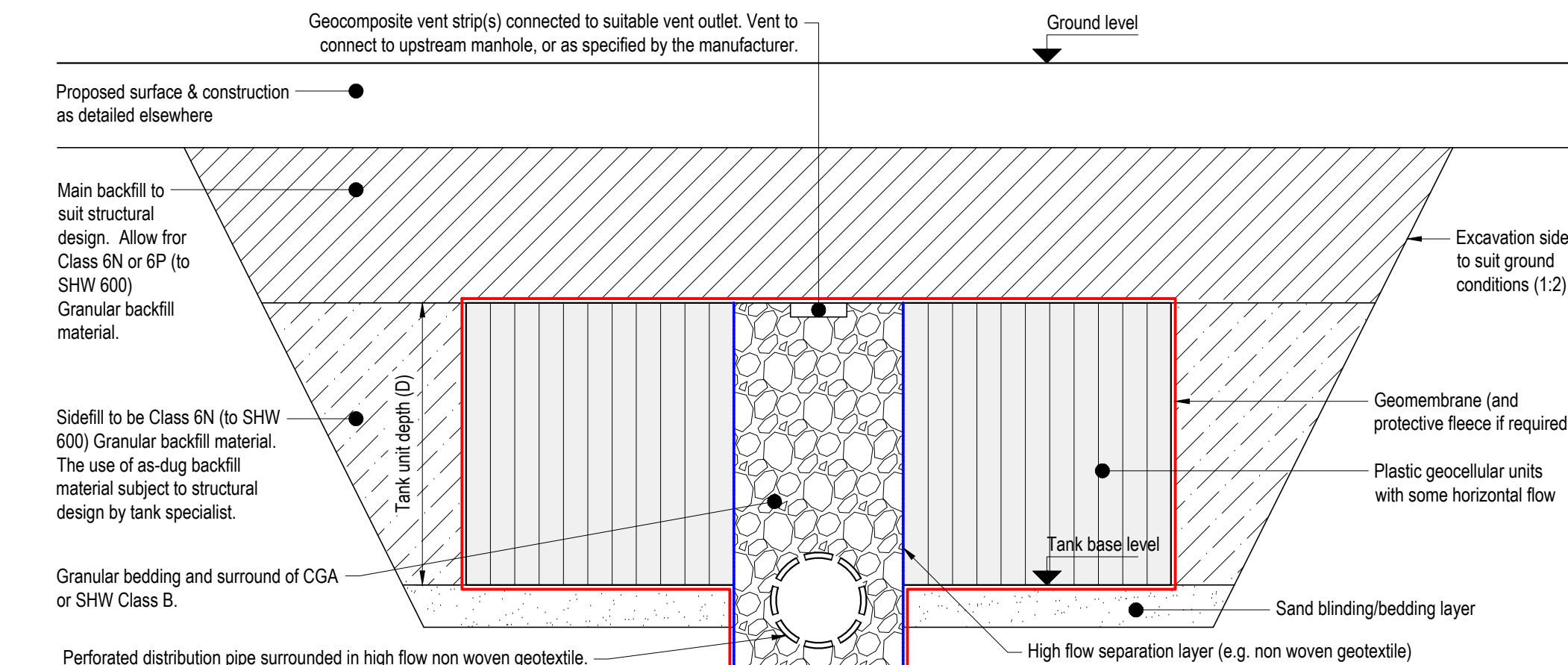
TRENCH REINSTATEMENT - BITUMINOUS PAVEMENT

Design code: MHCV Vol 1 Clause 706
(Scale 1:20)



SCHEMATIC ATTENUATION STORAGE TANK WITH THROUGH PIPE

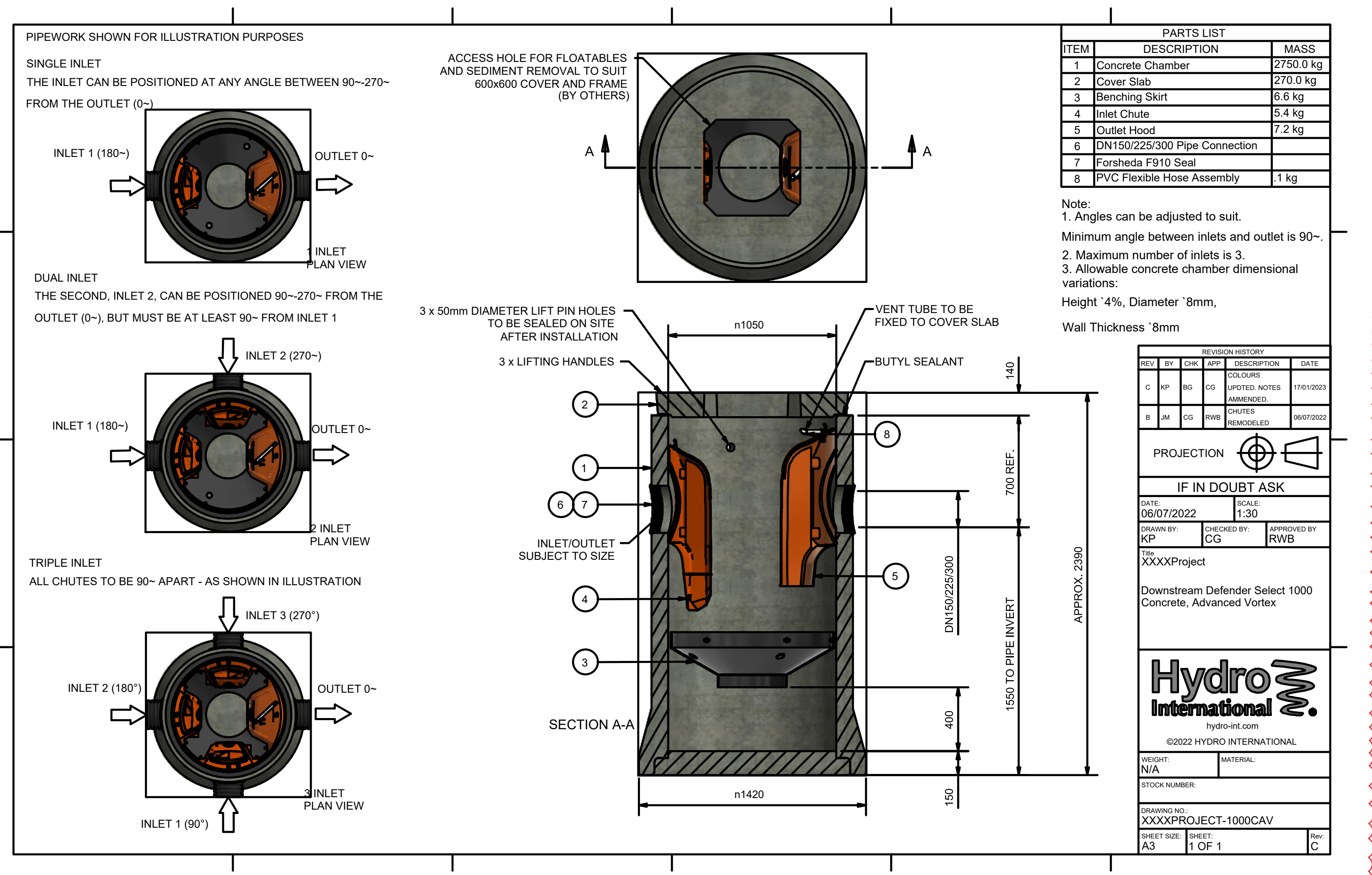
Design code: Adapted from C753 Figure 21.6
(Scale 1:20)



VORTEX SEPARATOR - HYDRO-INTERNATIONAL

DOWNSTREAM DEFENDER ADVANCED

To be installed to manufacturers' instructions.
(Scale 1:20)



PARTS LIST		
ITEM	DESCRIPTION	MASS
1	Concrete Chamber	2750.0 kg
2	Cover Slab	270.0 kg
3	Benching Skirt	6.6 kg
4	Inlet Chute	5.4 kg
5	Outlet Hood	7.2 kg
6	DN150/225/300 Pipe Connection	
7	Concrete F90 Seal	
8	PVC Flexible Hose Assembly	1 kg

Note:

- Angles can be adjusted to suit.
- Minimum angle between inlets and outlets is 90°.
- Maximum number of inlets is 3.
- Allowable concrete chamber dimensional variations:
 - Height: ±4%, Diameter: ±8mm,
 - Wall Thickness: ±8mm

REVISION HISTORY		
NO	DATE	DESCRIPTION
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IF IN DOUBT ASK

DATE: 19/07/2022 SCALE: 1:20 APPROVED BY: RWB

Drawn By: KP Checked By: CG

Project: XXXXPROJECT-1000CAV

Sheet: 1 OF 1

Revised By: C

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