

PARKFIELDS FARM, CRAWLEY DOWN

B. GIDDINGS

Technical Note – Drainage strategy

26-4173-KTN-TN-01-B

26st May 2026



The Site
24 Chosen View Road
Cheltenham
GL51 9LT

DOCUMENT CONTROL

Document Status

Revision	Date	Document Author	Status
A	21.05.2026	G. Jones (<i>BEng IEng MICE</i>)	ISSUE01
B	26.05.2026	G. Jones (<i>BEng IEng MICE</i>)	ISSUE01

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National Standards, regulations and Council policy do change which could affect the validity of this Report. The methodologies adopted and the sources of information used by K-Ten Consulting Ltd in providing its services are outlined within the report. Any information provided by third parties and referred to within the report and appendices has not been checked or verified by K-Ten Consulting Ltd, unless otherwise expressly stated within this Report.

CONTENTS PAGE

1.0	INTRODUCTION.....	4
2.0	EXISTING SITE DETAILS	5
3.0	PROPOSED SURFACE WATER DRAINAGE STRATEGY.....	10
4.0	SURFACE WATER QUALITY.....	13
5.0	MAINTENANCE AND MANAGEMENT.....	14
6.0	CONCLUSION.....	16

APPENDICIES

A	ARCHITECTURAL LAYOUT
B	DRAINAGE LAYOUT PLANS
C	EA FLOOD MAP
D	SEWER MAPS
E	SURFACE WATER CALCULATIONS
F	DRAINAGE DETAILS
G	EXCEEDANCE FLOW ROUTING ROUTES

1.0 INTRODUCTION

- 1.1 K-Ten Consulting Ltd (K-Ten) provide professional Flood Risk, Infrastructure and Drainage services throughout the UK.
- 1.2 K -Ten has been commissioned by Mr B. Giddings (the Applicant) to prepare technical drainage design information to discharge Mid Sussex District Council planning condition #5 relating to drainage, for the erection of commercial building reconfiguration of yard and associated works at Parkfields Farm, Hophurst Lane, Crawley Down, Crawley.

- 1.3 Planning Condition '5 states

'The development hereby permitted shall not commence unless and until details of the proposed foul and surface water drainage and means of disposal have been submitted to and approved in writing by the local planning authority. The building shall not be occupied or brought into use, until all the approved drainage works have been carried out in accordance with the agreed details.'

Reason: To ensure that the proposal is satisfactorily drained and to accord with Policy DP41 of the Mid Sussex District Plan 2014 - 2031 and Policy CDNP07 of the Crawley Down Neighbourhood Plan.'

- 1.4 Refer to Architect's plans for further details of the development **Appendix A**.
- 1.5 This Technical Note summarises the proposed below-ground surface water drainage strategy for the site and has been prepared to discharge of drainage-related planning condition and address the comments raised by the Local Planning Authority and Lead Local Flood Authority.
- 1.6 The drainage design has been prepared in accordance with the following guidance, standards, and best practice documents, as applicable:
 - CIRIA C753 – The SuDS Manual
 - BS EN 752:2017 – Drain and sewer systems outside buildings
 - Building Regulations Approved Document H – Drainage and waste disposal
 - National standards for sustainable drainage systems (SuDS)
 - Local Authority SuDS and Water Management Guidance, where applicable

2.0 EXISTING SITE DETAILS

Site Location

- 2.1 The site is located at Parkfields Farm, Hophurst Lane, Crawley Down, Crawley, located at the north east side of Crawley Down, 5km east of the M23. The surrounding area to the north is predominantly agricultural and woodland.
- 2.2 The development is at the north west corner of the Farm.
- 2.3 The approximate site co-ordinates are E 535179, N 138355 and National Grid reference TQ351383, with the nearest post code RH10 4LN.

Existing Hydrology

- 2.4 There is a watercourse immediately north of the development. This flows east and flows into a 225Ø culvert that runs north east, beneath the temporary warehouse, where it discharges into a watercourse that continues to run north through Cuttinglye Wood and onwards to Felbridge Water.

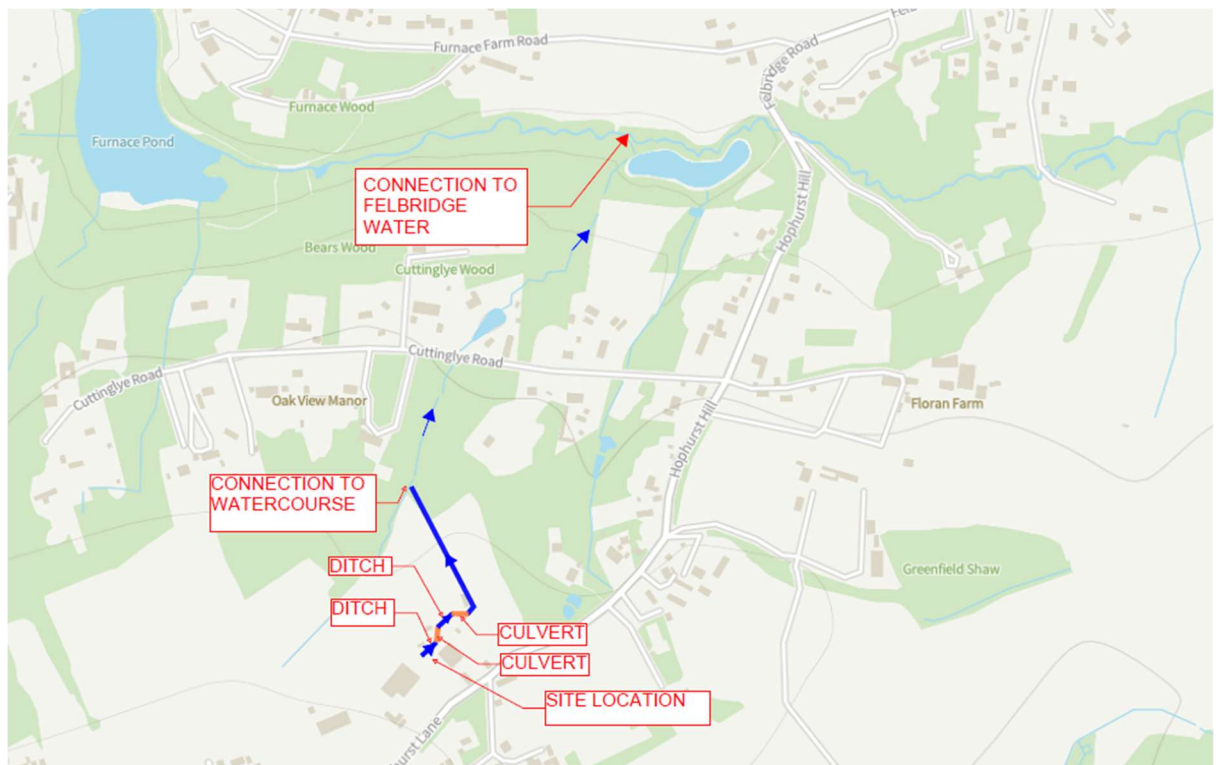


Figure 1 – ditch & watercourse network map

Flood Risk Summary

- 2.5 According to the Environment Agency's Flood Map for Planning, the site lies entirely within Flood Zone 1, representing land with a low probability of fluvial flooding and an annual flood probability of less than 1 in 1,000.
- 2.6 No part of the development footprint is shown to fall within Flood Zones 2 or 3, and the site does not intersect with any mapped areas of functional floodplain. As such, the proposed development is considered appropriate in principle with regard to national planning policy for flood risk.
- 2.7 Environment Agency's Flood Map for Planning e surface water risk, the national Risk of Flooding from Surface Water mapping identifies some overland flow pathways within the wider catchment associated with Wotton Brook; however, no significant flow paths cross the site itself.
- 2.8 The site topography slopes away from the immediate building area, resulting in a low risk of surface water accumulation. The proposed development will incorporate a managed drainage system with attenuation storage, which will further reduce the likelihood of surface water flooding on site.
- 2.9 There are no identified risks from groundwater, canal, reservoir or artificial sources at this location. Although shallow perched groundwater is possible due to local clay soils, this is not expected to present a significant flood hazard, and drainage infrastructure will be designed with appropriate protection measures.
- 2.10 In summary, the site is at low risk from all sources of flooding, and the proposed development does not introduce any mechanism by which flood risk would be increased either on-site or elsewhere.
- 2.11 With the implementation of a controlled surface water drainage strategy, the development will remain safe for its lifetime and will not exacerbate flood risk within the surrounding catchment.
- 2.12 Refer to **Appendix C** for the EA Flood Map.

Geology & Soils

- 2.13 The site at Parkfields Farm, Hophurst Lane, Crawley Down, Crawley, RH10 4LN lies within the Low Weald geological setting of West Sussex, where superficial deposits in the locality are typically characterised by clay-rich head deposits and weathered residual soils overlying sandstone and mudstone formations. The local topography and historic land use indicate variable ground conditions with limited natural permeability.
- 2.14 The underlying solid geology in the Crawley Down area is generally associated with the Weald Clay Group and Tunbridge Wells Sand Formation, comprising interbedded mudstones, siltstones and sandstones. Whilst isolated granular horizons may be present locally, the prevailing strata are typically cohesive in nature with low infiltration potential and a tendency to retain perched groundwater during prolonged wet periods.
- 2.15 Given the geological characteristics of the area, together with the likelihood of shallow seasonal groundwater and cohesive near-surface soils, the site conditions are considered unsuitable for the reliable use of infiltration drainage systems. Experience within the local area commonly demonstrates slow infiltration rates, groundwater influence and reduced long-term soakaway performance.
- 2.16 Accordingly, the underlying geological conditions strongly indicate that infiltration is not likely to provide a viable or sustainable means of surface water disposal at this site. The drainage strategy should therefore be based on attenuation and controlled discharge principles rather than reliance on soakaways or other infiltration-based drainage systems.

Topography

- 2.17 A topographical survey was undertaken by Geopoint April 2024 and shows development area is to be built on a slope where ground levels range from 118.93m AOD in the south west corner to 116.60m AOD at the ditch embankment at the north east corner. An average fall of 1:22.
- 2.18 The gentle northward fall and limited overall change in levels indicate that overland flow routes across the site with no significant low points or pronounced depressions identified.
- 2.19 The topography therefore presents a low inherent risk of surface water ponding and is well suited to a managed attenuation-led drainage strategy with clearly defined exceedance routing.

Existing Drainage

- 2.20 Storm drainage from the existing buildings and hardstanding areas is predominantly positively drained and discharges to the surrounding ditches and watercourses. The drainage network comprises a series of interconnected ditches and culverted sections of varying diameters, as identified within the topographical survey information.
- 2.21 Public sewer records show there are no sewer assets within the vicinity of the site. Refer to **Appendix D**.

Infiltration test and ground conditions

- 2.23 A preliminary assessment of ground conditions has been undertaken using published geological mapping, British Geological Survey (BGS) datasets and local hydrological information for the Crawley Down area surrounding Parkfields Farm, Hophurst Lane, Crawley Down, Crawley, RH10 4LN.
- 2.24 The available geological information indicates that the site is generally underlain by cohesive clay-rich soils associated with the Weald Clay Group, together with weathered silts and mudstones exhibiting limited natural permeability. Such strata typically contain a high proportion of fine particles and exhibit low hydraulic conductivity, resulting in poor infiltration characteristics and slow dissipation of groundwater.
- 2.25 The desk study findings therefore place the site within a geological setting that is inherently unsuitable for infiltration-based SuDS techniques.
- 2.26 In addition to the cohesive soil profile, the local topography and underlying geology indicate a potential for shallow perched groundwater and seasonal saturation within the upper soil horizons, particularly during prolonged winter rainfall events. The client is also familiar with the prevailing ground conditions across the wider site and has historically excavated numerous trenches associated with agricultural and drainage works. It has been observed that following rainfall events the excavated trenches frequently retain water for prolonged periods and do not readily drain down, further indicating poor infiltration potential within the underlying soils.
- 2.27 Furthermore, groundwater has reportedly been encountered within approximately 2.0m of existing ground level in parts of the site, indicating a relatively shallow groundwater regime. These conditions significantly restrict the available unsaturated zone required for effective soakaway performance and create a substantial risk that infiltration features would remain saturated for prolonged periods. Infiltration systems in such geological environments commonly fail to achieve the 24–48 hour half-drain time criteria outlined within BRE 365, resulting in poor operational performance and increased maintenance liabilities.
- 2.28 Given the combination of cohesive clay strata, low permeability soils and the influence of shallow groundwater conditions, infiltration features installed at the site would be highly susceptible to standing water, reduced storage efficiency and long-term operational failure. There is also an increased risk of localised softening and instability of the subgrade where repeated saturation of clay soils occurs. Consequently, infiltration methods including soakaways, infiltration trenches and permeable sub-base storage systems are not considered technically reliable or viable for this development.
- 2.29 On the basis of the above evidence, infiltration is considered unlikely to provide a viable, sustainable or reliable primary means of surface water disposal at the site. The drainage strategy has therefore been developed on an attenuation-led basis with controlled.

Greenfield Runoff

- 2.30 A greenfield runoff assessment has been completed using *Causeway Flow* design for the total site area of 875m² (0.088 ha), applying FEH rainfall data.

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.088	Betterment (%)	0
SAAR (mm)	813	QMed	0.4
Host	1	QBar	0.4
BFIHost	0.500	Q 2 year (l/s)	0.4
Region	1	Q 30 year (l/s)	0.8
QBar/QMed conversion factor	1.111	Q 100 year (l/s)	1.0
Growth Factor 2 year	0.90		

- 2.31 The assessment determined a greenfield Q_{bar} of 0.4l/s, representing the median annual peak flow from the site in its undeveloped condition.
- 2.32 For design purposes, the allowable discharge rate has been set at 2.0l/s. This represents a controlled uplift above the calculated greenfield runoff rate in order to provide a practical, maintainable and resilient drainage solution, avoiding the requirement for excessively small outlet control devices which are highly susceptible to blockage and maintenance issues. The proposed discharge rate remains consistent with the principles of greenfield runoff management and accords with Section 3.21.1 of the Non-Statutory Technical Standards for Sustainable Drainage Systems, which recognises that a small increase in discharge rate above the calculated greenfield runoff rate may be acceptable where necessary to achieve a workable drainage design. The proposed discharge rate remains well below five times the equivalent greenfield runoff rate and is therefore considered proportionate and appropriate for the scale of development.
- 2.33 The proposed surface water drainage system will therefore restrict discharge to 2.0l/s, with attenuation storage sized to accommodate the required design storm events, including an allowance for climate change, ensuring no increase in downstream flood risk. This approach is considered consistent with current SuDS standards and good industry practice.

3.0 PROPOSED SURFACE WATER DRAINAGE STRATEGY

- 3.1 A surface water strategy is proposed to manage and reduce the flood risk and surface water run-off from the development, in accordance with SuDS principles.
- 3.2 The SuDS hierarchy dictates that surface water run off should be managed as high up the following list as practically possible:
- a) into the ground (via infiltration) and re-use, or then;
 - b) to a surface water body, or then;
 - c) to a surface water sewer, highway drain or another drainage system, or then;
 - d) to a combined sewer.
- 3.3 Infiltration has been discounted as a primary drainage option due to the site's cohesive clay soils, low permeability and the potential for shallow groundwater, all of which indicate that infiltration systems would not operate reliably.
- 3.4 There are local watercourses in the vicinity of the site.
- 3.5 The proposed drainage strategy therefore adopts an attenuation-led approach, with surface water runoff stored on site and discharged at a controlled rate to the local watercourse adjacent to the new erected building.
- 3.6 The proposed development impermeable catchment is calculated as follows:

Catchment description	Catchment Area
Proposed roof and hardstanding areas	875m ²

- 3.7 A SuDS treatment train is proposed, comprising of the use of rain water harvesting tanks, permeable paving, and cellular storage for attenuation and water quality treatment, with a controlled discharge to the watercourse.
- 3.8 Runoff from the proposed roof areas will be collected via rainwater downpipes. A proportion of the downpipes will discharge to above-ground rainwater harvesting tanks for reuse purposes, with overflow connections directed to the proposed below-ground surface water drainage system. The remaining rainwater downpipes will connect directly to the proposed below-ground drainage network.
- 3.9 The proposed hardstanding areas will be constructed using permeable paving underlain by an open-graded 4/20mm crush rock with no fines sub-base. The sub-base will provide both structural support and below-ground attenuation storage through the available void ratio within the granular material. Surface water runoff entering the permeable paving system will be temporarily stored, filtered and attenuated prior to discharge to a perforated land drain located within a drainage trench beneath the permeable paving formation, before ultimately connecting to the proposed underground surface water drainage system.

- 3.10 Surface water runoff from the proposed development will be restricted to a discharge rate of **2.0 l/s**. This restricted discharge rate is considered compliant with the surface water management requirements of Mid Sussex District Council and **represents a significant reduction in runoff rates from the developed site**.
- 3.11 On-site attenuation storage will be provided within the permeable paving sub-base and associated SuDS features to accommodate all rainfall events up to and including the 1 in 100 year storm event, inclusive of a 40% allowance for climate change, without increasing flood risk elsewhere.
- 3.12 Refer to **Appendix B** for Drainage Strategy Plan and **Appendix F** for drainage details.
- 3.13 Attenuation shall be provided within the open graded permeable paving formation sub-base, and cellular storage for the 100 year event plus a 40% allowance for climate change.
- 3.14 Attenuation has been designed and simulated with *Causeway Flow* design software with the following design criteria:
- Rainfall – FEH22
 - Design Event – up to and including 100 year plus 40% climate change
 - Impermeable Catchment – 875m² (0.088 hectares)
 - Storm Duration (simulation) – 15 min to 10080 min
 - CV Winter and Summer – 1.0
- 3.15 Refer to **Appendix E** for Drainage calculation report and simulation outputs.
- 3.16 The total storage required for the scheme is 53m³ which will be stored in a combination of a geocellular tank and within the sub-base of the porous surfacing for the access road.
- 3.17 The geocellular tank will be a total length of 3.0m x 12.0m x 1.0m constructed from geocellular crates (Polystorm or similar) to be located beneath the proposed driveway, providing 36m³ of storage.
- 3.18 Utilising the sub-base of the porous surfacing of the access road given a depth of 275mm gives an additional 17m³ of storage assuming a 30% void ratio.
- 3.19 Outflow from the sub-base will be directed into the main tank.

The maximum water levels within the tank are as follows:

Return Event (Yrs)	2	30	100+40%
Max water depth (m)	0.515	0.694	0.805 (system surcharged but not flooded)
Max Outflow (l/s)	1.5	1.6	2.0

- 3.20 All proposed development run off for the 100 year event plus and allowance for 40% climate change will be contained completely within the site.
- 3.21 A flow control device incorporating a reduced-diameter orifice plate will be installed within the final downstream chamber upstream of the outfall connection to the watercourse. The flow control will restrict discharge from the site to 2.0 l/s. Hydraulic calculations indicate that a **31mm** diameter orifice is required to achieve the proposed restricted discharge rate.
- 3.22 In accordance with National SuDS Standards and CIRIA C753 guidance relating to blockage prevention and maintainability, a removable stainless steel debris screen will be installed upstream of the outlet orifice plate to reduce blockage risk. The debris screen will comprise 25mm square mesh openings, providing clear openings greater than 21mm in accordance with SuDS Standard S3. The screen will remain accessible from cover level to allow routine inspection, maintenance and cleaning operations.
- 3.23 Silt trap chambers will be installed upstream of the attenuation features to reduce the risk of sediment accumulation within the downstream drainage system and maintain the long-term hydraulic performance of the proposed SuDS network.
- 3.24 All drainage infrastructure will be designed and constructed in accordance with Building Regulations Approved Document H and relevant industry best practice guidance.
- 3.25 Exceedance flows generated during rainfall events exceeding the 1 in 100-year return period event, including a 40% allowance for climate change, will follow the natural site topography towards the northern boundary of the site without increasing flood risk to buildings or neighbouring land.
- 3.26 In the event of failure of individual drainage components, impacts are expected to be localised and short-term.
- 3.27 Rainwater pipes may overflow locally if blocked and chambers may surcharge upstream. In each case, the system has been designed with accessible inspection points and maintenance arrangements to restore function.
- 3.28 Refer to the exceedance flow routing plans contained in **Appendix G**.
- 3.29 Typical details of the principal SuDS features are provided within **Appendix F**.

4.0 SURFACE WATER QUALITY

- 4.1 Water quality has been assessed in accordance with The SuDS Manual (CIRIA C753) which states the design of surface water should consider minimising contaminants within surface water runoff discharged from the site.
- 4.2 The level of treatment required is dependent on the proposed land use according to the pollution hazard indices (refer to SuDS Manual table 26.2).
- 4.3 To ensure that adequate treatment is provided the SuDS mitigation indices for the development must be equal or exceed, the pollution hazard indices shown within SuDS Manual table 26.2. Permeable construction has been proposed.
- 4.4 Refer to below Water Quality Indices Table, as per C753 SuDS Manual, confirming compliance with mitigation indices against Pollution Hazard indices.

	Pollution Hazard Level	Total susp solids	Metals	Hydro-Carbons
Land Use: Individual property driveways, residential car parks, low traffic roads (Table 26.2)	Low	0.5	0.4	0.4
Land Use: Residential roofs (Table 26.2)	Very Low	0.2	0.2	0.05
Total:		0.5	0.6	0.45
SuDS Component 1: Permeable Paving (Table 26.3)		0.7	0.6	0.7
Total:		0.7	0.6	0.7
TOTAL SUDS MITIGATION > POLLUTION HAZARD INDICES		Yes	Yes	Yes

Water Quality Indices (C753 The SuDS Manual)

- 4.5 It is also good practice that gullies and chambers incorporate appropriate silt management measures and have suitable silt traps/catchpits to reduce sediments within the drainage system.

5.0 MAINTENANCE AND MANAGEMENT

- 5.1 Maintenance of SuDS features is required in order to ensure that the surface water drainage system operates effectively, and the risk of flooding of the site and surrounding areas is reduced.
- 5.2 A maintenance schedule should be undertaken to ensure that the drainage system remains fully operational for the design lifetime. The below table summarises a maintenance plan for the drainage systems and components within the development.
- 5.3 The SuDS Manual (CIRIA C753) and specific product suppliers' guidelines should also be referred to for further information on maintenance and frequency.
- 5.4 All on site drainage will be maintained and managed by the private property owner

6 Drainage Component	Required Action	Typical Frequency
General pipework, manholes, chambers, silt traps and headwalls	Stabilise adjacent areas	As required
	Remove weeds and vegetation	As required
	Clear/Jet any poor performing structures	As required
	Inspect all drainage features for poor operation	3 monthly, 48 hours after large storms in first six months
	Monitor inspection chambers and silt traps. Inspect silt accumulation and determine silt clearance frequencies	Annually
Private Drains	Inspection	CCTV survey every 5-10 years.
	Regular Maintenance	Jet clean system fully every 5-10 years. (Recommend prior to CCTV drainage survey)
	Remedial / Occasional Maintenance	Carry out remedial works as identified in CCTV survey.
Catchpits	Inspection	Quarterly
	Regular maintenance	Remove silt and debris as necessary to prevent build up.
Overflows and flood routes	Overflows. Jet pipes leading from overflow structures annually and check by running water through the overflow. Check free flow at next SUDS feature – inlet to basin or chamber.	Annually
	Remove any accumulated grass cuttings or other debris on top of grass weirs or stone filled baskets overflows.	Monthly
	Flood Routes. Make visual inspection. Check route is not blocked by new fences, walls, soil or other rubbish. Remove as necessary.	Monthly

6 Drainage Component	Required Action	Typical Frequency
	Overflows. If overflow is not clear then dismantle structure and reassemble to design detail.	As required
Cellular Attenuation	Inspect for sediment and debris in pre treatment components	Annually
	Trimming roots that may cause blockages	Annually
	Remove sediment and debris from pre treatment components	As required
	Check attenuation to ensure emptying is occurring (no standing water)	Annually
Permeable Paving	Surface visual inspection for ponding, damaged blocks and build up of silt/detritus	Annually or after major storm events
	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
	Remove litter, weeds and debris	Monthly
	Vacuum sweeping and brush replacement of approved jointing material	Annually
	Replace geotextile and bedding layer	Every 30 years

6.0 CONCLUSION

- 6.1 The proposed drainage strategy for the development at Parkfields Farm, Hophurst Lane, Crawley Down, Crawley, RH10 4LN has been developed in accordance with current SuDS guidance, national standards and relevant best practice documents, including CIRIA C753 and the Non-Statutory Technical Standards for Sustainable Drainage Systems.
- 6.2 A review of the site geology, hydrology and existing ground conditions indicates that infiltration drainage techniques are not considered viable or reliable at this location due to the presence of cohesive clay-rich soils, limited permeability and the potential influence of shallow groundwater conditions. Site observations and historical trench excavations undertaken by the landowner further support this conclusion, with excavations regularly retaining water following rainfall events and groundwater reportedly encountered within approximately 2.0m of existing ground level.
- 6.3 Accordingly, the drainage strategy has been developed on an attenuation-led basis with controlled discharge to the adjacent watercourse network. Surface water runoff from the proposed development will be attenuated within a combination of permeable paving 4/20mm crush rock with no fines sub-base formation storage and a below-ground geocellular attenuation tank prior to discharge at a restricted rate of 2.0 l/s. The proposed discharge rate represents a significant reduction in runoff compared to the existing developed condition whilst also remaining practical and maintainable in accordance with current SuDS guidance.
- 6.4 The proposed drainage system has been designed to accommodate all rainfall events up to and including the 1 in 100 year return period event inclusive of a 40% allowance for climate change, without increasing flood risk either on-site or elsewhere. Exceedance flows have been considered within the design and will route safely away from buildings in accordance with the natural topography of the site.
- 6.5 A SuDS treatment train comprising rainwater harvesting, permeable paving, silt management measures and below-ground attenuation storage has been incorporated to provide both attenuation and water quality treatment benefits prior to discharge to the receiving watercourse. Maintenance requirements for all drainage components have also been identified to ensure the long-term operation and performance of the proposed drainage infrastructure.
- 6.6 It is therefore concluded that the proposed drainage strategy provides an appropriate, sustainable and technically robust solution for the site and will ensure that the development can proceed without increasing flood risk or adversely affecting the surrounding catchment.

APPENDIX A

ARCHITECTURAL LAYOUT

DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. IF DISCREPANCIES OR DOUBT CONTACT DRAWING OFFICE.

COMPLIANCE WITH PLANNING CONSENT & CONDITIONS TO BE RESPONSIBILITY OF MAIN CONTRACTOR. SITE COMPLIANCE WITH BUILDING CONTROL TO BE DUTY OF MAIN CONTRACTOR. BUILDING CONTROL TO ASSESS ALL WORKS ON SITE AND AGREE COMPLIANCE PRIOR TO CONTRACTOR PROGRESSING WORKS.

THIS DRAWING IS ONLY LICENSED FOR THE PURPOSE INDICATED IN THE STATUS BAR.

UNAUTHORISED USE SHOULD BE REPORTED TO THE DRAWING OFFICE AND ANY SUCH USE IS NOT INDICATED. DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS INFORMATION WHEN NECESSARY. CDM 2015 REGULATIONS APPLY. SEE HSE.GOV.UK FOR DETAILS.

- KEY
- Permanent Building
 - Temporary Structure
 - Proposed Building
 - Relocated Temporary Structure
 - Demolition

NOTE: PERMANENT / TEMPORARY SKETCH DIFFERENTIATED ONLY.

DRAWING BASED ON TOPO SURVEY BY



REVISIONS			
P3	23/05/24	CONTAINER ALTERATION	JA NM
P2	19/05/24	BUILDING ONLY UPDATED	JA NM
P1	09/05/24	PROPOSED SITE PLAN ALIGNED	JA NM
REV.	DATE	REVISION	DRW. CHK.

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Client: Croydon Fireplaces
Job: 2393
Address: Parkfields Farm, Crawley

Drawing: Proposed Site Plan

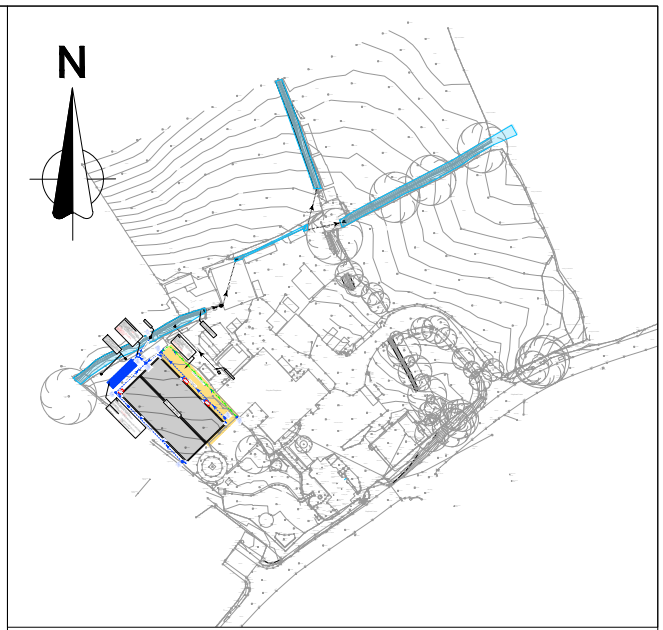
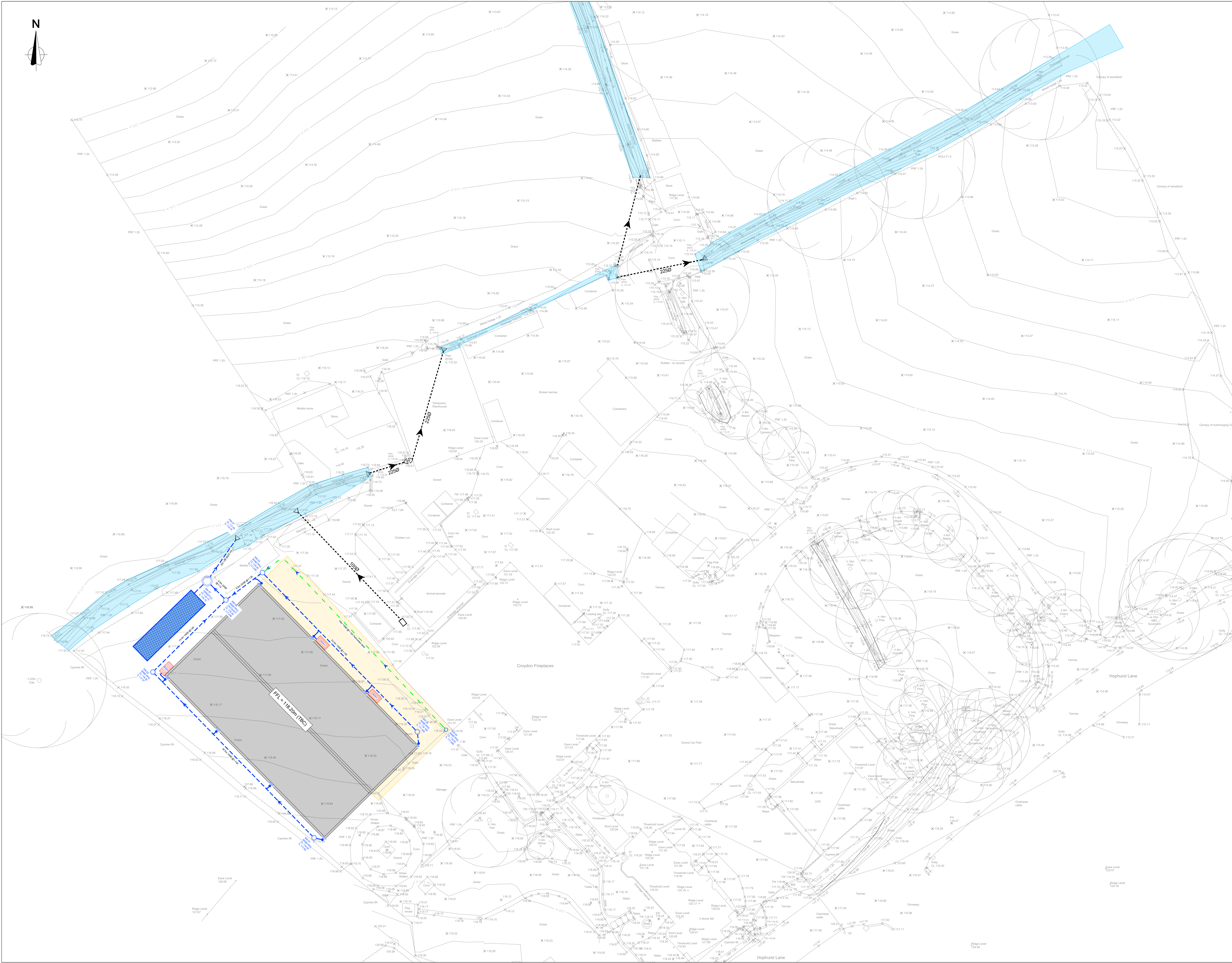
Scale: 1:500
Drawn: JA
Checked: NM
Date: 23/05/2024

PRELIMINARY

Little to change without notice, not for construction

Size: A3
Rev: 0050 P3

APPENDIX B
DRAINAGE LAYOUT

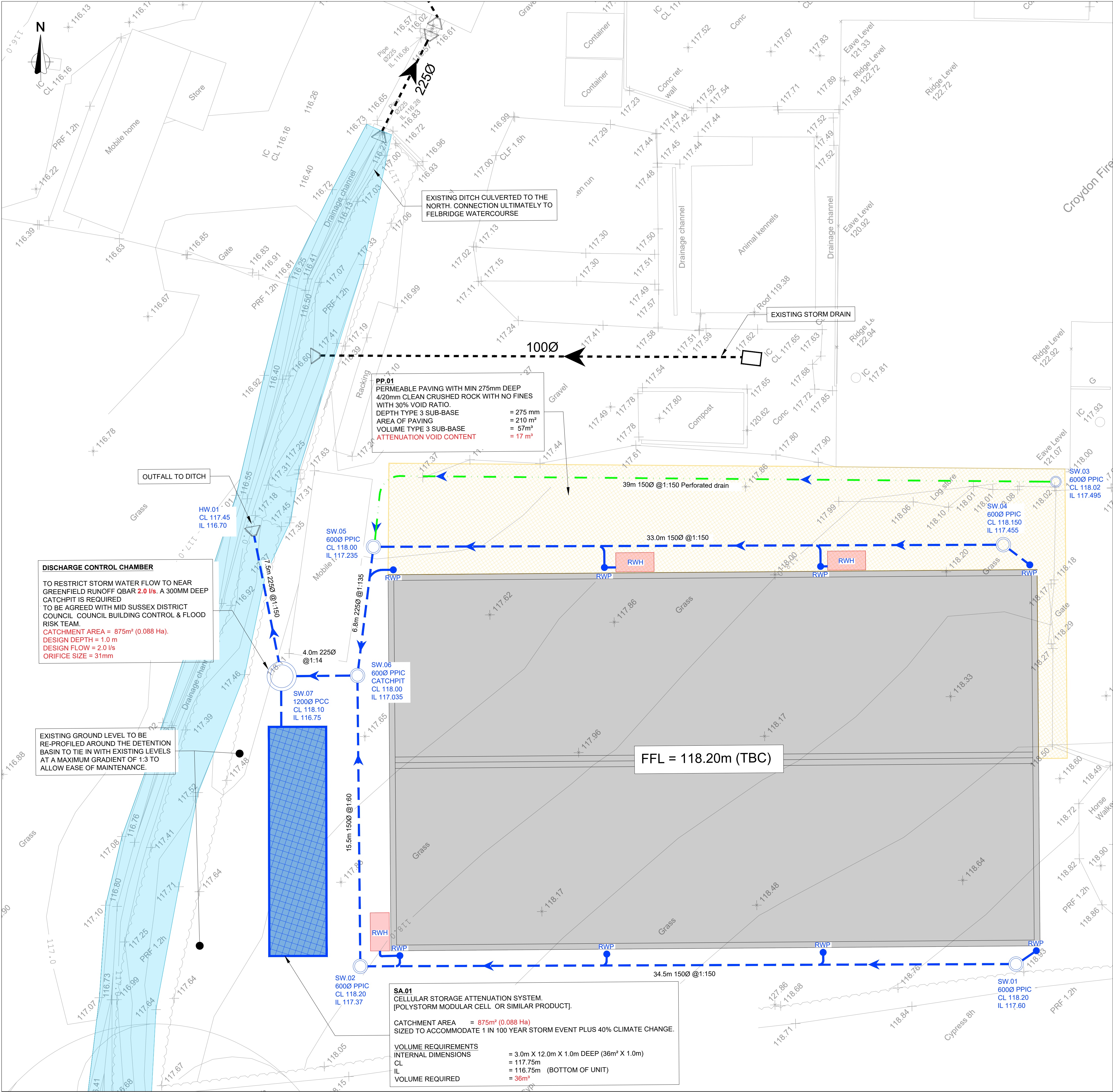


- Notes:**
- This drawing is to be read in conjunction with relevant Architects, Engineers and specialist manufacturers drawings, reports and specifications.
 - All levels are shown in metres above Ordnance Datum (m AOD) unless otherwise shown.
 - Any ambiguities or discrepancies within this drawing and any other information given elsewhere must be reported to K-Ten for clarification before pricing / works commence.
 - Do not scale from this drawing for construction purposes.
 - It is recommended that all sewers and drains be laid starting from the downstream connection to the existing sewer/drain and working upstream to the new development.
 - All private drainage to comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant British Standards and Codes of Practices.
 - Connections to existing sewers in accordance with the Local Water Authority guidelines & approval.
 - Sewers and drains of different diameters should be laid soffit to soffit unless shown otherwise in the drawing. Outfall chamber outgoing pipe where a vortex control device is fitted to be installed at lowest incoming invert level.
 - All access chambers covers and frames to be installed to BS EN 124.
 - Drainage Pipe work routes under building footprint will require Co-ordination with foundations.
 - Cover levels shown on this drawing refer to approximate surface levels. It is the contractors responsibility to ensure that access covers and frames are set at the final surface levels.
 - Where possible the contractor is to orientate manhole biscuits and covers to locate them parallel to kerbs and paving.
 - The Contractor should comply with hsg 47 'Avoiding Danger from Underground Services' when excavating around existing services.
 - It is the contractors responsibility to determine the location and depth of all existing services, mains and cables prior to construction.
 - The pipe diameters cover and invert levels of any existing manholes are to be verified on site prior to the commencement of the works.
 - All external non-perforated drainage within trafficked areas with less than 1.2m cover to have concrete protection. All external non-perforated drainage within landscaped areas with cover less than 0.6m to have concrete protection. All drainage with greater cover than the minimum required to have type S bed and surround.
 - Foul drainage pipe connection to public sewer to be plastic twin-walled/ribbed pipe constructed to Water Industry Standard (WIS)4-35-01.
 - All drainage in highway to be installed in accordance with Sewers Sector Guidance.
 - All access chambers covers and frames to be installed to BS EN 124.
 - All drainage to be installed in accordance with Civil Engineering Specification for the Water industry 7th Edition.
 - Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing.
 - This drawing is for information only for planning submission. This is not to be used for construction purposes.
 - Drainage outfall connections and strategy to be agreed with the relevant authorities.
 - Gutters to have down-pipe leaf guards and rainwater down-pipes to have rodding access.
 - All existing invert levels shown are indicative and to be checked by the contractor prior to starting works.
 - Drainage strategy to be approved by Mid Sussex District Council and Building Control.

B	26.05.26	Ditch arrangement & Paving	GJ
A	21.05.26	Preliminary Issue	GJ
Rev	Date	Details	Drawn



CLIENT: B. GIDDINGS		
PROJECT: PARKFIELDS FARM, CRAWLEY DOWN		
TITLE: DRAINAGE LAYOUT SHEET 1		
SCALE @ A1: 1:250	DATE: 21.05.2026	STATUS: INFORMATION
JOB NO: 26-4173	DRAWING NO: C001	REVISION: B



KEY

- 117.08 X EXISTING GROUND LEVEL
- EXISTING STORM DRAIN / CULVERT
- EXISTING DITCH / WATERCOURSE
- PROPOSED PRIVATE STORM DRAIN
- PRIVATE STORM WATER 300Ø / 450Ø / 600Ø PPIC NOTE CATCHPIT WHERE REFERENCED TO HAVE MIN. 300MM SUMP
- PRIVATE STORM WATER 1200Ø PRE-CAST CONCRETE MANHOLE NOTE CATCHPIT WHERE REFERENCED TO HAVE MIN. 300MM SUMP
- RWP RAIN WATER PIPE
- RWH RAIN WATER HARVESTING TANK. CLIENT TO CONFIRM CAPACITY
- PERMEABLE PAVING DRIVEWAY WITH ROAD PLANE FINISH. TO CONTAIN MINIMUM 275MM 4/20MM CRUSH ROCK WITH NO FINES WITH 30% VOID CONTENT TO UTILISE STORM WATER ATTENUATION.
- PROPOSED EXISTNIG HEADWALL
- PERFORATED LAND DRAIN 100 MM PERFORATED PIPE LAID WITHIN CLEAN, WASHED GRANULAR STONE (TYPICALLY 420 MM OR SIMILAR), PROVIDING HIGH VOIDS FOR DRAINAGE. WRAPPED IN PERMEABLE GEOTEXTILE TO PREVENT FINES ENTERING THE SYSTEM. LOCATED AT BASE OF PERMEABLE PAVING FORMATION.
- CELLULAR STORAGE



- Notes:**
- This drawing is to be read in conjunction with relevant Architects, Engineers and specialist manufacturers drawings, reports and specifications.
 - All levels are shown in metres above Ordnance Datum (m AOD) unless otherwise shown.
 - Any ambiguities or discrepancies within this drawing and any other information given elsewhere must be reported to K-Ten for clarification before pricing / works commence.
 - Do not scale from this drawing for construction purposes.
 - It is recommended that all sewers and drains be laid starting from the downstream connection to the existing sewer/drain and working upstream to the new development.
 - All private drainage to comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant British Standards and Codes of Practices.
 - Connections to existing sewers in accordance with the Local Water Authority guidelines & approval.
 - Connections to existing river or watercourse in accordance with the Local Authority and E.A guidelines & approval.
 - Sewers and drains of different diameters should be laid soft to soft unless shown otherwise in the drawing. Outfall chamber outgoing pipe where a vortex control device is fitted to be installed at lowest incoming invert level.
 - All access chambers covers and frames to be installed to BS EN 124.
 - Drainage Pipe work routes under building footprint will require Co-ordination with foundations.
 - Cover levels shown on this drawing refer to approximate surface levels. It is the contractors responsibility to ensure that access covers and frames are set at the final surface levels.
 - Where possible the contractor is to orientate manhole biscuits and covers to locate them parallel to kerbs and paving.
 - The Contractor should comply with hsig) 47 "Avoiding Danger from Underground Services" when excavating around existing services.
 - It is the contractors responsibility to determine the location and depth of all existing services, mains and cables prior to construction.
 - The pipe diameters cover and invert levels of any existing manholes are to be verified on site prior to the commencement of the works.
 - All external non-perforated drainage within trafficked areas with less than 1.2m cover to have concrete protection. All external non-perforated drainage within landscaped areas with cover less than 0.6m to have concrete protection. All drainage with greater cover than the minimum required to have type S bed and surround.
 - Foul drainage pipe connection to public sewer to be plastic twin-walled/ribbed pipe constructed to Water Industry Standard (WIS)4-35-01.
 - All drainage in highway to be installed in accordance with Sewers Sector Guidance.
 - All access chambers covers and frames to be installed to BS EN 124.
 - All drainage to be installed in accordance with Civil Engineering Specification for the Water industry 7th Edition.
 - Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing.
 - This drawing is for information only for planning submission. This is not to be used for construction purposes.
 - Drainage outfall connections and strategy to be agreed with the relevant authorities.
 - Gutters to have down-pipe leaf guards and rainwater down-pipes to have rolling access.
 - All existing invert levels shown are indicative and to be checked by the contractor prior to starting works.
 - Drainage strategy to be approved by Mid Sussex District Council and Building Control.

B	26.05.26	Ditch arrangement & Paving	GJ
A	21.05.26	Preliminary Issue	GJ
Rev	Date	Details	Drawn



CLIENT:
B. GIDDINGS

PROJECT:
PARKFIELDS FARM,
CRAWLEY DOWN

TITLE:
DRAINAGE LAYOUT
SHEET 2

SCALE @ A1: 1:250	DATE: 21.05.2026	STATUS: INFORMATION
JOB NO: 26-4173	DRAWING NO: C001	REVISION: B

APPENDIX C

EA FLOOD MAP

Flood map for planning

Your reference	Location (easting/northing)	Created
26-4173 Parkfields Farm,	535236/138356	20 May 2026 21:05

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
26-4173 Parkfields Farm,

Location (easting/northing)
535236/138356

Scale
1:2,500

Created
20 May 2026 21:05

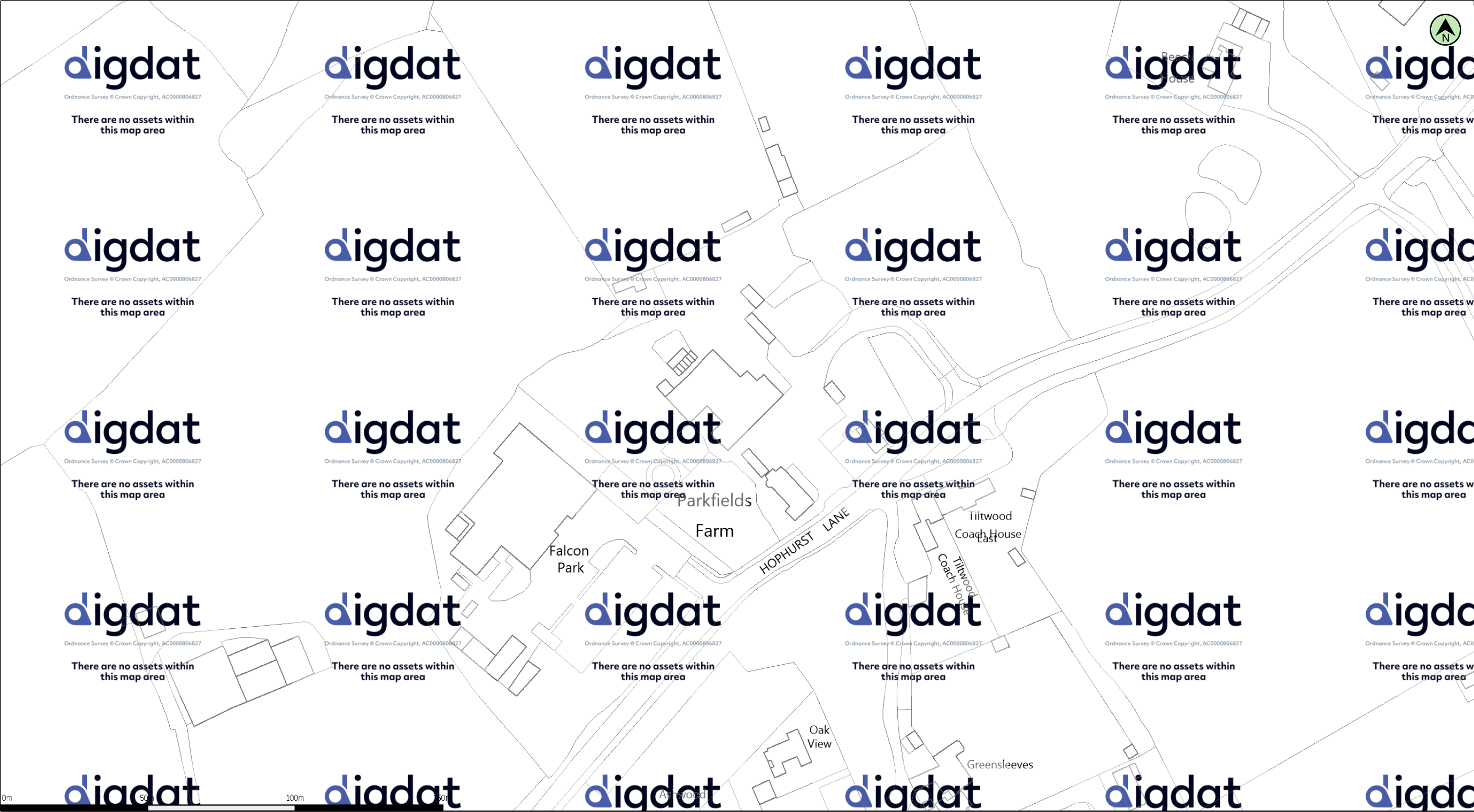
-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



0 20 40 60m

APPENDIX D

SEWER MAP

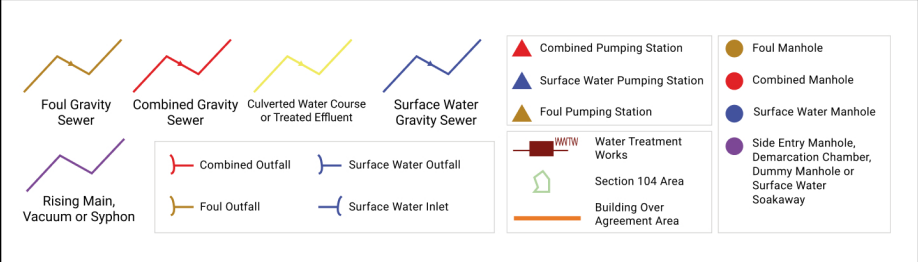


(c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122 Date: 18/05/26 Scale: 1:1250 Map Centre: 535233,138347 Data updated: 17/04/26 Our Ref: 2125019 - 1 Wastewater Plan A3
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

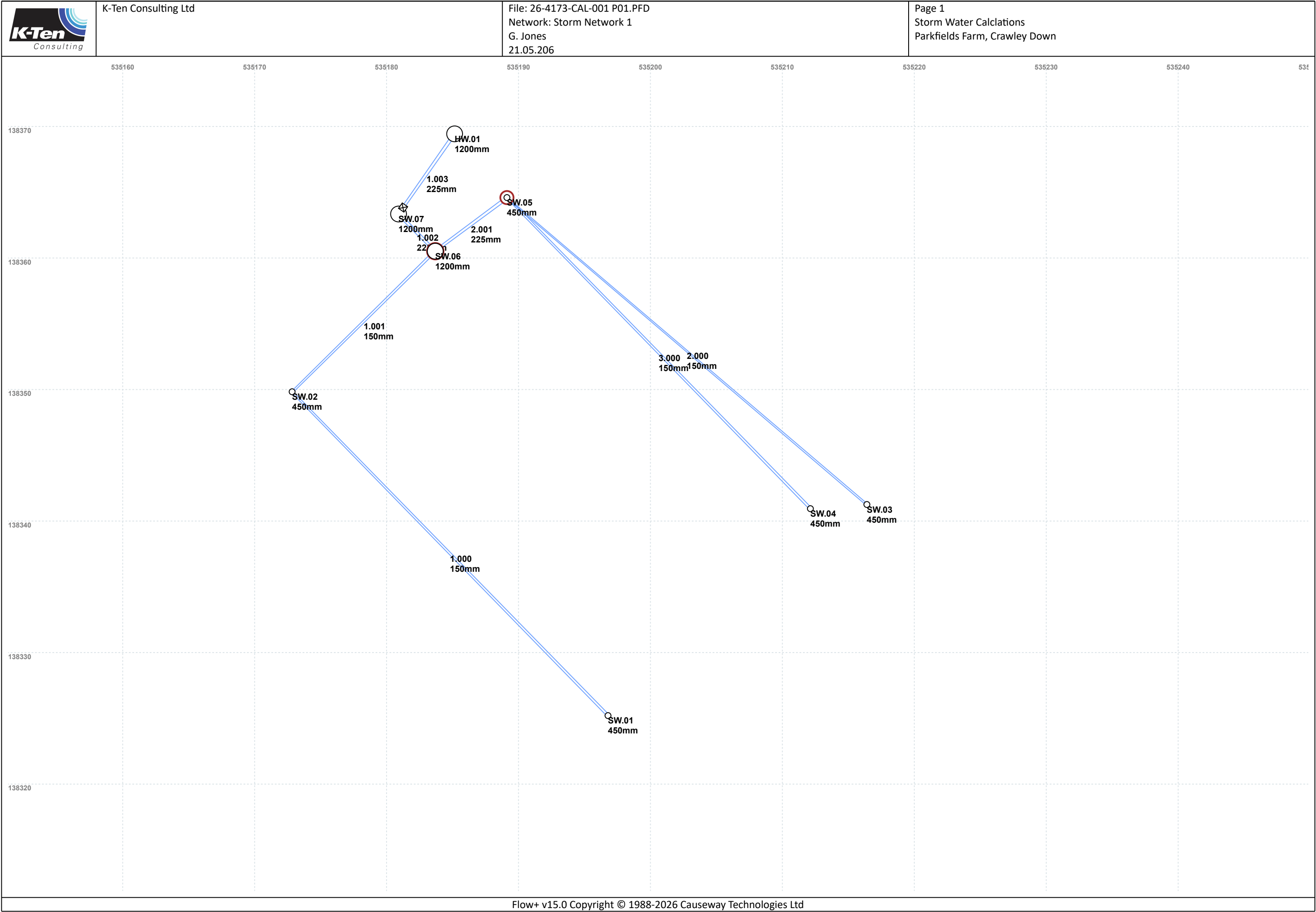


info@k-ten.co.uk
26-4173



APPENDIX E

SURFACE WATER CALCULATIONS



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	100.0		

Nodes

	Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
✓	SW.01	0.009	4.00	118.200	450	535196.785	138325.209	0.600
✓	SW.02	0.025	4.00	118.200	450	535172.842	138349.830	0.830
✓	SW.03	0.011	4.00	118.020	450	535216.406	138341.258	0.525
✓	SW.04	0.009	4.00	118.150	450	535212.125	138340.940	0.695
✓	SW.05	0.034	4.00	118.000	450	535189.123	138364.594	0.765
✓	SW.06			118.000	1200	535183.691	138360.517	0.965
✓	SW.07			118.100	1200	535180.909	138363.345	1.350
✓	HW.01			117.450	1200	535185.159	138369.439	0.750

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	SW.01	SW.02	34.343	0.600	117.600	117.370	0.230	149.3	150	4.70	55.7
1.001	SW.02	SW.06	15.229	0.600	117.370	117.110	0.260	58.6	150	4.89	55.7
2.000	SW.03	SW.05	35.902	0.600	117.495	117.310	0.185	194.1	150	4.83	55.7
3.000	SW.04	SW.05	32.994	0.600	117.455	117.310	0.145	227.5	150	4.83	55.7
2.001	SW.05	SW.06	6.792	0.600	117.235	117.035	0.200	34.0	225	4.88	55.7
1.002	SW.06	SW.07	3.967	0.600	117.035	116.750	0.285	13.9	225	4.91	55.7
1.003	SW.07	HW.01	7.430	0.600	116.750	116.700	0.050	148.6	225	5.03	55.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.820	14.5	1.8	0.450	0.680	0.009	0.0	36	0.562
1.001	1.316	23.3	6.8	0.680	0.740	0.034	0.0	55	1.143
2.000	0.718	12.7	2.2	0.375	0.540	0.011	0.0	42	0.540
3.000	0.662	11.7	1.8	0.545	0.540	0.009	0.0	40	0.482
2.001	2.252	89.6	10.9	0.540	0.740	0.054	0.0	52	1.529
1.002	3.525	140.2	17.7	0.740	1.125	0.088	0.0	54	2.441
1.003	1.070	42.5	17.7	1.125	0.525	0.088	0.0	101	1.020

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	34.343	149.3	150	Circular_Default Sewer Type	118.200	117.600	0.450	118.200	117.370	0.680
1.001	15.229	58.6	150	Circular_Default Sewer Type	118.200	117.370	0.680	118.000	117.110	0.740
2.000	35.902	194.1	150	Circular_Default Sewer Type	118.020	117.495	0.375	118.000	117.310	0.540
3.000	32.994	227.5	150	Circular_Default Sewer Type	118.150	117.455	0.545	118.000	117.310	0.540
2.001	6.792	34.0	225	Circular_Default Sewer Type	118.000	117.235	0.540	118.000	117.035	0.740
1.002	3.967	13.9	225	Circular_Default Sewer Type	118.000	117.035	0.740	118.100	116.750	1.125
1.003	7.430	148.6	225	Circular_Default Sewer Type	118.100	116.750	1.125	117.450	116.700	0.525

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SW.01	450	Manhole	Adoptable	SW.02	450	Manhole	Adoptable
1.001	SW.02	450	Manhole	Adoptable	SW.06	1200	Manhole	Adoptable
2.000	SW.03	450	Manhole	Adoptable	SW.05	450	Manhole	Adoptable
3.000	SW.04	450	Manhole	Adoptable	SW.05	450	Manhole	Adoptable
2.001	SW.05	450	Manhole	Adoptable	SW.06	1200	Manhole	Adoptable
1.002	SW.06	1200	Manhole	Adoptable	SW.07	1200	Manhole	Adoptable
1.003	SW.07	1200	Manhole	Adoptable	HW.01	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SW.01	535196.785	138325.209	118.200	0.600	450		0	1.000	117.600	150
SW.02	535172.842	138349.830	118.200	0.830	450		1	1.000	117.370	150
							0	1.001	117.370	150
SW.03	535216.406	138341.258	118.020	0.525	450					
							0	2.000	117.495	150
SW.04	535212.125	138340.940	118.150	0.695	450					
							0	3.000	117.455	150
SW.05	535189.123	138364.594	118.000	0.765	450		1	3.000	117.310	150
							2	2.000	117.310	150
							0	2.001	117.235	225
SW.06	535183.691	138360.517	118.000	0.965	1200		1	2.001	117.035	225
							2	1.001	117.110	150
							0	1.002	117.035	225
SW.07	535180.909	138363.345	118.100	1.350	1200		1	1.002	116.750	225
							0	1.003	116.750	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
HW.01	535185.159	138369.439	117.450	0.750	1200	1	1.003	116.700	225



Simulation Settings

Rainfall Methodology	FEH-22	Skip Steady State	✓	2 year (l/s)	0.4
Rainfall Events	Singular	Drain Down Time (mins)	2160	30 year (l/s)	0.8
Summer CV	1.000	Additional Storage (m³/ha)	20.0	100 year (l/s)	1.0
Winter CV	1.000	Starting Level (m)		Check Discharge Volume	✓
Analysis Speed	Normal	Check Discharge Rate(s)	✓	100 year 360 minute (m³)	

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	FEH	Growth Factor 100 year	2.48
Positively Drained Area (ha)	0.088	Betterment (%)	0
SAAR (mm)	813	QMed	0.4
Host	1	QBar	0.4
BFIHost	0.500	Q 2 year (l/s)	0.4
Region	1	Q 30 year (l/s)	0.8
QBar/QMed conversion factor	1.111	Q 100 year (l/s)	1.0
Growth Factor 2 year	0.90		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)	0.088	Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m³)	

Node SW.07 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	116.750	Diameter (m)	0.031		

Node SW.05 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	117.235	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	144	Depth (m)	0.275
Safety Factor	3.0	Width (m)	35.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.700		

Node SW.06 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	3.0	Invert Level (m)	117.035
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	340

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	36.0	35.0	1.000	36.0	56.3	1.001	0.0	56.3

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	113.056	31.991
2 year 15 minute winter	79.337	31.991
2 year 30 minute summer	73.923	20.918
2 year 30 minute winter	51.876	20.918
2 year 60 minute summer	50.096	13.239
2 year 60 minute winter	33.283	13.239
2 year 120 minute summer	34.924	9.229
2 year 120 minute winter	23.203	9.229
2 year 180 minute summer	28.258	7.272
2 year 180 minute winter	18.369	7.272
2 year 240 minute summer	22.982	6.073
2 year 240 minute winter	15.268	6.073
2 year 360 minute summer	18.027	4.639
2 year 360 minute winter	11.718	4.639
2 year 480 minute summer	14.360	3.795
2 year 480 minute winter	9.540	3.795
2 year 600 minute summer	11.831	3.236
2 year 600 minute winter	8.083	3.236
2 year 720 minute summer	10.581	2.836
2 year 720 minute winter	7.111	2.836
2 year 960 minute summer	8.730	2.299
2 year 960 minute winter	5.783	2.299
2 year 1440 minute summer	6.366	1.706
2 year 1440 minute winter	4.278	1.706
2 year 2160 minute summer	4.616	1.276
2 year 2160 minute winter	3.181	1.276
2 year 2880 minute summer	3.906	1.047
2 year 2880 minute winter	2.625	1.047
2 year 4320 minute summer	3.086	0.807
2 year 4320 minute winter	2.032	0.807
2 year 5760 minute summer	2.656	0.680
2 year 5760 minute winter	1.719	0.680
2 year 7200 minute summer	2.356	0.601
2 year 7200 minute winter	1.521	0.601
2 year 8640 minute summer	2.144	0.547
2 year 8640 minute winter	1.384	0.547

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 10080 minute summer	1.989	0.507
2 year 10080 minute winter	1.284	0.507
10 year 15 minute summer	223.349	63.200
10 year 15 minute winter	156.736	63.200
10 year 30 minute summer	147.014	41.600
10 year 30 minute winter	103.168	41.600
10 year 60 minute summer	99.898	26.400
10 year 60 minute winter	66.370	26.400
10 year 120 minute summer	62.460	16.506
10 year 120 minute winter	41.497	16.506
10 year 180 minute summer	48.217	12.408
10 year 180 minute winter	31.342	12.408
10 year 240 minute summer	38.155	10.083
10 year 240 minute winter	25.349	10.083
10 year 360 minute summer	29.023	7.469
10 year 360 minute winter	18.866	7.469
10 year 480 minute summer	22.734	6.008
10 year 480 minute winter	15.104	6.008
10 year 600 minute summer	18.519	5.065
10 year 600 minute winter	12.653	5.065
10 year 720 minute summer	16.425	4.402
10 year 720 minute winter	11.039	4.402
10 year 960 minute summer	13.382	3.524
10 year 960 minute winter	8.864	3.524
10 year 1440 minute summer	9.614	2.577
10 year 1440 minute winter	6.461	2.577
10 year 2160 minute summer	6.858	1.895
10 year 2160 minute winter	4.725	1.895
10 year 2880 minute summer	5.720	1.533
10 year 2880 minute winter	3.844	1.533
10 year 4320 minute summer	4.398	1.150
10 year 4320 minute winter	2.896	1.150
10 year 5760 minute summer	3.699	0.947
10 year 5760 minute winter	2.394	0.947
10 year 7200 minute summer	3.220	0.821
10 year 7200 minute winter	2.078	0.821
10 year 8640 minute summer	2.883	0.735
10 year 8640 minute winter	1.861	0.735
10 year 10080 minute summer	2.637	0.673
10 year 10080 minute winter	1.702	0.673
30 year 15 minute summer	293.575	83.072
30 year 15 minute winter	206.018	83.072
30 year 30 minute summer	195.284	55.259
30 year 30 minute winter	137.042	55.259
30 year 60 minute summer	133.071	35.167
30 year 60 minute winter	88.409	35.167
30 year 120 minute summer	80.412	21.251
30 year 120 minute winter	53.424	21.251
30 year 180 minute summer	61.196	15.748
30 year 180 minute winter	39.779	15.748
30 year 240 minute summer	48.047	12.697
30 year 240 minute winter	31.921	12.697

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
30 year 360 minute summer	36.257	9.330
30 year 360 minute winter	23.568	9.330
30 year 480 minute summer	28.305	7.480
30 year 480 minute winter	18.805	7.480
30 year 600 minute summer	23.029	6.299
30 year 600 minute winter	15.735	6.299
30 year 720 minute summer	20.424	5.474
30 year 720 minute winter	13.726	5.474
30 year 960 minute summer	16.675	4.391
30 year 960 minute winter	11.046	4.391
30 year 1440 minute summer	12.032	3.225
30 year 1440 minute winter	8.086	3.225
30 year 2160 minute summer	8.582	2.372
30 year 2160 minute winter	5.913	2.372
30 year 2880 minute summer	7.133	1.912
30 year 2880 minute winter	4.794	1.912
30 year 4320 minute summer	5.422	1.418
30 year 4320 minute winter	3.571	1.418
30 year 5760 minute summer	4.506	1.154
30 year 5760 minute winter	2.917	1.154
30 year 7200 minute summer	3.877	0.989
30 year 7200 minute winter	2.502	0.989
30 year 8640 minute summer	3.433	0.876
30 year 8640 minute winter	2.215	0.876
30 year 10080 minute summer	3.108	0.793
30 year 10080 minute winter	2.006	0.793
100 year 15 minute summer	372.015	105.267
100 year 15 minute winter	261.063	105.267
100 year 30 minute summer	249.447	70.585
100 year 30 minute winter	175.051	70.585
100 year 60 minute summer	171.164	45.234
100 year 60 minute winter	113.717	45.234
100 year 120 minute summer	101.282	26.766
100 year 120 minute winter	67.289	26.766
100 year 180 minute summer	76.473	19.679
100 year 180 minute winter	49.709	19.679
100 year 240 minute summer	59.852	15.817
100 year 240 minute winter	39.764	15.817
100 year 360 minute summer	45.156	11.620
100 year 360 minute winter	29.352	11.620
100 year 480 minute summer	35.415	9.359
100 year 480 minute winter	23.529	9.359
100 year 600 minute summer	28.975	7.925
100 year 600 minute winter	19.798	7.925
100 year 720 minute summer	25.843	6.926
100 year 720 minute winter	17.368	6.926
100 year 960 minute summer	21.315	5.613
100 year 960 minute winter	14.119	5.613
100 year 1440 minute summer	15.603	4.182
100 year 1440 minute winter	10.486	4.182
100 year 2160 minute summer	11.223	3.102
100 year 2160 minute winter	7.733	3.102

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year 2880 minute summer	9.329	2.500
100 year 2880 minute winter	6.270	2.500
100 year 4320 minute summer	7.010	1.833
100 year 4320 minute winter	4.617	1.833
100 year 5760 minute summer	5.746	1.471
100 year 5760 minute winter	3.719	1.471
100 year 7200 minute summer	4.871	1.243
100 year 7200 minute winter	3.144	1.243
100 year 8640 minute summer	4.253	1.085
100 year 8640 minute winter	2.745	1.085
100 year 10080 minute summer	3.800	0.969
100 year 10080 minute winter	2.453	0.969
100 year +40% CC 15 minute summer	520.820	147.374
100 year +40% CC 15 minute winter	365.488	147.374
100 year +40% CC 30 minute summer	349.226	98.819
100 year +40% CC 30 minute winter	245.071	98.819
100 year +40% CC 60 minute summer	239.630	63.327
100 year +40% CC 60 minute winter	159.204	63.327
100 year +40% CC 120 minute summer	141.794	37.472
100 year +40% CC 120 minute winter	94.205	37.472
100 year +40% CC 180 minute summer	107.062	27.551
100 year +40% CC 180 minute winter	69.593	27.551
100 year +40% CC 240 minute summer	83.793	22.144
100 year +40% CC 240 minute winter	55.670	22.144
100 year +40% CC 360 minute summer	63.218	16.268
100 year +40% CC 360 minute winter	41.093	16.268
100 year +40% CC 480 minute summer	49.582	13.103
100 year +40% CC 480 minute winter	32.941	13.103
100 year +40% CC 600 minute summer	40.565	11.096
100 year +40% CC 600 minute winter	27.717	11.096
100 year +40% CC 720 minute summer	36.180	9.697
100 year +40% CC 720 minute winter	24.315	9.697
100 year +40% CC 960 minute summer	29.841	7.858
100 year +40% CC 960 minute winter	19.767	7.858
100 year +40% CC 1440 minute summer	21.845	5.855
100 year +40% CC 1440 minute winter	14.681	5.855
100 year +40% CC 2160 minute summer	15.712	4.342
100 year +40% CC 2160 minute winter	10.826	4.342
100 year +40% CC 2880 minute summer	13.061	3.500
100 year +40% CC 2880 minute winter	8.778	3.500
100 year +40% CC 4320 minute summer	9.815	2.566
100 year +40% CC 4320 minute winter	6.463	2.566
100 year +40% CC 5760 minute summer	8.044	2.059
100 year +40% CC 5760 minute winter	5.207	2.059
100 year +40% CC 7200 minute summer	6.820	1.740
100 year +40% CC 7200 minute winter	4.401	1.740
100 year +40% CC 8640 minute summer	5.955	1.519
100 year +40% CC 8640 minute winter	3.843	1.519
100 year +40% CC 10080 minute summer	5.321	1.357
100 year +40% CC 10080 minute winter	3.434	1.357

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.61%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW.01	10	117.635	0.035	1.8	0.0163	0.0000	OK
15 minute summer	SW.02	10	117.428	0.058	6.9	0.0440	0.0000	OK
15 minute summer	SW.03	10	117.537	0.042	2.3	0.0244	0.0000	OK
15 minute summer	SW.04	10	117.494	0.039	1.8	0.0163	0.0000	OK
15 minute summer	SW.05	12	117.280	0.045	10.8	1.6122	0.0000	OK
180 minute summer	SW.06	124	117.265	0.230	6.3	8.1294	0.0000	SURCHARGED
180 minute summer	SW.07	124	117.265	0.515	1.5	0.5825	0.0000	SURCHARGED
180 minute summer	HW.01	124	116.728	0.028	1.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW.01	1.000	SW.02	1.8	0.383	0.123	0.1617	
15 minute summer	SW.02	1.001	SW.06	6.8	1.118	0.292	0.0926	
15 minute summer	SW.03	2.000	SW.05	2.1	0.537	0.169	0.1440	
15 minute summer	SW.04	3.000	SW.05	1.7	0.485	0.143	0.1146	
15 minute summer	SW.05	2.001	SW.06	7.9	1.219	0.089	0.0934	
180 minute summer	SW.06	1.002	SW.07	1.5	0.404	0.011	0.1578	
180 minute summer	SW.07	1.003	HW.01	1.4	0.487	0.033	0.0214	19.4

Results for 10 year Critical Storm Duration. Lowest mass balance: 98.08%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW.01	10	117.651	0.051	3.6	0.0233	0.0000	OK
15 minute summer	SW.02	10	117.458	0.088	13.7	0.0666	0.0000	OK
15 minute summer	SW.03	10	117.556	0.061	4.5	0.0355	0.0000	OK
15 minute summer	SW.04	10	117.512	0.057	3.6	0.0239	0.0000	OK
120 minute winter	SW.05	114	117.371	0.136	7.4	7.1715	0.0000	OK
120 minute winter	SW.06	116	117.372	0.337	9.4	11.8905	0.0000	SURCHARGED
120 minute winter	SW.07	116	117.372	0.621	2.0	0.7029	0.0000	SURCHARGED
120 minute winter	HW.01	116	116.729	0.029	1.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW.01	1.000	SW.02	3.6	0.453	0.247	0.2729	
15 minute summer	SW.02	1.001	SW.06	13.6	1.323	0.584	0.1675	
15 minute summer	SW.03	2.000	SW.05	4.3	0.649	0.340	0.2390	
15 minute summer	SW.04	3.000	SW.05	3.5	0.589	0.296	0.1938	
120 minute winter	SW.05	2.001	SW.06	5.6	0.832	0.062	0.2205	
120 minute winter	SW.06	1.002	SW.07	2.0	0.494	0.014	0.1578	
120 minute winter	SW.07	1.003	HW.01	1.5	0.502	0.036	0.0229	29.1

Results for 30 year Critical Storm Duration. Lowest mass balance: 97.66%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW.01	10	117.659	0.059	4.8	0.0271	0.0000	OK
15 minute summer	SW.02	10	117.477	0.107	18.1	0.0813	0.0000	OK
15 minute summer	SW.03	10	117.567	0.072	5.9	0.0417	0.0000	OK
15 minute summer	SW.04	10	117.523	0.068	4.8	0.0282	0.0000	OK
120 minute winter	SW.05	118	117.444	0.209	9.9	11.6153	0.0000	OK
120 minute winter	SW.06	118	117.444	0.409	10.9	14.4621	0.0000	SURCHARGED
120 minute winter	SW.07	118	117.444	0.694	2.9	0.7852	0.0000	SURCHARGED
120 minute winter	HW.01	118	116.730	0.030	1.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW.01	1.000	SW.02	4.8	0.479	0.330	0.3410	
15 minute summer	SW.02	1.001	SW.06	18.0	1.397	0.772	0.2042	
15 minute summer	SW.03	2.000	SW.05	5.7	0.701	0.449	0.2918	
15 minute summer	SW.04	3.000	SW.05	4.6	0.639	0.397	0.2399	
120 minute winter	SW.05	2.001	SW.06	6.4	0.880	0.071	0.2659	
120 minute winter	SW.06	1.002	SW.07	2.9	0.454	0.021	0.1578	
120 minute winter	SW.07	1.003	HW.01	1.6	0.510	0.038	0.0238	37.4

Results for 100 year Critical Storm Duration. Lowest mass balance: 97.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW.01	10	117.668	0.068	6.1	0.0310	0.0000	OK
120 minute winter	SW.02	118	117.555	0.185	6.4	0.1410	0.0000	SURCHARGED
15 minute summer	SW.03	10	117.578	0.083	7.4	0.0480	0.0000	OK
120 minute winter	SW.04	118	117.555	0.100	1.7	0.0418	0.0000	OK
120 minute winter	SW.05	118	117.555	0.320	11.4	15.6888	0.0000	SURCHARGED
120 minute winter	SW.06	118	117.555	0.520	10.6	18.3731	0.0000	SURCHARGED
120 minute winter	SW.07	118	117.555	0.805	2.8	0.9104	0.0000	SURCHARGED
120 minute winter	HW.01	118	116.731	0.031	1.8	0.0000	0.0000	OK

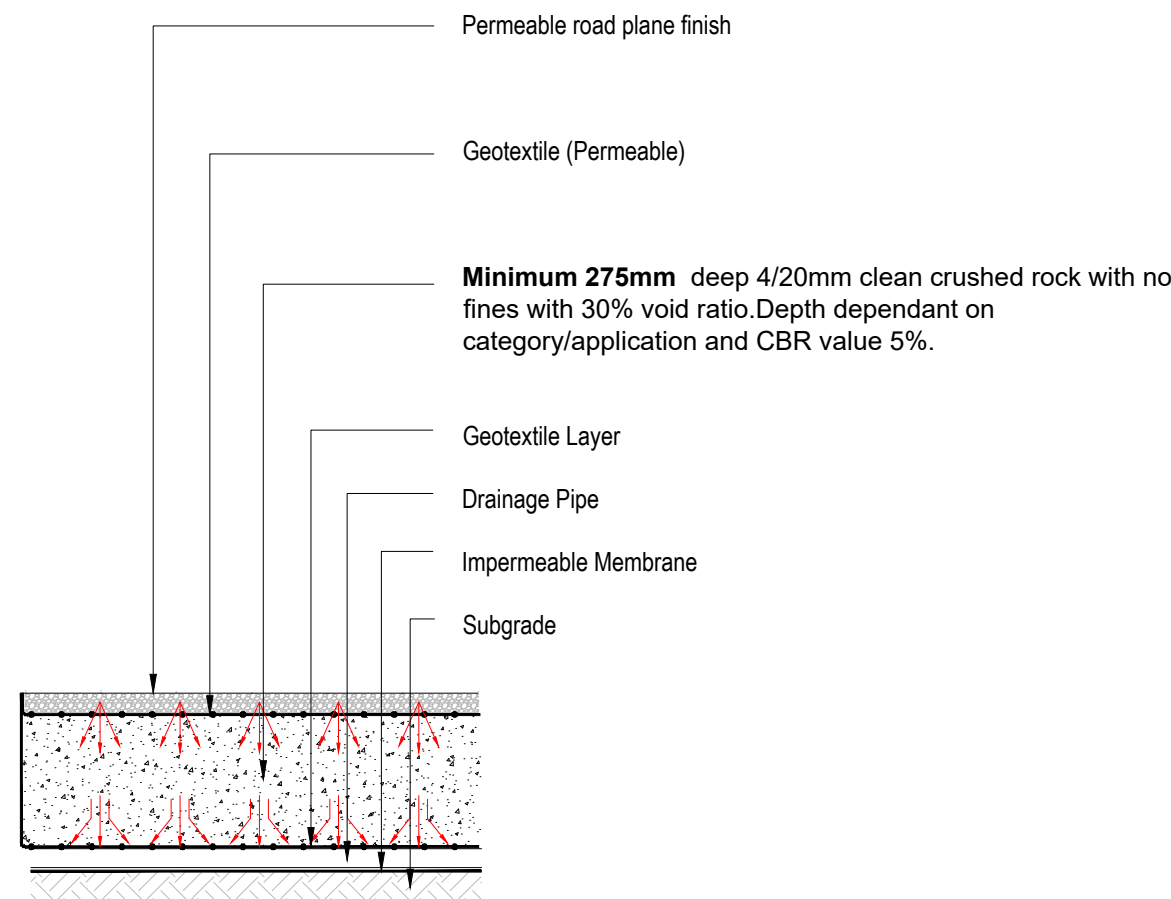
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW.01	1.000	SW.02	6.1	0.494	0.420	0.4189	
120 minute winter	SW.02	1.001	SW.06	6.4	0.850	0.274	0.2681	
15 minute summer	SW.03	2.000	SW.05	7.2	0.747	0.566	0.3452	
120 minute winter	SW.04	3.000	SW.05	1.7	0.481	0.146	0.4963	
120 minute winter	SW.05	2.001	SW.06	6.1	0.914	0.068	0.2701	
120 minute winter	SW.06	1.002	SW.07	2.8	0.543	0.020	0.1578	
120 minute winter	SW.07	1.003	HW.01	1.8	0.521	0.041	0.0252	47.2

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 97.71%

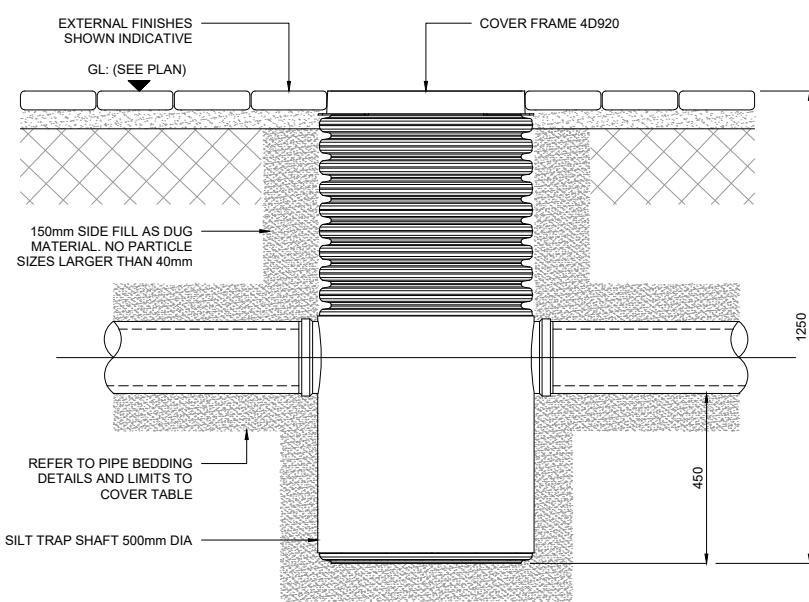
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	SW.01	172	117.987	0.387	1.7	0.1778	0.0000	FLOOD RISK
180 minute winter	SW.02	172	117.987	0.617	6.5	0.4698	0.0000	FLOOD RISK
180 minute winter	SW.03	172	117.987	0.492	2.1	0.2844	0.0000	FLOOD RISK
180 minute winter	SW.04	172	117.987	0.532	1.7	0.2224	0.0000	FLOOD RISK
180 minute winter	SW.05	172	117.987	0.752	10.4	16.1414	0.0000	FLOOD RISK
180 minute winter	SW.06	172	117.987	0.952	13.0	33.6265	0.0000	FLOOD RISK
180 minute winter	SW.07	172	117.987	1.237	2.8	1.3986	0.0000	FLOOD RISK
180 minute winter	HW.01	172	116.735	0.035	2.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
180 minute winter	SW.01	1.000	SW.02	1.7	0.387	0.117	0.6046	
180 minute winter	SW.02	1.001	SW.06	6.0	0.727	0.256	0.2681	
180 minute winter	SW.03	2.000	SW.05	2.1	0.489	0.166	0.6320	
180 minute winter	SW.04	3.000	SW.05	1.7	0.447	0.145	0.5809	
180 minute winter	SW.05	2.001	SW.06	7.6	0.894	0.085	0.2701	
180 minute winter	SW.06	1.002	SW.07	2.8	0.350	0.020	0.1578	
180 minute winter	SW.07	1.003	HW.01	2.2	0.555	0.052	0.0294	72.9

APPENDIX F
DRAINAGE DETAILS



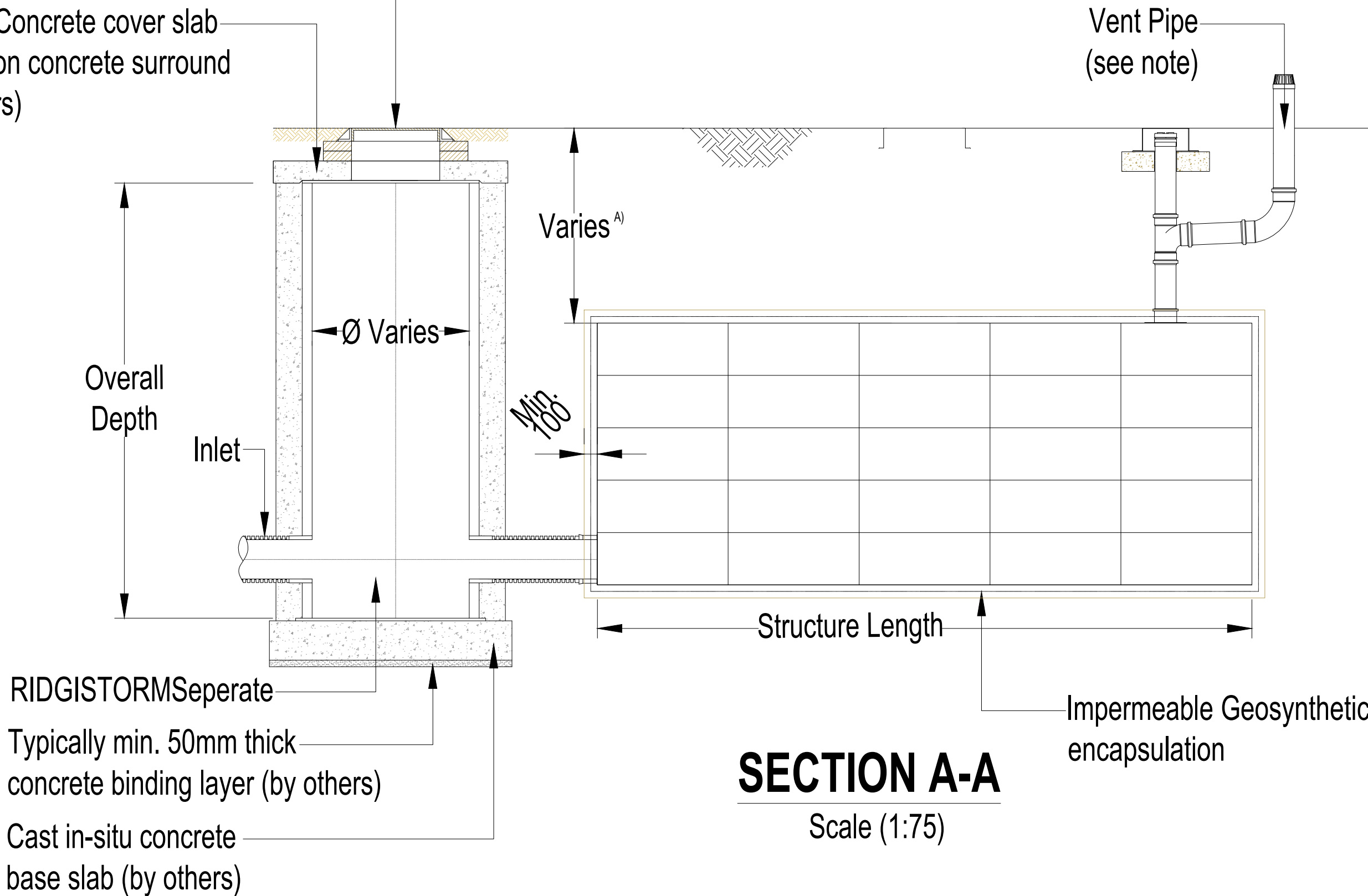
ACCESS PAVEMENT CONSTRUCTION
(SYSTEM C - NO INFILTRATION INTO SUBGRADE BS7533-13)



TYPICAL SILT TRAP DETAIL

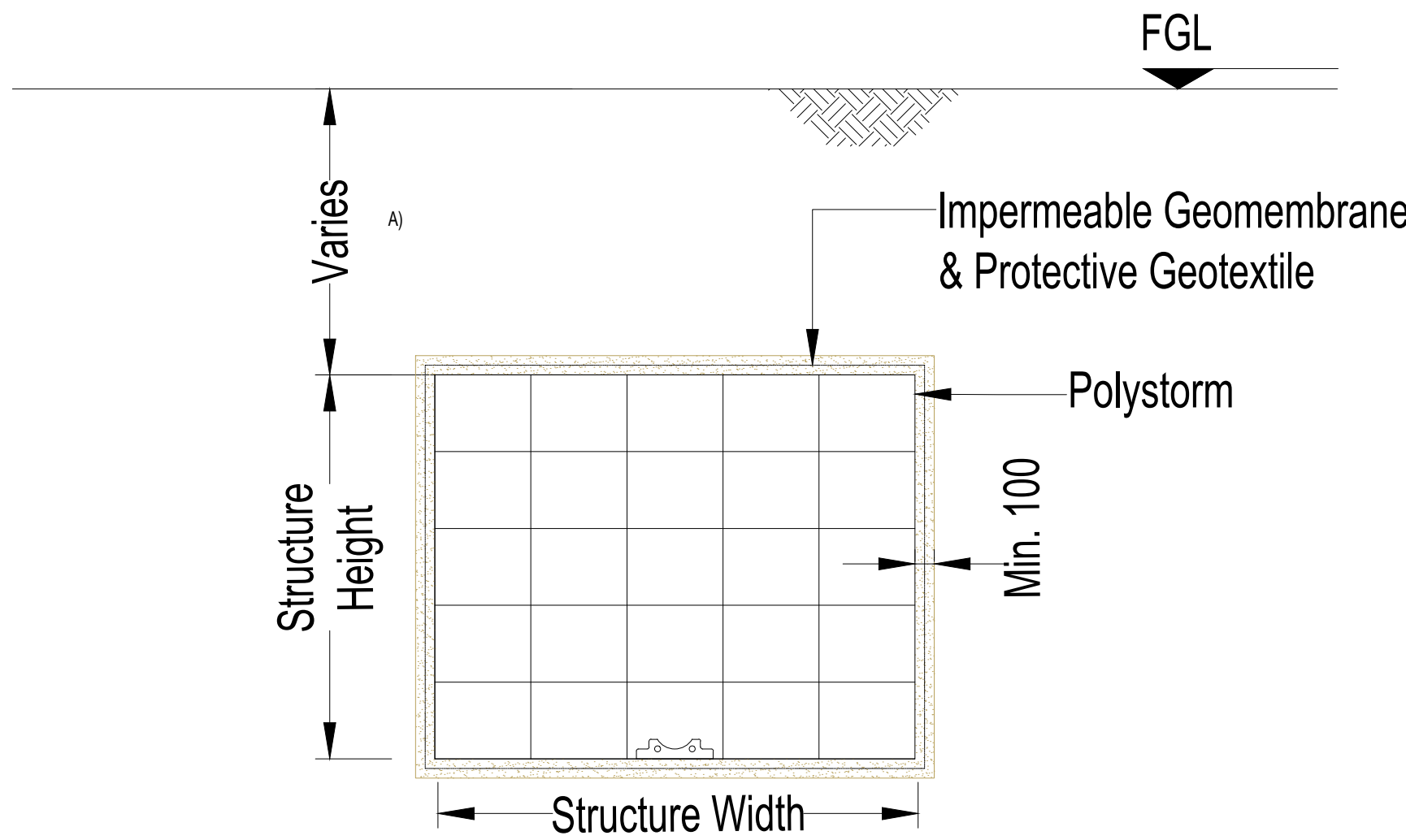
Appropriately load rated cover & frame in accordance with BS EN 124. Clear access opening above ladder to be maintained (By Others)

Precast Concrete cover slab bedded on concrete surround (by others)



SECTION A-A

Scale (1:75)



SECTION B-B

Scale (1:75)

- Notes:**
1. This drawing is to be read in conjunction with relevant Architects, Engineers and specialist manufacturers drawings, reports and specifications.
 2. All levels are shown in metres above Ordnance Datum (m AOD) unless otherwise shown.
 3. Any ambiguities or discrepancies within this drawing and any other information given elsewhere must be reported to K-Ten for clarification before pricing / works commence.
 4. Do not scale from this drawing for construction purposes.
 5. It is recommended that all sewers and drains be laid starting from the downstream connection to the existing sewer/drain and working upstream to the new development.
 6. All private drainage to comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant British Standards and Codes of Practices.
 7. Connections to existing sewers in accordance with the Local Water Authority guidelines & approval.
 8. Connections to existing river or watercourse in accordance with the Local Authority and EA guidelines & approval.
 9. Sewers and drains of different diameters should be laid soffit to soffit unless shown otherwise in the drawing. Outfall chamber outgassing pipe where a vortex control device is fitted to be installed at lowest incoming invert level.
 10. All access chambers covers and frames to be installed to BS EN 124.
 11. Drainage Pipe work routes under building footprint will require Co-ordination with foundations.
 12. Cover levels shown on this drawing refer to approximate surface levels. It is the contractors responsibility to ensure that access covers and frames are set at the final surface levels.
 13. Where possible the contractor is to orientate manhole biscuits and covers to locate them parallel to kerbs and paving.
 14. The Contractor should comply with hsig) 47 "Avoiding Danger from Underground Services" when excavating around existing services.
 15. It is the contractors responsibility to determine the location and depth of all existing services, mains and cables prior to construction.
 16. The pipe diameters cover and invert levels of any existing manholes are to be verified on site prior to the commencement of the works.
 17. All external non-perforated drainage within trafficked areas with less than 1.2m cover to have concrete protection. All external non-perforated drainage within landscaped areas with cover less than 0.8m to have concrete protection. All drainage with greater cover than the minimum required to have type S bed and surround.
 18. Foul drainage pipe connection to public sewer to be plastic twin-walled/rbbed pipe constructed to Water Industry Standard (WIS)-4-35-01.
 19. All drainage in highway to be installed in accordance with Sewers Sector Guidance.
 20. All access chambers covers and frames to be installed to BS EN 124.
 21. All drainage to be installed in accordance with Civil Engineering Specification for the Water Industry 7th Edition.
 22. Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing.
 23. This drawing is for information only for planning submission. This is not to be used for construction purposes.
 24. Drainage outfall connections and strategy to be agreed with the relevant authorities.
 25. Gutters to have down-pipe leaf guards and rainwater down-pipes to have rodding access.
 26. All existing invert levels shown are indicative and to be checked by the contractor prior to starting works.
 27. Drainage strategy to be approved by Mid Sussex District Council and Building Control.

B	26.05.26	Paving formation	GJ
A	21.05.26	Preliminary issue	GJ

Rev	Date	Details	Drawn
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CLIENT:
B. GIDDINGS

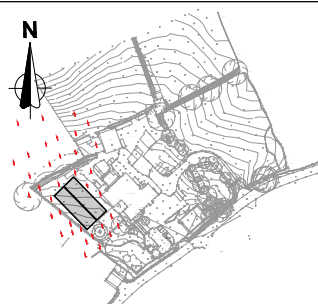
PROJECT:
PARKFIELDS FARM,
CRAWLEY DOWN

TITLE:
DRAINAGE DETAILS

SCALE @ A1: 1:250	DATE: 21.05.2026	STATUS: INFORMATION
JOB NO: 26-4173	DRAWING NO: C010	REVISION: B

APPENDIX G

EXCEEDANCE FLOW ROUTING PLAN



- Notes:**
1. This drawing is to be read in conjunction with relevant Architects, Engineers and specialist manufacturers drawings, reports and specifications.
 2. All levels are shown in metres above Ordnance Datum (m AOD) unless otherwise shown.
 3. Any ambiguities or discrepancies within this drawing and any other information given elsewhere must be reported to K-Ten for clarification before pricing / works commence.
 4. Do not scale from this drawing for construction purposes.

A	21.05.26	Preliminary issue	GJ
Rev	Date	Details	Drawn



CLIENT:
B. GIDDINGS

PROJECT:
PARKFIELDS FARM,
CRAWLEY DOWN

TITLE:
EXCEEDANCE ROUTES

SCALE @ A1: 1:250	DATE: 21.05.2026	STATUS: INFORMATION
JOB NO: 26-4173	DRAWING NO: C001	REVISION: A