

The Lillies, Yapton Road Barnham

Maintenance Plan

Discharge of Planning Condition 8
Revision E

September 2020



Woods Hardwick
Architecture Engineering Planning Surveying



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Report Reference

17748/MP Rev E

Revision History

Rev	Amendments	Prepared By	Checked By	Date
First Issue	N/A	YK	GBR	09/09/2019
A	Minor amendments to incorporate Client's comment.	YK	GBR	03/04/2020
B	Minor amendments following ADC comments.	YK	GBR	20/04/2020
C	Minor amendments following ADC comments	YK	GBR	12/05/2020
D	Minor amendments following ADC comments	YK	GBR	06/08/2020
E	Drainage Drawings updated	YK	GBR	18/09/2020



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Introduction

Introduction

1.1 This report has been prepared on behalf of Matthew Homes Ltd in support of their Reserved Matters application for the proposed development known as The Lillies, Yapton Road, Barnham.

1.2 The purpose of this report is to provide a maintenance plan for the sustainable drainage components and to allow discharge of Planning Condition 8 of the reserved matters pursuant to the outline consent (ref. BN/32/15/OUT). A copy of the consent can be found in **Appendix A**.

1.3 Planning condition 8 is related to the maintenance plan of the sustainable drainage components and states:

Development shall not commence until full details of the maintenance and management of the SuDS system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include details of financial management and arrangements for the replacement of major components at the end of the manufacturers recommended design life. Upon completed construction of the SuDS System, the owner or management company shall strictly adhere to and implement the recommendations contained within the manual.

1.4 This document provides the whole life maintenance plan, required to discharge the condition.

Proposed Development

Proposed Development

- 2.1 The development site is located on the south side of Yapton Road, Barnham. Barnham is located in West Sussex, approximately 5.6km north east of Bognor Regis and 10.4km east of Chichester. A Site Location Plan is provided in **Appendix B**.
- 2.2 The site, which covers an area of approximately 1.1ha, is currently abutted: by open agricultural land to the south, residential dwellings to the west and to the east by a site containing glass houses and poly tunnels.
- 2.3 The site has previously been used as a holiday park which included static caravans, touring caravans, fixed chalets and areas for tents.
- 2.4 Development proposals comprise 38 residential dwellings plus associated infrastructure. Vehicular access will be taken from Yapton Road. A copy of the Site Layout can be found in **Appendix C**.

Surface Water Drainage Strategy

- 2.5 In accordance with the approved strategy, surface water runoff from the development site will drain to the existing watercourse located south of the site. The discharge will be restricted via a flow control device to the approved 5l/s rate.
- 2.6 Surface water attenuation will be provided within the proposed lined permeable paving, attenuation crates and a depression in the public open space. The proposed depression will be circa 1m deep and will have 1 in 3 side slopes.
- 2.7 Copies of the Engineering Layout Drawings, Estate Plan and Construction Details are provided in **Appendix D, E and F**, respectively.

Maintenance and Management

Maintenance and Management

- 3.1 The surface water sewers, flow control device and headwalls will be offered to Southern Water for adoption under S104 of the Water Industry Act. This includes the pipes which run between the hydrobrake chamber and SuDS depression in the south east part of the site plus the associated headwall and grille.
- 3.2 These systems will be subject to the maintenance regime of Southern Water which is subject to regulatory approval.
- 3.3 All non-adoptable manholes/pipes/catchpits/channel drains within plot boundaries will be maintained by the residents up to the boundary of their properties.
- 3.4 The proposed filter drain to the rear of plots 14-17 will be maintained by a management company. The filter drain will discharge to the existing ditch south of the site via bagwork headwall.
- 3.5 It is noted that the riparian owner of the ditch is normally the adjoining landowner. Therefore, it is envisaged that the aforementioned bagwork headwall and existing ditch adjacent to the southern site boundary will be maintained by a management company.
- 3.6 The areas of permeable paving will be conveyed to the households that are accessed from it. Homeowners will be made aware of their maintenance responsibilities which will also be included in the deeds for the property and the Homeowner Pack/Homecare Booklet or similar.
- 3.7 Where the permeable paving is in shared areas, it will be maintained by a management company.
- 3.8 The Interpave “Guide to the Design, Construction and Maintenance of Concrete Block Permeable Pavements” demonstrates that long term maintenance needs comprise no more than simple sweeping.
- 3.9 The Management Company is funded by way of collecting a service (revised annually) charge from the residents, who sign up to the service charge at plot purchase stage. The company is legally responsible to maintain and manage the common areas and systems under its remit. Residents can take over the management of the company but cannot absolve its responsibility to manage the common areas, thereby guaranteeing a management mechanism in perpetuity.
- 3.10 The SuDS depression and attenuation crates will be managed by a Management Company and will require routine inspections to assess the need for maintenance. The inspections required are:

Item	Routine Inspections for Maintenance	Min. Frequency	Responsibility
Pipes / Manholes / Catchpits / Channel Drains	Inspect surface access points to manholes and catchpits as well as the surrounding area. Particular attention should be paid to damage or blockage. To be visually inspected after heavy rainfall events to ensure that they are free of debris and litter.	6 monthly As required	Southern Water / Residents
Filter Drain	To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Management Company
Balloon Leaf Guards	To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Residents
Flow Control Devices (including Orifice Plates)	Inspect flow control devices (including orifice plates) & grill for blockages, damage and general condition. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Southern Water
Depression / Riparian Ditch	Inspect depression/ditch for level of silt build-up, general litter/debris build-up and erosion or damaged areas To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Management Company
Headwalls (including grilles)	Inspect headwalls for signs of deterioration (scouring), blockage or damage. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	To be carried out in accordance with water authority and/or Maintenance Company's standard maintenance procedures.	Southern Water / Management Company
Permeable Pavement	To be visually inspected after heavy rainfall events to ensure they are free of debris and litter.	6 monthly As required	Residents / Management Company
Attenuation Crates	Inspect headwalls and flap valves for signs of deterioration (scouring), blockage or damage. To be visually inspected after heavy rainfall events to ensure they are free of debris and litter	6 Monthly As required	Management Company

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- 3.11 In addition, personnel completing the routine inspections for maintenance should be generally observant of items such as equipment failures, leaking water, scouring and/or signs of blockages of water flow. If such items are observed, an immediate inspection for engineering maintenance may be necessary.
- 3.12 It should be noted that the majority of the proposed orifice plates are located downstream of the proposed permeable paving therefore have very minimal risk of blockage. Where orifice chambers are directly serving areas other than permeable paving i.e. roofs, balloon leaf guards will be used on gutters so there will be no debris in the control chamber.
- 3.13 Engineering inspections will generally comprise a walk over survey of the site, along with additional investigation activities as considered necessary. These inspections are primarily concerned with checking engineering aspects of the drainage that are not likely to be picked up during a routine inspection such as manhole damage and concrete deterioration.

- 3.14 During inspections for engineering maintenance, care is needed to look for signs of pipe blockages. This can only be checked at the inlet and outlet of manholes at the base. Items that are to be subject to Engineering Inspections for Maintenance will comprise of those listed in the table below:

Item	Engineering Inspections for Maintenance
Manholes / Catchpits	All manholes/catchpits will require to be inspected externally and internally. External inspections will determine the overall condition of the access points, and should record deterioration of exposed concrete, access lids, restricted access due to overgrown vegetation/debris.
Filter Drain	External inspections will determine the overall condition of the filter drain to ensure it is free from silt/debris build up, restricted access due to overgrown vegetation/debris and should record any deterioration/erosion.
Balloon Leaf Guards	Inspections will determine the overall condition of the balloon leaf guards to ensure it is free from silt/debris build up.
Flow Control Device (including Orifice Plates)	Inspections will determine the overall condition of the flow control device/orifice plates to ensure it is working efficiently and effectively.
Depression / Riparian Ditch	Inspections will determine the overall condition of the depression/ditch to ensure it is free from silt/debris build-up, restricted access/flow due to overgrown vegetation/debris and should record any deterioration/erosion.
Headwalls (including grilles)	Inspections will determine the overall condition of the headwalls and should record deterioration of exposed concrete, evidence of exposed reinforcement or concrete staining due to deteriorating reinforcement below the surface, damage to headwalls and restricted access/flow due to overgrown vegetation/debris.
Permeable Pavement	Inspections will determine the overall condition of the permeable paving system to ensure it is working efficiently and effectively.
Attenuation Crates	Inspections via inspection chambers/accesses and upstream/downstream manholes will determine the overall condition of the attenuation crates to ensure they are free from silt/debris build up and should record any defects deterioration.

- 3.15 As a result of the routine inspections, a schedule of maintenance activities shall be drawn up to address those issues identified during the inspection. Examples of possible maintenance activities may comprise, but not limited to those listed in the table below:

Item	Scheduled Maintenance Activities	Min. Frequency
Manholes / Catchpits / Channel Drains	Clear accumulated sedimentation Repair/replace damaged pit covers and grates	6 monthly As required
Filter Drain	Clear accumulated sedimentation Clear accumulated debris Grass cutting and vegetation management Repair areas of erosion, other damage or re-seeding/re-turfing	6 monthly Monthly Monthly to start then as required As required
Balloon Leaf Guard	Clear accumulated sediment and debris Repair/replace damaged balloon leaf guards	6 monthly As required
Pipes / Flow Control Device (including Orifice Plates)	Clear accumulated sediment and debris	6 monthly
Depression / Riparian Ditch	Clear accumulated sedimentation Clear accumulated debris Grass cutting and vegetation management Repair areas of erosion, other damage or re-seeding/re-turfing	6 monthly Monthly Monthly to start then as required As required
Headwalls (including grilles)	Repair/replace damaged headwall Clear vegetation/debris from outlet pipe.	To be carried out in accordance with water authority and/or Maintenance Company's standard maintenance procedures.
Permeable Pavement	Clear accumulated sediment and debris	As required
Attenuation Crates	Clear accumulated sediments and debris	6 Monthly

3.16 The table below highlights the likely renewal and replacement works that will be required and how this work will be funded.

Item	Renewal & Replacement Works	Undertaken / Financed by
Flow Control Device (including Orifice Plates)	Flow control/Orifice Plate to be replaced by a competent Contractor to the manufacturer specification	The flow control manhole will form part of the network to be adopted by Southern Water who will be responsible for its repair and replacement after the manufacturer's warranty expires.
Depression / Riparian Ditch	Build up of embankments due to erosion with suitable material	Work to be funded by developer and undertaken by Management Company.
Permeable Pavement	When water starts to run of the pavement: To start: • Remove a suitable block along the perimeter or one with a larger joint width surround to it • Remove the remaining blocks and stack neatly nearby • Remove laying course onto a suitable membrane to be stockpiled • Remove aggregate onto a separate membrane to be stockpiled • Wash the aggregate and/replace if necessary • Relay the aggregate, laying course and block paving to the manufacturer's specification	Permeable paving repair on private areas will be the responsibility of individual householders. Within shared areas, any maintenance work required beyond the expiry of the manufacturers warranty will be undertaken by the Management Company



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Maintenance Compliance

Maintenance Compliance

4.1 Presented below is a summary of how the proposed maintenance plan complies with the requirements of the condition and where the relevant information can be found within this report.

4.2 Condition 8

Requirement	Compliance
Development shall not commence until full details of the maintenance and management of the SuDS system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include details of financial management and arrangements for the replacement of major components at the end of the manufacturers recommended design life. Upon completed construction of the SuDS System, the owner or management company shall strictly adhere to and implement the recommendations contained within the manual.	The maintenance plan has been provided within Section 3. The plan outlines who will be responsible for carrying out the maintenance, likely inspections required and likely renewal replacement works. The plan also sets out who would be responsible for financing each element of the works.

4.3 From the information provided within this report, it can therefore be concluded that this Maintenance Plan meets the requirements of the above condition which can therefore be discharged.

Appendix A

Outline Planning Consent



Town & Country Planning Act 1990 (as amended)
Town & country Planning (Development Management
Procedure) (England) Order 2015 - Article 5
Application for Outline Consent
DECISION NOTICE

Application Ref: BN/32/15/OUT

1 To Addressee

Phase 2 Planning and Development Ltd
 250 Avenue West
 Skyline120
 Great Notley
 Braintree
 Essex
 CM77 7AA

2 Site Address

Rear of The Lillies
 Yapton Road

 PO22 0AY

3 Description of Development

Outline application with all matters reserved for the erection of 38 No. dwellings including open space, landscaping & new access. This application is a Departure from the Development Plan.

In pursuance of their powers under this Act and related Orders and Regulations the Council **PERMIT** this development to be carried out in accordance with the application and plans and subject to compliance with the following conditions and Section 106 Agreement.

- 1 The permission hereby granted is an outline permission under s92 of the Town and Country Planning Act 1990 (as amended) and an application for the approval of the Local Planning Authority to the following matters must be made not later than the expiration of 2 years beginning with the date of this permission:-

- (a) Layout;
- (b) Scale;
- (c) Appearance;
- (d) Landscaping.

Reason: To enable the Local Planning Authority to control the development in detail and to comply with Section 92 of the Town and Country Planning Act 1990 (as amended).

- 2 The development hereby permitted shall be begun either before the expiration of 5 years from the date of this permission, or before expiration of 2 years from the date of approval of the last of the reserved matters to be approved, whichever is the later.

Reason: To enable the Local Planning Authority to control the development in detail and to comply with Section 92 of the Town and Country Planning Act 1990 (as amended).

- 3 The development hereby approved shall be carried out in accordance with the following approved plans:

409.000.01 - Site Location Plan
409.200.03 - Proposed Site Layout
15192-BT1 - Tree protection Plan

Reason: For the avoidance of doubt and in the interests of amenity and the environment in accordance with policy GEN7 of the Arun District Local Plan.

- 4 Development shall not begin until a scheme for protecting the proposed dwellings from noise from road traffic adjacent to the proposed development has been submitted and approved by the Local Planning Authority. Any works which form part of the scheme approved by the Authority shall be completed before any permitted dwelling is occupied unless an alternative period is agreed in writing by the Authority.

Reason: To safeguard the amenities of residents in accordance with Arun District Local Plan policies GEN7 and GEN32.

- 5 Each dwelling shall be provided with a garden area which has a predicted noise level of less than or equal to LAeq, 55 dB (measured over any 1 hour period) within the first 5 metres from the building facade.

Reason: To safeguard the amenities of residents in accordance with Arun District Local Plan policies GEN7 and GEN32.

- 6 Development shall not commence until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority.

The design should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, the recommendations of the SUDS Manual produced by CIRIA.

Winter groundwater monitoring to establish highest annual ground water levels and Percolation testing to BRE 365, or similar approved, will be required to support the design of any Infiltration drainage.

No building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity.

Reason : To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7 and GEN9 of the Arun District Council Local Plan.

- 7 The development shall not proceed until formal consent has been approved in writing from the Lead Local Flood Authority (WSSC) or its agent (ADC) for the discharge of any flows to watercourses, or the culverting, diversion, infilling or obstruction of any watercourse on the site.

Any discharge to a watercourse must be at a rate no greater than the pre-development run off values.

Reason : To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7 and GEN9 of the Arun District Council Local Plan.

- 8 Development shall not commence until full details of the maintenance and management of the SUDs system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include details of financial management and arrangements for the replacement of major components at the end of the manufacturers recommended design life. Upon completed construction of the SuDs System, the owner or management company shall strictly adhere to and implement the recommendations contained within the manual.

Reason: To ensure the efficient maintenance and on going operation of the SuDs system and to ensure the best practice in line with guidance set out in 'The SuDs Manual' CIRIA publication ref: C697 Chapter 22.

- 9 The development layout shall not be agreed until such time that arrangements for the future access and maintenance of any watercourse or culvert (piped watercourse) crossing or abutting the site has been submitted and approved in writing by the Local Planning Authority.

No construction is permitted, which will restrict current and future land owners from undertaking their riparian maintenance responsibilities of any watercourse on or adjacent to the site.

Reason: To ensure that the duties and responsibilities, as required under the Land Drainage Act 1991, and amended by the Flood and Water Management Act 2010, can be fulfilled without additional impediment following the development completion.

- 10 Development shall not begin until a surface water drainage scheme for the site, based on sustainable drainage principles and an assessment of the hydrological and hydro geological context of the development, has been submitted to and approved in writing by the local planning authority. The drainage designs should demonstrate that the surface water runoff generated up to and including the 100 year, plus 30% for climate change, critical storm will not exceed the greenfield runoff from the current site following the corresponding rainfall event. The scheme shall subsequently be implemented in accordance with the approved details before the development is completed.

The scheme shall also include:

Details of how the scheme shall be maintained and managed after completion.

Reason: To prevent the increased risk of flooding, to improve and protect water quality, and ensure future maintenance of these in accordance with Arun Development Plan Policies GEN7 and GEN11.

- 11 A Rising Main and foul sewer crosses the site. Development shall not begin until the exact position of the rising main and foul sewer is determined on site before the layout of the proposed development is finalised.
- No development or new tree planting should be located within 3m either side of the centreline of the rising main and foul sewer.
 - No new soakaways should be located within 5m of a public sewer.
 - All existing infrastructure should be protected during the course of construction works.
- Reason: To protect the drainage apparatus and infrastructure.
- 12 No development shall take place until there has been submitted to, and approved by, the Local Planning Authority, a landscaping scheme including details of hard and soft landscaping and details of existing trees and hedgerows to be retained, together with measures for their protection during the course of the development. The approved details of the landscaping shall be carried out in the first planting and seeding season, following the occupation of the buildings or the completion of the development, whichever is the sooner, and any trees or plants which, within a period of five years from the completion of development, die, are removed or become seriously damaged or diseased, shall be replaced in the next planting season with others of similar size and species, unless the Local Planning Authority gives written consent to any variation.
- Reason: In the interests of amenity and of the environment of the development in accordance with policy GEN7 of the Arun District Local Plan.
- 13 The existing trees/bushes/hedges shall be/retained/protected in a manner to be agreed with the Local Planning Authority before the development commences for the duration of the development and shall not be damaged, destroyed, uprooted, felled, lopped or topped during that period without the previous written consent of the Local Planning Authority. Any trees removed without such consent or dying or being seriously damaged or becoming seriously diseased during that period shall be replaced in the following planting season with trees of such size and species as may be agreed with the Local Planning Authority.
- Reason: To ensure the retention of vegetation important to the visual amenity, /the ecological quality/and for the environment of the area in accordance with policy GEN7 of the Arun District Local Plan.
- 14 No development shall be carried out unless and until a schedule of materials and finishes and samples of such materials and finishes to be used for external walls (and roofs) of the proposed building(s)/extension have been submitted to and approved by the Local Planning Authority and the materials so approved shall be used in the construction of the building/extension.
- Reason: To enable the Local Planning Authority to control the development in detail in the interests of amenity and in accordance with policy GEN7 of the Arun District Local Plan.

- 15 Prior to the commencement of construction works details of a proposed foul drainage system shall be submitted to and approved in writing by the Local Planning Authority (including details of its siting, design and subsequent management/maintenance) and no dwelling shall be occupied until works for the disposal of sewage have been fully implemented in accordance with the approved details.
- Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7 and GEN9 of the Arun District Local Plan.
- 16 Prior to the commencement of construction works on each phase of the development of any preparatory works a detailed ecological enhancement scheme (which shall include the installation of bat boxes throughout the site) shall be submitted to the LPA for approval and will be based on the recommendations within the supporting ecological statement and as appropriate. All approved details shall then be implemented in full and in accordance with the agreed timings and details.
- Reason: This condition is necessary to ensure the protection of wildlife and supporting habitat and secure opportunities for the enhancement of the nature conservation value of the site in line with national guidance and Policy GEN23 and GEN29 of the Arun District Local Plan (2003).
- 17 No vehicles shall be operated on the site except between the hours of:
- 7.00 and 19.00 on Mondays to Fridays inclusive
7.00 and 13.00 on Saturday
Not at any time on Sundays or Public Holidays
- Reason: In the interests of amenity in accordance with Arun District Local Plan policies GEN7 and GEN32.
- 18 The landscape details referred to in Condition 1 shall include a landscape management plan, including long-term design objectives, management responsibilities and maintenance schedules for all landscape areas other than privately owned domestic gardens. The landscape management plan shall be implemented in accordance with the approved details.
- Reason: In the interest of amenity and the environment of the development in accordance with policy GEN7 of the Arun District Local Plan.
- 19 No residential development shall take place until details of laying out, timetable for provision and future maintenance of Public Open Spaces has been submitted to and approved by the local planning authority. The layout details submitted in compliance with Condition 1 shall define the boundaries of such areas, their proposed use, the items of equipment, means of enclosure and all other structures to be installed. The development shall be carried out in accordance with the approved details.
- Reason: To ensure that the informal open space, which is considered a necessary part of the development, is provided to an acceptable standard within an agreed timescale in accordance with policies GEN7 and GEN8 of the Arun District Local Plan.

- 20 At least 10% of the energy supply of the development shall be secured from decentralised and renewable or low-carbon energy sources or equivalent fabric first standards that would secure a 10% reduction in energy use. Details and a timetable of how this is to be achieved, including details of physical works on site, shall be submitted to and approved in writing by the local planning authority. The approved details shall be implemented in accordance with the approved timetable and retained as operational thereafter, unless otherwise agreed in writing by the local planning authority.

Reason: In order to seek to achieve high levels of energy efficiency in accordance with the aims of the NPPF.

- 21 No Part of the development shall be first occupied until a scheme is submitted to and approved in writing by the local planning authority that provides for covered and secure cycle parking spaces for each property within the development.

Reason: To provide alternative travel options to the use of the car in accordance with current sustainable transport policies.

- 22 No development shall take place, including any works of demolition, until a construction management plan (CMP) has been submitted to and approved in writing by the local planning authority. Thereafter the approved CMP shall be implemented and adhered to throughout the entire construction period. The CMP shall provide details as appropriate but not necessarily be restricted to the following matters, the anticipated number, frequency and types of vehicles used during construction.

- the method of access and routing of vehicles during construction;
- the parking of vehicles by site operatives and visitors;
- the loading and unloading of plant, materials and waste;
- the storage of plant and materials used in construction of the development;
- the erection and maintenance of security hoarding;
- the provision of wheel washing facilities and other works required to mitigate the impact of construction vehicles upon the public highway (including the provision of temporary Traffic Regulation Orders);
- measures to control the emission of dust and dirt during demolition and construction, lighting for construction and security;
- details of public engagement both prior to and during construction works; and
- Confirmation that no burning of materials will take place on site.

Reason: In the interest of highway safety and the amenities of the area.

- 23 No development shall take place until details of screen walls and/or fences have been submitted to and approved by the Local Planning Authority and no dwelling shall be occupied until such screen walls and/or fences associated with them have been erected.

Reason: In the interests of amenity in accordance with policy GEN7 of the Arun District Local Plan.

- 26 INFORMATIVE

Please note that related to this permission there is an agreement under Section 106 of the Town & Country Planning Act 1990.

INFORMATIVE: The applicant/developer should enter into a formal agreement with Southern Water to provide the necessary sewage infrastructure required to service this development.

INFORMATIVE: The reserved matters application must address the following:

- The geometries of the proposed access and tracking to demonstrate two cars manoeuvring the access (in-out arrangement) will need to be demonstrated.
- A Stage 1 Road Safety Audit will need to demonstrate the suitability of the access, including in relation to pedestrian safety.
- The geometries of the existing access 'adaption' will need to be provided.
- A more clear site layout will need to be provided, demonstrating car and cycle parking relative to each plot.
- 88 car parking spaces are to be provided, with both long and short stay cycle parking.
- Refuse vehicle carry distances are to be provided in line with Manual for Streets requirements.
- Extent of adoption plans (if applicable) will need to be provided.



Karl Roberts
Director Planning & Economic Regeneration

Case Officer: David Innes

Date of Decision:

5 April 2016

Arun District Council
The Arun Civic Centre
Maltravers Road
Littlehampton
West Sussex BN17 5LF

IT IS IMPORTANT THAT YOU READ THE NOTES ATTACHED TO THIS DOCUMENT

APPEALS TO THE SECRETARY OF STATE

If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.

If this is a decision on a planning application relating to the same or substantially the same land and development as is already the subject of an enforcement notice, and you want to appeal against this planning application decision, then you must do so within 28 days of the date of this notice.

If an enforcement notice is served relating to the same or substantially the same land and development as in your application and you want to appeal against this planning application decision, then you must do so within 28 days of the date of service of the enforcement notice, or within 12 weeks of the date of this notice, whichever period expires earlier.

Otherwise, if you want to appeal against this decision then you must do so within 6 months of the date of this notice.

Appeals must be using a form which you can get from the Secretary of State at Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6PN (Tel: 0303 444 5000) or online at <http://acp.planninginspectorate.gov.uk>

The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.

The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

PURCHASE NOTICES

If either the local planning authority or the Secretary of State refused permission to develop land or grants it subject to conditions, the owner may claim that he can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the Council (that is, where the land is situated in a National Park, the National Park authority for the Park, or in any other case the district council in whose area the land is situated). This notice will require the Council to purchase the owner's interest in the land in accordance with the provisions of Chapter 1 of Part VI of the Town & Country Planning Act 1990.

Please note that this decision notice only relates to matters under the Planning Acts and does not give consent under any other legislation that may apply to the development. You will need to carry out your own checks to determine whether any other consents or permissions are required. For example, the Building Regulations are likely to apply to most developments, and a Highways Licence may be required from West Sussex County Council for any development within the public highway (including the placing of skips on highway land).

Appendix B

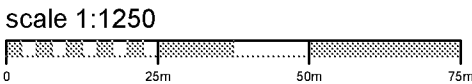
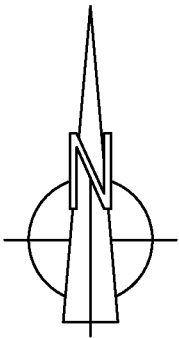
Site Location Plan



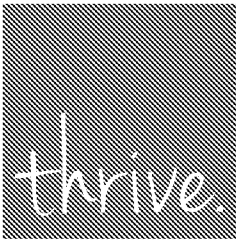
NOTES

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Licence No. 100007359. DO NOT scale from this drawing.
Contractors, Sub Contractors and Suppliers are to check all relevant dimensions and levels of the site and building before commencing any shop drawings or building work. Any discrepancies should be recorded to the Architect.
Where applicable this drawing is to be read in conjunction with the Consultants' drawings.

REV	DESCRIPTION	DATE	AUTH	CHK'D
P1	Description	00/00/00	abc	abc



PLANNING



Romsey Office
Building 300, The Grange, Romsey Road, Michelmersh, SO51 0AE
t: 01794 367703 f: 01794 367276 www.thrivearchitects.co.uk

PROJECT
Lillies, Yapton Road
Barnham
For: Matthew Homes

DRAWING
Location Plan

SCALE	DATE	AUTHOR	CHK'D
1:1250 @ A3	April 17	FK	
JOB NO.	DRAWING NO.	REV	
MATT151202	LP.01	A	

CLIENT REF.

Appendix C

Site Layout



Woods Hardwick

Architecture

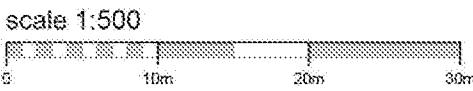
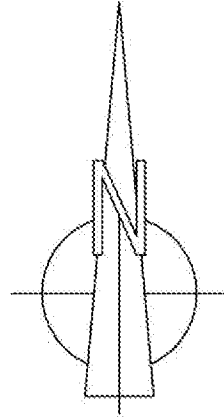
Engineering

Planning

Surveying



NOTES				
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REV	DESCRIPTION	DATE	AUTHOR	CHK'D
A	Status changed to Planning.	12/02/18	FK	
A1	Plot numbers updated. Flat Block A footprint revised. POS area increased.	01.06.18	SJF	
A2	Parking area around flats amended.	15.06.18	MD	
A3	Parking area around flats amended.	18.06.18	MD	
A4	Depression added to rear of site.	18.06.18	MD	



PLANNING



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PROJECT
Lillies, Yapton Road
Barnham
For: Matthew Homes

DRAWING
Colour Site Layout

SCALE	DATE	AUTHOR	CHK'D
1:500 @ A1	02/18	MD	FK
JOB NO.	DRAWING NO.	REV	
MATT151202	CSL.01	A4	
CLIENT REF.			

Appendix D

Engineering Layout Drawings



	Adaptable SW drainage
	Adaptable FW drainage
	Existing FW drainage
	Adaptable rising main
	Storm drainage
	Foul drainage
	Gully
	Linear Drain (ACO or similar approved)
	Permeable paving & Bottom of stone level
	Extra facing brickwork indicating minimum required. Contractor to confirm exact requirement.
	Stepped damp proof course (SDPC) to Architects details
	Steps (280mm min. going 150mm max. riser)
	Gravel board (Max. retaining as annotated)
	Retaining wall (Max. retaining as annotated)
	Part M - Access type
	Housing Association
	Spot level
	Gradient
	Finished Floor Level
	Adaptable Street Lighting
	Polypipe Orifice Plate flow control chamber (text notes invert level and orifice diameter)

The diagrams illustrate four different ramp approaches, each with specific dimensions and requirements:

- Level approach:** Shows a ramp with a width of 1200mm min and a slope of 1 in 60 max. grade.
- Gently sloping approach:** Shows a ramp with a width of 1200mm min and a slope of 1 in 20 max. grade.
- Ramped approach:** Shows a ramp with a width of 1200mm min and a slope of 1 in 40 to 1 in 60 grade. It includes a 1.2m landing at 1 in 20 required.
- Stepped approach:** Shows a ramp with a width of 900mm min and a slope of 1 in 40 to 1 in 60 grade. It includes a 300mm min. going 75mm min. riser 150mm max. riser 12 no. steps max (without intermediate landing) and a 900mm landing.



ARUN DISTRICT COUNCIL BN/128/20/COC



In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

1. The Contractor should make all necessary enquiries and take all necessary measures to identify the location of existing utilities running through the site. This includes the foul sewer located to the north and rising main to the middle of the site crossing east to west.

2. Unacceptable concentrations of arsenic have been located within the site which will require further testing to determine the extent and appropriate licenced disposal.

For information relating to end use, maintenance, demolition, see the health and safety file.

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

1. Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.
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3. Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.

4. The Designer, Developer and Contractor shall comply with all current requirements in relation to Health, Safety and Welfare.

5. Exact location and level of all existing sewers, drains and services to be checked on site before commencing works.

6. All sewers must be laid from outfall working upstream. Precise depth of outfalls to be checked prior to proceeding with any other works.

7. All adoptable drainage shall comply with Sewers for Adoption 6th Edition for gravity and 7th Edition for pump stations.

8. All private drainage to comply with Section H of the Building Regulations (2015 Edition) and BS 8301:1985.

9. No surface water shall drain from private land or adoptable highway onto adopted highway or vice versa.

10. All manhole / inspection covers and frames within private drives to be Class B125.

11. Private path adjacent to plot 17 must have same construction depth as drive for acceptable loadings from suitable machinery required for ditch maintenance.

12. All pipes to be connected soffit to soffit level.

13. All connections not made to maholes to connect via oblique 45 degree junctions.

14. Regarding ditch headwall, no part of structure to encroach into the ditch profile.

15. Ditch to be cleaned out to satisfaction of ADC engineer

16. Balloon leaf guards to be fitted to all gutters

17. Polypipe orifice chambers to be installed as per manufacturers recommendations.

J	Stone depths added to secondary areas for 3b and 3d	JGF	CLS	18-09-20	
H	Permeable paving adjusted to suit planning comments	CLS	CLS	05-08-20	
G	Permeable drives adjusted following planning comments	CLS	CLS	17-07-20	
F	Notes 16 & 17 added	CLS	CLS	12-05-20	
E	Key amended	JGF	JGF	20-04-20	
D	Amendments following planning comments	CLS	JGF	03-04-20	
C	Amendments following planning comments	CLS	SD	06-02-20	
B	Minor layout amendments	CLS	SD	29-01-20	
A	Perm paving added to private drives and stone depths adjusted	CLS	SD	13-01-20	
REV	DESCRIPTION	DRN	CHD	DATE	
	PRELIMINARY		INFORMATION		TENDER
	CONSTRUCTION		AS BUILT		

SCALE 1:200 @ A1 DATE JULY 2019

DRAWN	WFN	CHK	CLS
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DRAWING NO. 17748-BARN-5-600 REV J

TITLE YAPTON ROAD
BARNHAM

DETAILS

ENGINEERING LAYOUT
SHEET 1



Woods Hardwick

Architecture : Engineering : Planning : Surveying

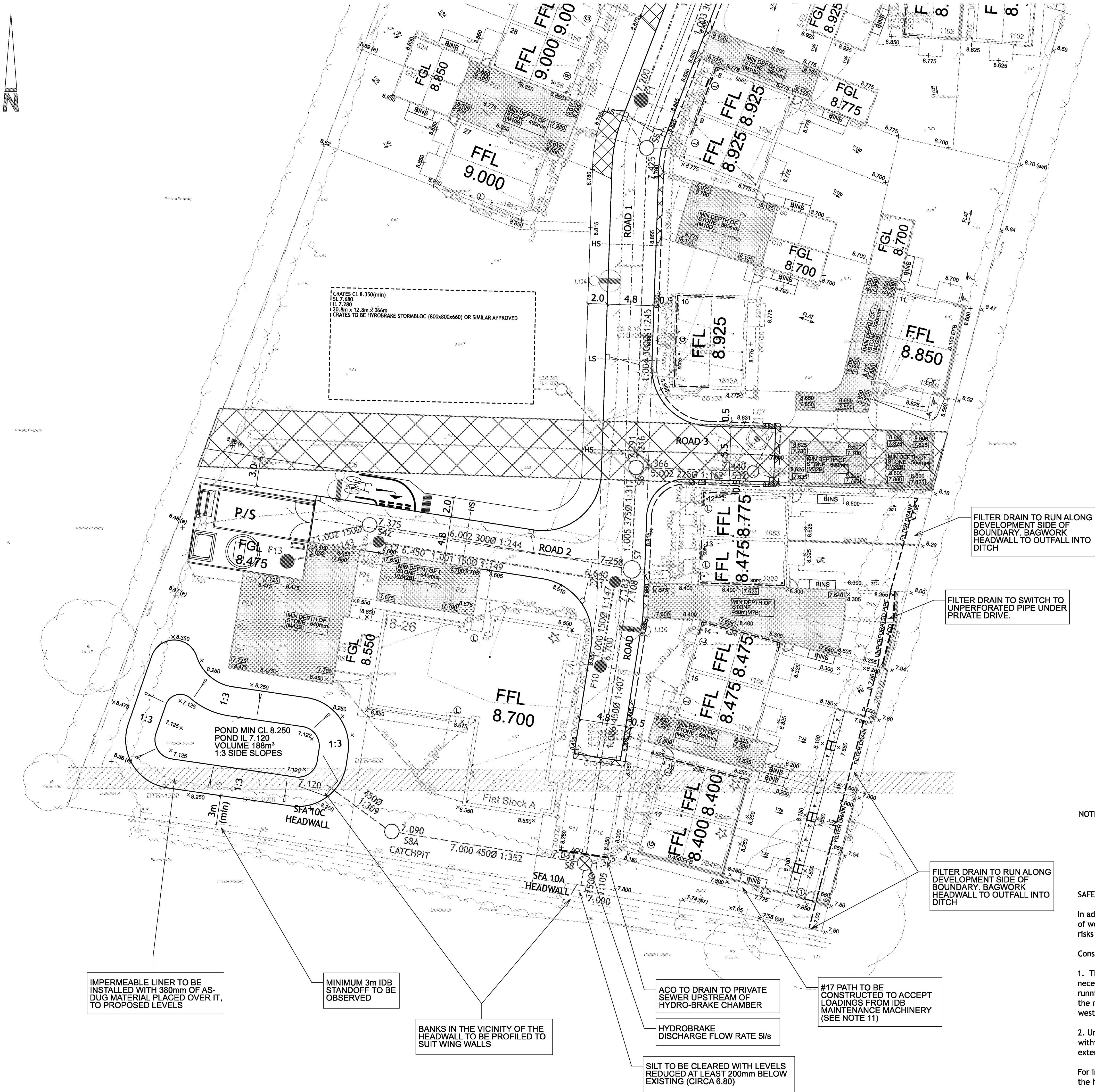
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ARUN DISTRICT COUNCIL 09/12/2010/00C



- KEY**
- Adoptable SW drainage
 - Adoptable FW drainage
 - Existing FW drainage
 - Adoptable rising main
 - Storm drainage
 - Foul drainage
 - Gully
 - Linear Drain (ACO or similar approved)
 - Permeable paving & Bottom of stone level
 - Extra facing brickwork indicating minimum required. Contractor to confirm exact requirement.
 - Stepped damp proof course (SDPC) to Architects details
 - Steps (280mm min. going 150mm max. riser)
 - Gravel board (Max. retaining as annotated)
 - Retaining wall (Max. retaining as annotated)
 - Deep flow gutters
 - Part M - Access type
 - Housing Association
 - Spot level
 - Gradient
 - Finished Floor Level
 - Sewer Easement
 - Adoptable Street Lighting
 - Polypipe Orifice Plate flow control chamber (text notes invert level and orifice diameter)
 - Crates (Polypipe PSM1 or similar approved)

Part M - Mobility Access Types

1200mm min 1 in 60 max. grade	1 in 60 max. grade
1200mm min 1 in 20 max. grade	1 in 20 max. grade
1200mm min 1 in 40 to 1 in 60 grade	1 in 12 max. grade (5m max. length) 1 in 15 max. grade (10m max. length)
1.2m landings at 1 in 20 required	
900mm min 1 in 40 to 1 in 60 grade	300mm 280mm min. going 75mm min. riser 150mm max. riser 12 no. steps max (without intermediate landing) 850mm to 1000mm handrail one side 900mm landing

NOTES CONTINUED

SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

Construction:

- The Contractor should make all necessary enquiries and take all necessary measures to identify the location of existing utilities running through the site. This includes the foul sewer located to the north and rising main to the middle of the site crossing east to west.
 - Unacceptable concentrations of arsenic have been located within the site which will require further testing to determine the extent and appropriate licenced disposal.
- For information relating to end use, maintenance, demolition, see the health and safety file.

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

NOTES

- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.
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- The Designer, Developer and Contractor shall comply with all current requirements in relation to Health, Safety and Welfare.
- Exact location and level of all existing sewers, drains and services to be checked on site before commencing works.
- All sewers must be laid from outfall working upstream. Precise depth of outfalls to be checked prior to proceeding with any other works.
- All adoptable drainage shall comply with Sewers for Adoption 6th Edition for gravity and 7th Edition for pump stations.
- All private drainage to comply with Section H of the Building Regulations (2015 Edition) and BS 8301:1985.
- No surface water shall drain from private land or un-adoptable highway onto adopted highway or vice versa.
- All manhole / inspection covers and frames within private drives to be Class B125.
- Private path adjacent to plot 17 must have same construction depth as drive for acceptable loadings from suitable machinery required for ditch maintenance.
- All pipes to be connected soffit to soffit level.
- All connections not made to maholes to connect via oblique 45 degree junctions.
- Regarding ditch headwall, no part od structure to encroach into the ditch profile.
- Ditch to be cleaned out to satisfaction of ADC engineer
- Cycle link design

J	Crate added to POS	CLS	CLS	18-09-20
H	Permeable drives adjusted to suit planning comments	CLS	CLS	05-08-20
G	Permeable drives adjusted following planning comments	CLS	CLS	17-07-20
F	Filter drain extended, note 18 added, and 1500 incoming pipe adjusted to be soffit to soffit as per ADC Engineers request	CLS	JGF	12-05-20
E	IDB Standoff distance added. Gullies amended adjacent to S5. Filter drain added to rear of plots 14-17	JGF	JGF	20-04-20
D	Amendments following planning comments	CLS	JGF	03-04-20
C	Amendments to stone depths following LLFA comments	CLS	SD	06-02-20
B	Perm paving added to private drives and stone depths adjusted	CLS	SD	13-01-20
A	Final banking gradients added	CLS	JGF	18-10-19
REV	DESCRIPTION	DRN	CHD	DATE

PRELIMINARY	INFORMATION	TENDER
CONSTRUCTION	AS BUILT	

SCALE	1:200 @ A1	DATE	JULY 2019
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DRAWN	WFN	CHK	SD
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DRAWING NO.	17748-BARN-5-601	REV	J
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TITLE	YAPTON ROAD BARNHAM
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DETAILS	ENGINEERING LAYOUT SHEET 2
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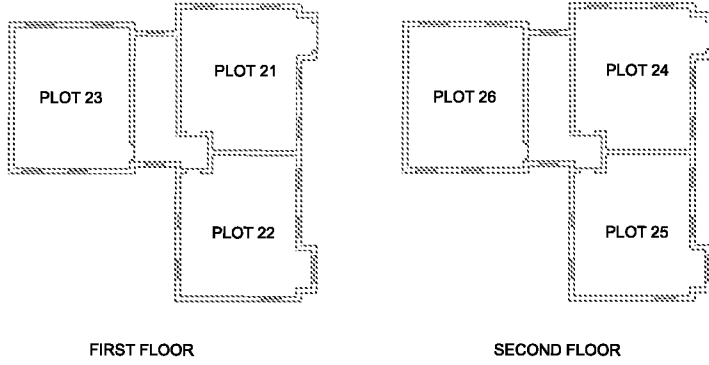
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Appendix E

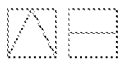
Estate Plan



- KEY
- Site Boundary
 - Estate Road
 - Shared Access Areas with Joint Maintenance Responsibilities
 - P.O.S - Public Open Space to be Transferred to Arun District Council
 - Area to be Transferred to Affordable Housing Provider
 - Marks & Boundary Ownership
 - Sewer Easement
 - Existing Foul Water Sewer with 3m Stand off Distance
 - 3m Buffer Zone
 - Access for Management Company for Maintenance Only
 - P/S Foul Water Pump Station

F	AMENDMENTS FOLLOWING ADJUSTMENTS TO LAYOUT	CLS	JGF	03-04-20
E	AMENDMENTS FOLLOWING CLIENT COMMENTS 19-02-20	AA	CLS	28-02-2020
D	AMENDMENTS FOLLOWING CLIENT COMMENTS 13-02-20	CLS	JGF	13-02-20
C	AMENDMENTS TO THE APARTMENT BLOCK & BLOCK PAVING ADDED	CLS	JGF	24-01-20
B	AMENDMENTS AS PER CLIENT MARK UP AND COMMENTS 13/11/19	BAA	CLS	08-01-20
A	AMENDMENTS AS PER CLIENT MARK UP AND COMMENTS 25/10/19	BAA	CLS	31-10-19
REV	DESCRIPTION	DRN	CHD	DATE
	☒ PRELIMINARY	☐ INFORMATION	☐ TENDER	
	☐ CONSTRUCTION	☐ AS BUILT		

SCALE	1:500 @ A2	DATE	AUGUST 2019
DRAWN	BAA	CHK	CLS
DRAWING NO.	17748-BARN-5-300	REV	F
TITLE	YAPTON ROAD BARNHAM		
DETAILS	ESTATE PLAN		

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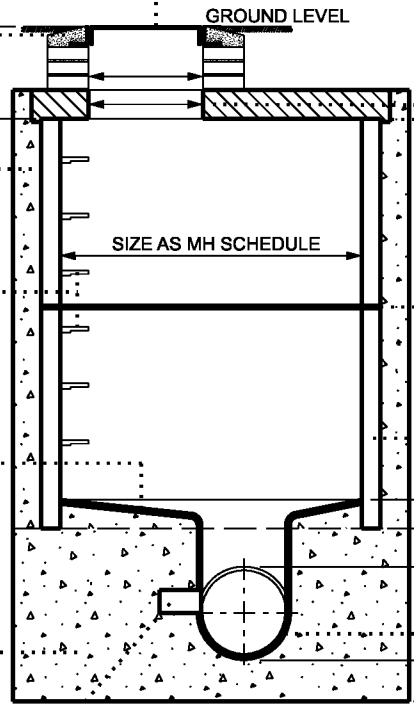
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Appendix F

Construction Details

(Maximum depth from cover level to soffit of pipe 3m)

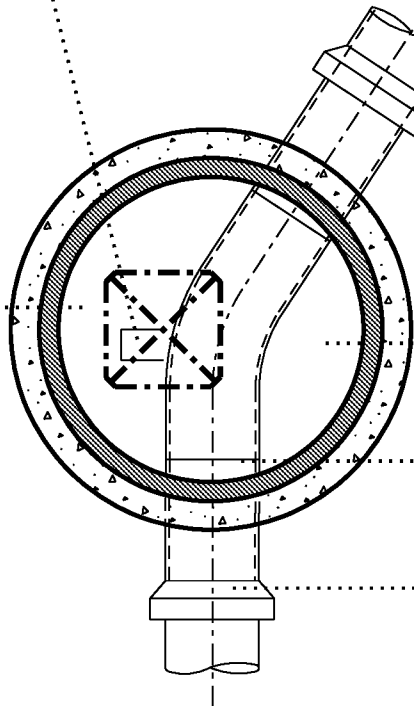
DIA. OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 TO 700	1500
750 TO 900	1800



225mm to barrel of pipe

Rocker pipe to table

SEWER DIAMETER (mm)	EFFECTIVE LENGTH (mm)
150 TO 600	600
601 TO 750	1000
OVER 750	1250



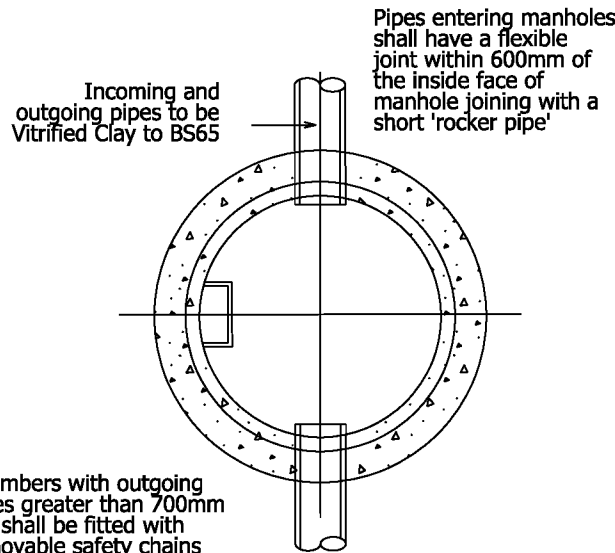
Minimum width of benching to be 225mm

Pipe joint with channel to be located
minimum 100mm inside face of manhole

Joint to be as close as possible to face
of manhole to permit satisfactory joint
and subsequent movement

Minimum width of benching to be 500mm

Chambers with outgoing pipes greater than 600mm diameter shall be fitted with removable stainless steel (Grade 316) safety chains or polypropylene rope tethered to the side of the pipes. Chains to be hung across the pipes in manholes when outgoing pipe is 900Ø or larger



MH S8A ONLY

3. Do not use heavy compactors before there is 600mm of material over pipe.

Pipe Nominal Bore (DN)	Maximum Particle Size (mm)	Class of Bedding	Suitable materials	
			Imported granular materials (Note a)	Maximum CF value for as-dug granular material (Note b)
100	10	S	10mm nominal single- size	0.15
		B		0.30 (Note c)
		F		0.15
		N	Course, Medium or fine sand	
Over 100 to 150	15	S	14mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	Coarse, medium or fine sand	
Over 150 to 500	20	S	14mm to 5mm graded or 20mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	All in aggregate or coarse medium or fine sand	
Over 500 (Note d)	40	S	14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded	0.15
		B		0.30 (Note c)
		F		0.15
		N	All in aggregate or coarse medium or fine sand	

(d) Angular materials should be chosen to ensure sufficient support is provided to these heavier pipes. Crushed rock aggregates to BS 882 are recommended. Air-cooled blast furnace slag to BS 3797 or other granular materials may be used if they show a similar degree of angularity

Diagram illustrating the cross-section of a drainage structure, showing the following layers and dimensions:

- Top layer: Landscape areas, see note 2
- Backfill under roads & paving, see note 1 (450mm, see Note 3)
- Granular bedding and surround carefully compacted (See table for permissible gradings) (150mm)
- Granular bedding (150mm)

Technical drawing of a mechanical part showing a cross-section. The drawing includes dimensions: 300, 100, 150, 150 MIN, and 300. The part features a central circular hole and a rectangular cutout on the right side.

Slab to span 300mm outside of trench and to be provided with a flexible joint (Flexcell or similar) at ever 6 metres

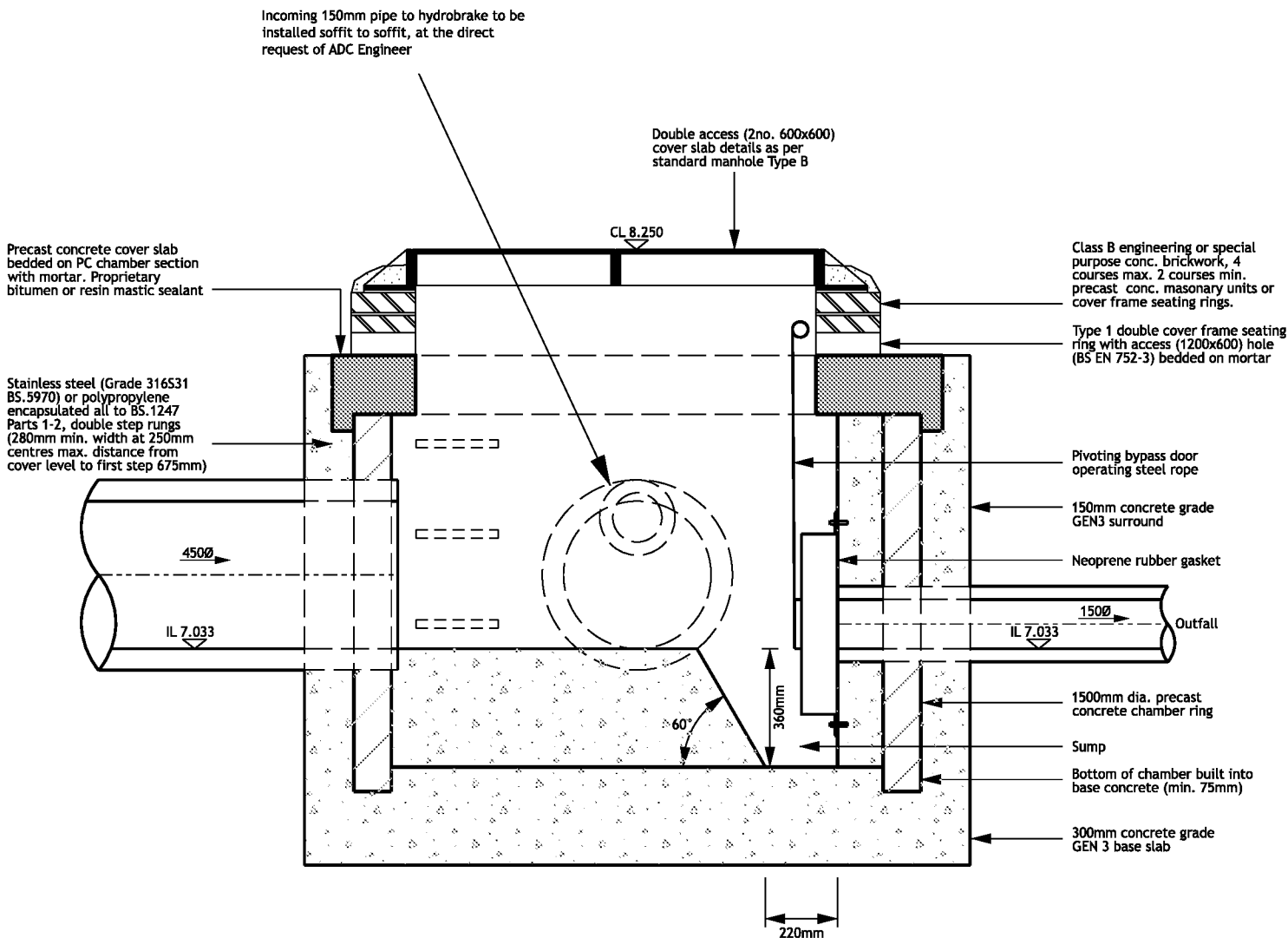
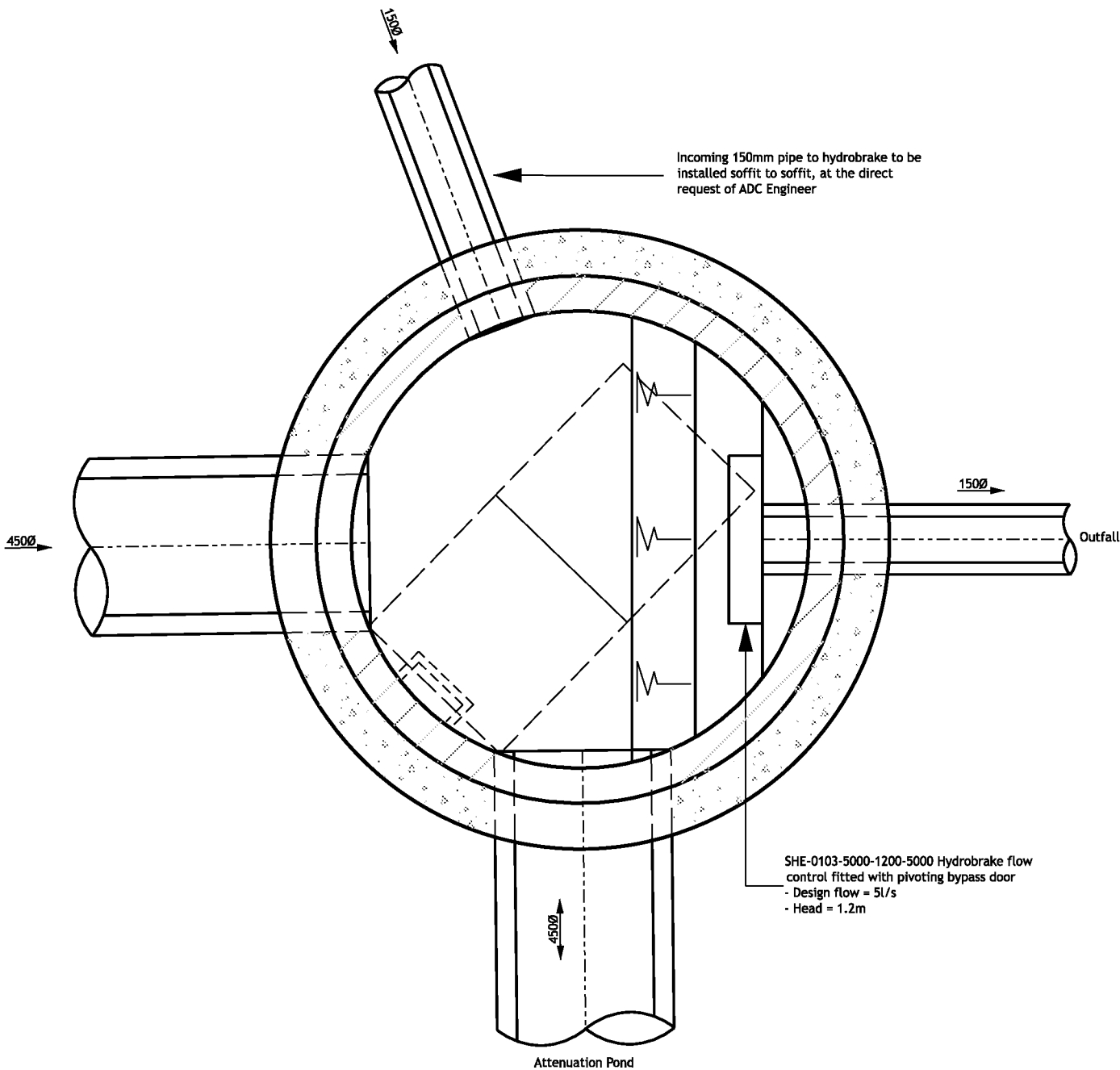
100mm C20 concrete with
A393 reinforcement

Diagram illustrating the cross-section of a road construction detail, showing layers and dimensions:

- Top Layer (Backfill):** Indicated by diagonal hatching. Dimension: 450mm (see Note 3).
- Second Layer (Granular bedding and surround):** Indicated by a stippled pattern. Dimension: 150mm. This layer is carefully compacted (See table for permissible gradings).
- Third Layer (80mm rejects):** Indicated by a pattern of irregular shapes. Dimension: 80mm rejects driven to refusal.
- Central Feature:** A circular feature is shown within the granular bedding layer, with a diameter dimension of 300mm.
- Notes:**
 - For backfill under roads & paving, see note 1.
 - See Note 3 for the 450mm dimension.
 - See table for permissible gradings for the granular bedding.

For use where unstable sand layers are encountered

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 - All adoptable drainage shall conform to the Design and Construction Guide for Developers, Sewers for Adoption 7th Editions published by the WRC PLC.
 - Refer to Hydrobrake design for details.
 - Benching to be Grade GEN3 Concrete (sulphate resisting). Grano concrete benching (min 20mm thick) to be brought up to a dense smooth face neatly shaped. Benchings slope to be 1 in 20 and 1 in 30.
 - Incoming 150mm pipe to hydrobrake to be installed soffit to soffit, at the direct request of ADC Engineer

SAFETY, HEALTH AND ENVIRONMENTAL

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Construction:

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- Unacceptable concentrations of arsenic have been located within the site which will require further testing to determine the extent and appropriate licenced disposal.

For information relating to end use, maintenance, demolition, see the health and safety file.

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

B	Notes regarding 1500 pipe added to the drawing			CLS	JGF	12-05-20
A	Notes amended			CLS	JGF	02-04-20
REV	DESCRIPTION			DRN	CHD	DATE
☒	PRELIMINARY	☐	INFORMATION	☐	TENDER	
☐	CONSTRUCTION	☐	AS BUILT			
SCALE	1:20 @ A3		DATE	AUGUST 2019		
DRAWN	SD		CHK	JGF		
DRAWING NO.	17748-BARN-5-911		REV	B		
TITLE	YAPTON ROAD BARNHAM					
DETAILS	FLOW CONTROL DETAIL					

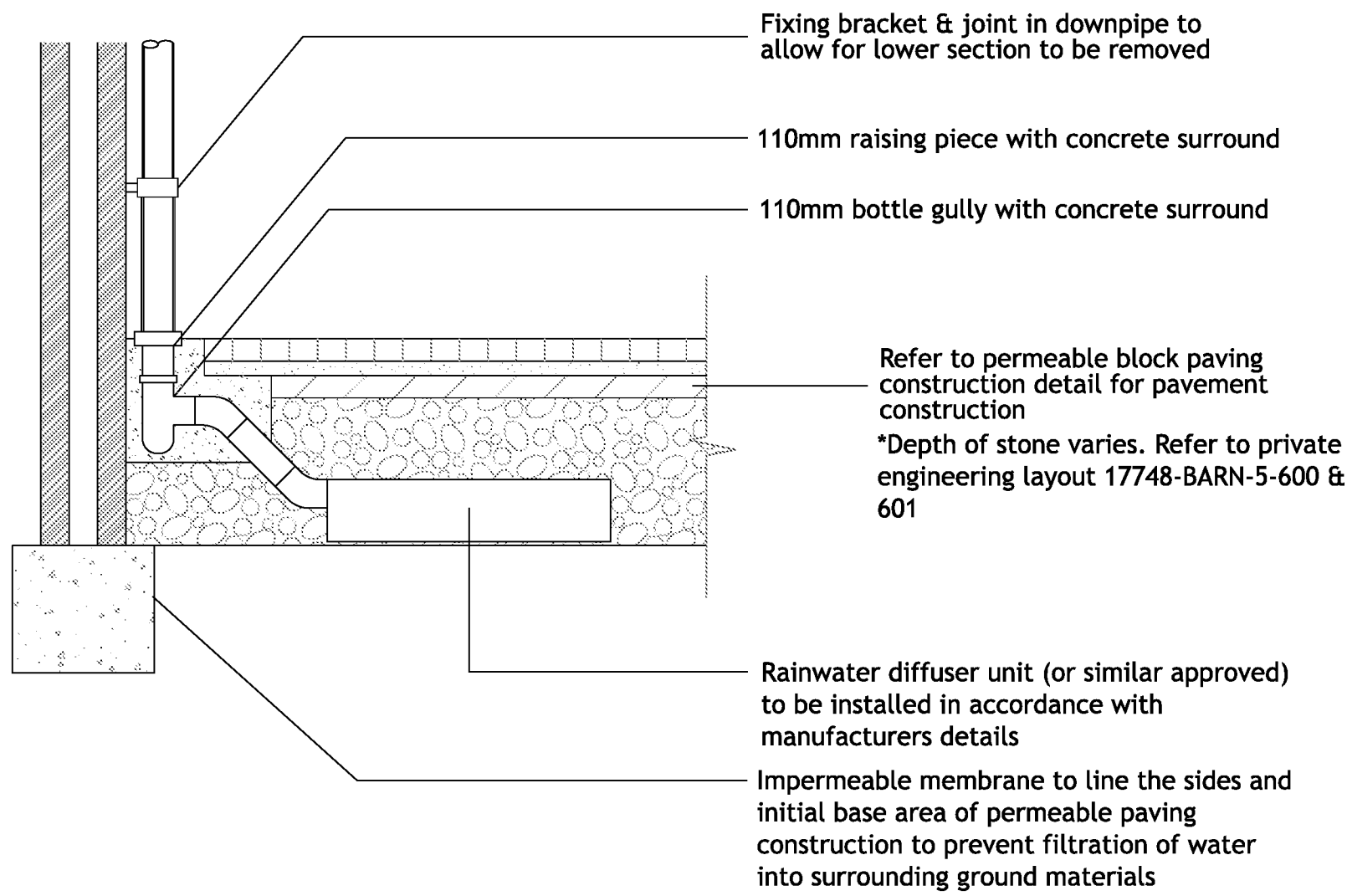
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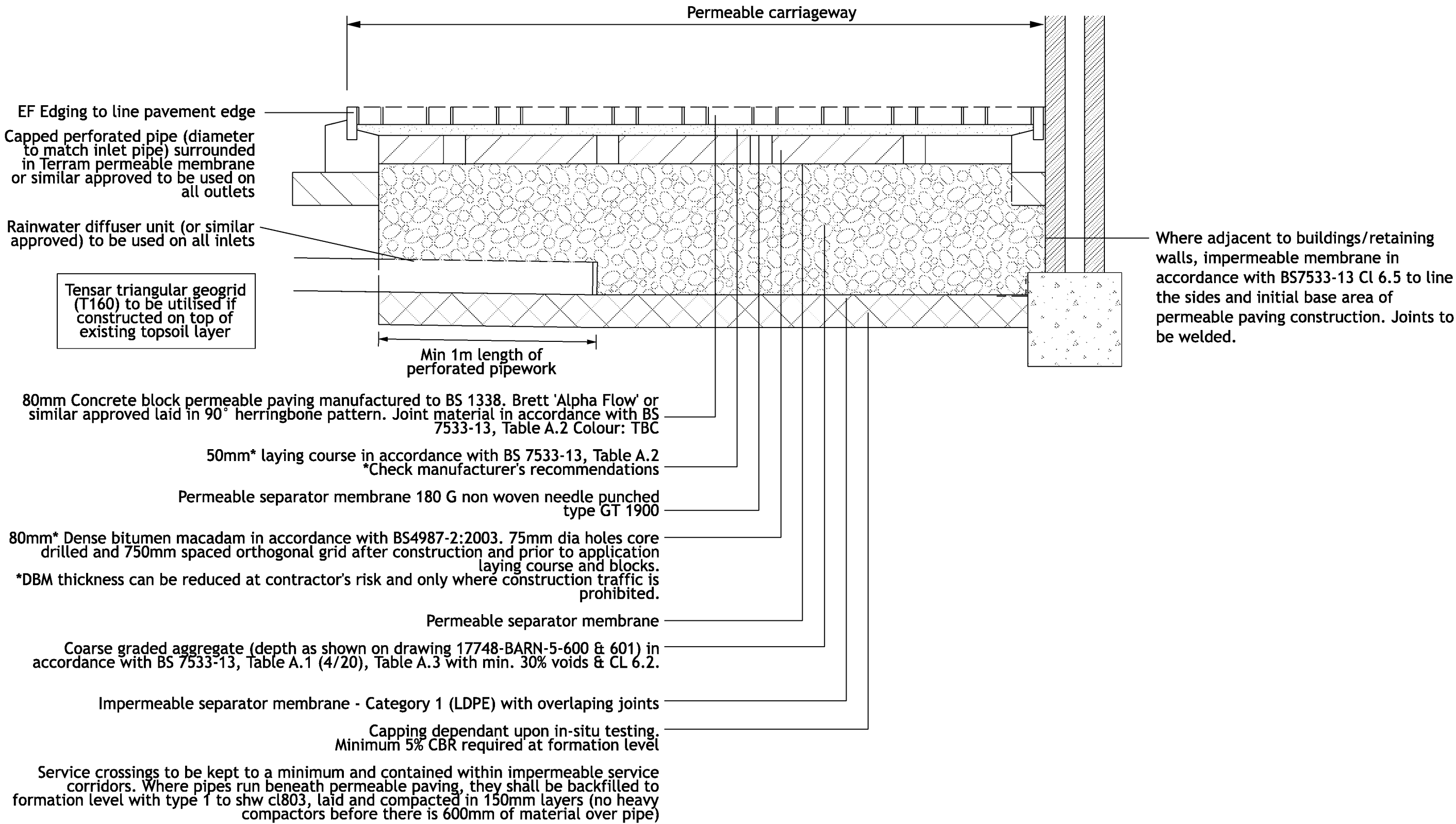
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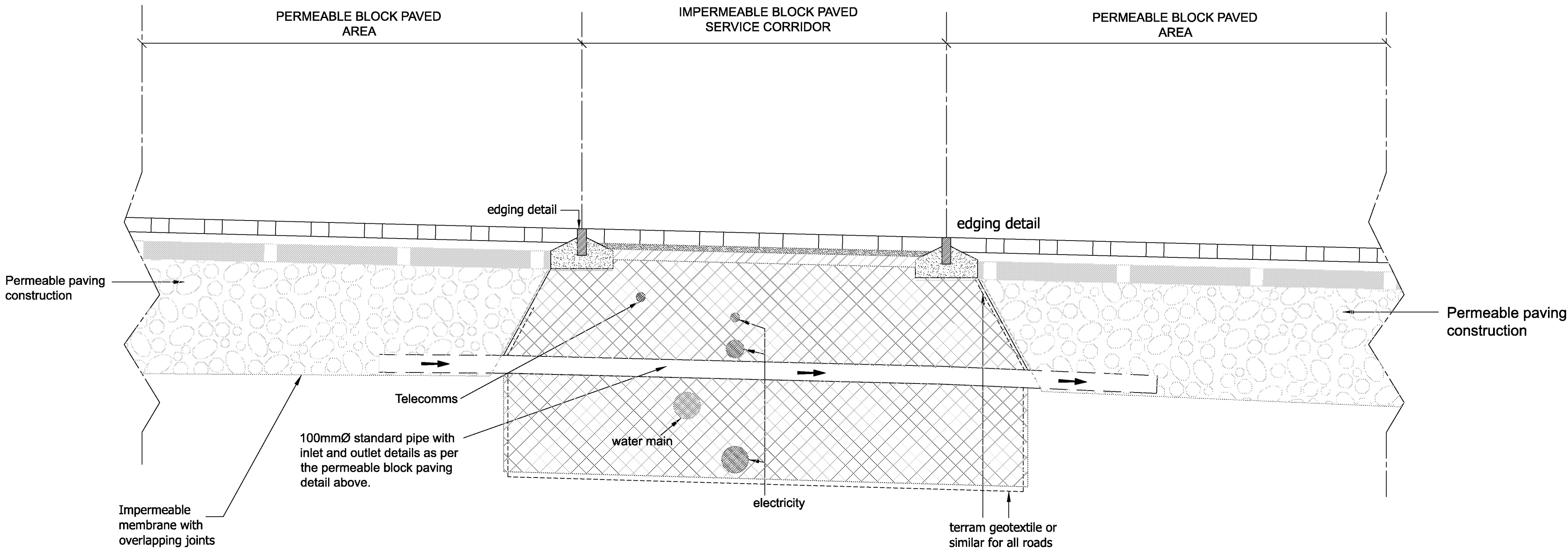
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RAINWATER DOWNPIPE DIRECT CONNECTION TO PERMEABLE PAVING



PERMEABLE BLOCK PAVING CONSTRUCTION



TYPICAL LONGITUDINAL SECTION INDICATING SERVICE CORRIDOR IN PERMEABLE

NOTES

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- Woods Hardwick cannot accept liability for any discrepancies in terms of coordinates or any other information deciphered from dwg's.
- Where the tests indicate that the sub-grade is frost susceptible a suitable capping layer should be included below the sub-base, to a depth that will ensure that the construction will not be affected by frost heave (minimum 450mm overall construction thickness). A capping layer can be any material not susceptible to frost heave. Soils that are not susceptible are sands and rocks.
- When laid to either 90 or 45 degrees herringbone pattern then the edge perimeter to be laid with one single row of stretcher bond set parallel to the edge restraint. Where block pavers are laid abutting drainage channels, gully grates and the like, the upper surface of the block pavers shall be set between 3 and 6mm above the grating.
- Manufacturer's declared value markings W3 and S4 are acceptable if W3 is 1.0kg/m2 or less and S4 is 45 or more based on 'c scale unit' (with regard to abrasion, Class A2, no test result is greater than 23mm; and Class A1 = no performance determined) .
- Formation to parking areas to be proof-rolled. Any soft spots en-counted are to be removed & replaced with granular Type 1 material laid in layers not exceeding 225mm thick fully compacted.
- Compaction to be in accordance with DMRB document Tables 6/1 to 8/1. 2000kg/m2 vibrating plate compactor to pass 6 times to achieve adequate compaction on 150mm thick hardcore - 4 passes for 100mm hardcore).
- All pipes running through walls to have at least 50mm clearance all round and the opening masked with rigid sheet material.
- All private drainage works to be constructed in accordance with the latest edition of the Building Regulations Part H (Drainage & Waste Disposal) and to BSEN752 (Building Drainage).
- Blockwork supplier to be consulted throughout the construction of the porous paving systems to ensure compliance with their standards.
- The Contractors attention is drawn to the requirement for the porous pavement formation to be underlain with an impermeable membrane (Terram 1000 or similar approved).

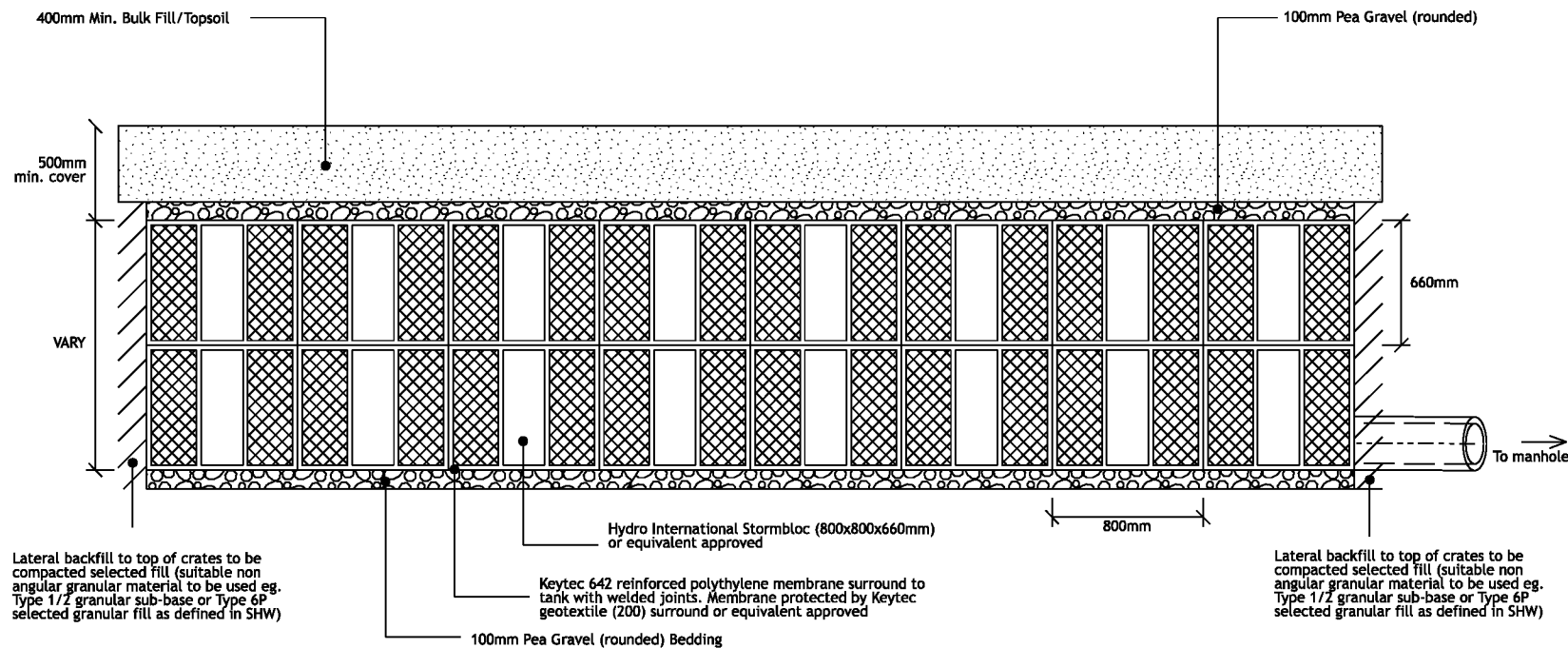
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☐	CONSTRUCTION	☐	AS BUILT		
SCALE	N.T.S @ A1	DATE	APRIL 2020		
DRAWN	SD	CHK	JGF		
DRAWING NO.	17748-BARN-5-921	REV	-		
TITLE	YAPTON ROAD BARNHAM				
DETAILS	PRIVATE PERMEABLE PAVING CONSTRUCTION DETAILS				

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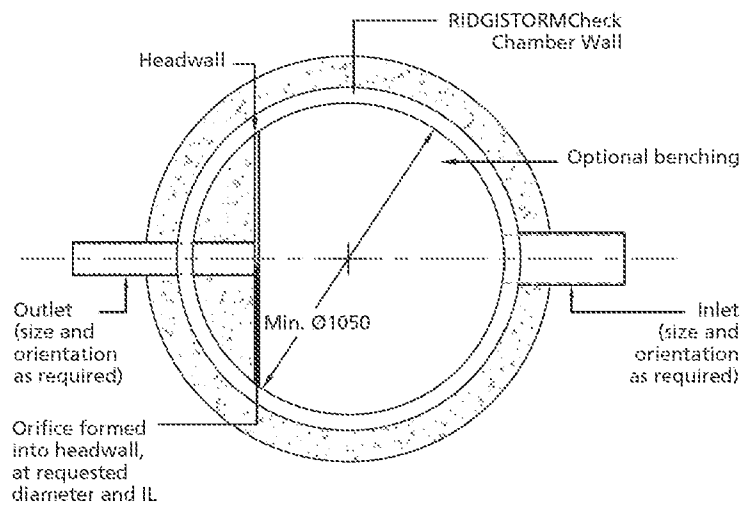
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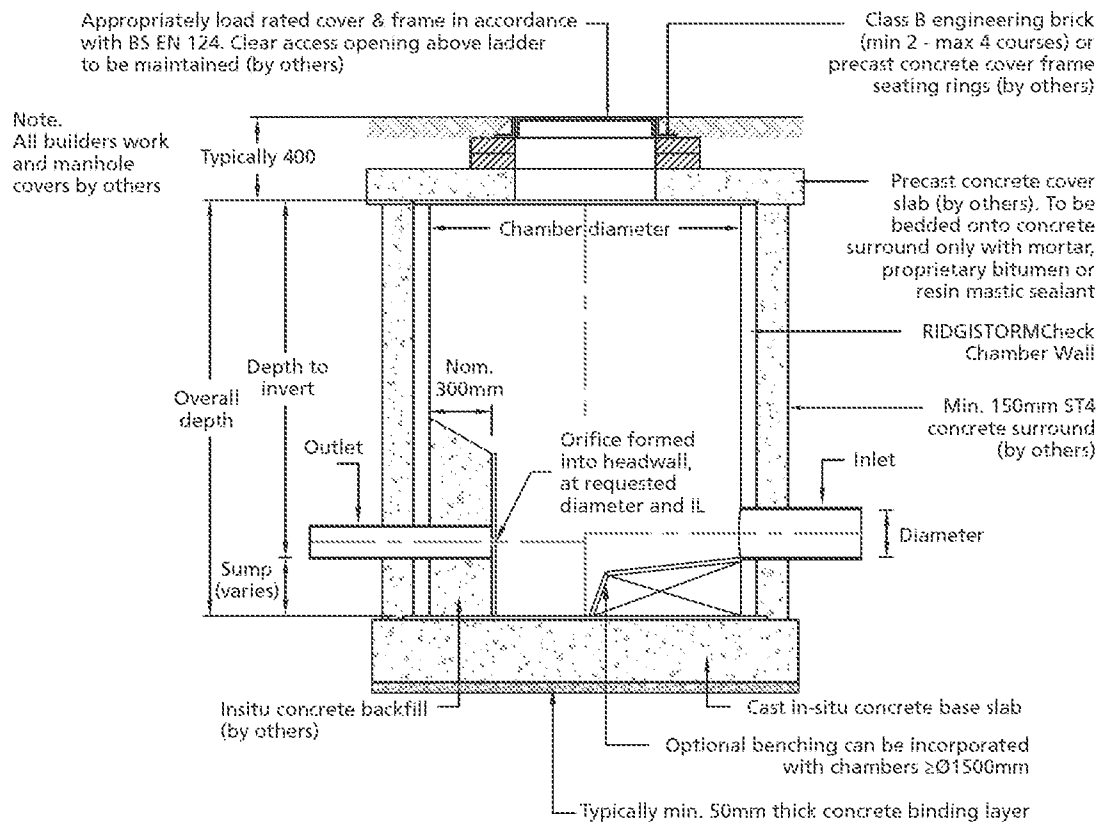
Stormbloc Properties
Block dimensions - 800x800x600mm
Nominal Block Volume - 0.422 cu.m
Nominal Storage Capacity per Unit 0.401 cu.m
Porosity 95%

PRIVATE CRATE DETAIL

*Crates to be Hydro International Stormbloc (800x800x660mm) or equivalent approved
*Stormbloc optimum inspection chamber to be installed in the furthest corner of the crates



PRIVATE ORIFICE DETAIL



*Orifice Plate to be Polytype Orifice Plate Flow Controller or equivalent approved

NOTES

- Contractors must check all dimensions on site. Only figured dimensions are to be worked from. Discrepancies must be reported to the Architect or Engineer before proceeding.
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- Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.
- Crates and orifice plates to be installed as per manufacturers recommendations.

REV	DESCRIPTION	DRN	CHD	DATE
PRELIMINARY	INFORMATION			
CONSTRUCTION	AS BUILT			

SCALE	NTS @ A3	DATE	16-09-20
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DRAWN	CLS	CHK	JGF
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DRAWING NO.	17748-BARN-5-922	REV	-
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TITLE	YAPTON ROAD BARNHAM
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DETAILS	PRIVATE CRATE & ORIFICE PLATE CONSTRUCTION DETAILS
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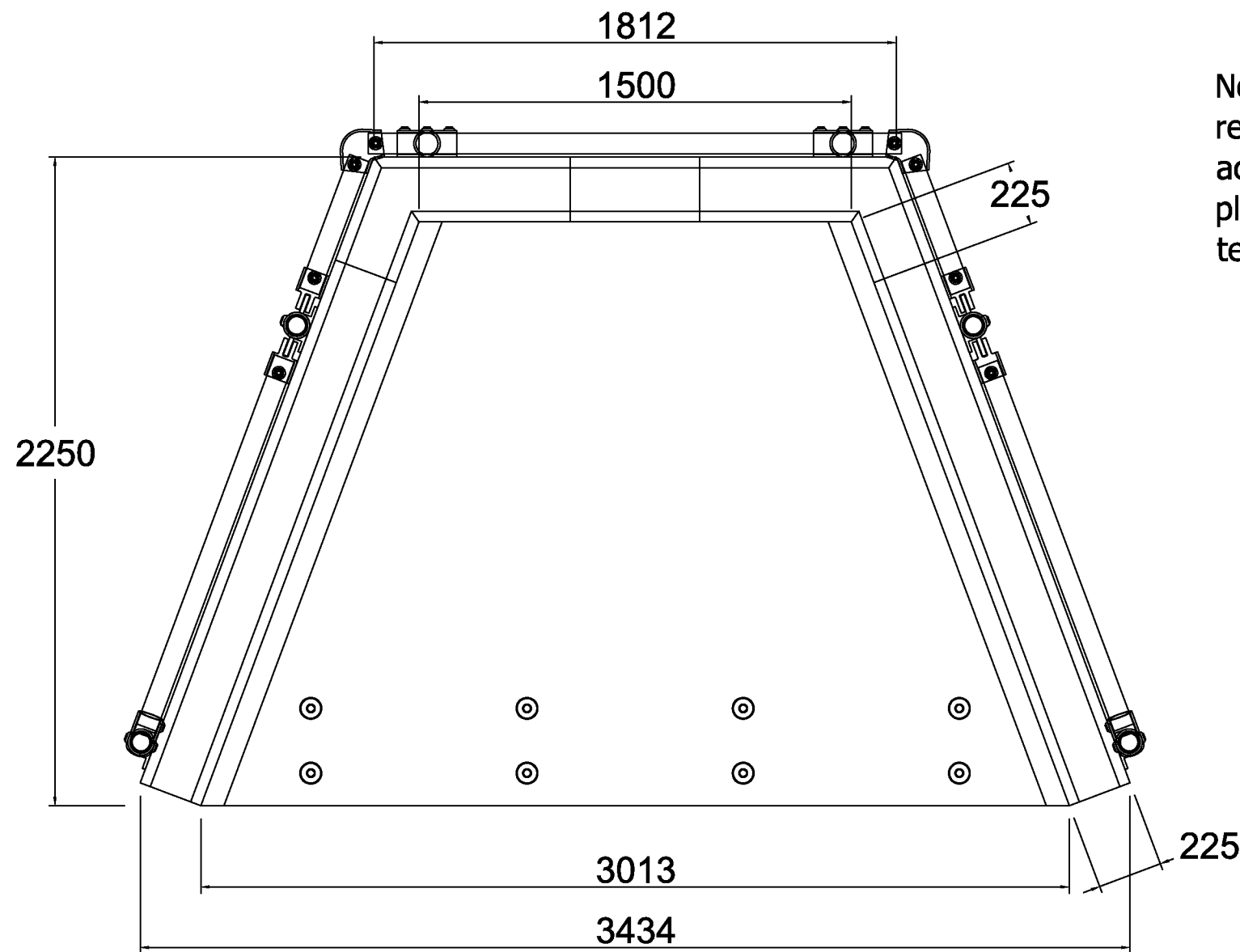
Woods Hardwick
Architecture : Engineering : Planning : Surveying

BEDFORD : HEAD OFFICE
15-17 Goldington Road
Bedford MK40 3NH
T: +44 (0) 1234 268862

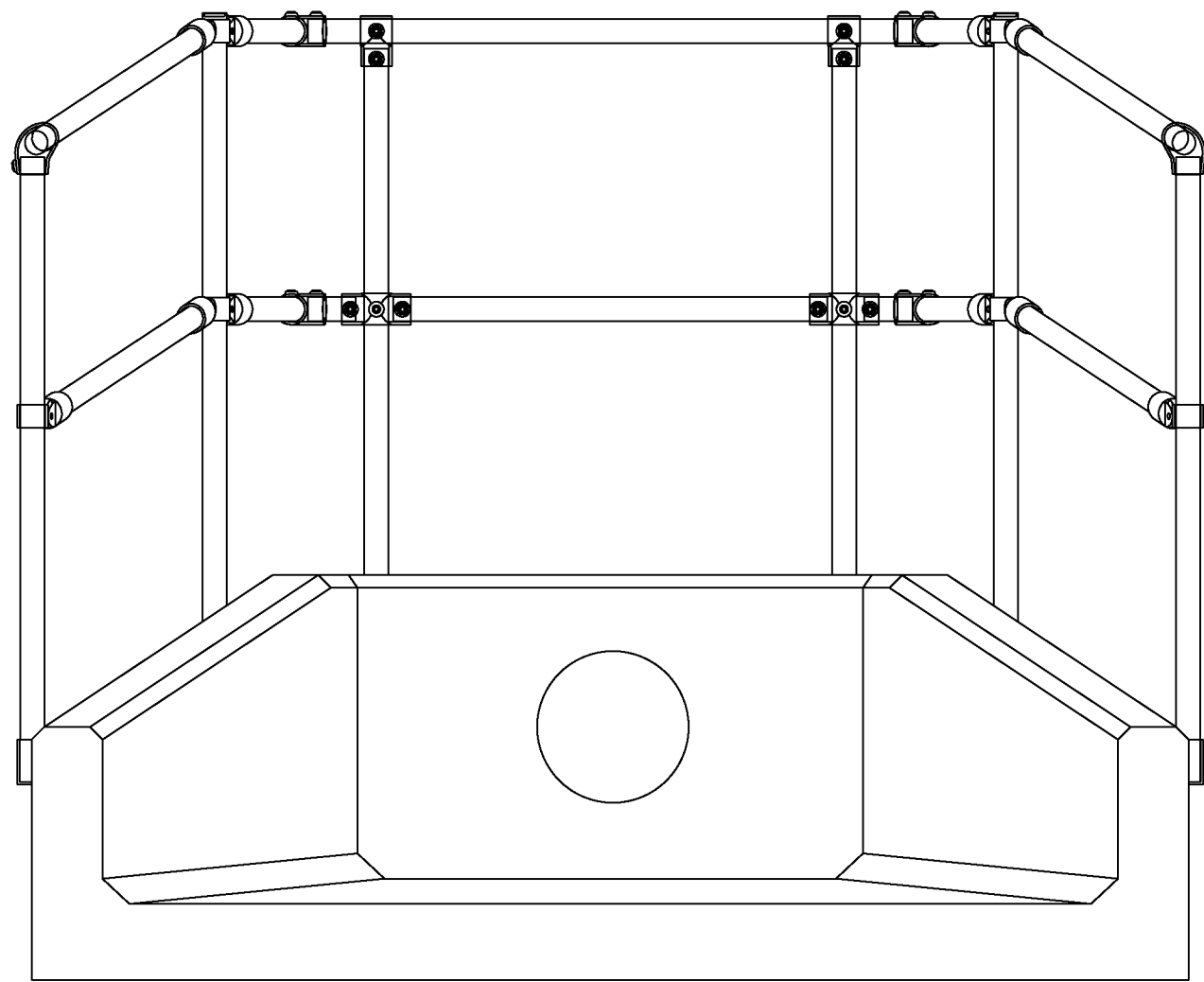
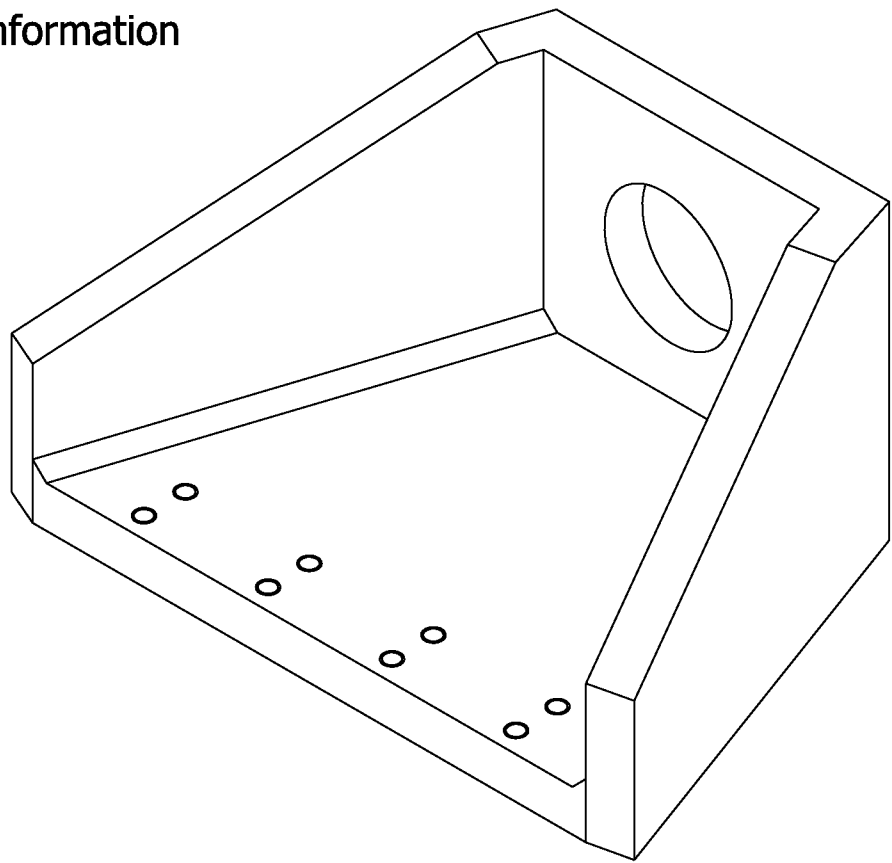
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T: +44 (0) 121 6297784

ONLINE: mail@woodshardwick.com | woodshardwick.com

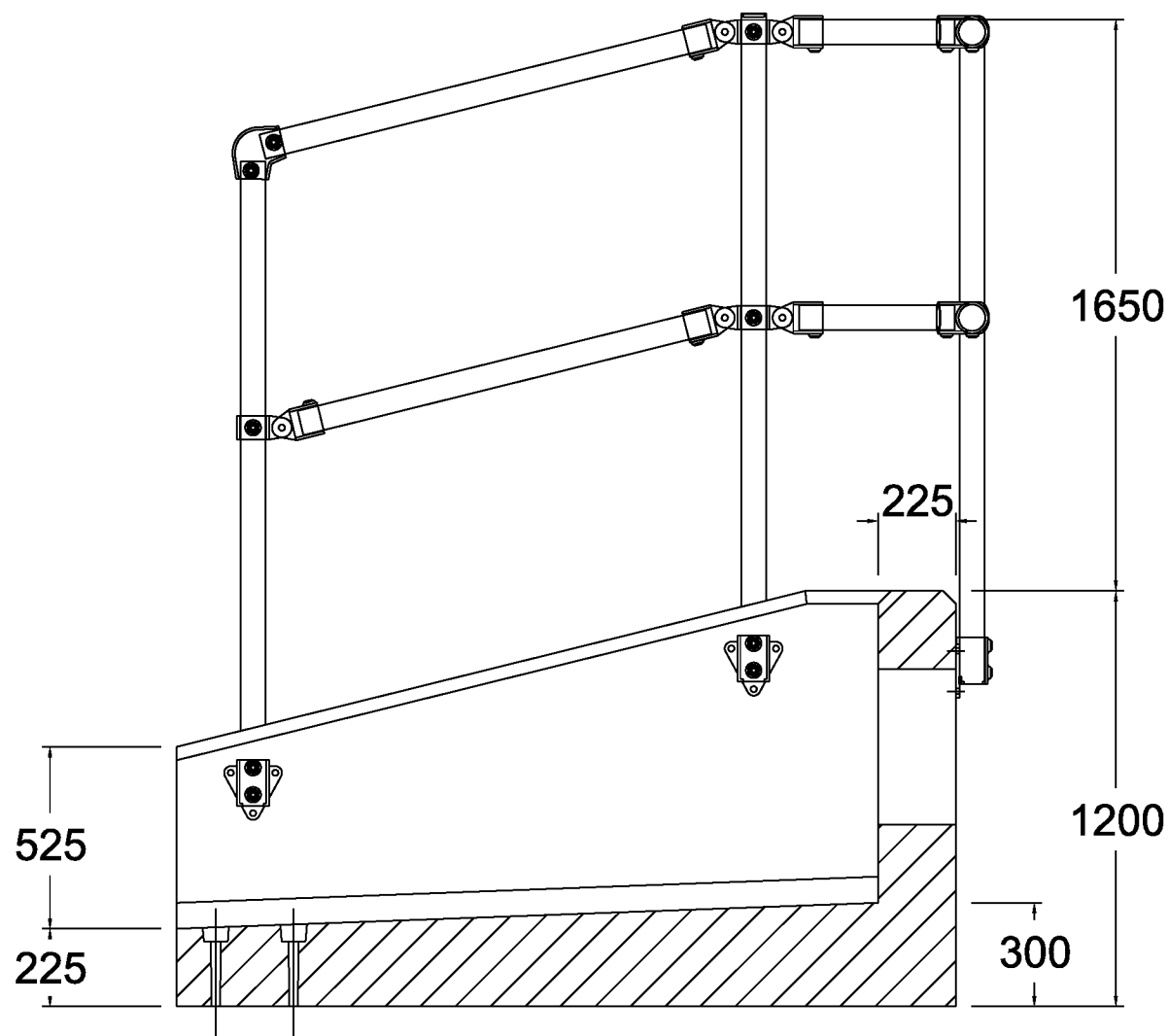
PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING



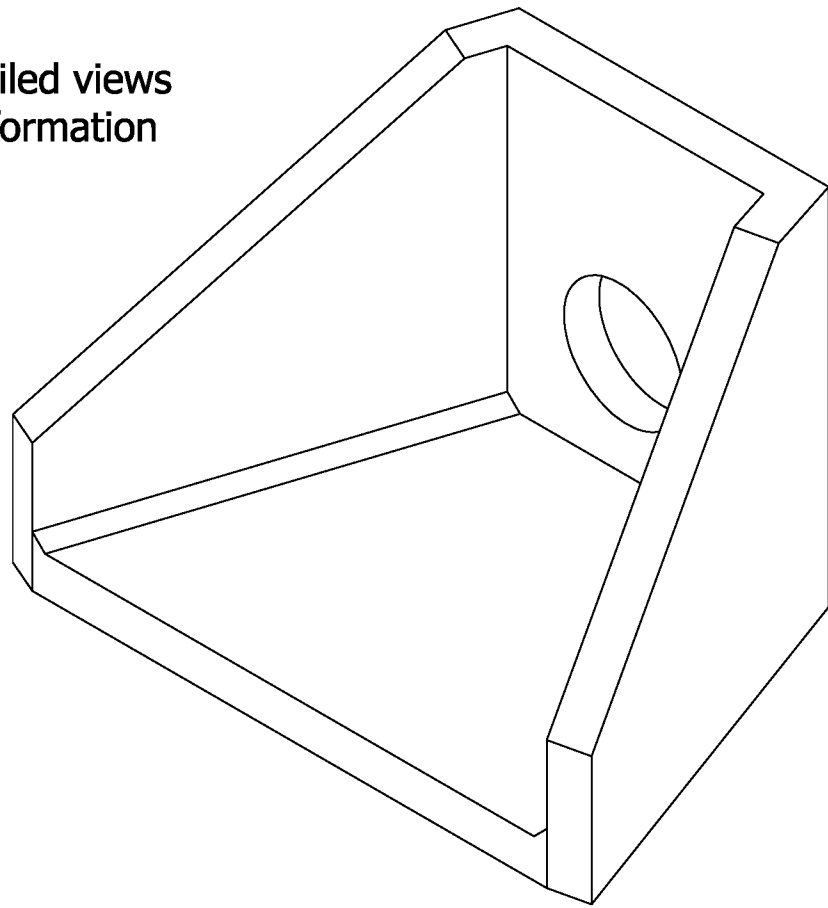
Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



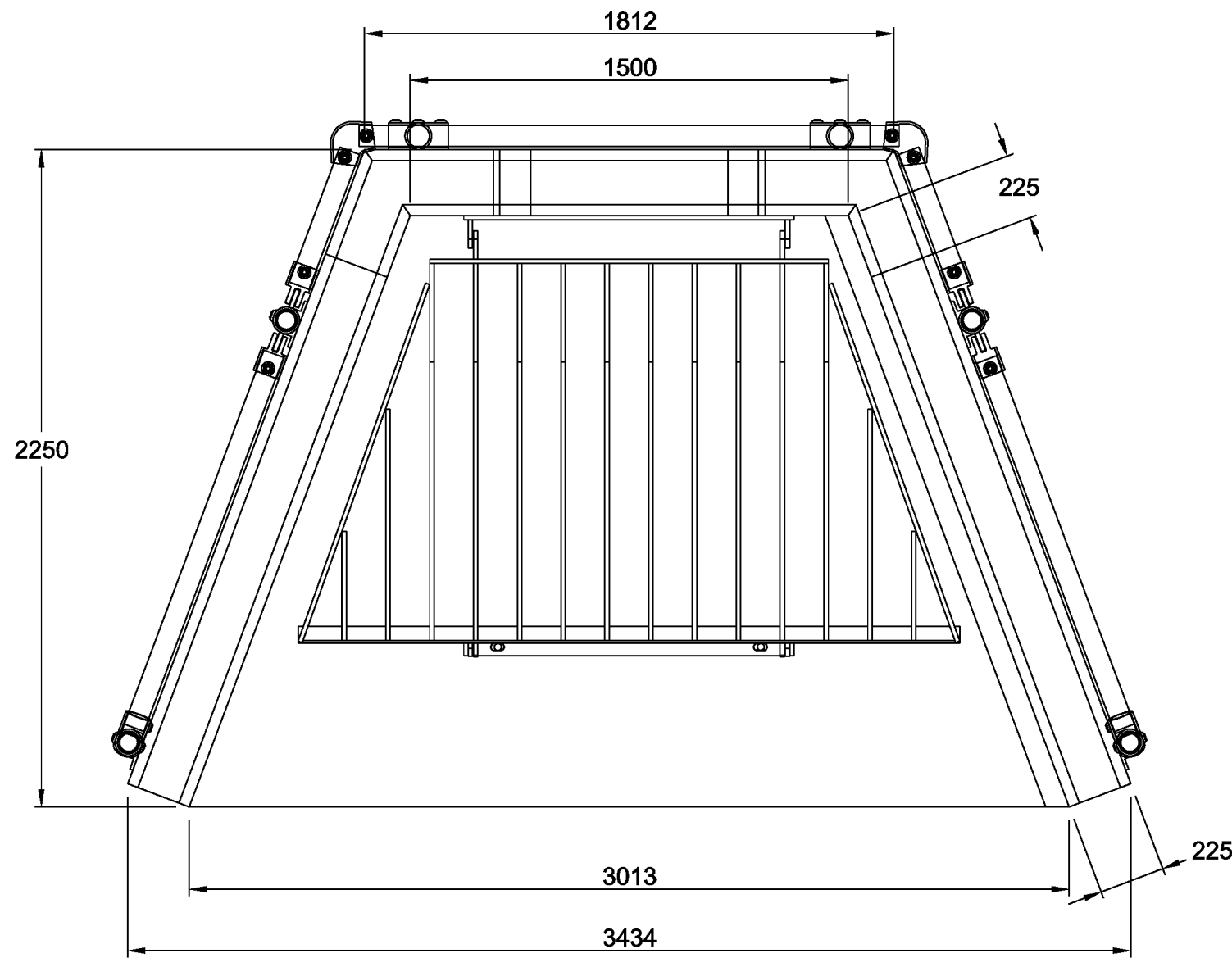
SFA10A Althon Pre-Cast Headwall



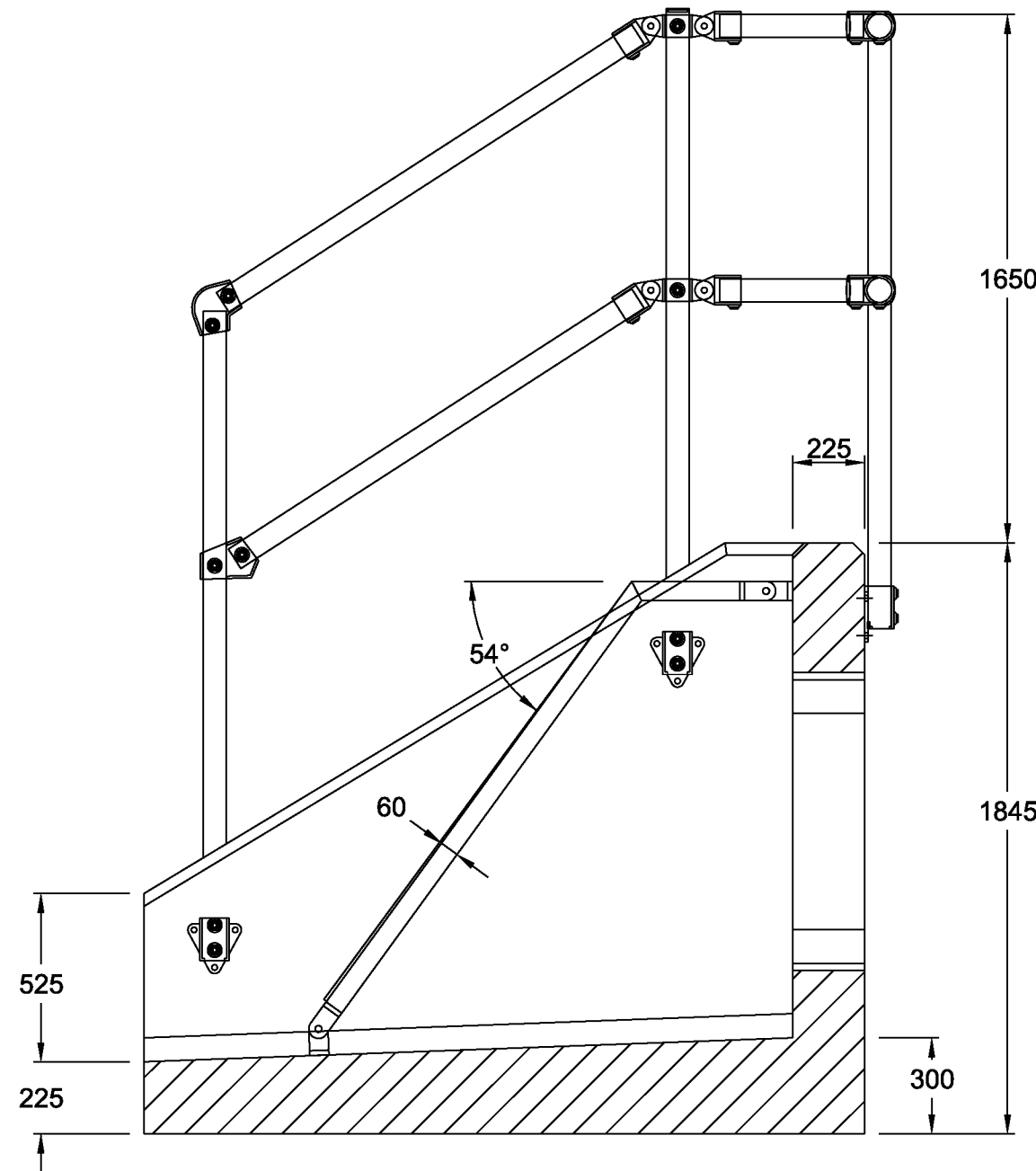
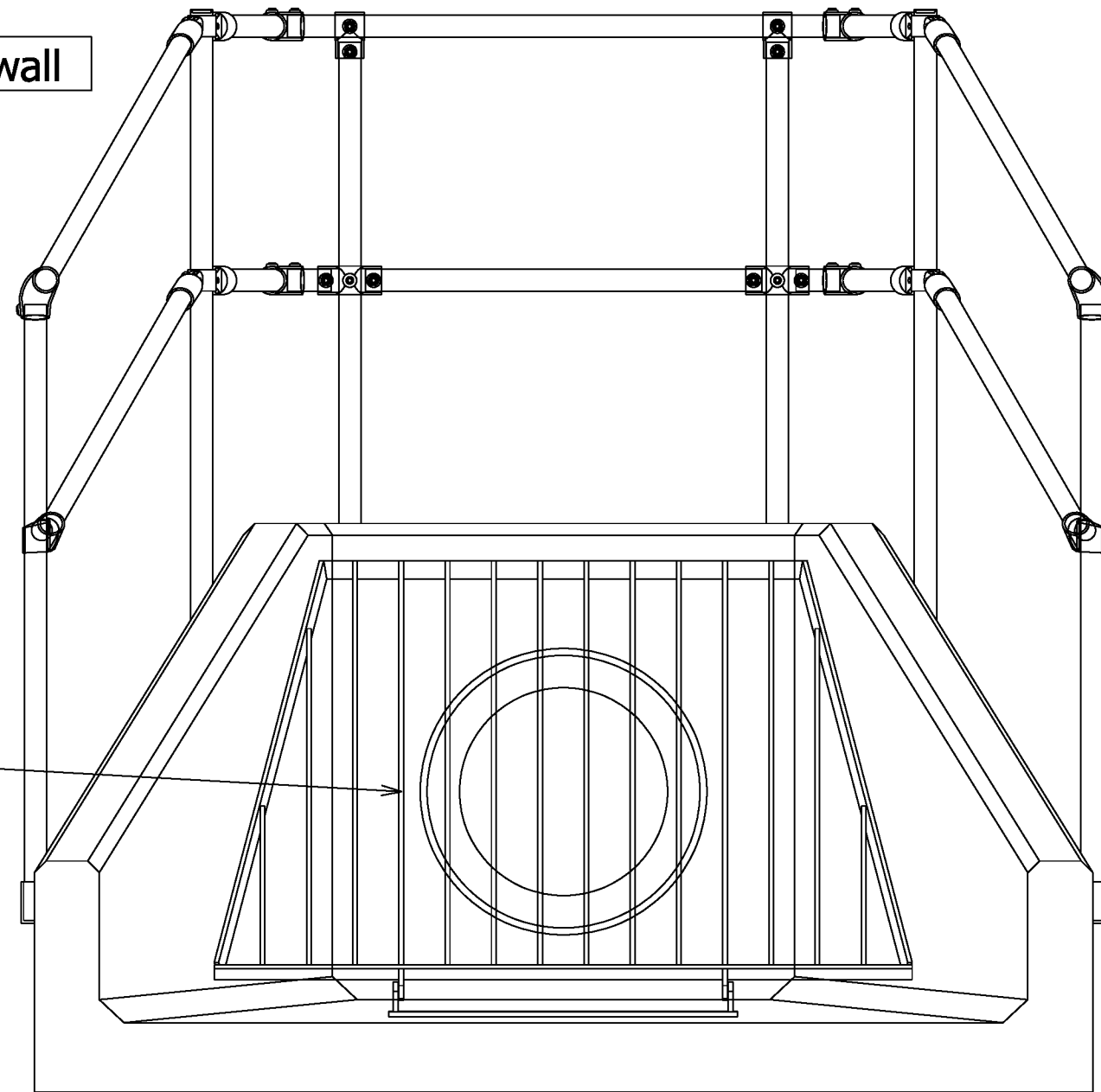
Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



SFA10C Althon Pre-Cast Headwall



'Cranked' grille to suit a 450mm pipe



NOTES

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- Until technical approval has been obtained from the relevant authorities, all drawings are issued as preliminary and not for construction. Should the Contractor commence site work prior to approval being given it is entirely at his own risk.
- All adoptable drainage shall conform to the Design and Construction Guide for Developers, Sewers for Adoption 7th Editions published by the WRC PLC.
- All buried concrete shall be designed in accordance with DS Class DS-2 and ACEC Class AC-2.
- Banks in vicinity of headwall to be profiled to suit wing walls.
- To be bedded as per manufacturers recommendations.

SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards, risks normally associated with the type of work detailed on this drawing, note the following significant risks and information.

Construction:

- The Contractor should make all necessary enquiries and take all necessary measures to identify the location of existing utilities running through the site.

For information relating to end use, maintenance, demolition, see the health and safety file.

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

THE CONTRACTOR IS TO COMPLY WITH ALL CURRENT REQUIREMENTS IN RELATION TO HEALTH, SAFETY & WELFARE

A	Grille removed from 10A at request of ADC Drainage Engineer. 10C grille changed to show cranked.	JGF	JGF	20-04-20
REV	DESCRIPTION	DRN	CHD	DATE
	PRELIMINARY		INFORMATION	
	CONSTRUCTION		AS BUILT	
			TENDER	

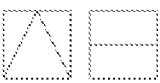
SCALE	N.T.S @ A2	DATE	APRIL 2020
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DRAWN	CLS	CHK	JGF
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DRAWING NO.	17748-BARN-5-912	REV	A
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TITLE	YAPTON ROAD BARNHAM
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DETAILS	TYPICAL HEADWALL DETAILS
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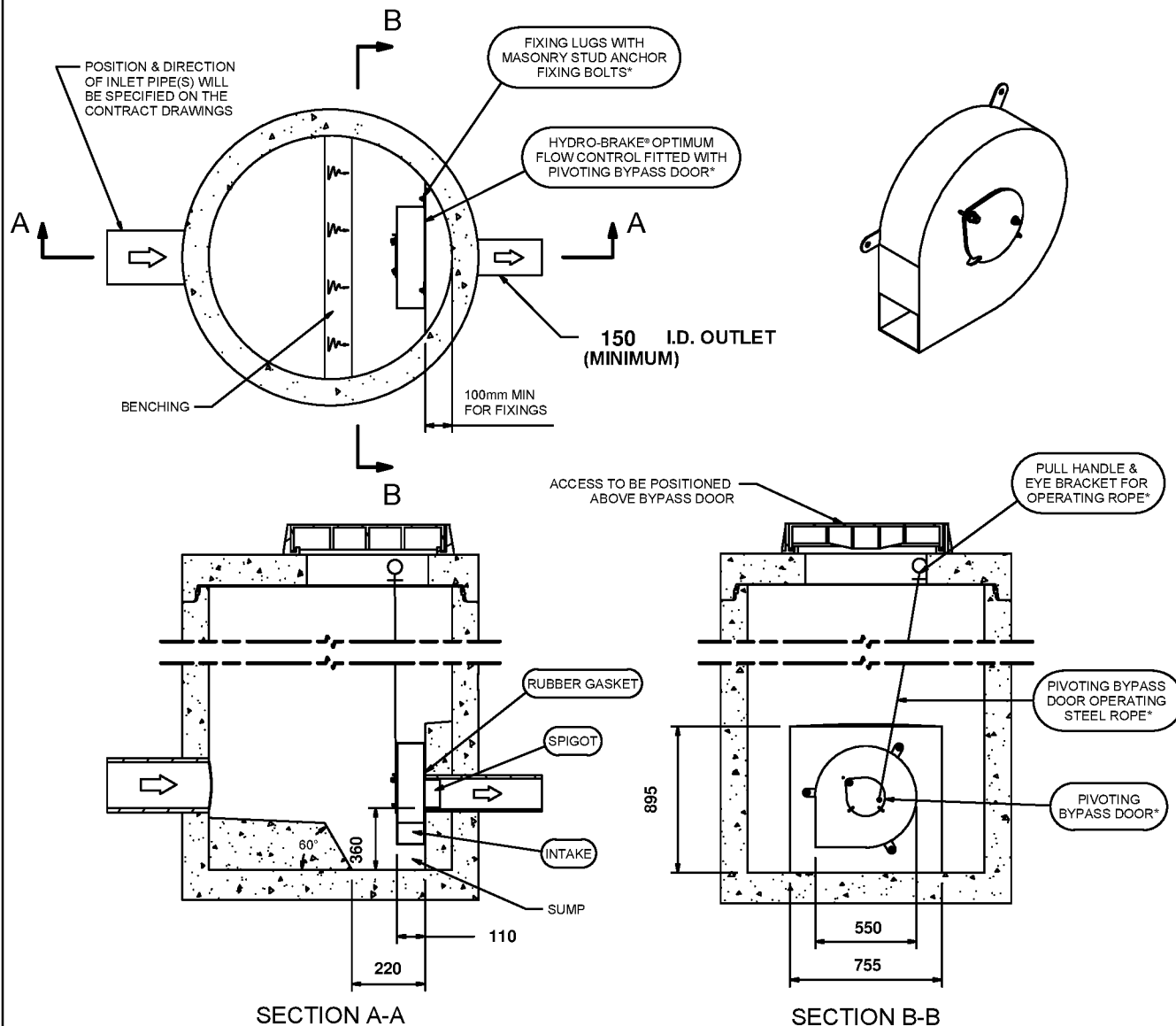
PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.200	5.000
Flush-Flo™	0.354	4.998
Kick-Flo®	0.745	4.010
Mean Flow		4.368

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet



IMPORTANT:  LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW
 CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0103-5000-1200-5000 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro
International

DATE 8/1/2019 11:16 AM

SITE Barnham

DESIGNER Scott Darrington

REF

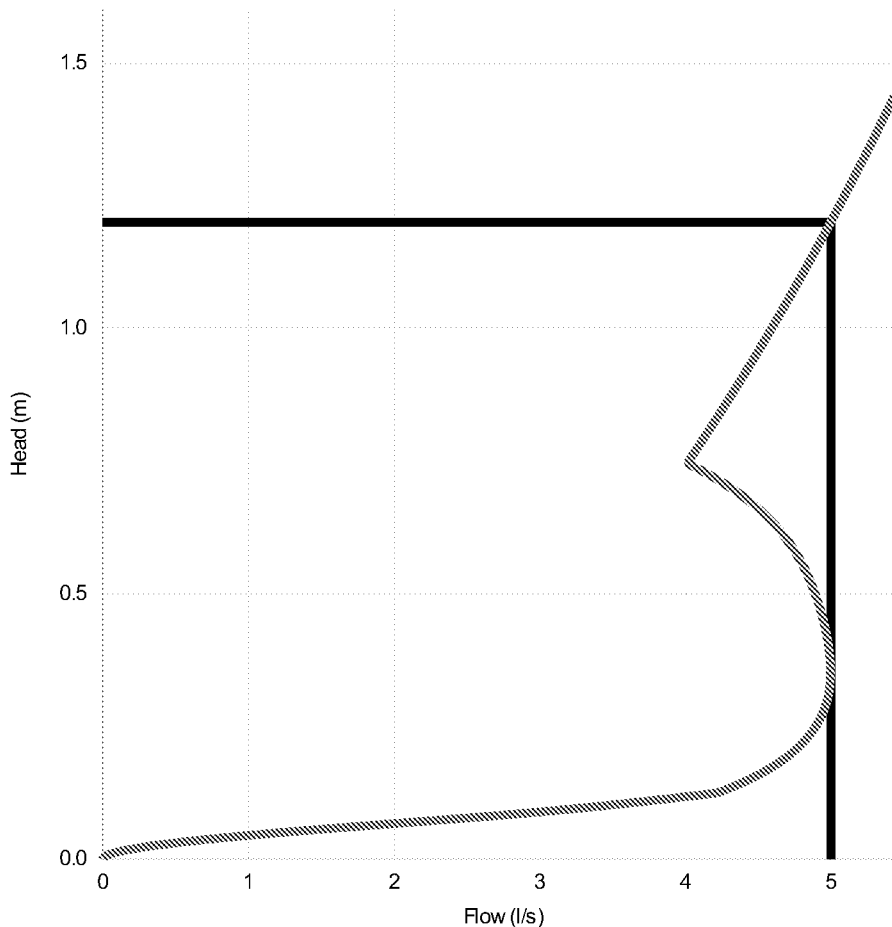
S8

SHE-0103-5000-1200-5000

Hydro-Brake® Optimum

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.200	5.000
Flush-Flo	0.354	4.998
Kick-Flo®	0.745	4.010
Mean Flow		4.368



Head (m)	Flow (l/s)
0.000	0.000
0.041	0.876
0.083	2.748
0.124	4.215
0.166	4.548
0.207	4.761
0.248	4.891
0.290	4.963
0.331	4.994
0.372	4.995
0.414	4.976
0.455	4.943
0.497	4.896
0.538	4.835
0.579	4.753
0.621	4.643
0.662	4.493
0.703	4.290
0.745	4.026
0.786	4.110
0.828	4.209
0.869	4.304
0.910	4.398
0.952	4.489
0.993	4.578
1.034	4.665
1.076	4.751
1.117	4.835
1.159	4.917
1.200	4.997

DESIGN ADVICE



The head/flow characteristics of this SHE-0103-5000-1200-5000 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro
International

DATE 01/08/2019 11:16

Site Barnham

DESIGNER Scott Darrington

Ref S8

SHE-0103-5000-1200-5000

Hydro-Brake Optimum®



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