

BRIGHT PLAN CIVILS

Future Group Development Ltd
Unit A2 Five Stones
Toddington Lane
Littlehampton
BN17 7PP

1st December 2020

Our Ref: D1966

Your Ref: Land at The Inglenook

Planning Inspectorate Ref: W/4001476

Dear Future Group Development Ltd,

RE: LAND AT THE INGLENOOK; DISCHARGE OF CONDITIONS 6 & 7

Condition 6

"Development shall not commence, other than works of site survey and investigation, 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, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring to establish highest annual ground water levels and winter 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."

Proposed surface water drainage system provided, with strategy as agreed in principle with ADC.

Please see attached winter groundwater monitoring. Given groundwater levels are high and bedrock strata is Clay, infiltration methods are not proposed. We unfortunately cannot propose a permeable geotextile membrane with the permeable block paving to utilise storage and permeability of the Storm Beach deposits (gravel), as this is not compliant with Southern Water's requirements with discharge to sewer. We will only seek to discharge the freedraining entrance path area to the deposits in accordance with the approved planning arboricultural consultant's requirements within the tree protection zone.

The Southern Water approval notice for the S106 Sewer Connection application is included.

Please see attached greenfield calculations and catchment area plan. Proposed flow rate is as based on planning approved rates. Given site restrictions and ADC preference for no surface water pumping, we have maximised high level storage and used 625mm flat permeable paving for storage. There is no scope to reduce site run-off rate further.

Please see attached the proposed drainage drawings and calculations. The formation levels and diffuser units have been reviewed to ensure compliance, and a bypass door, operating rope and construction detail have been included on the flow control manhole. The proposed product and specification can be found at <https://hydro-intl.com/en/products/hydro-brake-optimum-0> and have been detailed in the layout drawing and construction detail, for the applicant to adhere to and commission this product or to have suitable alternative manufacturer's product approved for use by ADC. The product brochure is attached.

Condition 7

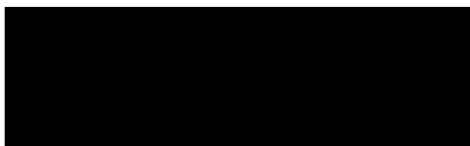
"Development shall not commence until full details of the maintenance and management of the surface water drainage system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include details of financial management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

Please find attached the Drainage Maintenance Schedule and Phasing Plan.

Other matters

We would note to the applicant that levels and surfacing also need to adhere to the proposals within the drawings provided to ensure adequate operation of the proposed drainage strategy.

Kind Regards,



Dan Lytton
Bright Plan Civils

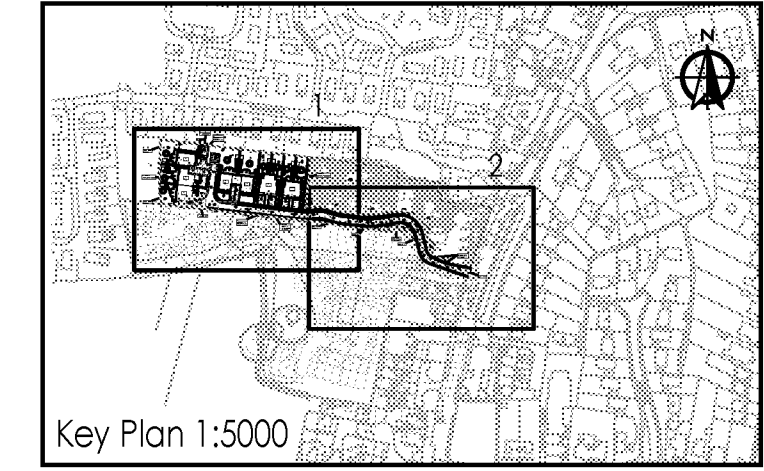
Encl.

- D1966-102 Proposed Level & Contours (Sheets 1 & 2)
- D1966-103 Proposed Drainage (Sheets 1 & 2)
- D1966-400 & -401 Private Construction Details
- D1966-500 Proposed Site Catchment
- Greenfield Calc.
- Groundwater Monitoring Report
- SW Drainage Calc.
- Hydro-Brake Product Brochure
- Southern Water S106 Approval Notice
- Drainage Maintenance Schedule and Phasing Plan



-LEVELS KEY-

- +5.80 Existing Spot Level
- 134.11 Proposed Spot Level
- FFL Proposed Finished Floor Level
- Level Threshold/Access
- Proposed Contour (Primary)
- Proposed Contour (Secondary)
- Proposed Gradient Arrow/Fall Direction
- Proposed High Point
- Proposed Low Point
- Proposed (Retained) Level Difference
- Retaining Wall (By Others)
- Proposed Bank Batter (Varies)
- Root Protection Zone (Refer to Arb Report)



This map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office (c) Crown Copyright.
Licence Number: AL100037123
This drawing is based upon Ordnance Survey mapping - BPC accept no liability for any inaccuracies with the data.

Refer to structural drawings for further information on structural slab levels.

Topographical information shown is based on site survey undertaken by others as part of site-wide development.

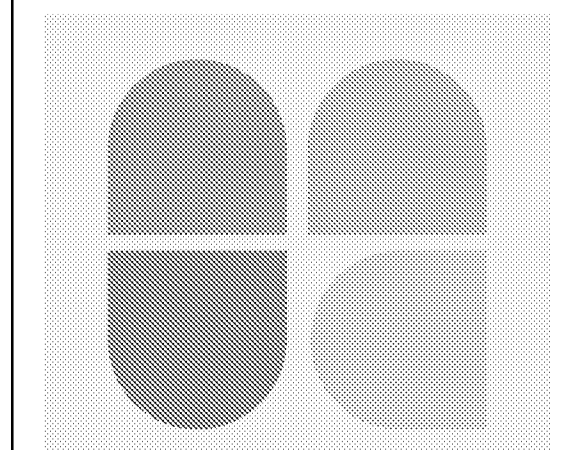
Contours are only as accurate as the initial land survey information. Contours are approximate only and spot levels may vary slightly on site.

Topographical survey levels are not to Ordnance Survey (OS) datum and need to be verified prior to work commencement.

- ### NOTES
- This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 - BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 - Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on the site prior to work commencing and taking due care whilst undertaking the works.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC signs and company information must be removed from copies if information is re-used.
 - The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
 - The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
 - The contractor must comply with all current legislation relating to health & safety.
 - All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
 - All Earthworks in accordance with the Specification for Highway Works.

B	Revised Issue	16/08/2021
A	Revised Issue	15/07/2021
-	Original Issue	28/05/2021

Rev.	Amendments	Date
------	------------	------



BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 231418 Fax: 01463 841482
www.brightplancivils.co.uk

Drawing Status **FOR APPROVAL**

Client **Future Group Development Ltd**

Project **Land at The Inglenook
Pagham Road, Bognor Regis PO21 3QB**

Drawing Title **Proposed Levels & Contours
Sheet 1 of 2**

Scale	Date	Drawn By	Checked By
1:200	Aug '21	DJL	MJA

Drawing No.	Rev.
D1966-102.1	B

RESIDUAL HAZARDS

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following:

- Buried services. Contractor to refer to record drawings and use CAT to locate existing services and undertake necessary precautions and investigation prior to excavating.
- Working in live traffic. Contractor to ensure traffic management is designed, erected and maintained to protect the workforce and the public. Contractor to undertake necessary precautions and ensure suitable traffic management is in place prior to commencement.
- Working in live sewers. Contractor to ensure operatives are familiar and competent with the dangers of working in live sewers.
- Excavations close to existing structures. Contractor to prepare method statement to ensure stability of existing structure.
- Stability of existing structure unknown.
- Working within root protection zones, contractor to prepare method statement to ensure protection of roots underneath the existing compacted access road surface.

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

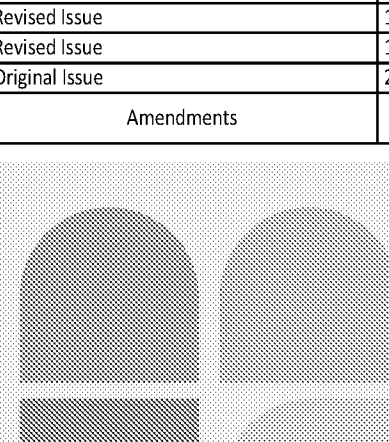
NOTES

A1

1. This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
2. BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
3. Do not scale, work to figured dimensions only. All dimensions are in millimetres unless noted otherwise and all levels are in metres from the topographic survey datum.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
5. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
6. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC logos and company information must be removed from copies if information is re-used.
7. The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
8. The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
9. The contractor must comply with all current legislation relating to health & safety.
10. All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
11. All Earthworks in accordance with the Specification for Highway Works.

B	Revised Issue		16/08/2021
A	Revised Issue		15/07/2021
-	Original Issue		28/05/2021

Rev.	Amendments	Date



BRIGHT PLAN CIVILS

Transport Planning and Infrastructure Design Consultants

2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 310418 Fax: 01243 861482
www.brightplancivils.co.uk

Drawing Status	FOR APPROVAL
----------------	--------------

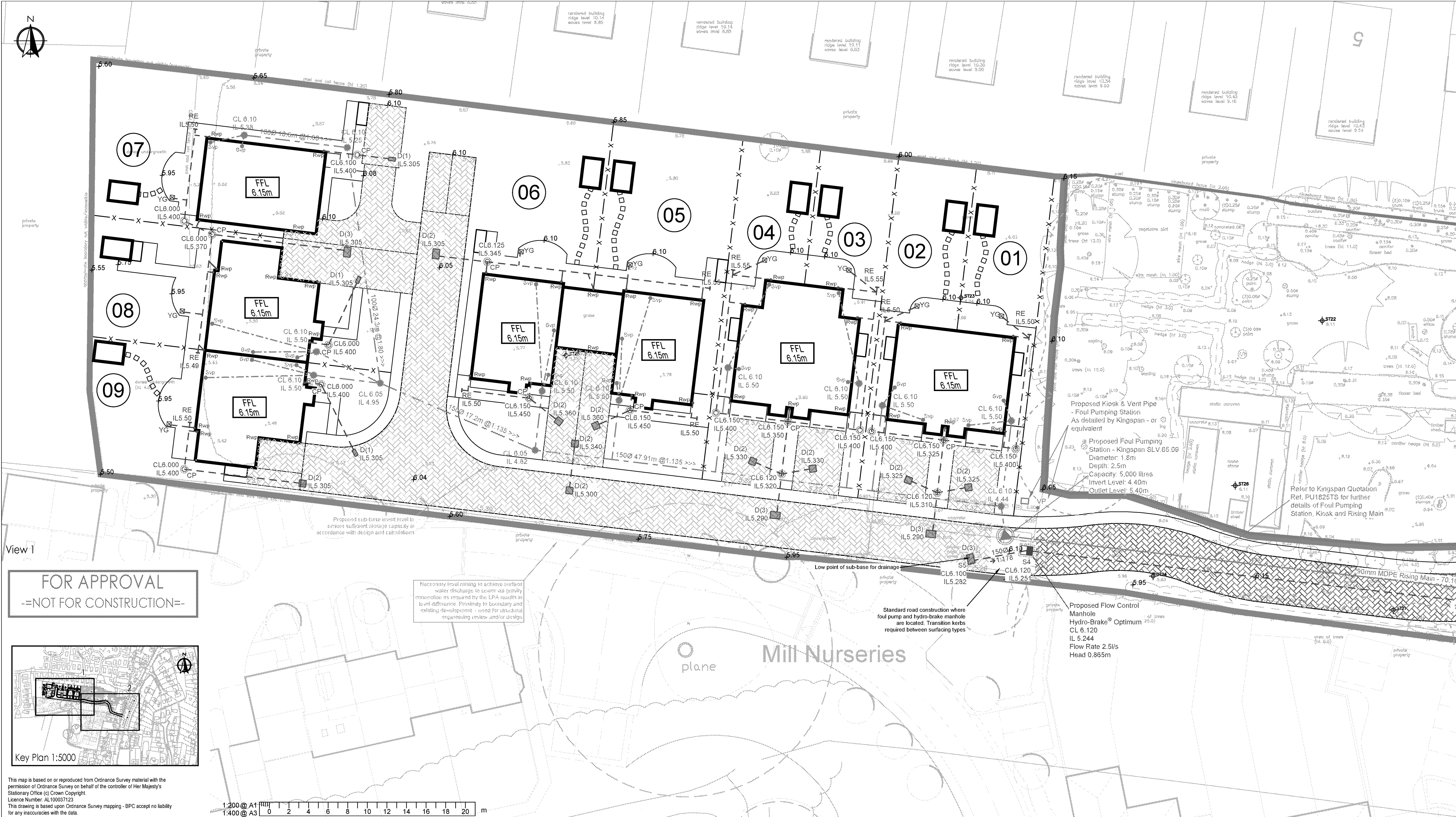
Client	Future Group Development Ltd
--------	------------------------------

Project	Land at The Inglenook Pagham Road, Bognor Regis PO21 3QB
---------	---

Drawing title	Proposed Levels & Contours Sheet 2 of 2
---------------	--

Scale	Date	Drawn by	Checked by
1:200	Aug '21	DJL	MJA

Drawing No.	Rev.
D1966-102.2	B



-DRAINAGE KEY-

- Rodding Point (Below Ground)
- Precast Concrete Ring Manhole (Over 1.5m Depth to Soffit, CP denotes Catchpit)
- Precast Concrete Ring Flow Control Manhole (Refer to Construction Details)
- Inspection Chamber (Max 1.2m Depth to invert, CP Denotes Catchpit)
- 450x950 Road Gully & 1500 Lateral (Double gullies must have separate laterals) Yard Gully 600mm pot
- Proposed Diffuser Unit D(N), N=Number of Permeavoid Diffusers
- Permeable Paving Tanked Block - 625mm Subbase thickness Root Protection Zone Free draining Subbase
- Proposed Foul Pumping Station
- Precast Concrete Ring Manhole
- Inspection Chamber (Max 1.2m Depth to invert)

-SURFACE WATER STRATEGY-

- Surface water disposal should be managed in view of the SuDS hierarchy;
 1. Infiltration
 2. Watercourse
 3. Public Surface Water Sewer(s)
- Strategy is in accordance with RGP Design D1456 FRA 1.1 and design drawings D1456-SK300 and D1456-SK301 dated May 2018.
- Site investigation by YourEnvironment Limited found underlying conditions of London Clay, and groundwater levels of between 0.96-1.70mbgl. Infiltration measures are deemed unviable.
- There is no surface water features or watercourses available for runoff discharge from the site.
- Surface water run off from the buildings and handstanding areas will be discharged to the surface water sewer, at a controlled rate of 2.5/s.
- Surface water run off will be attenuated within a 625mm subbase of tanked permeable block paving.
- The drainage network has been designed for 1-in-100 year storm events, with the allowance of 40% for climate change without no flooding.
- An urban creep allowance of 10% has been considered, with minimal flooding of 0.2m in a critical storm event, likely to pool within the permeable pavement area.

-FOUL WATER STRATEGY-

- Foul water disposal should adhere to the following hierarchy;
 1. Public Sewer
 2. Private Treatment Plant
 3. Septic Tank and Drainage Field
 4. Cesspool
- There is a foul public sewer on Pagham Road.
- The site will be discharged to the public sewer via a foul pumping station and rising main.
- The existing foul infrastructure from the Inglenook public house along the access road will discharge to the network.

EXISTING DRAINAGE ON SITE REQUIRES INVESTIGATION.

THE CONTRACTOR IS RESPONSIBLE FOR DEALING WITH THE EXISTING DRAINAGE INFRASTRUCTURE AND REPORTING CONNECTIVITY & CONDITION TO ENGINEER.

BUILDING FOUNDATION & MAIN SERVICE CORRIDOR 'LINE & LEVEL' SHALL BE DESIGNED TO SUIT THE DRAINAGE STRATEGY.

ARCHITECT TO FINALISE ALL DRAINAGE CONNECTION POINTS & THRESHOLD DRAIN REQUIREMENTS.

DRAINAGE NOTES:

- ALL DRAINAGE WORKS TO BE CONSTRUCTED IN STRICT ACCORDANCE WITH SPECIFICATION OF THE LOCAL AUTHORITY, BUILDING REGULATIONS, SEWERS FOR ADOPTION, BS8301 & BS EN 752-1.
- FOR LOCATION AND SETTING OUT OF BUILDING DRAINAGE POINTS REFER TO ARCHITECT'S DRAWINGS.
- ALL PIPE RUNS NEAR BUILDINGS TO COMPLY WITH THE BUILDING REGULATIONS 2002 PART 111, WHERE A PIPE IS WITHIN 1m OF A FOUNDATION THE TRENCH SHALL BE FILLED WITH CLASS GEN3 CONCRETE UP TO THE LOWEST LEVEL OF THE FOUNDATION, WHERE THE TRENCH IS FURTHER THAN 1m FROM THE FOUNDATION, THE TRENCH SHALL BE FILLED WITH CLASS GEN3 CONCRETE TO A LEVEL BELOW THE LOWEST LEVEL FOR THE FOUNDATION EQUAL TO THE DISTANCE FROM THE FOUNDATION LESS 150mm IN BOTH CASES THE PIPE SHALL BE BEDDED AND SURROUNDED IN 150mm THICK CLASS GEN3 CONCRETE.
- WHERE PIPES, EXTERNAL TO THE STRUCTURES, HAVE A DEPTH TO SOFFIT FROM GROUND LEVEL OF LESS THAN 450mm THEY SHALL HAVE A CLASS GEN3 CONCRETE ENCASEMENT (150mm THICK).
- WHERE A PIPE UNDER A VEHICULAR AREA, HAS A DEPTH OF COVER OF LESS THAN 0.5m THE PIPE SHALL BE LAID IN A CONCRETE BED AND SURROUND.
- IN ANY CIRCUMSTANCES WHERE PIPES ARE BEDDED AND SURROUNDED IN CONCRETE FLEXIBLE JOINTS SHOULD BE PROVIDED, COMPRESSIBLE BOARDS (FIBREBOARD OR POLYSTYRENE) SHALL BE PROVIDED AT A MAXIMUM OF 6m CENTRES (CONCORDING WITH PIPE JOINTS). THE BOARDS SHALL BE PRE-CUT TO PIPE DIAMETER AND TO A HEIGHT AND WIDTH EQUAL TO THE CONCRETE CROSS SECTION, A BOARD THICKNESS OF 16mm FOR PIPES UP TO 450mm NOMINAL DIAMETER AND 30mm FOR PIPES OVER 450mm NOMINAL DIAMETER.
- ALL PRIVATE BUILDING DRAINAGE SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH BS EN 752-1, UNLESS OTHERWISE SPECIFIED BUILDING DRAINAGE SHALL BE 100mm DIAMETER AND SHALL BE LAID AT A MINIMUM GRADIENT OF (CLUS = 1 IN 40) (LS = 1 IN 80) FOR FOUL DRAINS AND 1 IN 80 FOR SURFACE WATER DRAINS. ALL BUILDING DRAINS SHALL BE LAID IN CONJUNCTION WITH NON-ADOPTIVE BEDDING DETAILS (CLASS D, N OR B) UNLESS OTHERWISE SPECIFIED. TWIN WALL PIPES ARE NOT PERMITTED FOR BUILDING DRAINAGE.
- ALL ADAPTABLE SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH 'DESIGN AND CONSTRUCTION GUIDANCE' PUBLISHED BY WATER UK.
- ALL PIPES, BENDS AND JUNCTION FOR PRIVATE BUILDING DRAINAGE SHALL BE UPVC CONFORMING TO BS4690 AND BS4841 AS APPROPRIATE AND SHALL BE LAID IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION. ALL PIPES, BENDS AND JUNCTION MATERIALS FOR ADAPTABLE DRAINAGE SHALL BE VITRIFIED CLAY, EXTRA STRENGTH OR SUPER STRENGTH TO BS EN 285, WITH FLEXIBLE JOINTS AND KITEMARK CERTIFIED.
- ALL BACK INLET GULLIES TO BE RODDABLE OR CONNECTED TO INSPECTION CHAMBERS.
- ALL GULLY CONNECTIONS OTHER THAN AT MANHOLES TO BE 'Y' JUNCTIONS.
- ALL ROAD GULLY CONNECTIONS TO BE 150mm DIAMETER.
- ALL STUB STACKS TO BE FITTED WITH AIR ADMITTANCE VALVES WHERE BRANCH DRAIN EXCEEDS 12m EXCEPT AT THE HEAD OF THE RUN, SOL VENT PIPES LOCATED AT THE HEAD OF A RUN TO TERMINATE TO FRESH AIR.
- ALL CONNECTIONS TO BE SOFFIT TO SOFFIT UNLESS OTHERWISE NOTED.
- ALL CONCRETE AND CONCRETE PRODUCTS TO BE IN ACCORDANCE WITH BRE 383 FOR SULPHATES.
- THE LOCATIONS OF ALL SVPS AND RWPS SHALL BE CROSS REFERENCED AGAINST THE ARCHITECT'S DRAWINGS DURING SETTING OUT.
- THE PRECISE DEPTH AND LOCATION AND SIZE OF EXISTING PIPES OR MANHOLES WHERE CONNECTIONS OR DIVERSION ARE PROPOSED MUST BE CONFIRMED AND REPORTED TO THE ENGINEER BEFORE WORKS START ON SITE.
- ANY WORKS WITHIN AN EXISTING WATERCOURSE TO BE CARRIED OUT IN ACCORDANCE WITH THE 'ORDINARY WATERCOURSE CONSENT' ISSUED BY THE LEAD LOCAL FLOOD AUTHORITY.
- WHERE PRIVATE ACCESS OR INSPECTION COVERS ARE INSTALLED IN AREAS OF BLOCK PAVING OR PAVING SLABS THEY SHALL BE FITTED WITH A RECESSED COVERED INFILLED WITH THE ADJACENT SURFACING MATERIAL.

RESIDUAL HAZARDS

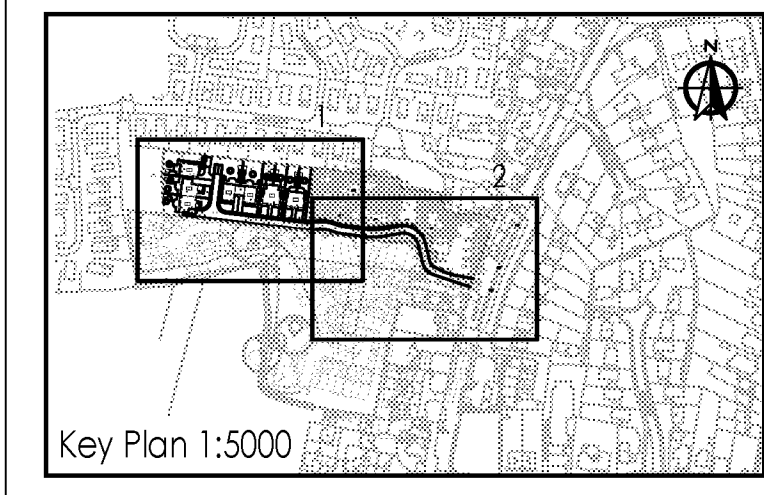
In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following:

- Buried services. Contractor to refer to record drawings and use CAT to locate existing services and undertake necessary precautions and investigation prior to excavating.
- Working in live traffic. Contractor to ensure traffic management is designed, erected and maintained to protect the workforce and the public. Contractor to undertake necessary precautions and ensure suitable traffic management is in place prior to commencement.
- Working in live sewers. Contractor to ensure operators are familiar and competent with the dangers of working in live sewers.
- Excavations close to existing structures. Contractor to prepare method statement to ensure stability of existing structure.
- Stability of existing structure unknown.
- Working within root protection zones, contractor to prepare method statement to ensure protection of roots underneath the existing compacted access road surface.

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

- NOTES**
- This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 - BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 - Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC logos and company information must be removed from copies if information is re-used.
 - The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
 - The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
 - The contractor must comply with all current legislation relating to health & safety.
 - All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
 - All Earthworks in accordance with the Specification for Highway Works.

FOR APPROVAL
NOT FOR CONSTRUCTION



This map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office (c) Crown Copyright.
Licence Number: AL100037123
This drawing is based upon Ordnance Survey mapping - BPC accept no liability for any inaccuracies with the data.

BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 231418 Fax: 01483 841482
www.brightplancivils.co.uk

Drawing Status: **FOR APPROVAL**

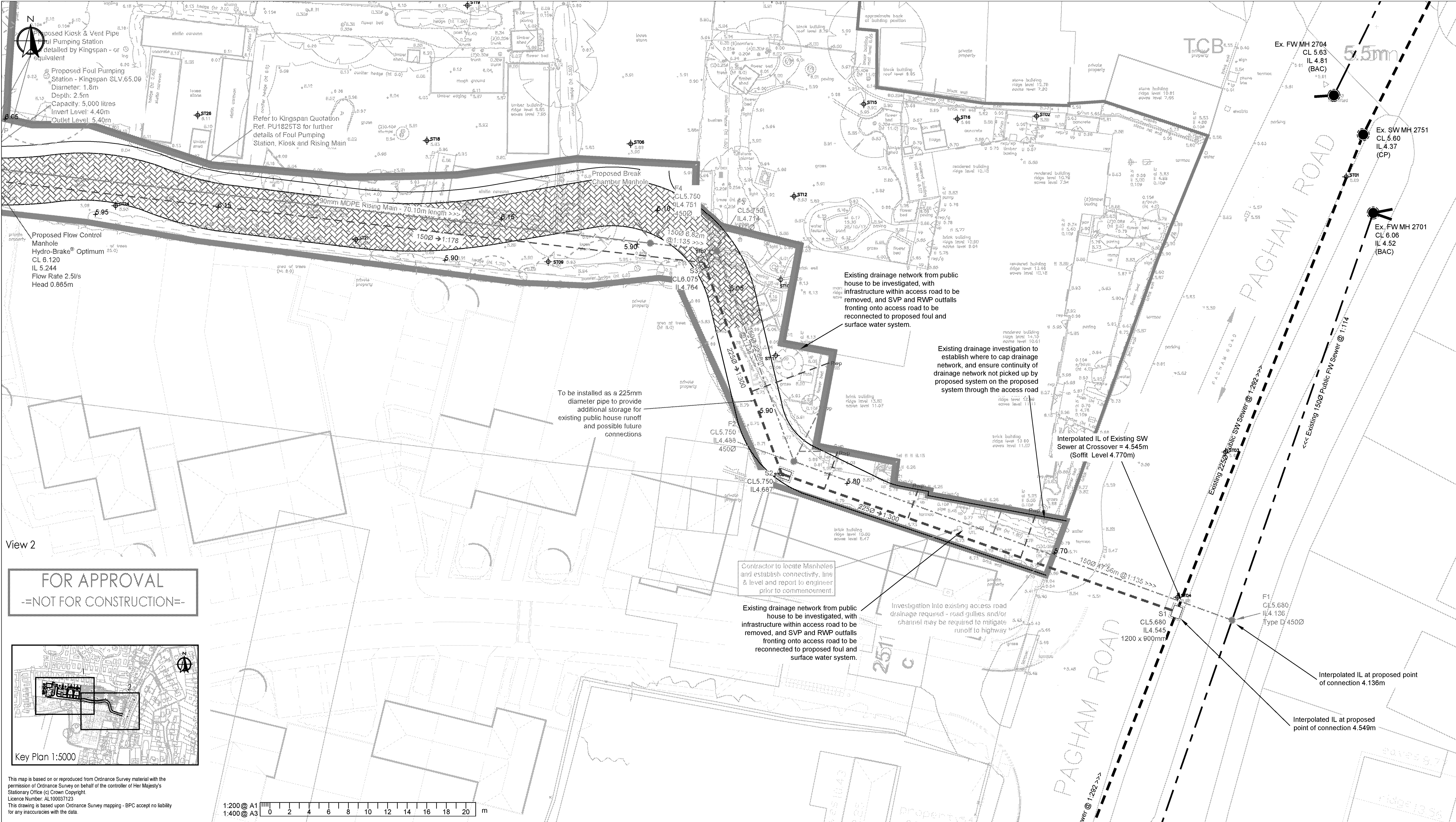
Client: **Future Group Development Ltd**

Project: **Land at The Inglenook
Pagham Road, Bognor Regis PO21 3QB**

Drawing Title: **Proposed Drainage Arrangement
Sheet 1 of 2**

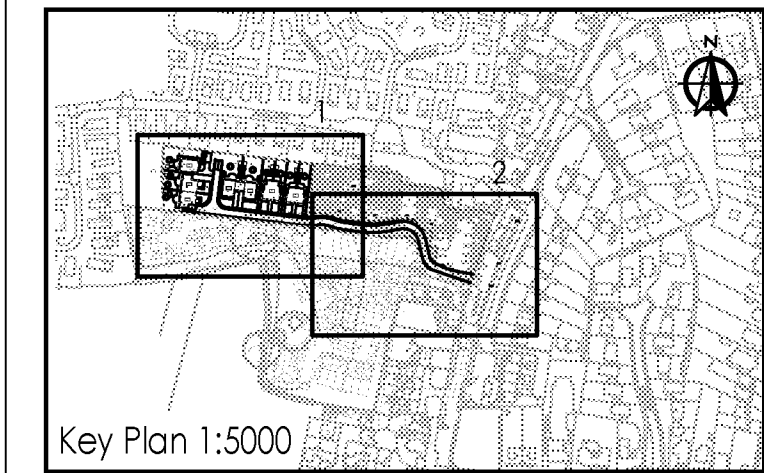
Scale: **1:200** Date: **Aug '21** Drawn By: **DJL** Checked By: **MJA**

Drawing No.: **D1966-103.1** Rev.: **B**

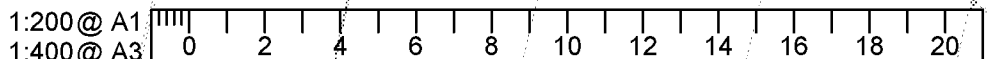


View 2

FOR APPROVAL
-NOT FOR CONSTRUCTION-



This map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office (c) Crown Copyright.
Licence Number: AL100037123
This drawing is based upon Ordnance Survey mapping - BPC accept no liability for any inaccuracies with the data.



-DRAINAGE KEY-

- Rodding Point (Below Ground)
- Precast Concrete Ring Manhole (Over 1.5m Depth to Soffit, CP denotes Catchpit)
- Precast Concrete Ring Flow Control Manhole (Refer to Construction Details)
- Inspection Chamber (Max 1.2m Depth to invert, CP Denotes Catchpit)
- 450x950 Road Gully & 1500 Lateral (Double gullies must have separate laterals) Yard Gully 600mm pot
- Proposed Diffuser Unit (DN), N=Number of Permeavoid Diffusers
- Permeable Paving Tanked Block - 625mm Subbase thickness Root Protection Zone Freedrainng Subbase
- Proposed Foul Pumping Station
- Precast Concrete Ring Manhole
- Inspection Chamber (Max 1.2m Depth to invert)

-SURFACE WATER STRATEGY-

- Surface water disposal should be managed in view of the SuDS hierarchy;
 - Infiltration
 - Watercourse
 - Public Surface Water Sewer(s)
- Strategy is in accordance with RGP Design D1456 FRA 1.1 and design drawings D1456-SK300 and D1456-SK301 dated May 2018.
- Site investigation by YourEnvironment Limited found underlying conditions of London Clay, and groundwater levels of between 0.96-1.70magl. Infiltration measures are deemed unviable.
- There is no surface water features or watercourses available for runoff discharge from the site.
- Surface water run off from the buildings and handstanding areas will be discharged to the surface water sewer, at a controlled rate of 2.5/s.
- Surface water run off will be attenuated within a 625mm subbase of tanked permeable block paving.
- The drainage network has been designed for 1-in-100 year storm events, with the allowance of 40% for climate change without no flooding.
- An urban creep allowance of 10% has been considered, with minimal flooding of 0.2m³ in a critical storm event, likely to pool within the permeable pavement area.

-FOUL WATER STRATEGY-

- Foul water disposal should adhere to the following hierarchy;
 - Public Sewer
 - Private Treatment Plant
 - Septic Tank and Drainage Field
 - Cesspool
- There is a foul public sewer on Pagham Road.
- The site will be discharged to the public sewer via a foul pumping station and rising main.
- The existing foul infrastructure from the Inglenook public house along the access road will discharge to the network.

EXISTING DRAINAGE ON SITE REQUIRES INVESTIGATION.

THE CONTRACTOR IS RESPONSIBLE FOR DEALING WITH THE EXISTING DRAINAGE INFRASTRUCTURE AND REPORTING CONNECTIVITY & CONDITION TO ENGINEER.

BUILDING FOUNDATION & MAIN SERVICE CORRIDOR 'LINE & LEVEL' SHALL BE DESIGNED TO SUIT THE DRAINAGE STRATEGY.

ARCHITECT TO FINALISE ALL DRAINAGE CONNECTION POINTS & THRESHOLD DRAIN REQUIREMENTS.

DRAINAGE NOTES:

- ALL DRAINAGE WORKS TO BE CONSTRUCTED IN STRICT ACCORDANCE WITH SPECIFICATION OF THE LOCAL AUTHORITY, BUILDING REGULATIONS, SEWERS FOR ADOPTION, BS8301 & BSEN 752-1.
- FOR LOCATION AND SETTING OUT OF BUILDING DRAINAGE POINTS REFER TO ARCHITECTS DRAWINGS.
- ALL PIPES RUN NEAR BUILDINGS TO COMPLY WITH THE BUILDING REGULATIONS 2002 PART M1. WHERE A PIPE IS WITHIN 1m OF A FOUNDATION THE TRENCH SHALL BE FILLED WITH CLASS GEN3 CONCRETE UP TO THE LOWEST LEVEL OF THE FOUNDATION. WHERE THE TRENCH IS FURTHER THAN 1m FROM THE FOUNDATION, THE TRENCH SHALL BE FILLED WITH CLASS GEN3 CONCRETE TO A LEVEL BELOW THE LOWEST LEVEL FOR THE FOUNDATION EQUAL TO THE DISTANCE FROM THE FOUNDATION LESS 150mm. IN BOTH CASES THE PIPE SHALL BE BEDDED AND SURROUNDED IN 150mm THICK CLASS GEN3 CONCRETE.
- WHERE PIPES, EXTERNAL TO THE STRUCTURES, HAVE A DEPTH TO SOFFIT FROM GROUND LEVEL OF LESS THAN 450mm THEY SHALL HAVE A CLASS GEN3 CONCRETE ENCASEMENT (150mm THICK).
- WHERE A PIPE UNDER A VEHICULAR AREA, HAS A DEPTH OF COVER OF LESS THAN 0.5m THE PIPE SHALL BE LAD IN A CONCRETE BED AND SURROUND.
- IN ANY CIRCUMSTANCES WHERE PIPES ARE BEDDED AND SURROUNDED IN CONCRETE FLEXIBLE JOINTS SHOULD BE PROVIDED. COMPRESSIBLE ROADS (FIBREBOARD OR POLYSTYRENE) SHALL BE PROVIDED AT A MAXIMUM OF 6m CENTRES CONCORDING WITH PIPE JOINTS. THE BOARDS SHALL BE PRE-CUT TO PIPE DIAMETER AND TO A HEIGHT AND WIDTH EQUAL TO THE CONCRETE CROSS SECTION. A BOARD THICKNESS OF 16mm FOR PIPES UP TO 450mm NOMINAL DIAMETER AND 30mm FOR PIPES OVER 450mm NOMINAL DIAMETER.
- ALL PRIVATE BUILDING DRAINAGE SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH BS EN 752-1. UNLESS OTHERWISE SPECIFIED BUILDING DRAINAGE SHALL BE 100mm DIAMETER AND SHALL BE LAD AT A MINIMUM GRADIENT OF (FOLUS = 1 IN 40) (FUS = 1 IN 80) FOR FOLL DRAINS AND 1 IN 80 FOR SURFACE WATER DRAINS. ALL BUILDING DRAINS SHALL BE LAD IN CONJUNCTION WITH NON ADOPTIVE BEDDING DETAILS (CLASS D, N OR B) UNLESS OTHERWISE SPECIFIED. 100mm WALL PIPES ARE NOT PERMITTED FOR BUILDING DRAINAGE.
- ALL ADAPTABLE SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH 'DESIGN AND CONSTRUCTION GUIDANCE' PUBLISHED BY WATER UK.
- ALL PIPES, BENDS AND JUNCTION FOR PRIVATE BUILDING DRAINAGE SHALL BE UPVC CONFORMING TO BS4690 AND BS4841 AS APPROPRIATE AND SHALL BE LAD IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION. ALL PIPES, BENDS AND JUNCTION MATERIALS FOR ADOPTABLE DRAINAGE SHALL BE VITRIFIED CLAY, EXTRA STRENGTH OR SUPER STRENGTH TO BS2926, WITH FLEXIBLE JOINTS AND KITE MARK CERTIFIED.
- ALL BACK INLET GULLIES TO BE RODDABLE OR CONNECTED TO INSPECTION CHAMBERS.
- ALL GULLY CONNECTIONS OTHER THAN AT MANHOLES TO BE 'Y' JUNCTIONS.
- ALL ROAD GULLY CONNECTIONS TO BE 150mm DIAMETER.
- ALL STUB STACKS TO BE FITTED WITH AIR ADMITTANCE VALVES WHERE BRANCH DRAIN EXCEEDS 12m EXCEPT AT THE HEAD OF THE RUN. SOL VENT PIPES LOCATED AT THE HEAD OF A RUN TO TERMINATE TO FRESH AIR.
- ALL CONNECTIONS TO BE SOFFIT TO SOFFIT UNLESS OTHERWISE NOTED.
- ALL CONCRETE AND CONCRETE PRODUCTS TO BE IN ACCORDANCE WITH BRE 383 FOR SULPHATES.
- THE LOCATIONS OF ALL SVPS AND RWPS SHALL BE CROSS REFERENCED AGAINST THE ARCHITECTS DRAWINGS DURING SETTING OUT.
- THE PRECISE DEPTH AND LOCATION AND SIZE OF EXISTING PIPES OR MANHOLES WHERE CONNECTIONS OR DIVERSION ARE PROPOSED MUST BE CONFIRMED AND REPORTED TO THE ENGINEER BEFORE WORKS START ON SITE.
- ANY WORKS WITHIN AN EXISTING WATERCOURSE TO BE CARRIED OUT IN ACCORDANCE WITH THE 'ORDINARY WATERCOURSE CONSENT' ISSUED BY THE LEAD LOCAL FLOOD AUTHORITY.
- WHERE PRIVATE ACCESS OR INSPECTION COVERS ARE INSTALLED IN AREAS OF BLOCK PAVING OR PAVING SLABS THEY SHALL BE FITTED WITH A RECESSED COVERED INFILLED WITH THE ADJACENT SURFACING MATERIAL.

RESIDUAL HAZARDS

In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following:

- Buried services. Contractor to refer to record drawings and use CAT to locate existing services and undertake necessary precautions and investigation prior to excavating.
- Working in live traffic. Contractor to ensure traffic management is designed, erected and maintained to protect the workforce and the public. Contractor to undertake necessary precautions and ensure suitable traffic management is in place prior to commencement.
- Working in live sewers. Contractor to ensure operatives are familiar and competent with the dangers of working in live sewers.
- Excavations close to existing structures. Contractor to prepare method statement to ensure protection of roots underneath the existing compacted access road surface.
- Stability of existing structure unknown.
- Working within root protection zones, contractor to prepare method statement to ensure protection of roots underneath the existing compacted access road surface.

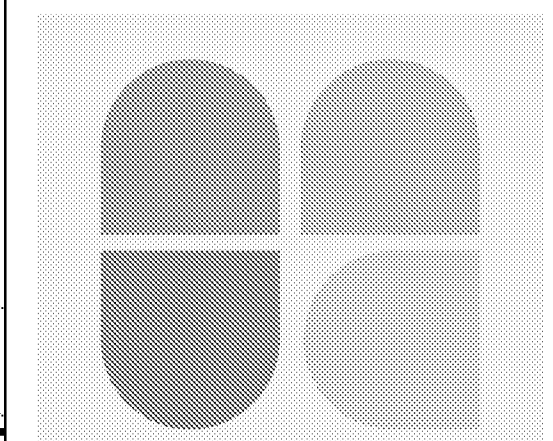
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved risk assessment and method statement

NOTES

- This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
- BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
- Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
- Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
- All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
- The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC logos and company information must be removed from copies if information is re-used.
- The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
- The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
- The contractor must comply with all current legislation relating to health & safety.
- All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
- All Earthworks in accordance with the Specification for Highway Works.

B	Revised Issue	16/08/2021
A	Revised Issue	15/07/2021
-	Original Issue	28/05/2021

Rev.	Amendments	Date
------	------------	------



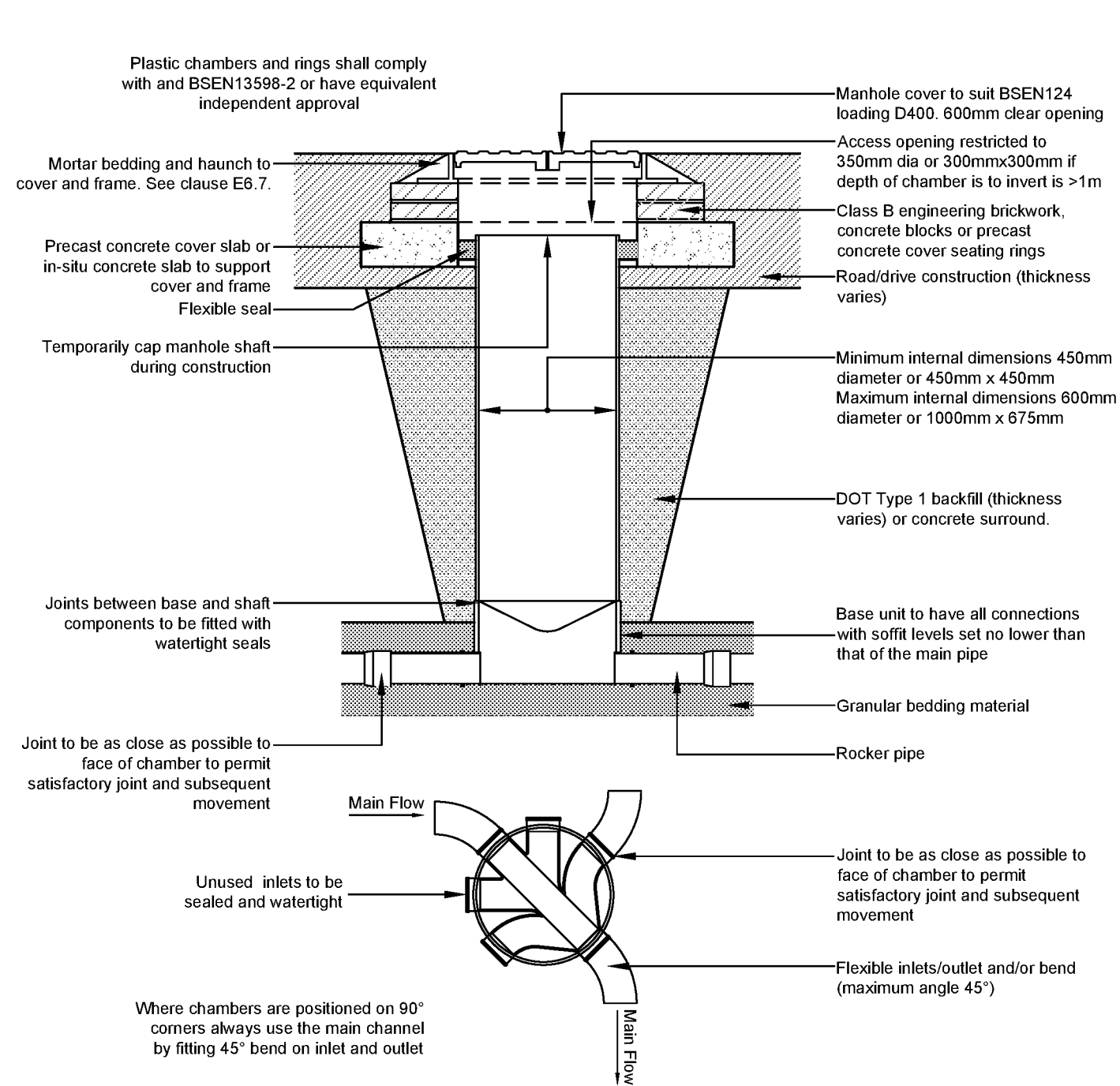
BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 231418 Fax: 01488 841682
www.brightplancivils.co.uk

Drawing Status: **FOR APPROVAL**
Client: Future Group Development Ltd

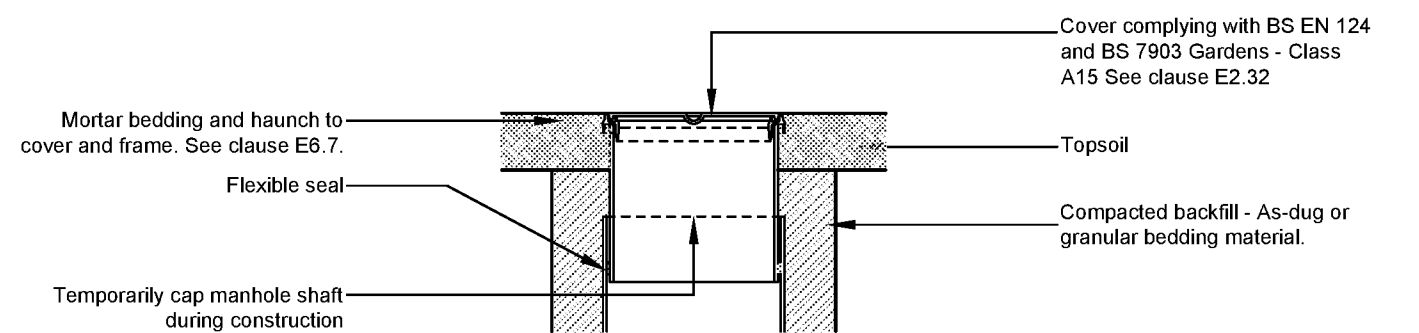
Project: Land at The Inglenook
Pagham Road, Bognor Regis PO21 3QB
Drawing Title: Proposed Drainage Arrangement
Sheet 2 of 2

Scale	Date	Drawn By	Checked By
1:200	Aug '21	DJL	MJA
Drawing No:	D1966-103.2	Rev.	B

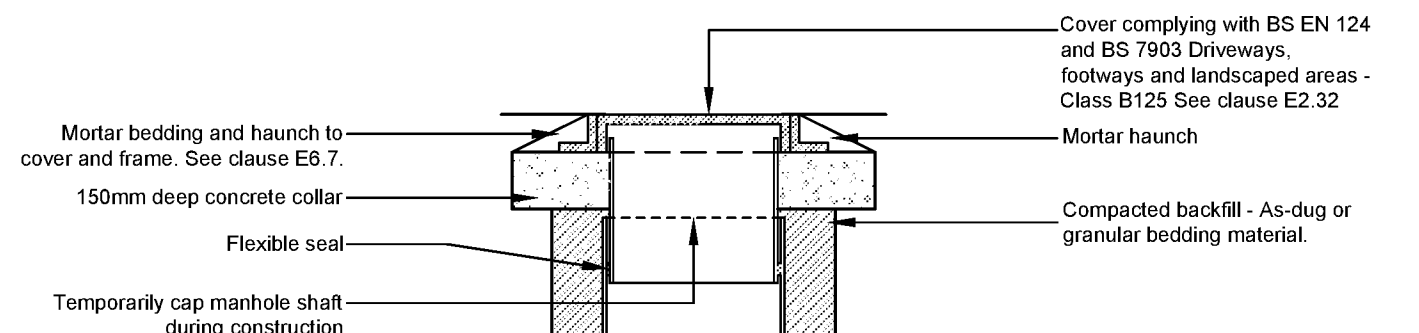
- This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
- BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
- Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
- Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on the prior to work commencing and taking due care whilst undertaking the works.
- All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
- The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC logos and company information must be removed from copies if information is re-used.
- The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
- The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
- The contractor must comply with all current legislation relating to health & safety.
- All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
- All Earthworks in accordance with the Specification for Highway Works.



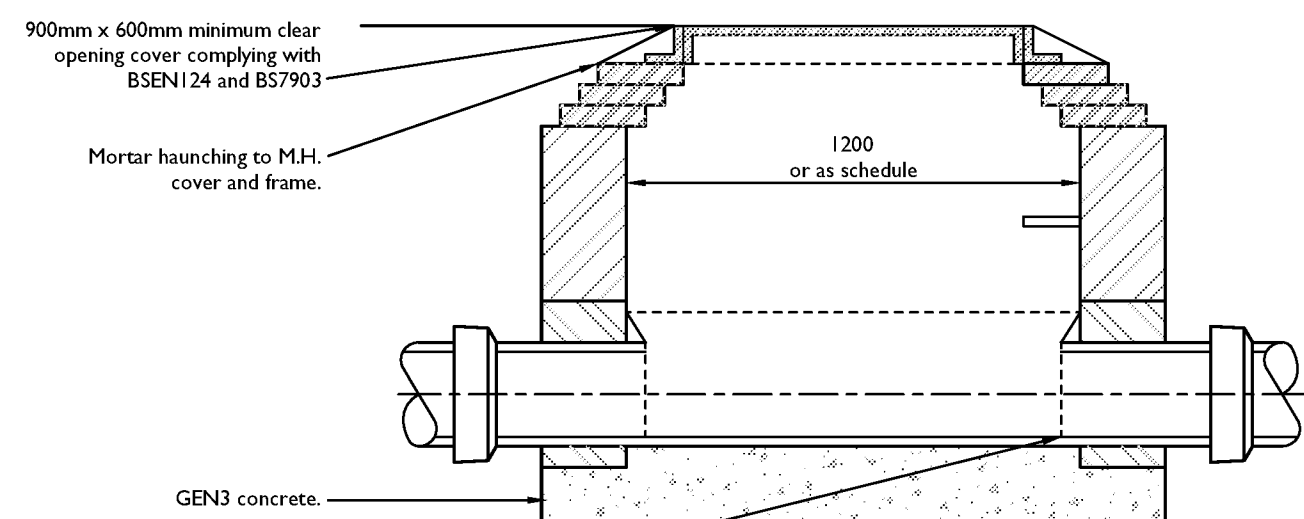
TYPICAL ACCESS CHAMBER DETAIL - TYPE D
3m maximum depth to from cover to pipe soffit. (non entry) vehicle loading
(Scale 1:20)



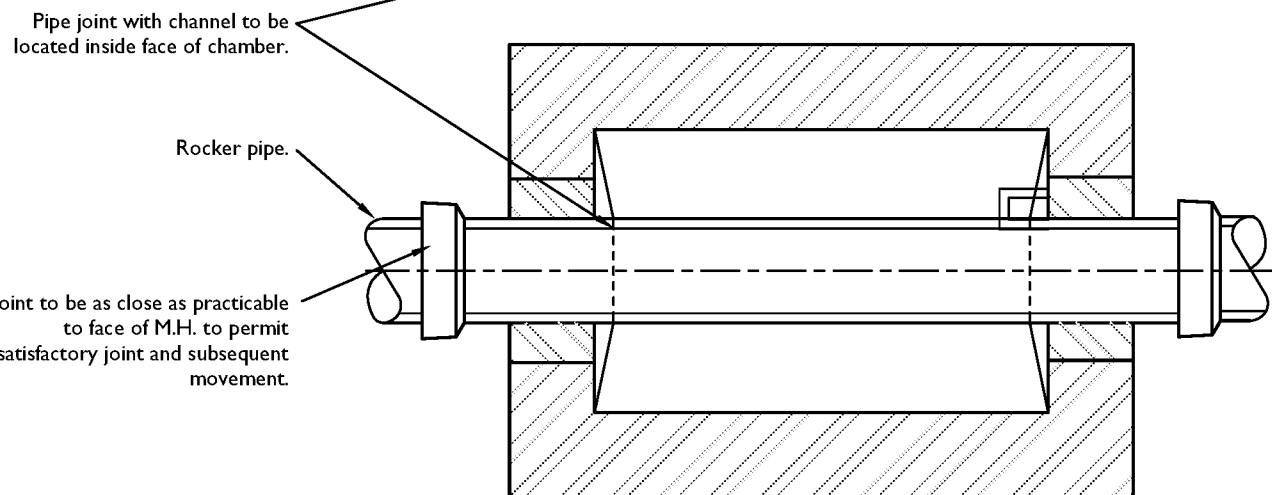
ALTERNATIVE TOP DETAIL - TYPE D
Sited in domestic gardens subject to pedestrian loading only
(Scale 1:20)



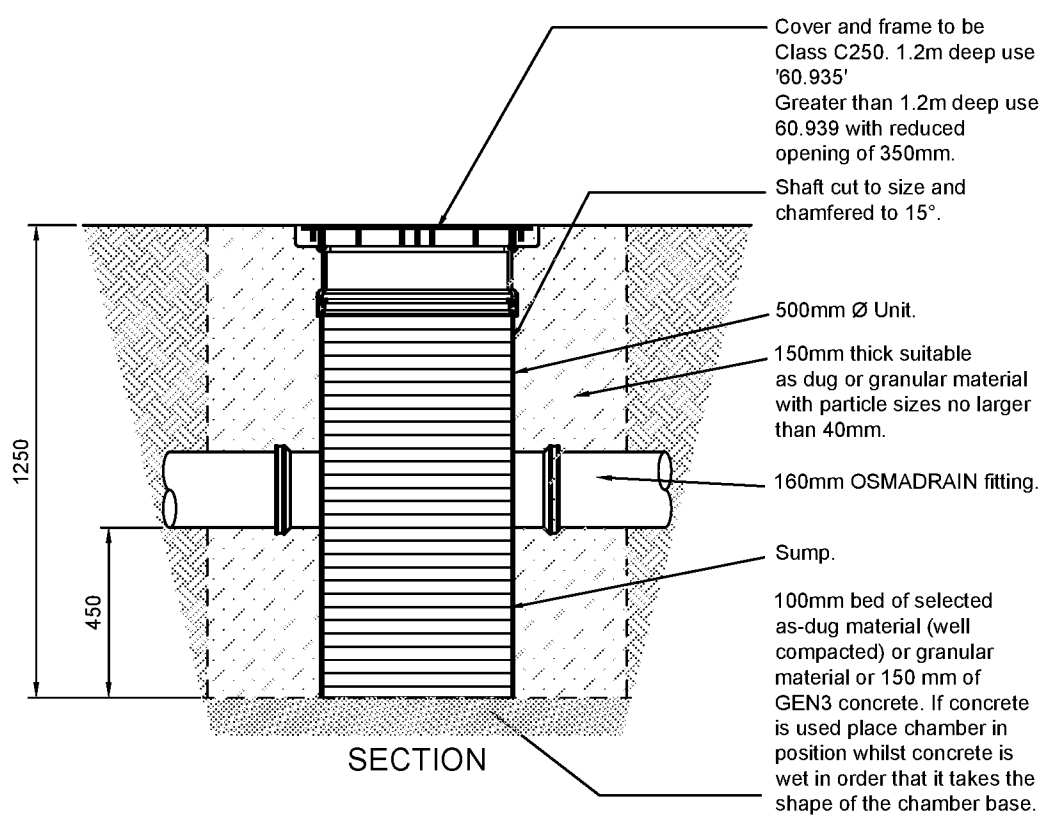
ALTERNATIVE TOP DETAIL - TYPE D
Sited in driveways/paved areas subject to light vehicle loading only
(Scale 1:20)



SECTION A-A

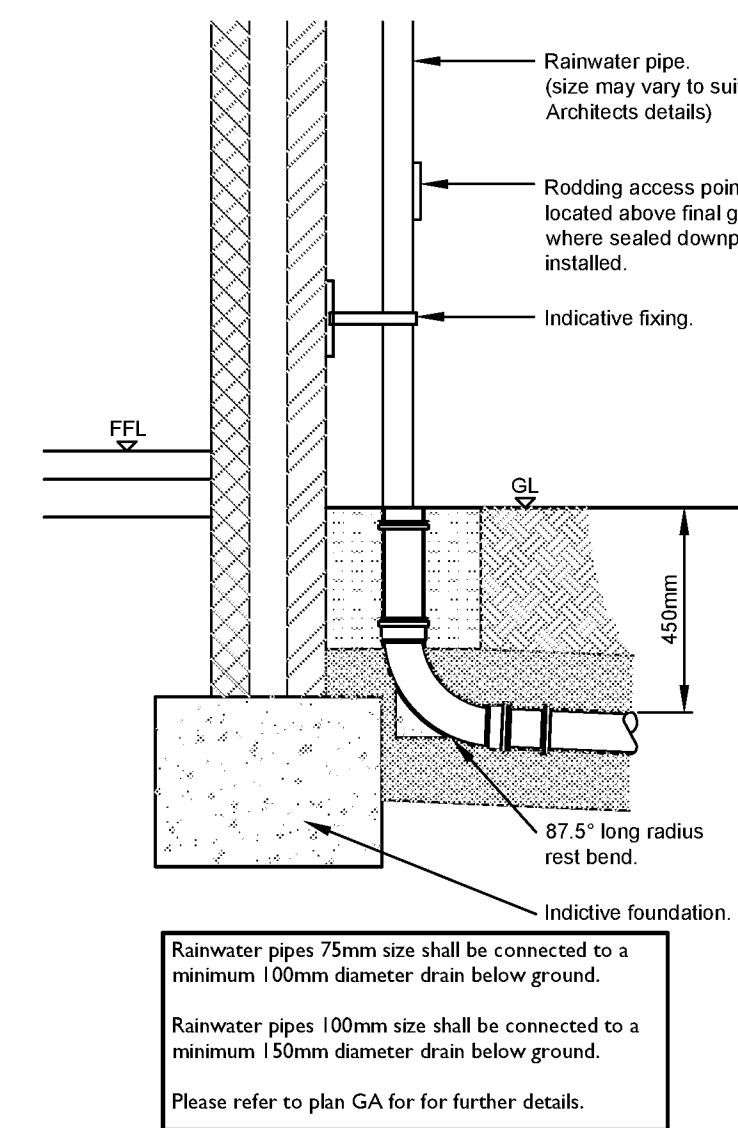


PLAN

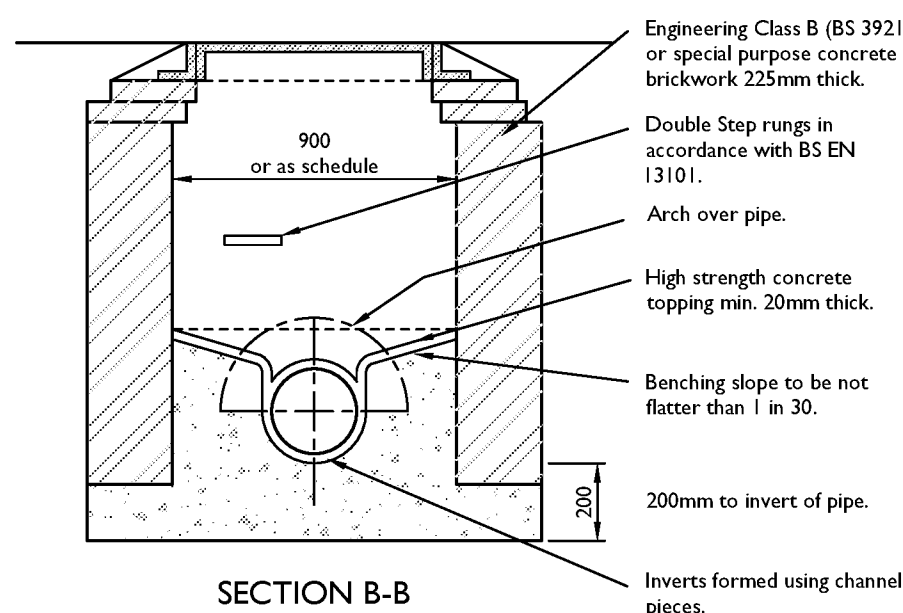


POLYPROPYLENE SHALLOW SILT TRAP DETAIL (500Ø)
(Scale 1:20)

Depth to invert 1.25m (standard unit)
Silt Traps installed greater than single unit depth to be extended using Wavin inspection chamber shaft units.



TYPICAL RWP REST BEND DETAIL
(Scale 1:20)

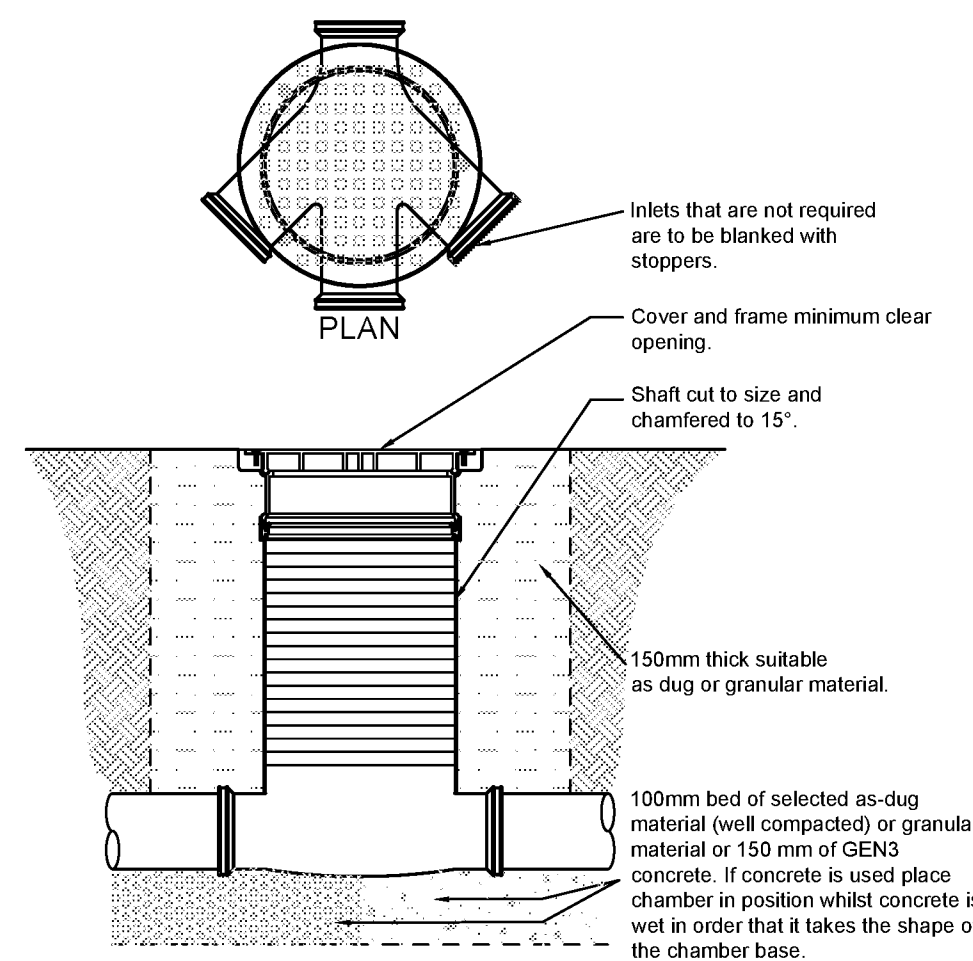


SECTION B-B

Chamber width should be increased for pipes larger than 225mm dia. to give 225mm benching each side with the brickwork corbelled down to suit the cover.
Precast concrete rectangular manhole sections 1200x900 surrounded in 150mm concrete fitted with a multiple 1220x685mm multiple ductile iron cover will be permitted on the approval of the engineer. Precast units to be compliant with Water UK DCG.

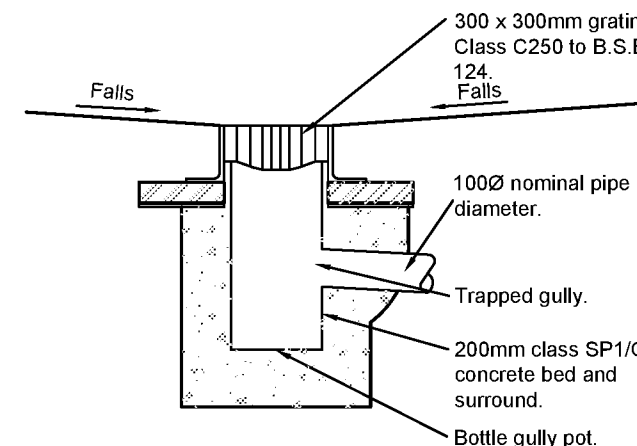
BRICK CHAMBER (1200x900)
(Scale 1:20)

Depth from cover level to soffit of less than 1.5m.

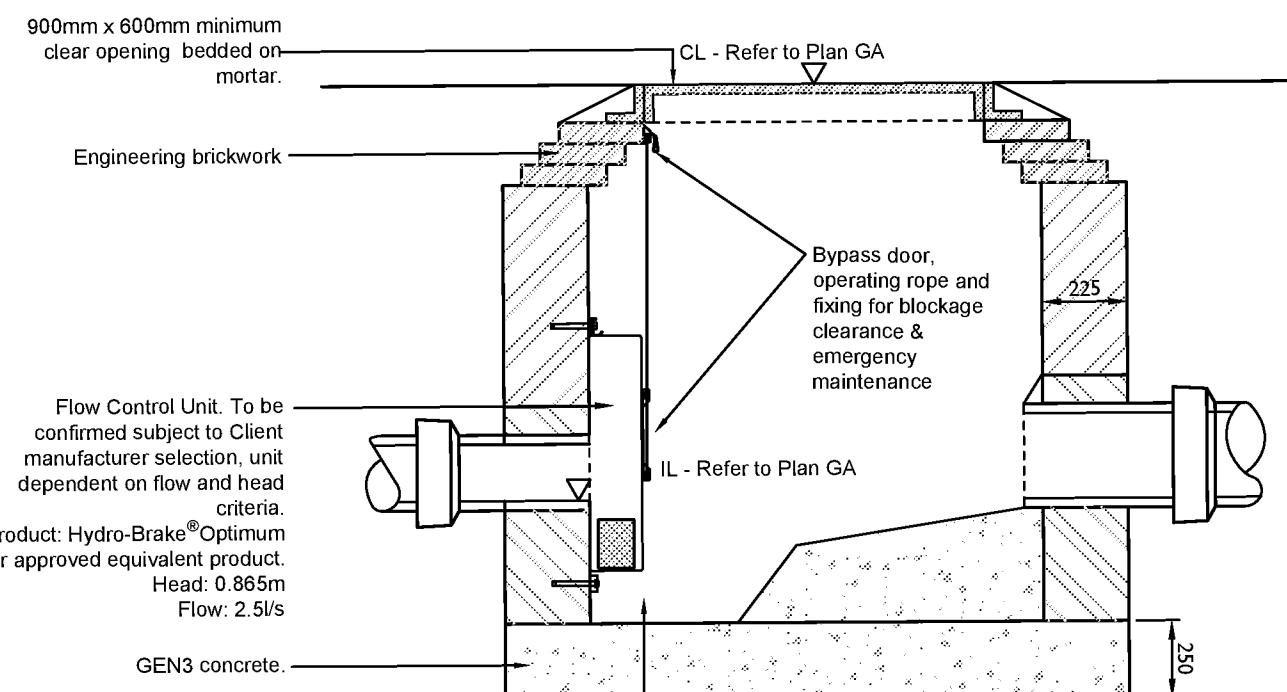


SECTION POLYPROPYLENE SHALLOW INSPECTION CHAMBER DETAIL (250Ø)
(Scale 1:20)

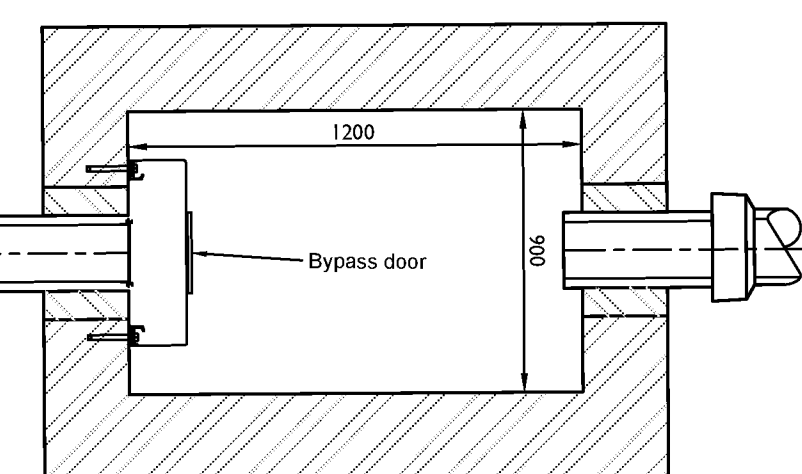
Depth to invert of less than 600mm.



TYPICAL YARD (BOTTLE) GULLY
(VEHICULAR LOADING)
(Scale 1:20)



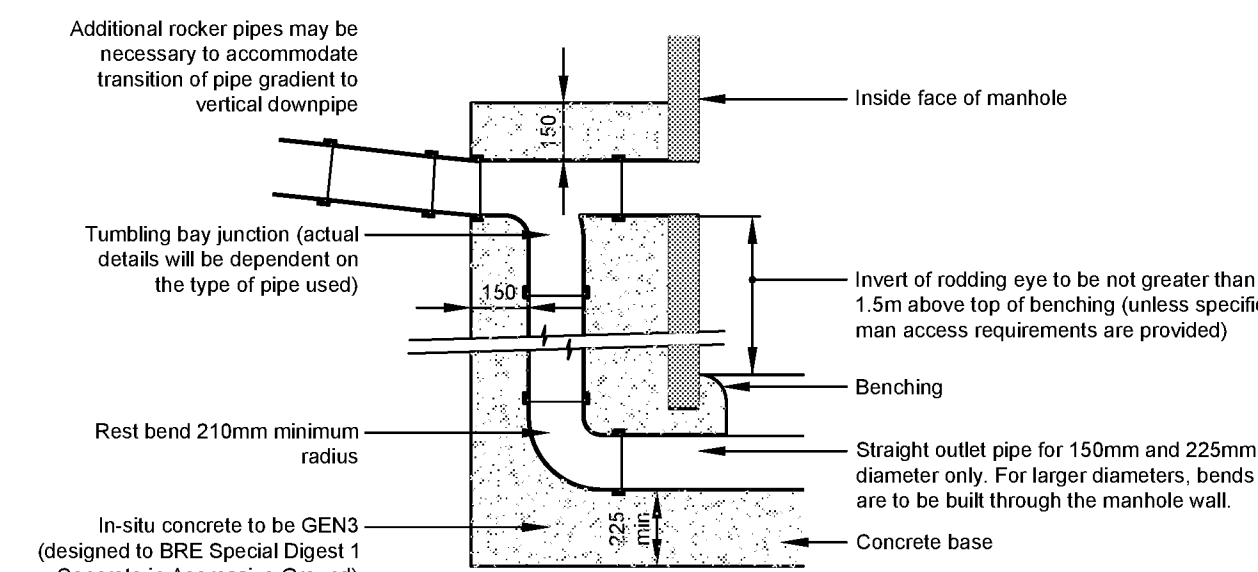
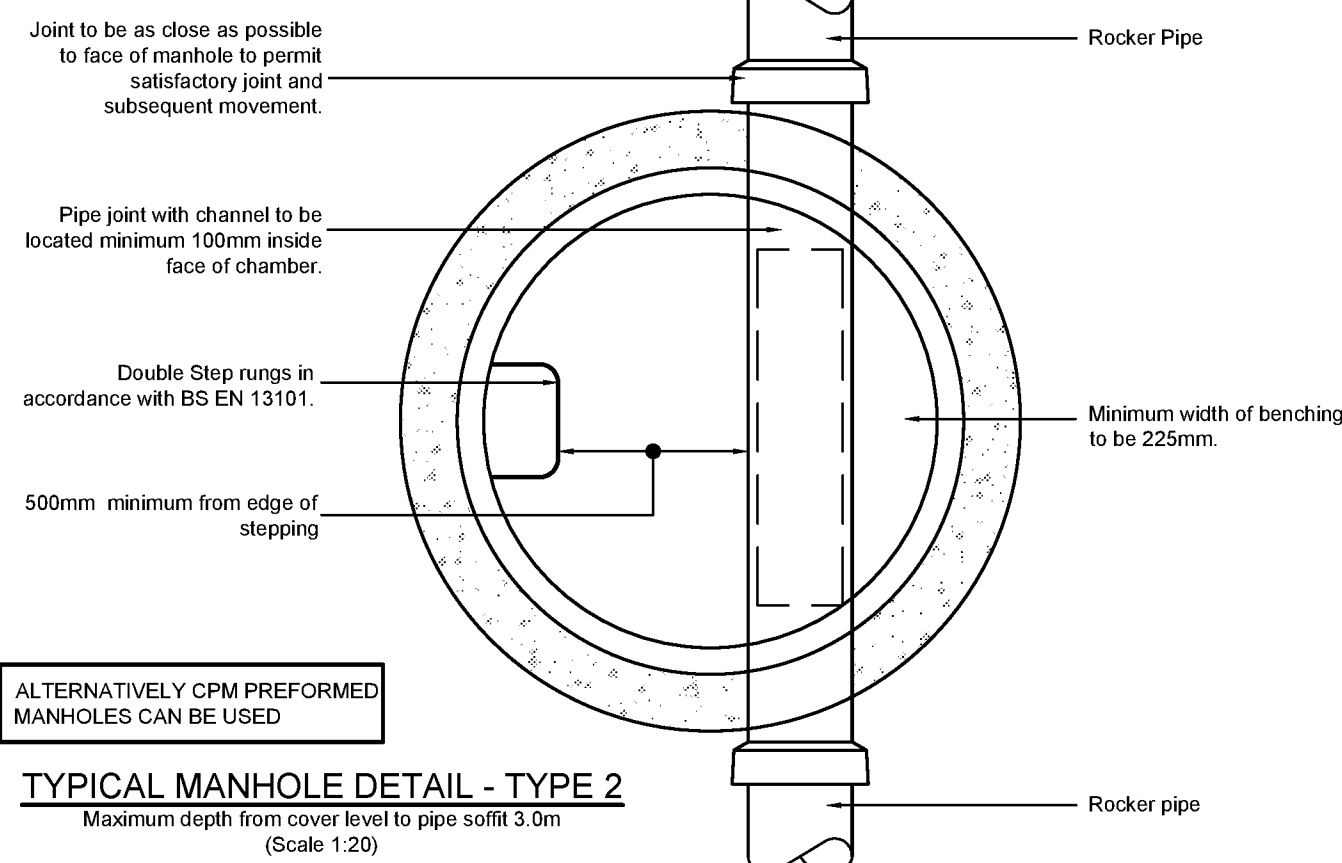
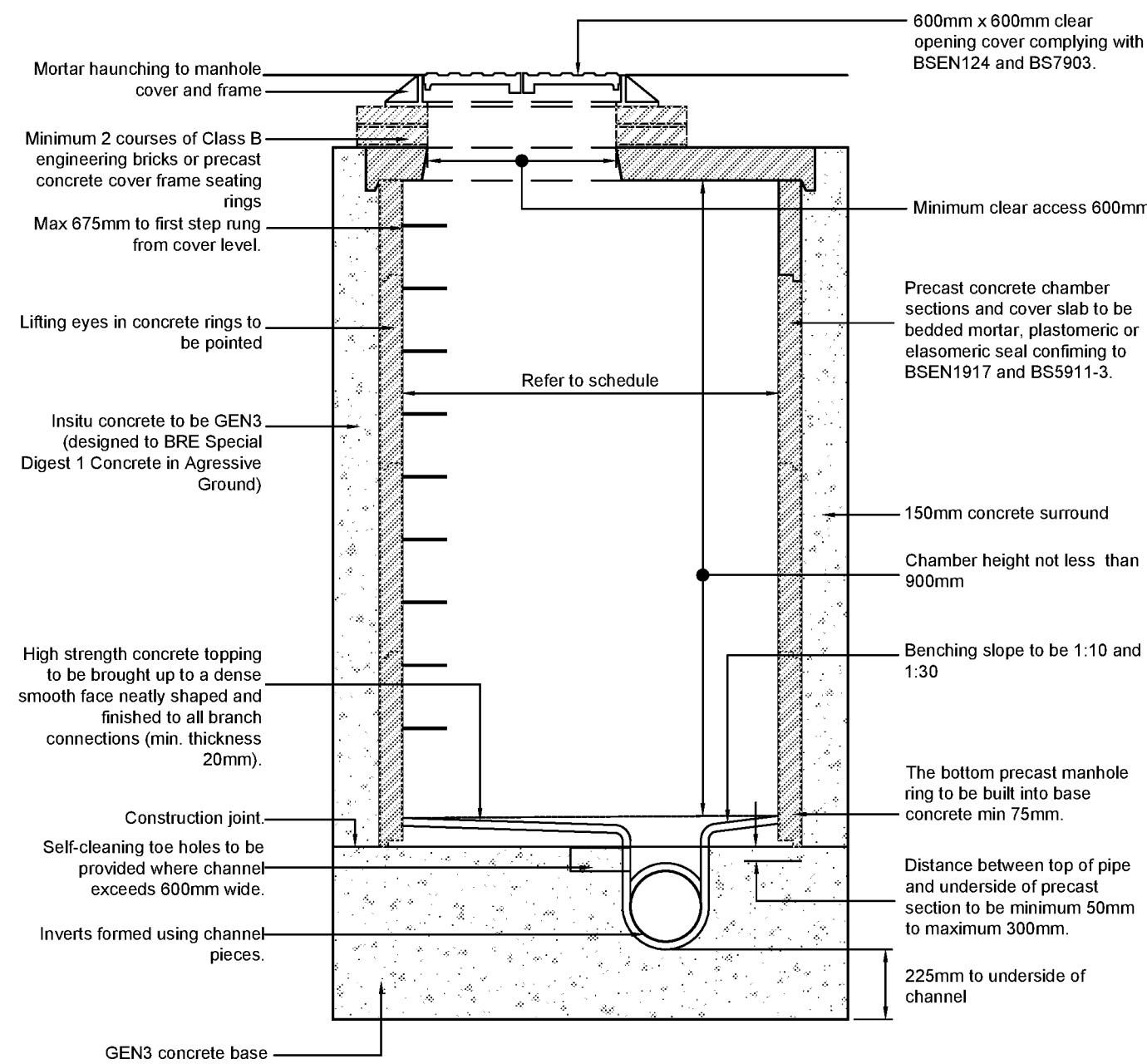
SECTION



PLAN

FLOW CONTROL CHAMBER
(Scale 1:20)

The details shown above are indicative only and should not be used as a scaled drawing. Please refer to manufacturers installation.



VERTICAL BACKDROP DETAIL
(Scale 1:20)

Type	Minimum Dimensions for Access Fittings and Chambers					
	Internal Sizes			Cover Sizes		
	Depth to invert (m)	Size of largest pipe (DN)	Length x Width (mm)	Circular (mm)	Length x Width (mm)	Circular (mm)
As Drain but Minimum 100mm						
Rodding Eye						
Shallow Access						
Small	0.8 or less	150	150x100	150	150x100	150
Large	1.2 or less	150	225x100		225x100	
Inspection Chamber	0.8 or less			190		190
	1.2 or less		450x450	450	450x450	450
	1.2 - 3.0		450x450	450	300x300	350
Manhole	1.5 or less	150	675x750	1200	675x750	n/a
		225	675x1200	1200	1200x675	n/a
		300	675x1200	1200	1200x675	n/a
		>300	DN+450 x 1800	The larger of 1800 or (DN+450)	1200x675	n/a
	Over 1.5	225	1200x1000	1200	600x600	600
		300	1200x1075	1200	600x600	600
		375-450	1350x1225	1200	600x600	600
		>450	DN+775 x 1800	The larger of 1800 or (DN+775)	1200x675	600
Manhole Shaft	Over 2.7		900x840	900	600x600	600

BUILDING REGULATIONS MINIMUM DIMENSIONS FOR MANHOLES
(Not to Scale)

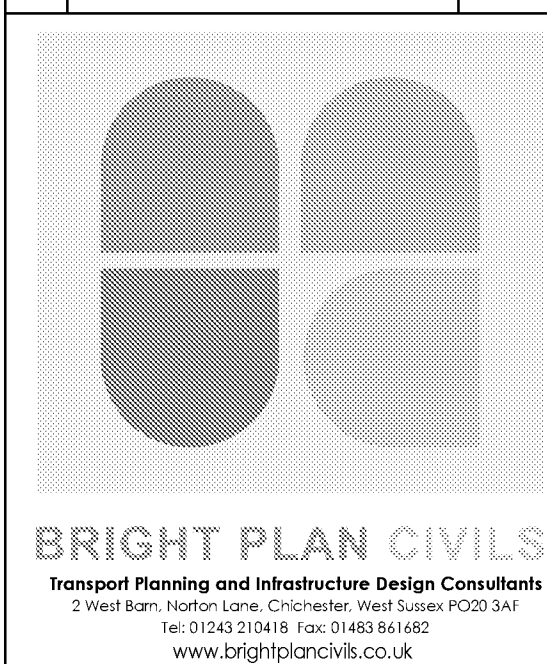
This plan complies with the Building Regulations 2002 Section 14 - Drainage & Waste Disposal.

FOR APPROVAL

NOT FOR CONSTRUCTION

B	Revised Issue	16/08/2021
A	Revised Issue	15/07/2021
-	Original Issue	27/05/2021

Rev.	Amendments	Date
------	------------	------



Drawing Status FOR APPROVAL

Client Future Group Development Ltd

Project Land at The Inglenook
Pagham Road, Bognor Regis PO21 3QB

Drawing Title Construction Details
Sh1

Scale As Shown Date Aug 2021 Drawn By DJL Checked By MJA

Drawing No. D1966-400 Rev. B

SUB-BASE TABLE 1

CBR VALUE	Minimum thickness (mm) of capping layer (Consolidated in accordance with MCHW Volume 1 clause 801, table 8/1)		Minimum Sub-base thickness	Notes
	Without Geotextile	With Geotextile		
Less than 1%	N/A	600mm	150mm	Geogrid required
Less than 2%	N/A	600mm	150mm	
> 2% - 2.5%	450mm	N/A	150mm	Alt. 350mm Subbase Only
> 2.5% - 5%	350mm	N/A	150mm	
> 5% - 15%	N/A	N/A	225mm	
Greater than 15%	N/A	N/A	150mm	

SUB BASE TABLE 2

CBR VALUE	Minimum thickness (mm) of sub-base (Consolidated in accordance with MCHW Volume 1 clause 801, table 8/1)	
	Without Geotextile	With Geotextile
Less than 2%	N/A	300mm
2% - 3%	325mm	225mm
>3% - 5%	250mm	150mm
>5% - 7%	150mm	
>7% - 20%	100mm	

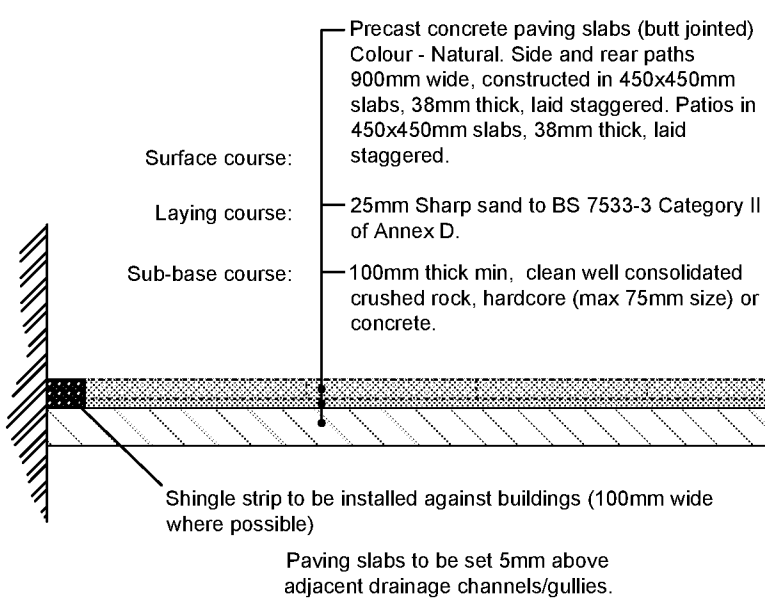
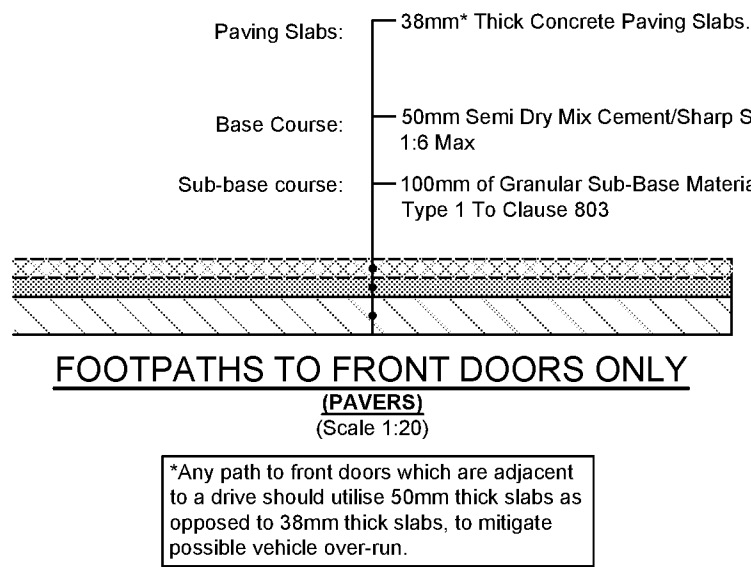
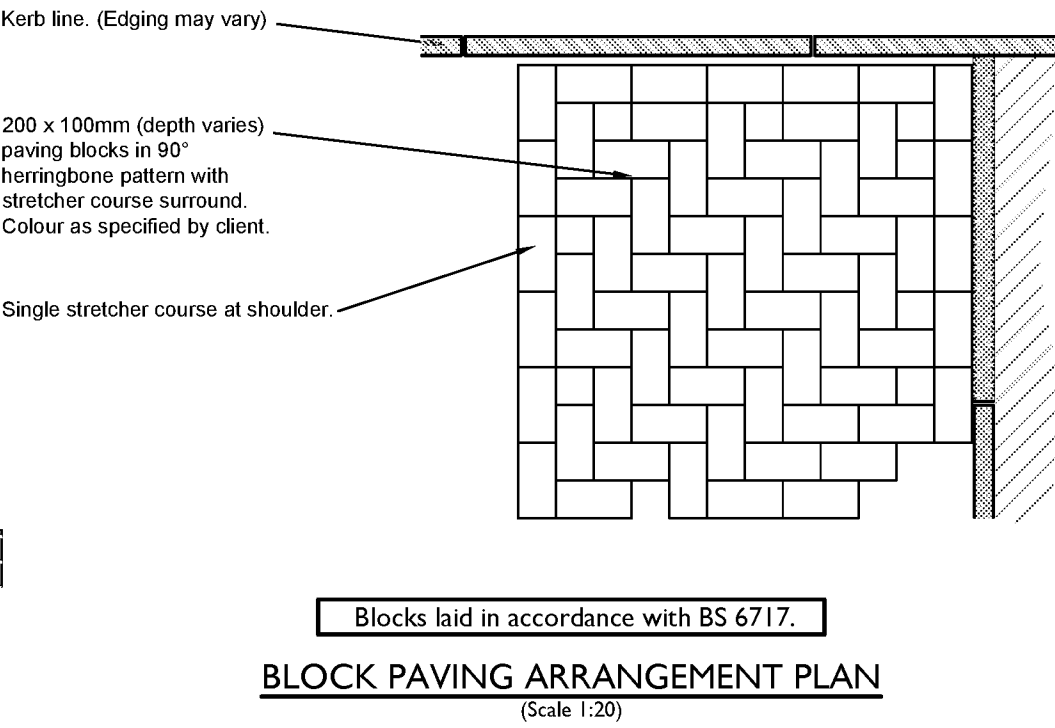
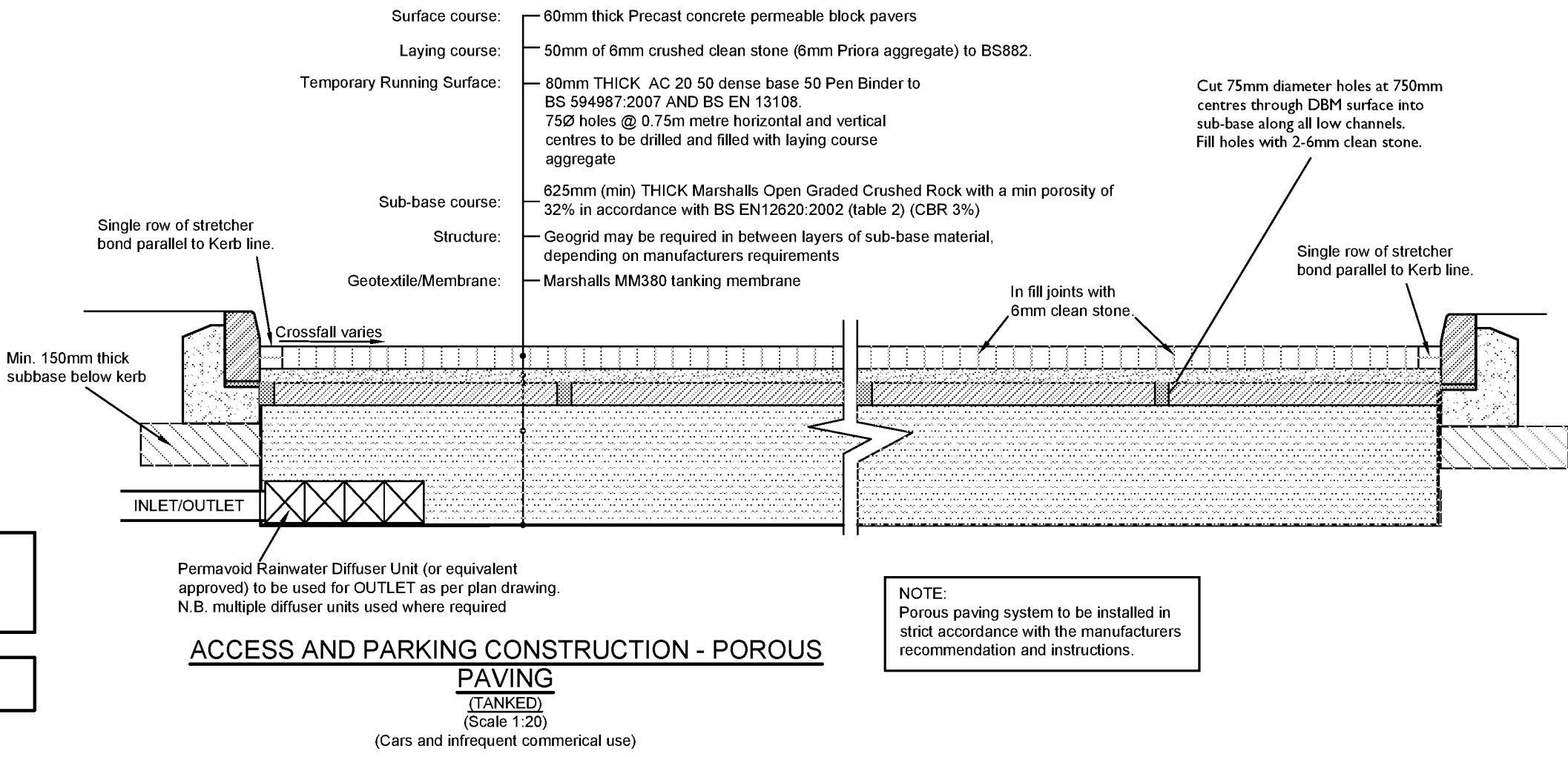
CONTRACTOR TO ASSUME MAXIMUM CAPPING LAYER THICKNESS PRIOR TO CONFIRMATION OF CBR TESTING.

NOTE: 450MM MINIMUM OVERALL CONSTRUCTION MUST BE MET IN COMPLIANCE WITH FROST SUSCEPTIBILITY, IRRESPECTIVE OF SUBGRADING CBR VALUE

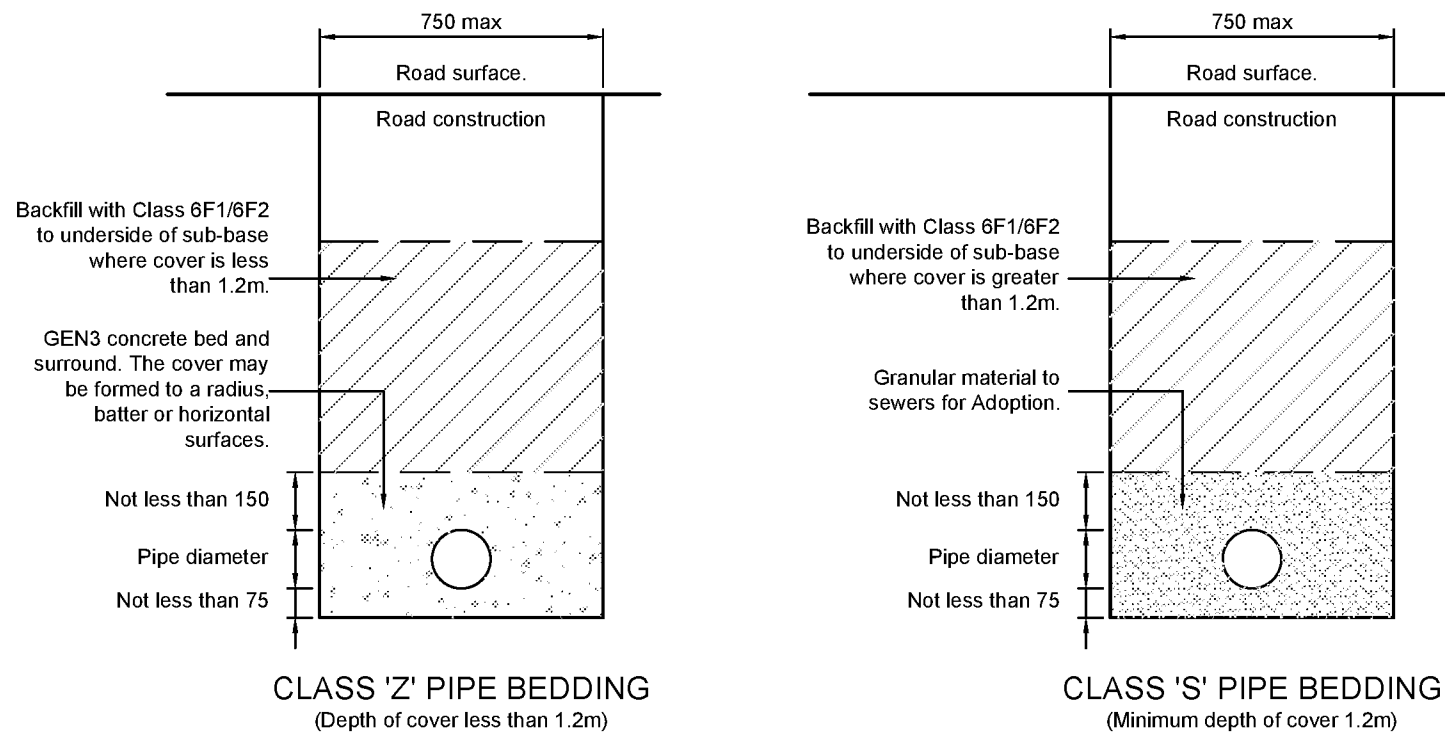
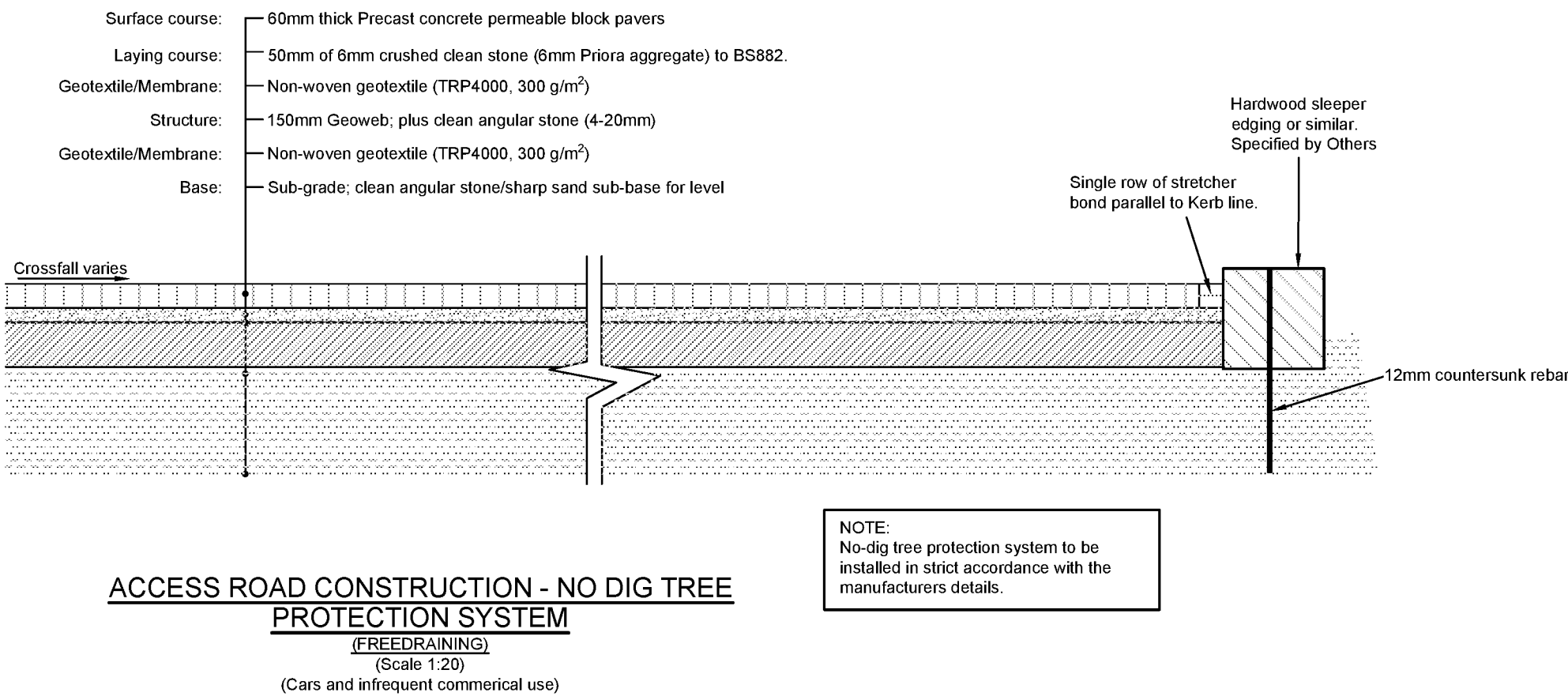
All areas regarded as 'soft spots' are to be excavated and replaced with suitable material within the extents of new Public Highway/Private access roads. The contractor must assess areas of former foundations and trees to ensure and 'soft spots' are dealt with satisfactorily.

BOND AND TACK COAT SHOULD BE PROVIDED FOR BITUMINOUS MIXTURES IN ACCORDANCE WITH BS 4987-2 OR BS 594-2.

PAVING SLABS TO BE SET 5mm ABOVE ADJACENT DRAINAGE CHANNELS/GULLIES.

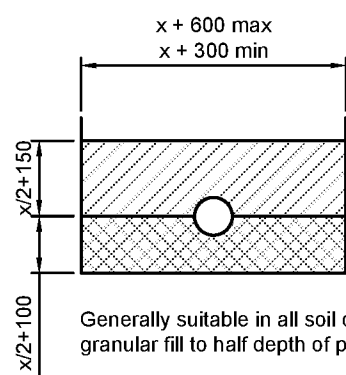


PRIVATE HOUSE PATHS, PATIOS CONSTRUCTION (FOR PEDESTRIAN LOADING ONLY) (Scale 1:20)



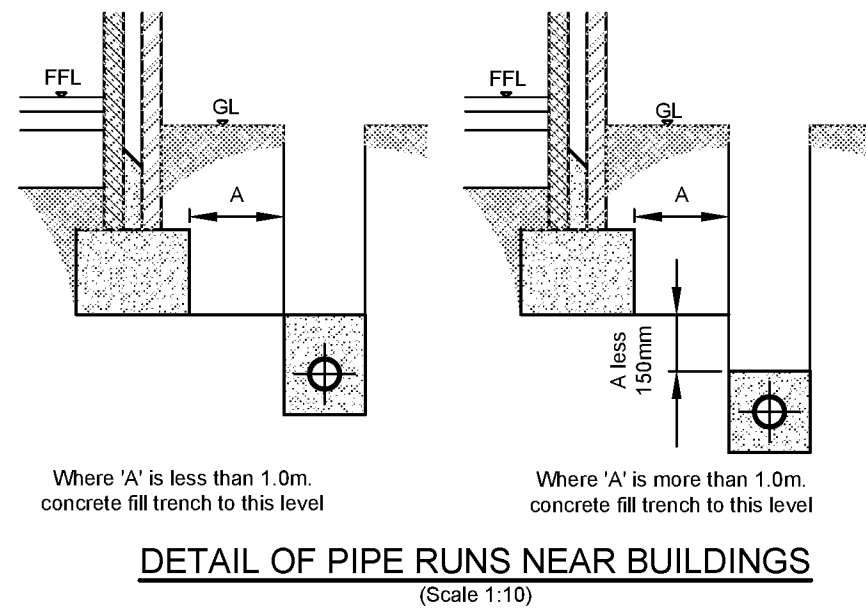
PIPE BEDDING DETAILS (UNDER HIGHWAYS) (Scale 1:20)

PERMITTED PIPE/BEDDING TYPES			
PIPE BEDDING	DEPTH OF COVER BELOW ROADS		
	1.2m-3.5m	LESS THAN 1.2m	
PIPE TYPE	TYPE S	TYPE Z	
	CONCRETE CLASS M TO BS:5911 OR VITRIFIED CLAY TO BS:65, WITH FLEXIBLE JOINTS SUPER STRENGTH CLASS FOR 225 AND 300mmØ EXTRA STRENGTH CLASS FOR ALL OTHER SIZES.	CONCRETE CLASS M TO BS:5911 OR VITRIFIED CLAY TO BS:65, WITH FLEXIBLE JOINTS SUPER STRENGTH CLASS FOR 225 AND 300mmØ EXTRA STRENGTH CLASS FOR ALL OTHER SIZES.	

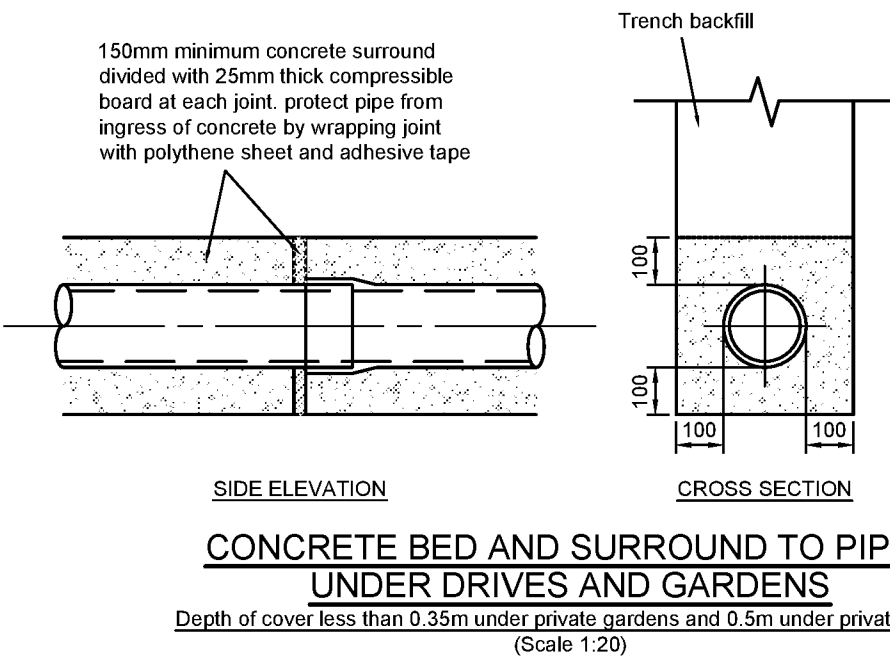


PIPE BEDDING DETAIL UNDER DRIVES AND GARDENS (Min depth of cover 0.35m under private gardens and 0.5m under private drives (Scale 1:20)

LEGEND:
Selected fill: free from stones larger than 40mm, lumps of clay over 100mm, timber frozen material and vegetable matter
Granular material: should conform to BS 882:1983 table 4 or BS8301:1985 Appendix D. Compaction fraction > 0.3 for class N > 0.2 for class F and B.
'x' - Denotes external pipe diameter.



DETAIL OF PIPE RUNS NEAR BUILDINGS (Scale 1:10)



CONCRETE BED AND SURROUND TO PIPES UNDER DRIVES AND GARDENS (Depth of cover less than 0.35m under private gardens and 0.5m under private drives (Scale 1:20)

DESIGN PENDING S106 TECHNICAL APPROVAL

FOR APPROVAL
--NOT FOR CONSTRUCTION--

NOTES

- This drawing is to be read in conjunction with all other BPC drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
- BPC accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
- Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
- Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
- All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
- The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BPC logos and company information must be removed from copies if information is re-used.
- The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
- The main contractor is responsible for dealing with all occurrences of ground water during the construction period.
- The contractor must comply with all current legislation relating to health & safety.
- All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any BPC drawings, the manufacturers instructions must be used.
- All Earthworks in accordance with the Specification for Highway Works.

Rev.	Amendments	Date
A	Revised Issue	15/07/2021
-	Original Issue	28/05/2021

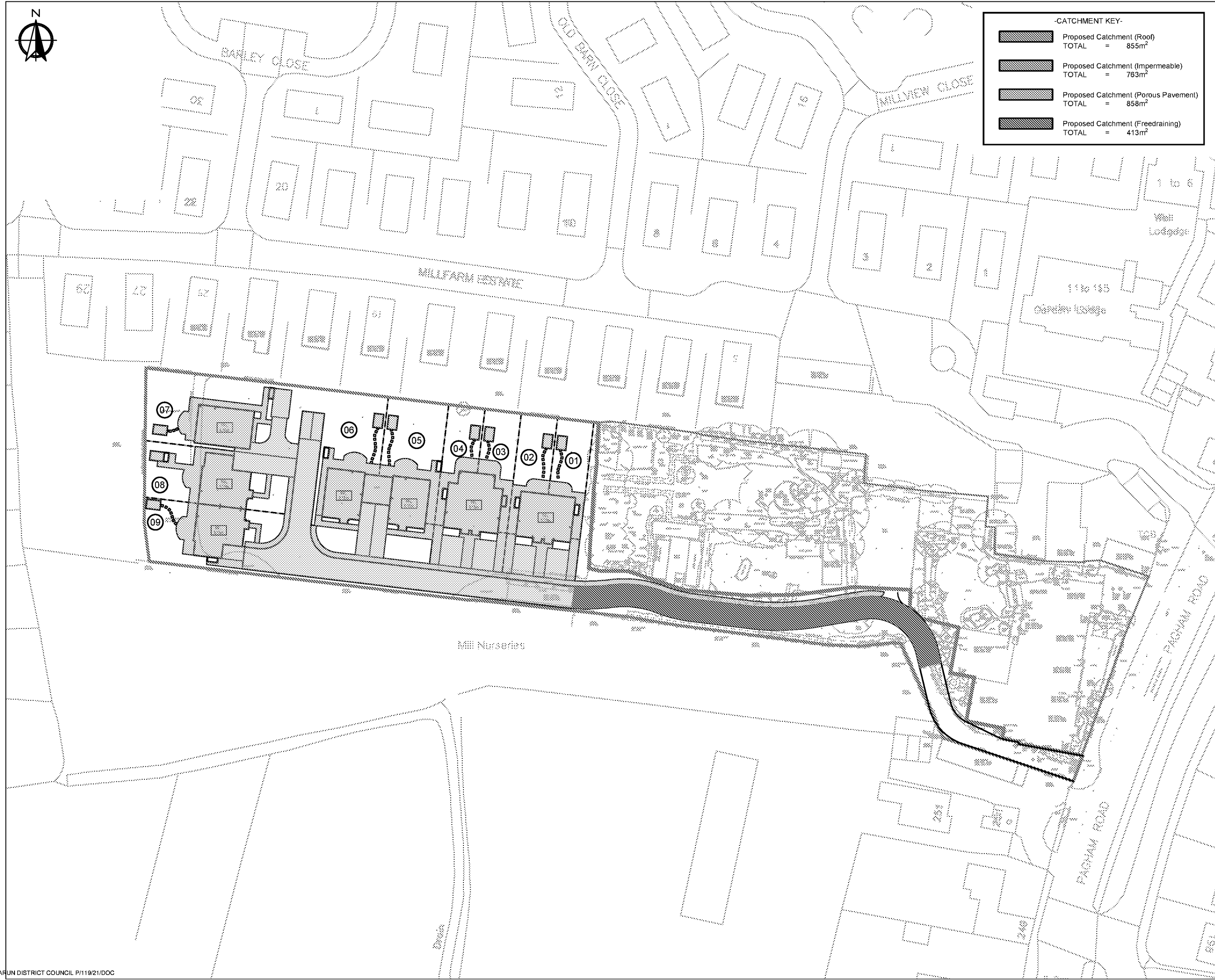
BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 213418 Fax: 01488 844882
www.brightplancivils.co.uk

Drawing Status: **FOR APPROVAL**
Client: Future Group Development Ltd

Project: Land at The Inglenook
Pagham Road, Bognor Regis PO21 3QB

Drawing Title: Construction Details
Sht2

Scale	Date	Drawn By	Checked By
As Shown	July '21	DJL	MJA
Drawing No.	D1966-401		
Rev.	A		



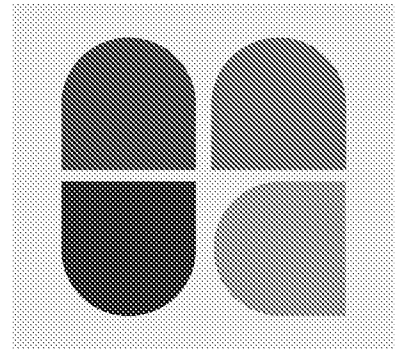
NOTES

A3

1. This drawing is to be read in conjunction with all other Bright Plan Civils drawings, and with all relevant Architects and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
2. Bright Plan Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain.

This map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationary Office (c) Crown Copyright. This drawing is based upon Ordnance Survey mapping - BPC accept no liability for any inaccuracies with the data. (c) Crown Copyright 2020. All rights reserved.

Original Issue		15-07-2021
Rev	Amendments	Date



BRIGHT PLAN CIVILS
Transport Planning and Infrastructure Design Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 01243 210418
www.bpcivils.co.uk enquiries@bpcivils.co.uk

Drawing Status **FOR APPROVAL**

Client
Future Group Developments Ltd

Project
Proposed Catchment Areas

Drawing Title
**Land at The Inglenook
Pagham Rd, Bognor Regis PO21 3QB**

Scale 1:750	Date July '21	Drawn By DJL	Checked By MJA
-----------------------	-------------------------	------------------------	--------------------------

Drawing No. D1966-200	Rev. -
---------------------------------	------------------