

- All dimensions & levels to be checked by the contractor prior to commencement of work, any discrepancy shall be reported immediately to Avie Consulting Ltd.
- All work shall be carried out in accordance with Local Authority, statutory authority, health & safety requirements and regulations.
- The drawings shall be read in accordance with all other contract documents relevant at that time of issue and during the period of the contract.
- The contractor must ensure the overall stability of the works is adequate at all stages of the construction.
- No allowance has been made for cutouts, holes, notches, etc. for services. All of these are to be agreed prior to the start of the works.

General Notes

All adoptable sewer works and material to be in accordance with 'Sewers for Adoption' 6th Edition, the relevant British/European and Yorkshire Water's standards/requirements/appendix and Kitemarked.

Manhole covers shall have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.

Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.

Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.

Yorkshire Water is not obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (directly or indirectly). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the local authority, land drainage section with regard to the disposal of the filter drain/land drainage run-off.

Cover slabs must carry the BSI Kitemark or will be rejected by Yorkshire Water's 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 Yorkshire Water specified cover size. Please refer to Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued autumn 2004 for Kitemarked cover slab opening sizes.

Sulphate resistant cement (C20-OC2) and precast concrete products must be used or a laboratory report provided proving that such precautions are not necessary.

The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.

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).

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 non-vehicular access areas) then a concrete slab should be provided above granular bed and surround.

Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).

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.

Yorkshire Water policy is not to accept Type 'C' brick manholes and 1050mm dia. manhole rings. Instead it is preferred that you use a Type 'B' manhole with 1200mm dia. or 1500mm dia. rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m.

Adoptable plastic sewer pipes to be BSI Kitemarked (certified to WIS 4-35-01 and BS EN 13476). Adoptable plastic sewer to be laid in maximum 3 meter lengths unless there is a specific operational need to lay longer lengths. Plastic channel sections in manholes are not acceptable and Yorkshire Water would prefer clayware channel sections in manholes. We have found that plastic channels are difficult to set in concrete because they float and a satisfactory finish can not be obtained on the benching.

HEALTH, SAFETY AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks associated with the types of work detailed on this drawing please consider the following:

- Construction:**
- Existing live storm and foul sewers present on site.
 - Existing buried and overhead services are present on site.
 - Sewers > 3m in depth - risks falling from height and confined spaces.
 - Working near watercourses - waterborne diseases and pathogens are a potential hazard to health.

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

Althon (Manufacture) Headwall Notes

- All dimensions in mm
- All measurements ± 1mm

Identification Information:

- Opening in back wall cast to suit outside diameter of the pipework
- Invert level of pipe can be set to your specification

Headwall Installation:

Units should be bedded on minimum 200mm thick well compacted Class 6A* selected well graded granular material.

*Manual of control documents for Highway Works Volume (MCHW1) specification for Highway Works, Series R02 (Nov 05).

Set the headwall level on with a slight fall 150 from pipe to spill mouth.

Handing:

- Weight of concrete is based on 2.4 tonne/m³ is recommended for sizing lifting equipment.
- All lifting points shall be used as specified below
- List to be filled as per lifting diagram

Concrete:

- Mix ref: Self compacting DCA/D54 Mix
- Lifting strength based on 2 cubes x 200mm³
- Characteristic 28 day cube strength = 60N/mm²
- Concrete provided Design Chemical Class 4 (DCA) to special Dignel 1, Table F.2.

Reinforcement:

- Reinforcement to BS EN 13369
- Scheduling, dimensioning, bending & cutting to BS8666
- Cage to be machine tied with steel wire

Manufacture:

- Manufacture to BS EN 10202:2008 precast concrete products - Retaining wall elements, Factory Production Control certificate number: 0065-CPS6604 & BS EN 13369
- Reference to BS EN 13369 clause 4.3.1.1
- Finishing

Finish	Minimum	Maximum	Notes
Surface	0.5	1.0	mm
Verticality	0.5	1.0	mm/m

- Marking (LPH) shall be correctly marked to show:
- Mould reference code
- Dismantle date
- Job reference number & unique product number
- Unit weight (kg)

Design:

- Concrete design to EC2
- Althon have designed the concrete units only, the site conditions should be assessed for suitability by the scheme designer
- Units are designed to withstand a vertical live load surcharge of 10kN/m²
- Weight of soil = 18kN/m³
- Angle of internal friction = 30 Deg.
- Design Life > 100 years

Min Cover	Max Cover	Min Cover	Max Cover
15	20	15	20
15	20	15	20

Fabrication Specification:

- Manufacture IAW EN 1090-2 EXC CLASS 1
- Material grade is to be: BS EN 10202:2008
- Welding carried out IAW EN 1090-2 PARA 7.5.4 - 7.5.18
- All flat and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
- Ensure vertical flats are fully welded both sides where possible.
- All sharp edges and burrs are to be removed.
- Remove all weld spatter.
- Holes by punching are permitted without reaming.
- Galvanising is carried out after fabrication to BS EN ISO 1461

Handrail Specification:

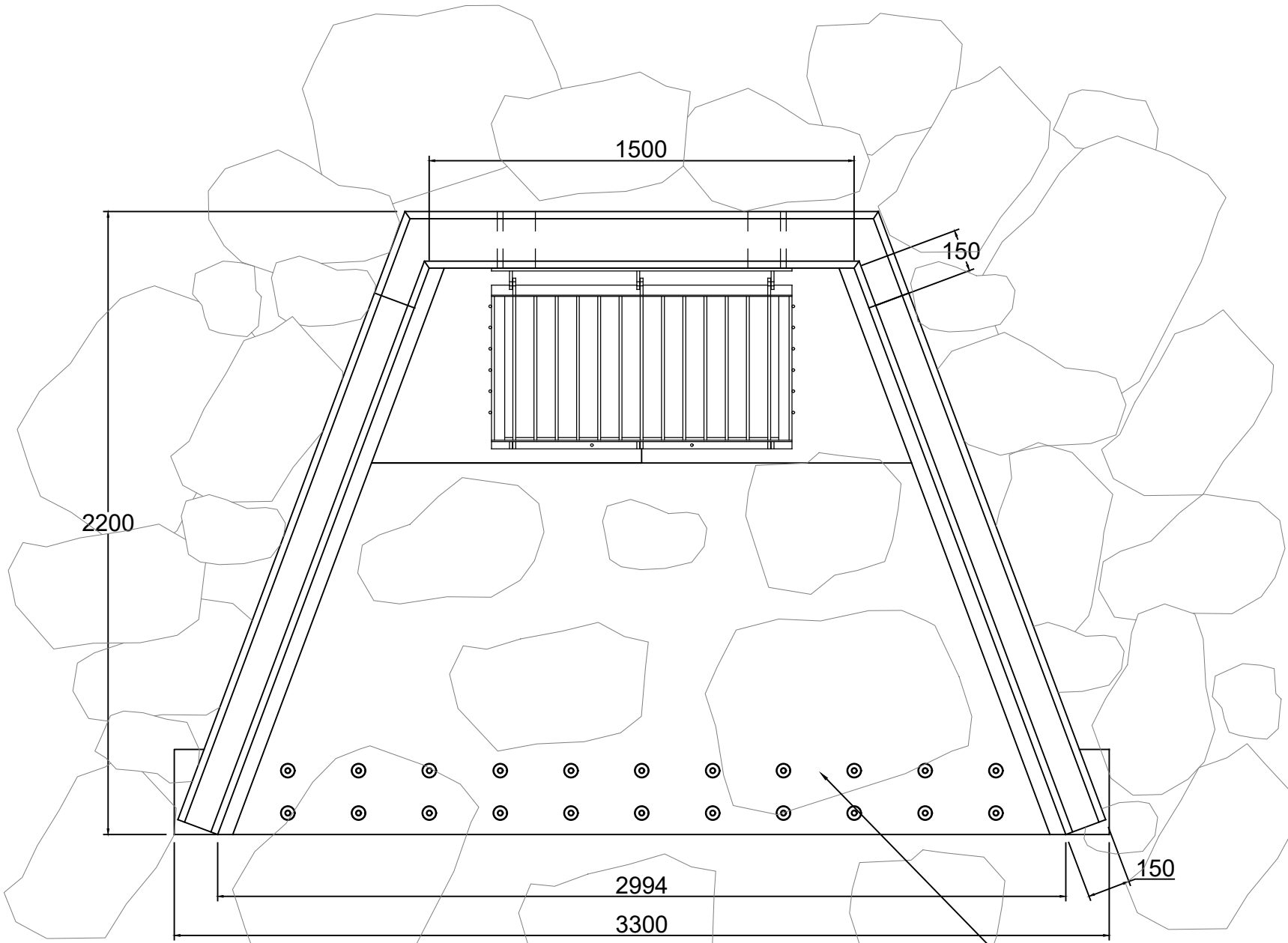
- Max Ramp/Unramped Slope & Fixings
- Size 4 x 4mm OD 3.2mm Wall Thickness Galvanised Medium Duty Tube to BS EN 10255
- Splices Design Load as stated in BS R118, BS 6180, BS 6399 & BS 7816. Civil Engineering Specification for the Water Industry (CESWI) 7th Edition Clause 2.60 Handrails & Balustrade & The Engineering Equipment and Materials Users' Association (EEMUA) Publication 105 7th Edition Factory Stairways, Ladders and Handrails
- Other design loads available on request
- CRIP/FRP handrails also available

Althon (Manufacture) Trash Screen Notes

- All dimensions in mm
- Manufacture IAW EN 1090-2 ANNEX O PARA 2.7-2.8
- All measurements ± 1mm
- 40 x 10mm flats @ 75mm centres as standard

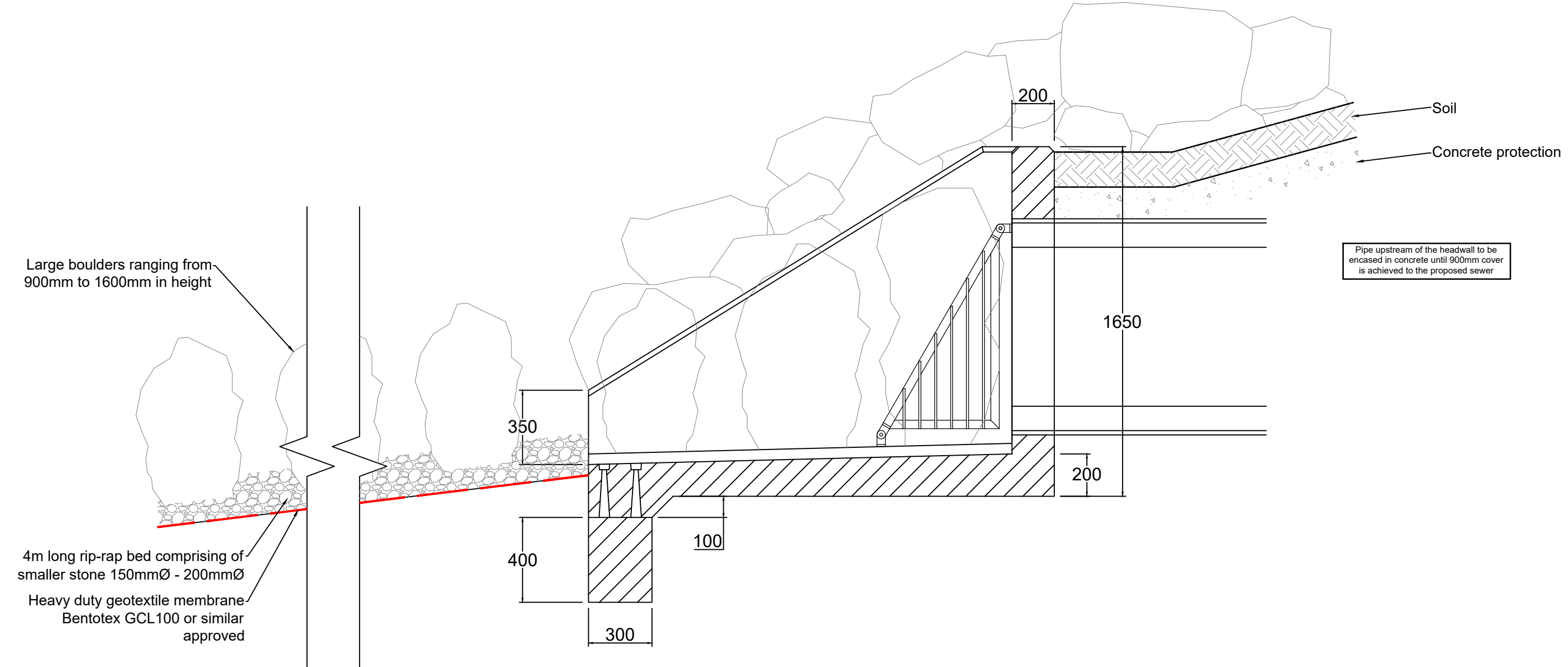
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- All flat and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
- Ensure vertical flats are fully welded both sides where possible.
- All sharp edges and burrs are to be removed.
- Remove all weld spatter.
- Holes by punching are permitted without reaming.
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PROPOSED SFA15B HEADWALL DETAILS
SCALE 1:20

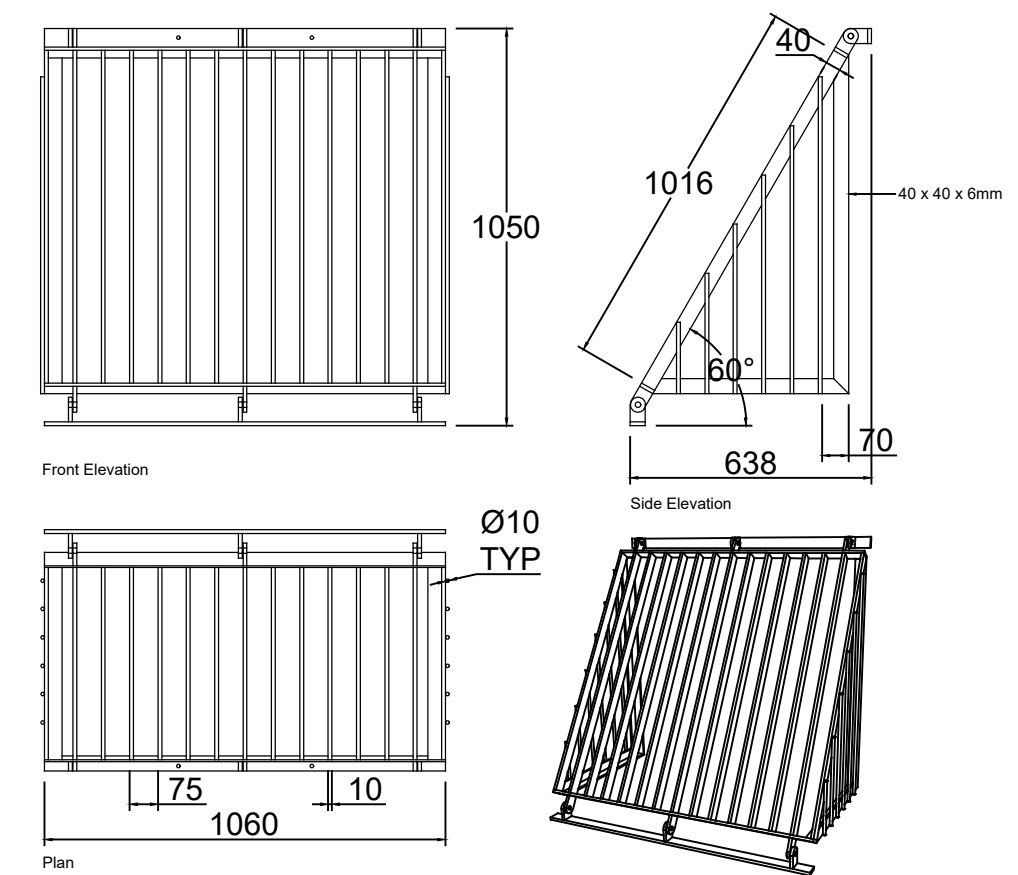
Carefully placed boulders at a similar height to the headwall to be placed leaving a suitable void to allow a free flow of water



PROPOSED SFA15B HEADWALL SECTION
SCALE 1:20

Large boulders ranging from 900mm to 1600mm in height

4m long rip-rap bed comprising of smaller stone 150mmØ - 200mmØ Heavy duty geotextile membrane Bentotex GCL100 or similar approved



750mm - 60° Trash Screen with Sides
40 x 10mm flats at 75mm Centres
SCALE 1:20

- Notes:**
- For proposed headwall and basin layout refer to Avie drawing P2741-01-02
 - Headwall details and dimensions are based on a pre-cast Althon unit (refer to above notes for details)
 - Boulders have been proposed as a form of fall protection around the headwall. Upon the apron boulders will act as a form of velocity control as surface water enters the basin, these boulders should be the same height as the headwall. They should be carefully placed to ensure large voids for water to flow freely between.
 - 4m of rip-rap is proposed from the headwall edge, these should consist of a layer of 150mmØ - 200mmØ stone with boulders placed on top at a similar size to that placed on the apron. Rip-rap should be placed on a heavy duty geotextile such as Bentotex GCL100 or similar approved.
 - All proposed boulders (excluding rip-rap and the headwall apron) should be between 500mmØ - 750mmØ and should be installed / placed to the satisfaction and specification of the LLFA.

Rev	Revised to SCC comments	Initial issue	Details	By	Chk	Date
A				JJB	JJB	12.05.2020
Ø				STP	JJB	12.05.2020

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AVIE CONSULTING LTD

Client:	Avant Homes								
Project:	Mosborough								
Title:	Proposed Headwall Details Basin Inlet/ Outlet								
Drawn:	STP	Checked:	JJB	Date:	May 2020	Scale:	1:20	Original dwg size:	A1
Drawing Number:	P2741-09-08						Rev:	A	