



Civil Engineers & Transport Planners

Plummerden House

Flood Risk Assessment & Drainage Strategy

February 2026

241875-FRA_DS-LB-RS-01

Rev B



Civil Engineers & Transport Planners

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1 INTRODUCTION

1.1 Scope

1.1.1 Lanmor Consulting Ltd has been appointed to prepare a Flood Risk Assessment for the proposed equestrian development at Plummerden House, Park Lane, Lindfield, Haywards Heath, RH16 2QS.

1.1.2 This report describes the existing site conditions, development proposals and implications of flooding on the site as described in the governments guidance document; National Planning Policy Framework (NPPF) and its technical guidance. This report will consider the following:

- Development Proposals
- Sources of flooding and flood defences
- Flooding extents, depth and climate change predictions
- Impact of flooding on the development
- Dangers presented by flooding

1.1.3 This report has been prepared in accordance with the requirements of the governments National Planning Policy Framework (NPPF) and its planning practice guidance and will demonstrate that the proposed development will be safe and will not increase the risk of flooding in the surrounding area.

2 SITE CONDITIONS

2.1 Site Location

2.1.1 The site is located in Lindfield, a village to the north of the town of Haywards Heath in West Sussex. The site is located within a rural area, comprised of mostly farms and detached residential properties, north of Lindfield Golf Club. The nearest source of fluvial flooding is the River Ouse, which at its closest point lies approximately 740m south west of the site.

2.1.2 Figure 2.1 below shows the location of the application site.

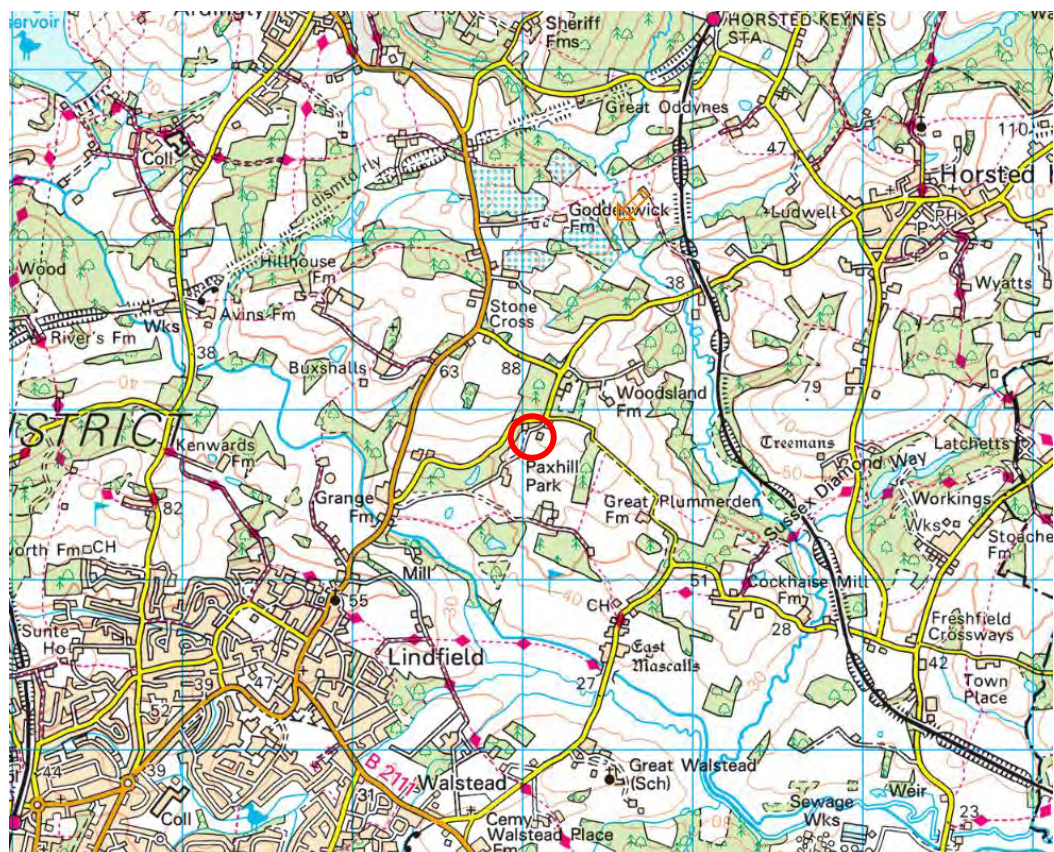


Figure 2.1 – Site Location

2.2 Site Proposal

2.2.1 The application seeks approval for the construction of an American Barn, Horse Walker and Outdoor Arena, as well as Indoor Arena, Ancillary Building, Pole Barn and Pump track. A site masterplan is included in Appendix A.

2.3 Site Geology

- 2.3.1 The British Geological Survey (BGS), mapping indicates the underlying bedrock at the application site to be Lower Grinstead Clay – Mudstone. This sedimentary bedrock was formed between 139.4 and 133.9 million years ago during the Cretaceous period. No information is available for superficial deposits at this site.
- 2.3.2 This stratum is underlain at depth by Ardingly Sandstone Member – Sandstone, and Lower Tunbridge Wells Sand – Sandstone, siltstone and mudstone.
- 2.3.3 Site investigations of the shallow soils to the north-east of the site found the ground conditions to be CLAY (Tunbridge Wells Sand Formation) from depths of around 0.4m bgl. Ingress of groundwater was observed in some of the trial pits.
- 2.3.4 In addition, a borehole soakaway test was undertaken in the location of the proposed buildings. The bore extended 10m below ground level and water was pumped in at a rate of 220 ltr/min (3.6 l/s). This proves that discharge of surface water runoff to ground via a deep bore soakaway is a viable solution. The results of the testing are included in Appendix B.

3 SOURCES OF FLOODING

3.1 Fluvial/Tidal Flooding

3.1.1 Flood mapping has been provided by the Environment Agency (EA) for the site and surrounding area. The mapping indicates the site to be within Flood Zone 1. This means it has a low probability of flooding from rivers and the sea.

3.1.2 The NPPF and PPG define the Flood Zones as follows:

- Zone 1: 'Low Probability' – This zone comprises land assessed as having a less than a 1 in 1000 annual probability of river or sea flooding (<0.1%) in any year.
- Zone 2: 'Medium Probability' – This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%-0.1%) in any year.
- Zone 3a: 'High Probability' – This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- Zone 3b: 'The Functional Floodplain' – This zone comprises land where water must flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes.)

3.1.3 The EA mapping shows the site to be within Flood Zone 1. For Zone 1, there is a probability of less than 0.1% from river flooding. Figure 3.1 below shows the site's position in relation to the fluvial flood zones.



Figure 3.1 – Flood Zone Mapping

3.1.4 The unshaded area on the map above shows land in Flood Zone 1, it is clear that the site falls within this area, a significant distance from Zones 2 & 3. Therefore, the site has a flood probability of less than 0.1%.

3.2 Surface Water Flooding

3.2.1 The surface water flood mapping provided by the EA is considered to be the best available source of national information of surface water flooding. It is a starting point for understanding patterns and probability of surface water flooding. The EA accept that the mapping has limitations and state that *“these maps cannot definitely show that an area of land or property is, or is not, at risk of flooding, and the maps are not suitable for use at an individual property level.”*

3.2.2 The surface water flood risk map on the government website shows the estimated extent and depths of flooding for different return periods. Figure 3.2 below shows the extent and depths of surface water flooding from an event with a probability of 1.0%.

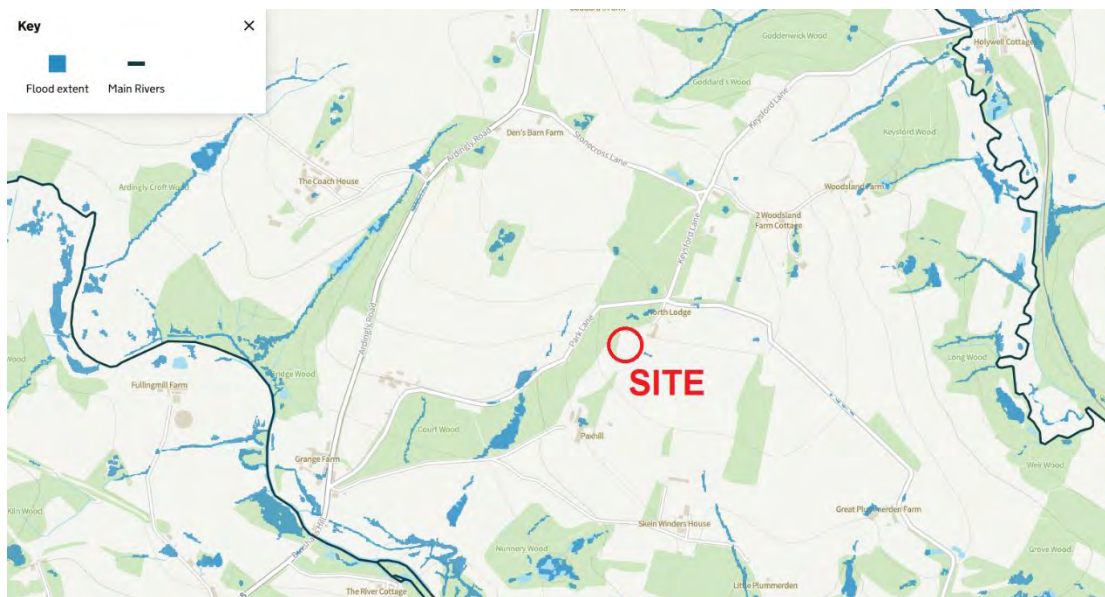


Figure 3.2 – Surface Water Flooding Map (1 in 100)

3.2.3 The mapping above shows the site will not be subject to surface water flooding with a probability of 1.0%. The site has therefore been identified as being at very low risk of surface water flooding.

3.3 Groundwater Flooding

3.3.1 The government's EA website states that flooding from groundwater is unlikely in this area.

4 MODELLED FLOOD LEVELS AND CLIMATE CHANGE

4.1 Modelled Flood Levels

- 4.1.1 The EA were unable to provide modelled flood levels for the site as it is some distance from the nearest source of fluvial flooding as shown in Figure 3.2. The site is considered to have a 1 in 1000 year or less probability of flooding.

4.2 Climate Change Allowances

- 4.2.1 New climate change allowances have been published by the EA; these allowances should be applied when assessing the flood risk for new developments. The allowance to be used is based on the management catchment area, site vulnerability and life expectancy.
- 4.2.2 The site is not at risk of fluvial flooding with a probability of 0.1% or greater so under the PPG guidance no allowance for climate change needs to be considered.

4.3 Impact of Development on Fluvial Flooding

- 4.3.1 The proposed development includes a number of barns for equestrian use. The EA flood maps show the area of the site is located in Flood Zone 1 and therefore the proposed development will not have any impact on the flow of flood waters for an event with a probability of 1.0% including allowances for climate change.

4.4 Impact of Development on Flood Storage

- 4.4.1 Given the area of the site where development is to take place has a probability of flooding of less than 0.1% it will not result in the loss of flood storage volumes across the site for the 1% AEP event including climate change.

4.5 Safe Access from the Development

- 4.5.1 The site is in a low flood risk area Flood Zone 1, having less than 0.1% probability of flooding, the general area around the site is also in Flood Zone 1, so a safe and dry access can be provided to and from the site at all times during extreme flood conditions.

5 SEQUENTIAL TEST AND EXCEPTION TEST

5.1 Sequential Test

5.1.1 The proposed use is classified as 'Less Vulnerable' according to the National Planning Policy Framework (NPPF). The aim of a sequential test is to demonstrate that the development is allocated to low risk flood areas.

5.1.2 Since the proposed development is within Flood Zone 1 and is at low risk for all other sources of flooding, the development meets the requirements of the sequential test to allocate vulnerable development to low risk flood areas.

5.1.3 Table 5.1 below of the NPPF below shows that this type of development within Flood Zone 1 is considered appropriate.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

Table 5.1 – Flood Risk Vulnerability and Flood Zone 'Compatibility'

5.2 Exception Test

5.2.1 The proposed development is within a very low flood risk area and therefore as set out in Table 5.1 the exception test is not required.

6 EXISTING AND PROPOSED DRAINAGE

6.1 Existing Drainage

- 6.1.1 The topographical survey of the site has found limited existing drainage features present in the area of the proposed works. There is 1 inspection chamber located adjacent to the stables, but it is unclear what this chamber serves and where it discharges to.

6.2 Proposed Foul Water Drainage

- 6.2.1 Foul wastewater from the Ancillary Building, American Barn and Indoor Arena will be collected in a below ground drainage network. There are no public sewers in the local area that could be connected to, and the infiltration testing has shown that the ground conditions are not suitable for a drainage field. Therefore, the wastewater will be collected in a cesspool before removal from site by tanker.

- 6.2.2 The size of the cesspool has been calculated based on the anticipated usage of each building as set out below. As the development is for equestrian use, not residential, users will only be onsite using the facilities for part of the day, and the size of the cesspool has been estimated accordingly.

Ancillary Building

- Office – 1 person 2 hours/day
- Gym – 2 people 1 hour/day
- Workshop – 1 person 1/week

American Barn

- 20 washes/week, 20 litres each = 80 litres/day
- WC – 4 people/day

Indoor Arena (Viewing Room)

- 4 people 4 times/week

- 6.2.3 The above roughly equates to 7 people on site full time (6 people plus 1 for the wash down) which therefore requires 52,000 litres storage within the cesspool. The level of wastewater within the cesspool will be monitored and emptying schedules adjusted as necessary if loads are higher than anticipated.

- 6.2.4 A single cesspool will serve the 3 buildings and has been located downstream of the buildings, but close enough to allowing servicing vehicles access. The location and size of the cesspool has been shown on drawing 241875-DS-01 included in Appendix D.

6.3 Proposed Surface Water Drainage

- 6.3.1 The Sustainable Drainage Systems (SuDS) hierarchy has been used to set the drainage strategy for the development. The proposed buildings will incorporate pitched roofs, and therefore the use of blue or green roofs is not viable.
- 6.3.2 Rainwater harvesting is proposed as a means of reusing surface water runoff on the site, reducing the volume of discharge. A tank will be constructed under the indoor arena to store runoff from the roof which will then be pumped out for reuse in the indoor/outdoor arenas and orchard. Whilst this tank will reduce the volume of discharge from the buildings it cannot be relied upon for all runoff as it may not be empty at the start of the storm. Therefore, an overflow pipe and subsequent discharge point needs to be provided.
- 6.3.3 Next on the SuDS hierarchy is the use of infiltration techniques such as soakaways and infiltration basins. The geology records and on-site testing found the shallow ground conditions to be Clay with a high groundwater table. Therefore, the use of traditional infiltration devices (trench soakaways) will not be viable, and this method has been discounted.
- 6.3.4 Testing of the soils at depth via a borehole has found that they are of sufficient permeability to support the use of a deep bore soakaway. The testing results indicate a discharge rate of 3.6 l/s is achievable and therefore this method is proposed for the discharge of surface water runoff to ground. An attenuation basin will be provided adjacent to the deep bore soakaway to store the runoff before discharging it slowly to ground via the borehole.
- 6.3.5 Therefore, this report has found that discharge to ground via deep bore soakaway is the most sustainable method for discharge of surface water runoff from site, and is in accordance with the sustainable drainage hierarchy.

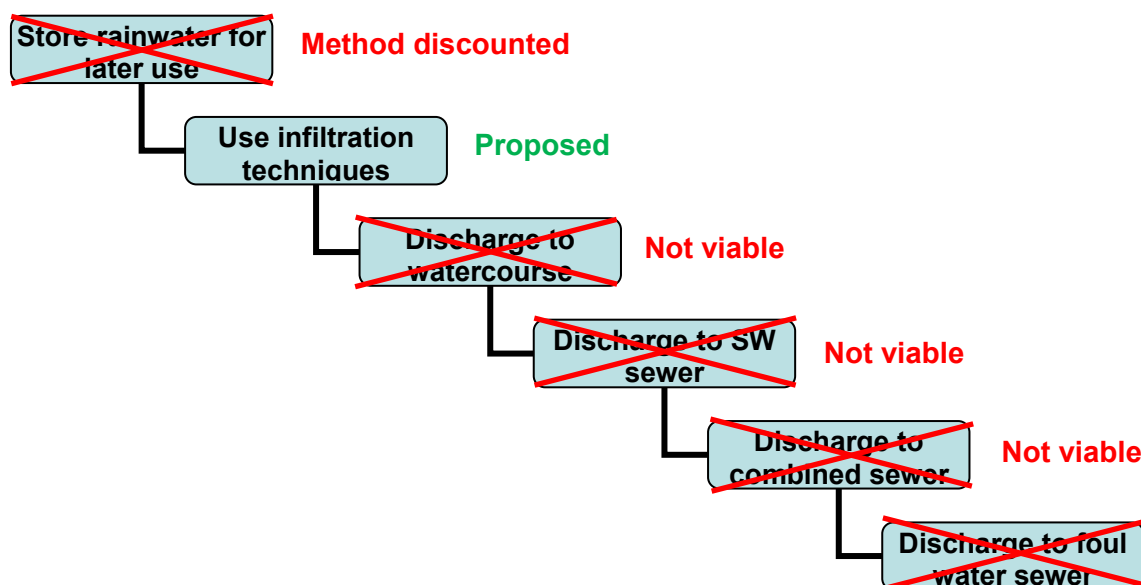


Figure 6.1 – Sustainable Drainage Hierarchy

6.3.6 As the peak runoff rate from the development will be much higher than the deep bore soakaway can accommodate, an attenuation basin has been provided to store the surface water runoff. The large pond will be located to the south of the site, downstream of the proposed buildings, and has been sized at 1m deep with a base area of 226m² to provide 220m³ of storage, plus a 300mm freeboard, before overtopping.

6.3.7 Calculations have been completed to estimate the volume of runoff from the site to assist in sizing the pond and rainwater harvesting tank. Taking into account the 3.6 l/s discharge rate into the deep bore soakaway the maximum water levels and volumes have been estimated to assess the pond's capacity.

Return Period	Max Vol. of Water in Pond (m ³)	Max Depth of Water in Pond (m)	Pond Capacity	Total Capacity
1 in 1	22.5	0.095	10%	4%
1 in 30	60.8	0.239	28%	10%
1 in 30 +35%	89.7	0.336	41%	15%
1 in 100	85.6	0.323	39%	14%
1 in 100 +45% CC	137.2	0.480	62%	23%

Table 6.1 – Proposed Surface Water Calculations

- 6.3.8 In the above table, the “Depth of Water in Pond” and “Pond Capacity” assumes the rainwater harvesting tank is full at the start of the storm and that all runoff overflows to the pond and so accounts for the worst-case scenario. The “Total Capacity” includes the storage available in the rainwater harvesting tank.
- 6.3.9 The above calculations show that there is ample storage within the system to store the runoff from all storm events, including allowances for climate change, without causing flooding on site or in the surrounding area. There is also an additional 300mm freeboard within the pond before overtopping occurs, and therefore the drainage system will actually be able to store the runoff from two consecutive storms for nearly all storm events.
- 6.3.10 An indicative drainage layout for the proposed development has been prepared and is included in Appendix D as drawing 241875-DS-01. MicroDrainage has been used to estimate runoff volumes to the pond and a copy of these calculations has been included in Appendix E.

7 SURFACE WATER/ SUDS MAINTENANCE AND TREATMENT

7.1 SuDS Maintenance

- 7.1.1 Regularly inspecting the surface water drainage network for blockages and clearing unwanted debris/silt from the system should improve the performance of the surface water network and decrease the need for future repairs.
- 7.1.2 The level and frequency of maintenance on site is dependent on the type of facility. The type of maintenance will fall into one of three categories: “regular maintenance”, “occasional maintenance” and “remedial maintenance”.
- 7.1.3 Regular maintenance of the drainage and SuDS features will include inspections, removal of litter/debris and sweeping of the surfaces. Occasional maintenance will include removal of sediment etc. and remedial maintenance may include structural repairs if required.
- 7.1.4 The drainage and SuDS elements after an initial inspection following construction should be inspected on a monthly basis for the first 12 months and after large storms, thereafter the following maintenance regime should be applied and adjusted if the 12-month monitoring process has identified any issues.
- 7.1.5 The freeholder of the property will be responsible for the maintenance and repair of the drainage and SuDS features onsite.
- 7.1.6 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained.

Pipes and Manholes

7.1.7 For drainage pipes and manholes, the following maintenance is required.

Manhole / Pipe Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
	Remove sediment from structures.	Annually or as required
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required
	If continued poor performance jet and CCTV survey poorly performing runs.	As required
Monitoring	Inspect/check all inlets, outlets, to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of pipe manholes for sediment build-up and remove if necessary	Every 5 years or as required

Table 7.1 – Pipe and Manhole Maintenance Schedule

Ponds and Wetlands

7.1.8 For ponds and wetlands, the following maintenance is required.

Ponds and Wetlands Maintenance Schedule		
	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public area	Monthly (During growing season)
	Cute the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as require)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May-October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal	Half Early
	Check any mechanical devices, e.g. penstocks	Half early
	Hand cut submerged and emergent aquatic plants (at minimum of 1.0m above pond and base; include max 25% of pond surface)	Annually

	Remove 25% of bank vegetation from water's edge to a minimum of 1m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay	Every 1-5, or as required
	Remove sediment and planting from one quadrant of the main body of ponds	Every 5 years, or as required
Remedial Actions	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, e.g every 25-50 years
Monitoring	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair/rehabilitate inlets outlets and overflows	As required

Table 7.2 – Pond and Wetland Maintenance Schedule

7.1.9 For specialist pieces of equipment, maintenance brochures will be provided by the manufacturers. These will set out the frequency of inspections and correct methods of cleaning etc. that should be followed. It is recommended that once installed the facility should be inspected monthly for the first three months and thereafter at six monthly intervals or as advised in the maintenance brochure.

7.1.10 The above information is only intended as guidance in standard maintenance practise for surface water drainage and SUDs features. The above measures should be reviewed regularly and modified to suit the site conditions.

8 SUMMARY AND CONCLUSION

- 8.1.1 This report has been prepared in support of the planning application at the site of Plummerden House, Park Lane, Lindfield, West Sussex, RH16 2QS. The application seeks approval for the construction of an American Barn, Horse Walker and Outdoor Arena, as well as Indoor Arena, Ancillary Building, Pole Barn and Pump track. A site masterplan is included in Appendix A.
- 8.1.2 This report has demonstrated that the site is at very low flood risk from all sources. The site is located in fluvial Flood Zone 1, with a risk of flooding of less than 1 in 1000 years (<0.1% AEP).
- 8.1.3 The surface water runoff will be collected in a rainwater harvesting tank for reuse on site with an overflow to a large pond that discharges to a deep bore soakaway. On site testing has found that a discharge rate of 3.6 l/s is achievable to the deep bore soakaway. Calculations have shown the tank and pond are of sufficient size to cater for runoff from all storm events, and so will not increase the risk of flooding on site or in the surrounding area.
- 8.1.4 This statement clearly demonstrates that the site is at low risk of flooding from all sources and suitable drainage can be provided for the development which will not result in an increased risk of flooding to the site or surrounding area. For the reasons outlined within this report, we see no reason to refuse planning permission for this development on the grounds of flood risk, or of there being insufficient capacity to cater for surface water runoff generated from the development.

APPENDIX A

Site Masterplan



Site Masterplan
Scale 1:500 (when printed at A1)

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Proposed Development
Plummerden House

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Site	Park Lane, Lindfield West Sussex, RH16 2QS
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- All dimensions in millimeters. All dimensions and levels to be checked by contractor prior to commencing work.
- Assume drawings not to scale, use figured dimensions. Do not scale from drawings.
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Paper	A1	

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APPENDIX B

In Situ Percolation Test Report



IN SITU PERCOLATION TEST REPORT

**PLUMMERDEN LODGE
LINDFIELD
WEST SUSSEX**

PROJECT REFERENCE: P16924

REPORT REFERENCE: R16496

Report Beneficiary: Mr G Levi c/o BLB Surveyors Ltd

Document Control			
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Report Section		Prepared By	Approved By
In Situ Percolation Testing		Rebecca Webb BSc FGS	Steven McSwiney BA mod Geol MSc FGS

Limitations

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FIGURES AND APPENDICES

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- Figure 2 Site Plan
- Explanatory Notes
- Exploratory Hole Records

1. INTRODUCTION

Ashdown Site Investigation Ltd was requested to undertake in situ percolation testing to assist others in the design of a drainage field to serve a new sewage treatment plant at Plummerden Lodge, Lindfield, West Sussex.

The specific objectives of the works were to:

- a) Establish the expected geology and hydrogeology at the site;
- b) Investigate the shallow ground and groundwater conditions at the test locations; and
- c) Undertaken in situ percolation testing and provide calculated percolation values for the soils tested.

The scope of the works covered by this report, and the terms and conditions under which they were undertaken, were set out within the offer letter Q14713, dated 15th November 2024. The instruction to proceed was received on behalf of the client, from H T Partnership.

2. SITE CONTEXT

2.1 Site Location

The site is located at Plummerden Lodge, Lindfield, West Sussex, and is centred on the approximate Ordnance Survey national grid reference 536211, 126874. A site location plan and site plan are presented as Figure 1 and Figure 2, respectively.

2.2 Geological Setting

2.2.1 *Expected Geology and Aquifer Designation*

The stratigraphic succession that may be expected to underlie the site has been established by reference to British Geological Survey (BGS) mapping and the BGS Lexicon of Named Rock Units. The expected stratigraphy is presented in the following table.

Table 1. Expected Strata and Aquifer Designation

Type	Stratum	Aquifer Designation
Bedrock	Cuckfield Stone Bed	Secondary A Aquifer
	Grinstead Clay Member	Unproductive Stratum

Both the Cuckfield Stone Bed and Grinstead Clay Member form part of the Tunbridge Wells Sand Formation which in turn forms part of the Wealden Group. The formation is of Valanginian age (133.9 to 139.4 million years old; Early Cretaceous). The Tunbridge Wells Sand Formation predominantly comprises repeating sequences of fine to medium grained sandstone, siltstone and silty sand with finely-bedded mudstones and thin limestones. In the western High Weald (between Haywards Heath and Tunbridge Wells) the formation can be divided into three, the informally named Lower and Upper Tunbridge Wells Sand and the intervening Grinstead Clay Member. The succession commences with rhythmically bedded sandstones, siltstones and mudstones of the lower part of the Lower Tunbridge Wells Sand which pass up into the massive sandstones of the Ardingly Sandstone Member. These are overlain by the finely bedded mudstones, mudstones and silty mudstones with subordinate clay ironstones and shelly limestones of the Grinstead Clay Member. This clay member is itself locally divided into upper and lower parts by the cross-bedded fine sandstone of the Cuckfield Stone Bed. Above the Grinstead Clay Member, the Upper Tunbridge Wells Sand comprises a generally more argillaceous rhythmic succession, including mudstones, siltstones and silty sandstones. Outside the western High Weald the Grinstead Clay Member is not recognisable and the succession is mapped as undivided Tunbridge Wells Sand Formation. The formation is recorded by the BGS to range in thickness up to 122m.

2.2.2 *Groundwater Source Protection Zones (SPZ)*

The Environment Agency defines SPZs as those areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. SPZs are primarily a policy tool used to control activities close to water supplies intended for human consumption.

The site does not lie within a SPZ.

3. SITE WORKS

The intrusive site works comprised the excavation of a series of hand dug trial pits to enable in-situ percolation testing¹ to be carried out in the proposed drainage field area. The intrusive work was carried out on 26th and 27th November 2024. The exploratory hole locations are shown on Figure 2.

Descriptions of the strata encountered and comments on groundwater conditions are shown in the appended exploratory hole records, together with explanatory notes to assist in their interpretation.

It is noted that initially it was proposed to excavate two trial pits, TP01 and TP02, to carry out in situ percolation testing. However, during the first two tests the water levels within the pits were noted to rise due to the ingress of water from the surrounding soils during the saturation test period. Further pits were therefore excavated, with trial pits TP03, TP05 and TP06 excavated to attempt further percolation testing and pits TP04 and TP07 dug to monitor the rise of the water ingress into the trial pits.

4. GROUND CONDITIONS

4.1 Stratigraphy

4.1.1 *Surface Covering*

Each of the exploratory holes was excavated through a surface cover of topsoil over subsoil, some 350mm to 400mm in thickness.

4.1.2 *Tunbridge Wells Sand Formation*

Underlying the topsoil/subsoil, the investigation progressed into undisturbed slightly sandy silty clay deposits which continued to the full depth of excavation.

It can be difficult to distinguish between the individual members and beds which form the Tunbridge Wells Sand Formation, and therefore, particularly given the shallow depth of the investigation, the natural soils have been denoted as being part of the Tunbridge Wells Sand Formation deposits for the purposes of this report.

4.2 Stability

Each of the shallow exploratory holes was recorded to remain stable during the course of excavation.

4.3 Groundwater Conditions

Ingress of water was noted at various depths within the shallow trial pits, in general noted to be filling the pits while they remained open.

¹ Conducted in general accordance with the requirements of BS6297:2007 + A1:2008, Code of practice for the design and installation of drainage fields for use in wastewater treatment.

5. IN SITU PERCOLATION TESTING

In-situ percolation testing² was carried out in trial pits TP01 to TP07. The trial pits were excavated to depths of between 0.40m and 0.80m below ground level and were 300mm by 300mm in plan to form the test cell.

For the saturation part of the test a 300mm cube test cell should be filled with water and left to completely seep away. However, during this part of the test, water levels within the majority of the pits were noted to be rising due to ingress of water into the pits. Trial pits TP04 and TP07 were not filled with water and were instead left to observe the groundwater ingress into the pits over the same period.

Table 2. Summary of Saturation Testing

Exploratory Hole	Trial Pit Test Depth (m bgl)	Water Filled to Depth (m bgl)	Water Depth at End of Saturation Period (m bgl)	Length of Saturation Period (mins)	Time Taken for Water to Fully Drain Was Less than 6 Hours
TP01	0.80	0.50	0.02	1430.00	No
TP02	0.80	0.50	0.00	1455.00	No
TP03	0.40	0.10	0.40	60	Yes
TP04	0.60	n/a - Observation of Ingress of Groundwater	Rose from base of pit to 0.09	1380.00	No
TP05	0.80	0.50	0.04	1295.00	No
TP06	0.40	0.10	0.00	1195.00	No
TP07	0.70	n/a - Observation of Ingress of Groundwater	Rose from base of pit to 0.00	1211.00	No

The guidance indicates that if during the saturation test period the water does not seep away in less than 6 hours the soils should be deemed as being unsuitable for drainage fields. The only test pit that fully drained in less than 6 hours was trial pit TP03. The remaining trial pits all filled with water and when left overnight filled to close to ground level.

Whilst it is possible that significant precipitation overnight may have exacerbated the rise in water levels in the pits, it is noted that during the first day of the works the weather was dry and water levels were still noted to be rising due to ingress of water from the surrounding soils.

² Conducted in general accordance with the requirements of BS6297:2007 + A1:2008, Code of practice for the design and installation of drainage fields for use in wastewater treatment.

Following the saturation stage in trial pit TP03, the pit was filled a further three times to enable the percolation Vp value to be calculated. The Vp is calculated by dividing the time in seconds for the water to fall between 75% and 25% of the initial test depth by the depth of water in millimetres between 75% and 25% of the initial test depth. Typically for a test that is filled with 300mm of water, the latter depth would be 150mm.

The calculated Vp figures derived from the tests are summarised in the following table.

Table 3. Calculated Vp Figures

Exploratory Hole	Time to reach 75% empty (secs)	Time to reach 25% empty (secs)	Time taken for water to fall between 75% and 25% (secs)	Total Depth of Water between 75% and 25% full (mm)	Vp
TP03 Test 1	310.5	1806	1495.5	150	10
TP03 Test 2	281.25	2070	1788.75	150	11.9
TP03 Test 3	202.5	1800	1597.5	150	10.7

The overall average Vp result for trial pit TP03 is indicated to be 10.9. However, it is noted that the testing carried out within this trial pit was conducted at a relatively shallow depth, with the pit kept shallow to minimise the ingress of any groundwater. The relatively high groundwater observed within the remaining pits should be taken into account by the designers.

The results from the percolation testing should be provided to engineers responsible for the design of the drainage system.

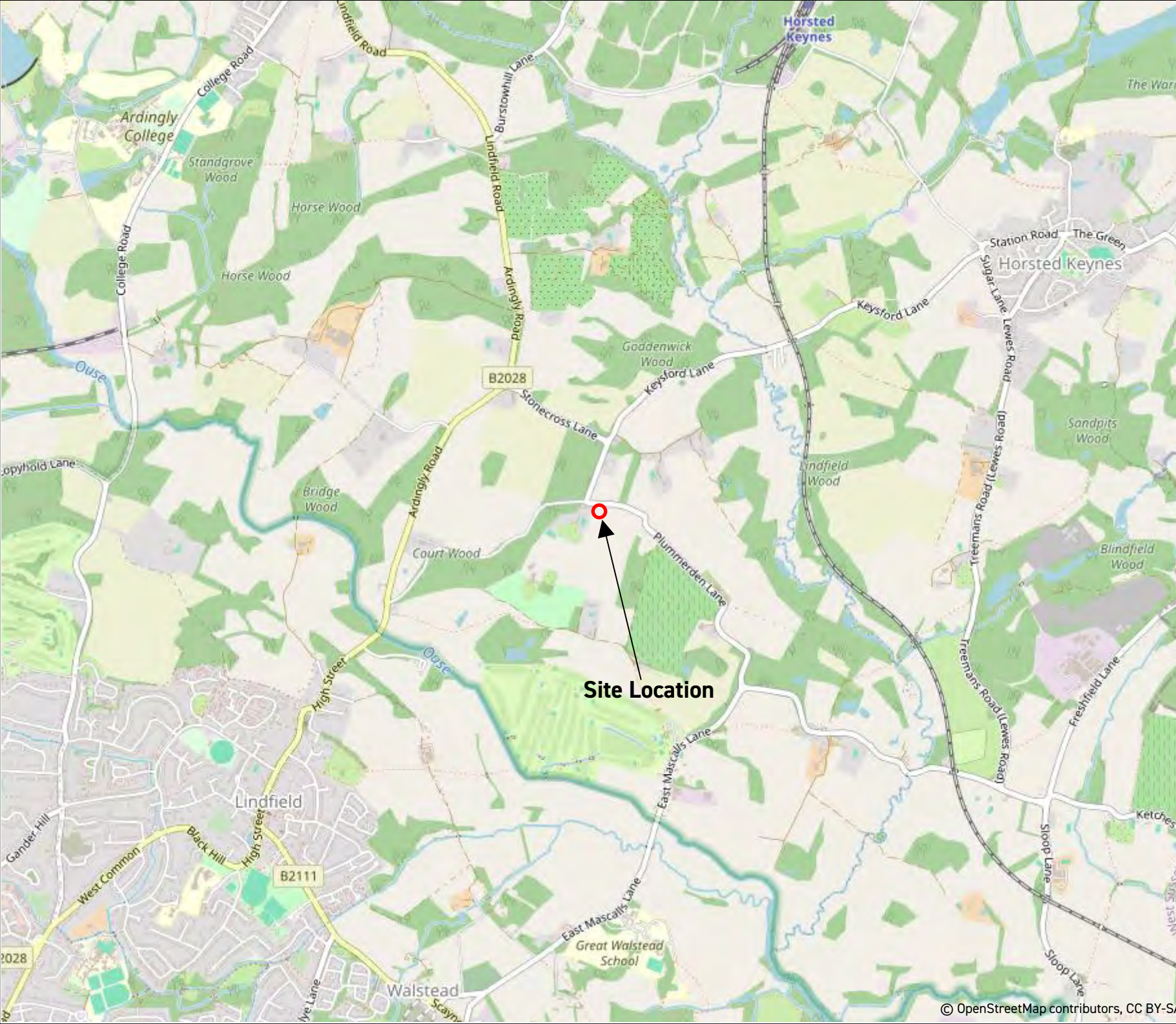
FIGURES AND APPENDICES

Figure 1 Site Location Plan

Figure 2 Site Plan

Explanatory Notes

Exploratory Hole Records



Head Office

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
contact@ashdownsi.co.uk

Site

Plummden Lode
Lindfield
West Sussex

Project Ref

P16924

Figure No

1

Drawing Title

Site Location Plan

Scale

Not To Scale

Park Lane

+

+

LODGE

TP03

TP04

TP06

TP07

TP01

TP05

TP02



Head Office

Unit 3
The Old Grain Store
Ditchling Common Business Park
Ditchling
East Sussex
BN6 8SG
contact@ashdownsi.co.uk

Site

Plummerden Lodge
Lindfield
West Sussex

Project Ref.

P16924

Figure No.

2

Drawing Title

Site Plan

Scale

Not To Scale

PLUMMERDEN
HOUSE

EXPLANATORY NOTES

Symbols and abbreviations on Exploratory Hole Records

Samples

U	'Undisturbed' Sample: - 100mm diameter by 450mm long. The number of blows to drive in the sampling tube is shown after the test index letter in the SPT column.
Pi	Piston Sample: 'Undisturbed' sample 100mm diameter by 600mm long.
D	Disturbed Sample
R	Root Sample
B	Bulk Disturbed Sample
W	Water Sample
ES	Environmental Suite (on older records may be referenced J T)

In Situ Testing

S	Standard penetration test (SPT): Using the split spoon sampler.
C	Standard Penetration Test (SPT): Using a solid cone instead of the sampler – conducted usually in coarse grained soils or weak rocks.
V	Shear Vane Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
H	Hand penetrometer Test: Undrained shear strength (cohesion) (kN/m ²) shown within the Vane/Pen Test and N Value column.
P	Perth Penetrometer Test: Number of blows for 300mm penetration shown under Vane/Pen Test and N Value column.

Excavation Method

CP	Cable Percussion Borehole
RC	Rotary Cored Borehole
WLS	Dynamic Sampler Borehole using windowless sampler tubes
WS	Dynamic Sampler Borehole using window sampler tubes
TP	Trial Pit excavated using mechanic excavator
HDP	Trial Pit excavated using hand tools

Soil Description

Description and classification of soils has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of soil, Part 1 Identification and description (BS EN ISO 14688-1) and Part 2 Principles of classification (BS EN 14688-2) as well as the BS5930 code of Practice for Ground Investigations.

Rock Description

Description and classification of rocks has been carried out using as a general basis the British Standard Geotechnical investigation and testing – Identification and classification of rock, Part 1 Identification and classification (BS EN ISO 14689-1) as well as the BS5930 code of Practice for Ground Investigations. TCR – Total Core Recovery, SCR – Solid Core Recovery, RQD – Rock Quality Designation, NI – Non Intact, If – indicative fracture spacing (min/ave/max), FI – Fracture Index.

Chalk Description

Chalk description is based on BS EN ISO 14688, BS EN ISO 14689 and BS5930. The classification of chalk generally follows the guidance offered by the Construction Industry Research and Information Association (CIRIA) C574, 'Engineering in Chalk'. This is based on assessment of chalk density, discontinuity and aperture spacing, and the proportion of intact chalk to silt of chalk.

In Situ Strength Testing

Standard penetration testing (SPT) carried out in accordance with BS EN ISO 22476-3:2005.

Continuous dynamic probe testing conducted using a super heavy DPSH-B (As defined by BS EN ISO 22476-2:2005) probing geometry. The DPSH-B configuration is similar to that of the standard penetration test (SPT); the main differences being that the tip comprises a 90° cone, the driving rods are lighter than those used for SPT testing and the blow counts are recorded over 100mm increments rather than 300mm, as is the case for the SPT.

Perth penetrometer tests carried out in accordance with Australian Standard AS 1289:6.3.3-1997, Method of Testing Soils for Engineering Purposes; no equivalent European or British Standard having been published to date.

Undrained shear strength determinations made in-situ using a Geonor hand shear vane or a hand penetrometer.

Testing to determine the in-situ California Bearing Ratio (CBR) of soils conducted at shallow depths using a hand-held Transport Research Laboratory (TRL) cone penetrometer.

Sheet 1 of 1

Remarks Groundwater: Water ingress from shallow soils, recorded at 0.80m depth on completion of trial pit. Stability: Trial pit stable on completion. Notes: n/a	Excavation Method: HDP
	Pit Length: 0.30m
	Pit Width: 0.30m
	Made By: TM

Sheet 1 of 1

Remarks Groundwater: Water ingress from shallow soils, recorded at 0.79m depth on completion of trial pit. Stability: Trial pit stable on completion. Notes: n/a	Excavation Method: HDP
	Pit Length: 0.30m
	Pit Width: 0.30m
	Made By: TM

Site Name: Plummerden Lodge, Lindfield, West Sussex

Job Number: P16924

Start Date: 26/11/2024

End Date: 26/11/2024

Trial Pit Number: TP03

Sheet 1 of 1

Remarks Groundwater: Water ingress noted at base of pit on completion. Stability: Trial pit stable on completion. Notes: n/a	Excavation Method: HDP
	Pit Length: 0.30m
	Pit Width: 0.30m
	Made By: TM

Site Name: Plummerden Lodge, Lindfield, West Sussex

Job Number: P16924

Start Date: 26/11/2024

End Date: 27/11/2024

Trial Pit Number: TP04

Sheet 1 of 1

Samples and In Situ Testing					
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Stratum Description
					0.00 Topsoil over, SUBSOIL: Grey brown and orange brown slightly sandy silty clay with rare gravel of ash-like material and organic matter.
					0.40 Orange brown and grey brown mottled slightly sandy silty CLAY with occasional gravel of sandstone. (Tunbridge Wells Sand Formation)
					0.60 End of trial pit at 0.60m

Remarks	

Groundwater: Water ingress noted at base of pit on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

Sheet 1 of 1

Remarks Groundwater: Water ingress from shallow soils, recorded at 0.63m depth on completion of trial pit. Stability: Trial pit stable on completion. Notes: n/a	Excavation Method: HDP
	Pit Length: 0.30m
	Pit Width: 0.30m
	Made By: TM

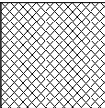
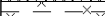
**Job Number:** P16924

Start Date: 26/11/2024

End Date: 27/11/2024

Trial Pit Number: **TP06**

Sheet 1 of 1

Samples and In Situ Testing				Legend	Depth/ Reduced Level	Stratum Description
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result			
					0.00	Topsoil over, SUBSOIL: Grey brown and orange brown slightly sandy silty clay.
					0.35	Orange brown and grey brown mottled slightly sandy silty CLAY with occasional gravel of sandstone. (Tunbridge Wells Sand Formation)
					0.40	End of trial pit at 0.40m

Remarks	

Groundwater: Trial pit dry on completion.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

E-mail: contact@ashdownsi.co.uk
Web: www.ashdownsi.co.uk
Tel: 01273 483119

Site Name: Plummerden Lodge, Lindfield, West Sussex

Job Number: P16924

Start Date: 26/11/2024

End Date: 27/11/2024

Trial Pit Number: TP07

Sheet 1 of 1

Samples and In Situ Testing					
Sample/ Test Type	Depth From (m)	Depth To (m)	Test Result	Legend	Stratum Description
					0.00 Topsoil over, SUBSOIL: Grey brown and orange brown slightly sandy silty clay.
					0.35 Orange brown and grey brown mottled slightly sandy silty CLAY with occasional gravel of sandstone. (Tunbridge Wells Sand Formation)
					0.70 End of trial pit at 0.70m

Remarks

Groundwater: Water ingress recorded at 0.45m depth on completion of trial pit.

Stability: Trial pit stable on completion.

Notes: n/a

Excavation Method: HDP

Pit Length: 0.30m

Pit Width: 0.30m

Made By: TM

Deep Bore Soakaway Testing

HYDROSERVE DRILLING

Drillers Log Sheet

Project Number: HYDRO260126		Sheet Number: 1/1		Client: Tony Kidds		Borehole No: SA01	
Project Address: Plumbberton House, RH162QS				Drilling Contractor: Hydrosolve Drilling		Drill Rig Type: Cable Percussive	
Drill Crew	Lead: Luke Holden	Date	Started: 17-01-26	Bit Type: 7-3/4 Cross Chisel	Diameter: 8 inch		
	2 nd : Sam R		Completed: 25-01-26	Hammer Type: N/A	Hammer Drop: N/A		
	RMT: N/A		Backfilled: soak install, sealed – 25-01-26	Hammer Weight: N/A	Total Depth of Borehole: 10m		
Logged by Luke Holden Consulted by T Holden		Groundwater Depth: N/A		Elevation: 85m		Test Pump result (M ² -h) N/A	
Depth (m)	In Situ Test result	<u>Lithology</u> <u>Soil Group Name</u> : modifier, colour, moisture, density/consistency, grain, size and other descriptors <u>Rock description</u> : colour, hardness/degree of concentration, bedding and joint characteristics, solutions and void conditions.					
0-0.6	N/A	Very soft Dark brown silty topsoil. Stubber used with 8ft sinkerbar.					
0.5-1.2	HP-2.5	Soft light brown/yellow, silty clay. Stubber used with 8ft sinkerbar. Surface casing installed to 1.2m.					
		Switched to 8-inch cross chisel, continuously adding drilling water, Shelling out every 1.5m.					
1.2-6.4		Medium to Hard Siltstone, Occasional iron deposit.					
6.4-7.5		Hard sandstone. Drilling water completely depleted 7.5m, and a degree of collapse was observed, 8-inch casing surged down to base, still struggling to hold a head of water until 8m where casing was successful in doing so, allowing chiselling to continue on to target depth.					
10		Complete. 7m 6inch, 2mm slotted well screen and 3m of plain pipe were installed in SA01, slotted packed with 10mm pea beach, plain sealed with bentonite.					

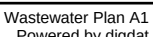
Model	Trenchman 400A
Manual / Auto	A
Outlet/ mm	50
Kw	0.4
Volt	110/230
Flow ltr/min	220
Head /m	12
Free Passage e	15
W x L x H /mm	243 x 211 x 352
Weight /Kg	13.5





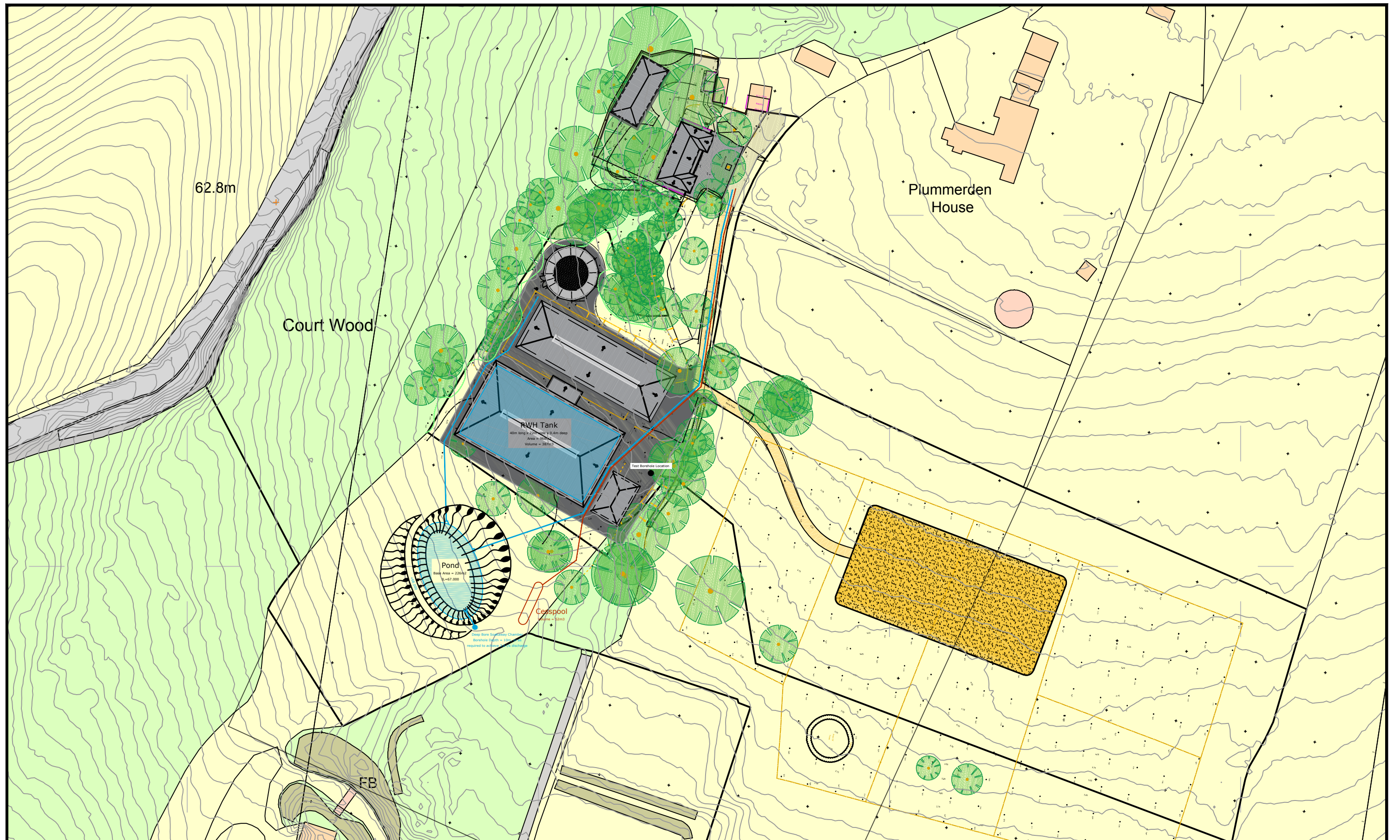
APPENDIX C

Southern Water Sewer Records



APPENDIX D

241875-DS-01 – Proposed Drainage Strategy



Plummerden House
Park Lane, Lindfield

Proposed Drainage Strategy

LANMOR Consulting
Civil Engineers & Transport Planning

Thorogood House, 34 Tolworth Close, Surbiton, Surrey, KT6 7EW

Telephone: 0208 339 7899 Fax: 0208 339 7898

E-mail: info@lanmor.co.uk

www.lanmor.co.uk

SCALE 1:1000

DRAWN BY RS

PRJ No. 241875

DWG No. 241875-DS-01 Rev C

APPENDIX E

MicroDrainage Calculations

Lanmor Consulting Ltd		Page 1
Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Plummerden House Park Lane Lindfield	
Date February 2026 File POND.SRCX	Designed by RS Checked by KBL	
XP Solutions	Source Control 2015.1	

Summary of Results for 1 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	67.052	0.052	1.9	12.0	O K
30 min Summer	67.065	0.065	2.3	15.2	O K
60 min Summer	67.076	0.076	2.7	17.8	O K
120 min Summer	67.084	0.084	3.0	19.9	O K
180 min Summer	67.088	0.088	3.2	20.7	O K
240 min Summer	67.088	0.088	3.2	20.9	O K
360 min Summer	67.086	0.086	3.1	20.4	O K
480 min Summer	67.083	0.083	3.0	19.7	O K
600 min Summer	67.080	0.080	2.9	18.9	O K
720 min Summer	67.077	0.077	2.8	18.1	O K
960 min Summer	67.071	0.071	2.6	16.8	O K
1440 min Summer	67.062	0.062	2.2	14.6	O K
2160 min Summer	67.053	0.053	1.9	12.3	O K
2880 min Summer	67.046	0.046	1.7	10.8	O K
4320 min Summer	67.038	0.038	1.4	8.7	O K
5760 min Summer	67.032	0.032	1.2	7.4	O K
7200 min Summer	67.028	0.028	1.0	6.5	O K
8640 min Summer	67.025	0.025	0.9	5.8	O K
10080 min Summer	67.023	0.023	0.8	5.3	O K
15 min Winter	67.058	0.058	2.1	13.5	O K
30 min Winter	67.073	0.073	2.6	17.1	O K
60 min Winter	67.085	0.085	3.1	20.0	O K
120 min Winter	67.093	0.093	3.4	22.1	O K
180 min Winter	67.095	0.095	3.4	22.5	O K
240 min Winter	67.094	0.094	3.4	22.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	28.988	0.0	12.9	18
30 min Summer	19.483	0.0	17.4	31
60 min Summer	12.800	0.0	22.9	52
120 min Summer	8.268	0.0	29.7	84
180 min Summer	6.381	0.0	34.3	118
240 min Summer	5.291	0.0	38.0	152
360 min Summer	4.033	0.0	43.4	220
480 min Summer	3.327	0.0	47.8	284
600 min Summer	2.866	0.0	51.5	350
720 min Summer	2.537	0.0	54.7	412
960 min Summer	2.094	0.0	60.2	538
1440 min Summer	1.597	0.0	68.9	780
2160 min Summer	1.217	0.0	78.8	1148
2880 min Summer	1.005	0.0	86.7	1504
4320 min Summer	0.767	0.0	99.3	2244
5760 min Summer	0.632	0.0	109.0	2944
7200 min Summer	0.543	0.0	117.1	3680
8640 min Summer	0.479	0.0	124.1	4408
10080 min Summer	0.432	0.0	130.4	5144
15 min Winter	28.988	0.0	14.5	17
30 min Winter	19.483	0.0	19.5	31
60 min Winter	12.800	0.0	25.7	56
120 min Winter	8.268	0.0	33.2	90
180 min Winter	6.381	0.0	38.5	128
240 min Winter	5.291	0.0	42.5	164

Lanmor Consulting Ltd		Page 2
Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Plummerden House Park Lane Lindfield	
Date February 2026 File POND.SRCX	Designed by RS Checked by KBL	
XP Solutions	Source Control 2015.1	

Summary of Results for 1 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
360 min Winter	67.089	0.089	3.2	21.1	O K
480 min Winter	67.084	0.084	3.0	19.8	O K
600 min Winter	67.079	0.079	2.8	18.6	O K
720 min Winter	67.074	0.074	2.7	17.4	O K
960 min Winter	67.067	0.067	2.4	15.6	O K
1440 min Winter	67.055	0.055	2.0	12.8	O K
2160 min Winter	67.045	0.045	1.6	10.3	O K
2880 min Winter	67.038	0.038	1.4	8.7	O K
4320 min Winter	67.029	0.029	1.1	6.8	O K
5760 min Winter	67.025	0.025	0.9	5.6	O K
7200 min Winter	67.021	0.021	0.8	4.8	O K
8640 min Winter	67.019	0.019	0.7	4.3	O K
10080 min Winter	67.017	0.017	0.6	3.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
360 min Winter	4.033	0.0	48.7	232
480 min Winter	3.327	0.0	53.5	300
600 min Winter	2.866	0.0	57.7	366
720 min Winter	2.537	0.0	61.3	430
960 min Winter	2.094	0.0	67.4	558
1440 min Winter	1.597	0.0	77.2	808
2160 min Winter	1.217	0.0	88.2	1168
2880 min Winter	1.005	0.0	97.1	1528
4320 min Winter	0.767	0.0	111.3	2252
5760 min Winter	0.632	0.0	122.2	2992
7200 min Winter	0.543	0.0	131.1	3672
8640 min Winter	0.479	0.0	139.0	4408
10080 min Winter	0.432	0.0	146.0	5152

Lanmor Consulting Ltd		Page 3
Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Plummerden House Park Lane Lindfield	
Date February 2026 File POND.SRCX	Designed by RS Checked by KBL	
XP Solutions		Source Control 2015.1

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	1	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.327	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.240

Time (mins)	Area
From:	To: (ha)

0	4 0.240
---	---------

Lanmor Consulting Ltd		Page 4
Thorogood House 34 Tolworth Close Surbition Surrey KT6 7EW	Plummerden House Park Lane Lindfield	
Date February 2026 File POND.SRCX	Designed by RS Checked by KBL	
XP Solutions	Source Control 2015.1	

Model Details

Storage is Online Cover Level (m) 68.000

Tank or Pond Structure

Invert Level (m) 67.000

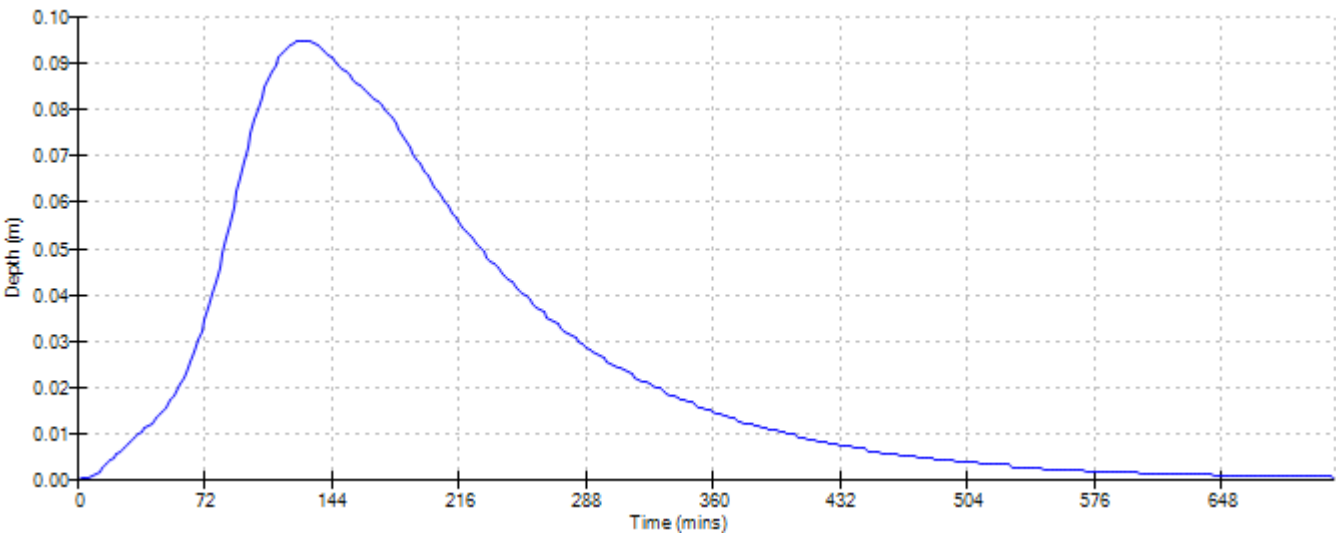
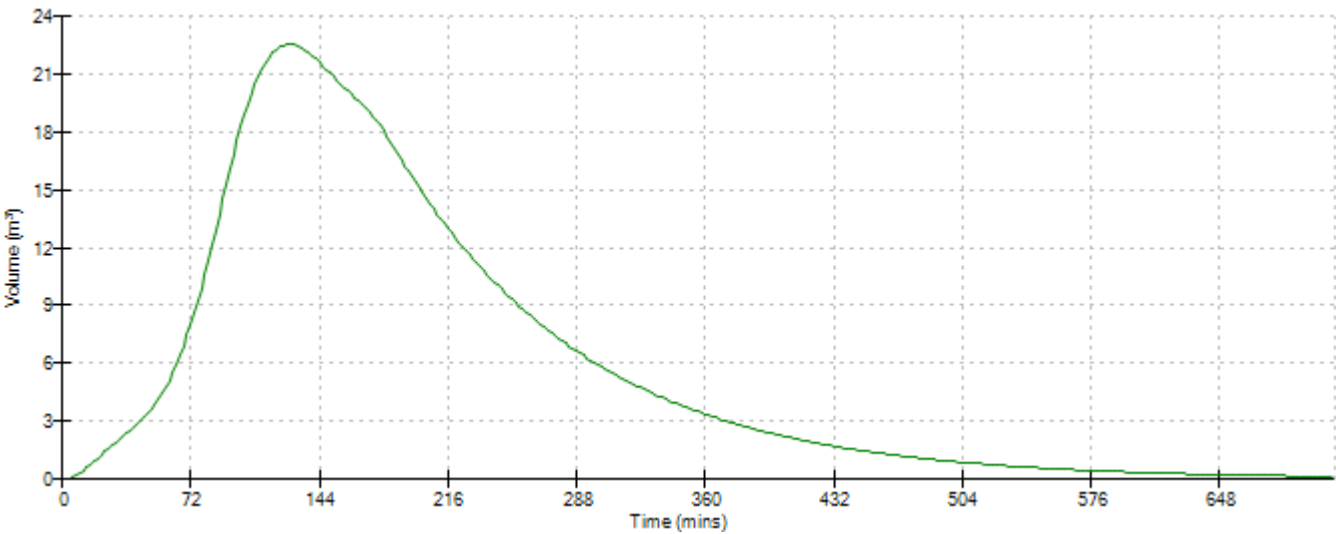
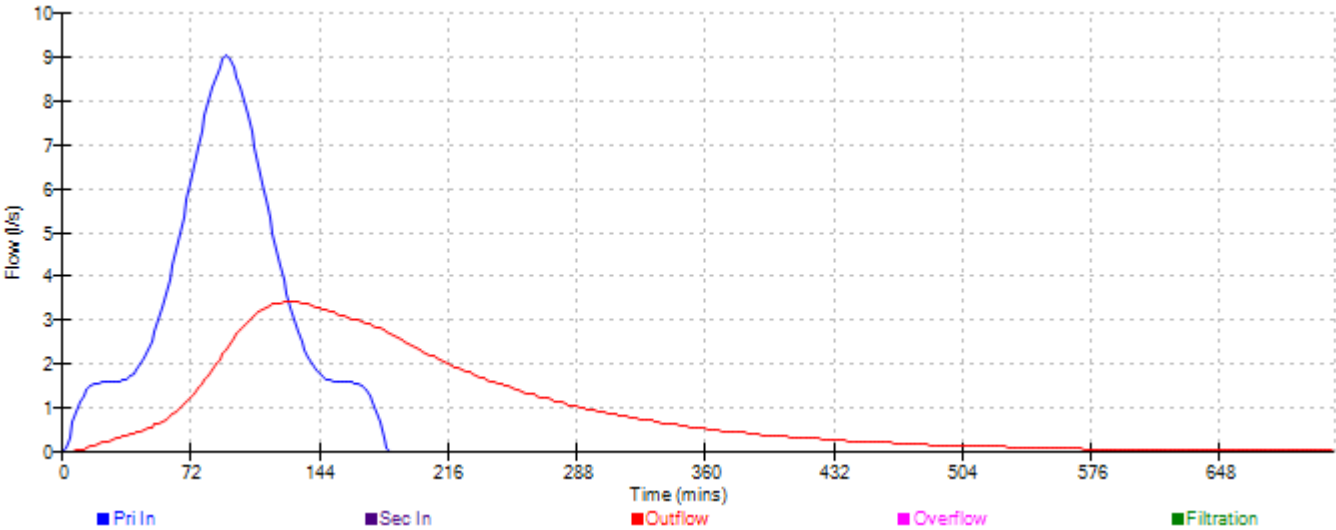
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	226.2	0.300	300.5	0.600	383.8	0.900	476.2
0.100	249.9	0.400	327.2	0.700	413.6	1.000	509.0
0.200	274.7	0.500	355.0	0.800	444.4		

Depth/Flow Relationship Outflow Control

Invert Level (m) 67.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6000	0.700	3.6000	1.300	3.6000	1.900	3.6000	2.500	3.6000
0.200	3.6000	0.800	3.6000	1.400	3.6000	2.000	3.6000	2.600	3.6000
0.300	3.6000	0.900	3.6000	1.500	3.6000	2.100	3.6000	2.700	3.6000
0.400	3.6000	1.000	3.6000	1.600	3.6000	2.200	3.6000	2.800	3.6000
0.500	3.6000	1.100	3.6000	1.700	3.6000	2.300	3.6000	2.900	3.6000
0.600	3.6000	1.200	3.6000	1.800	3.6000	2.400	3.6000	3.000	3.6000

Event: 180 min Winter



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XP Solutions	Source Control 2015.1	

Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	67.124	0.124	3.6	29.8	O K
30 min Summer	67.158	0.158	3.6	38.7	O K
60 min Summer	67.188	0.188	3.6	46.8	O K
120 min Summer	67.207	0.207	3.6	52.0	O K
180 min Summer	67.212	0.212	3.6	53.4	O K
240 min Summer	67.213	0.213	3.6	53.6	O K
360 min Summer	67.209	0.209	3.6	52.6	O K
480 min Summer	67.202	0.202	3.6	50.6	O K
600 min Summer	67.193	0.193	3.6	48.2	O K
720 min Summer	67.184	0.184	3.6	45.7	O K
960 min Summer	67.166	0.166	3.6	40.7	O K
1440 min Summer	67.133	0.133	3.6	32.1	O K
2160 min Summer	67.101	0.101	3.6	23.9	O K
2880 min Summer	67.086	0.086	3.1	20.3	O K
4320 min Summer	67.068	0.068	2.4	15.9	O K
5760 min Summer	67.057	0.057	2.0	13.2	O K
7200 min Summer	67.049	0.049	1.8	11.4	O K
8640 min Summer	67.043	0.043	1.6	10.0	O K
10080 min Summer	67.039	0.039	1.4	9.0	O K
15 min Winter	67.138	0.138	3.6	33.5	O K
30 min Winter	67.177	0.177	3.6	43.8	O K
60 min Winter	67.212	0.212	3.6	53.3	O K
120 min Winter	67.235	0.235	3.6	59.9	O K
180 min Winter	67.239	0.239	3.6	60.8	O K
240 min Winter	67.238	0.238	3.6	60.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	71.031	0.0	31.9	18
30 min Summer	47.794	0.0	42.9	32
60 min Summer	30.811	0.0	55.3	62
120 min Summer	19.253	0.0	69.2	110
180 min Summer	14.436	0.0	77.8	140
240 min Summer	11.721	0.0	84.3	174
360 min Summer	8.736	0.0	94.2	242
480 min Summer	7.081	0.0	101.9	310
600 min Summer	6.013	0.0	108.1	380
720 min Summer	5.258	0.0	113.5	444
960 min Summer	4.252	0.0	122.3	576
1440 min Summer	3.148	0.0	135.9	812
2160 min Summer	2.326	0.0	150.6	1148
2880 min Summer	1.875	0.0	161.9	1504
4320 min Summer	1.382	0.0	179.0	2244
5760 min Summer	1.113	0.0	192.3	2944
7200 min Summer	0.942	0.0	203.3	3680
8640 min Summer	0.822	0.0	212.9	4408
10080 min Summer	0.732	0.0	221.2	5144
15 min Winter	71.031	0.0	35.7	18
30 min Winter	47.794	0.0	48.1	32
60 min Winter	30.811	0.0	62.0	60
120 min Winter	19.253	0.0	77.5	116
180 min Winter	14.436	0.0	87.2	154
240 min Winter	11.721	0.0	94.4	188

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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
360 min Winter	67.231	0.231	3.6	58.6	O K
480 min Winter	67.219	0.219	3.6	55.2	O K
600 min Winter	67.204	0.204	3.6	51.2	O K
720 min Winter	67.189	0.189	3.6	47.1	O K
960 min Winter	67.160	0.160	3.6	39.3	O K
1440 min Winter	67.113	0.113	3.6	27.0	O K
2160 min Winter	67.085	0.085	3.1	20.0	O K
2880 min Winter	67.070	0.070	2.5	16.4	O K
4320 min Winter	67.053	0.053	1.9	12.3	O K
5760 min Winter	67.043	0.043	1.6	10.0	O K
7200 min Winter	67.037	0.037	1.3	8.4	O K
8640 min Winter	67.032	0.032	1.2	7.4	O K
10080 min Winter	67.029	0.029	1.0	6.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
360 min Winter	8.736	0.0	105.6	264
480 min Winter	7.081	0.0	114.1	338
600 min Winter	6.013	0.0	121.1	410
720 min Winter	5.258	0.0	127.1	478
960 min Winter	4.252	0.0	137.0	608
1440 min Winter	3.148	0.0	152.2	836
2160 min Winter	2.326	0.0	168.7	1168
2880 min Winter	1.875	0.0	181.3	1528
4320 min Winter	1.382	0.0	200.5	2248
5760 min Winter	1.113	0.0	215.4	2952
7200 min Winter	0.942	0.0	227.7	3680
8640 min Winter	0.822	0.0	238.4	4408
10080 min Winter	0.732	0.0	247.8	5136

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.327	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.240

Time (mins)	Area
From:	To: (ha)

0	4	0.240
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Model Details

Storage is Online Cover Level (m) 68.000

Tank or Pond Structure

Invert Level (m) 67.000

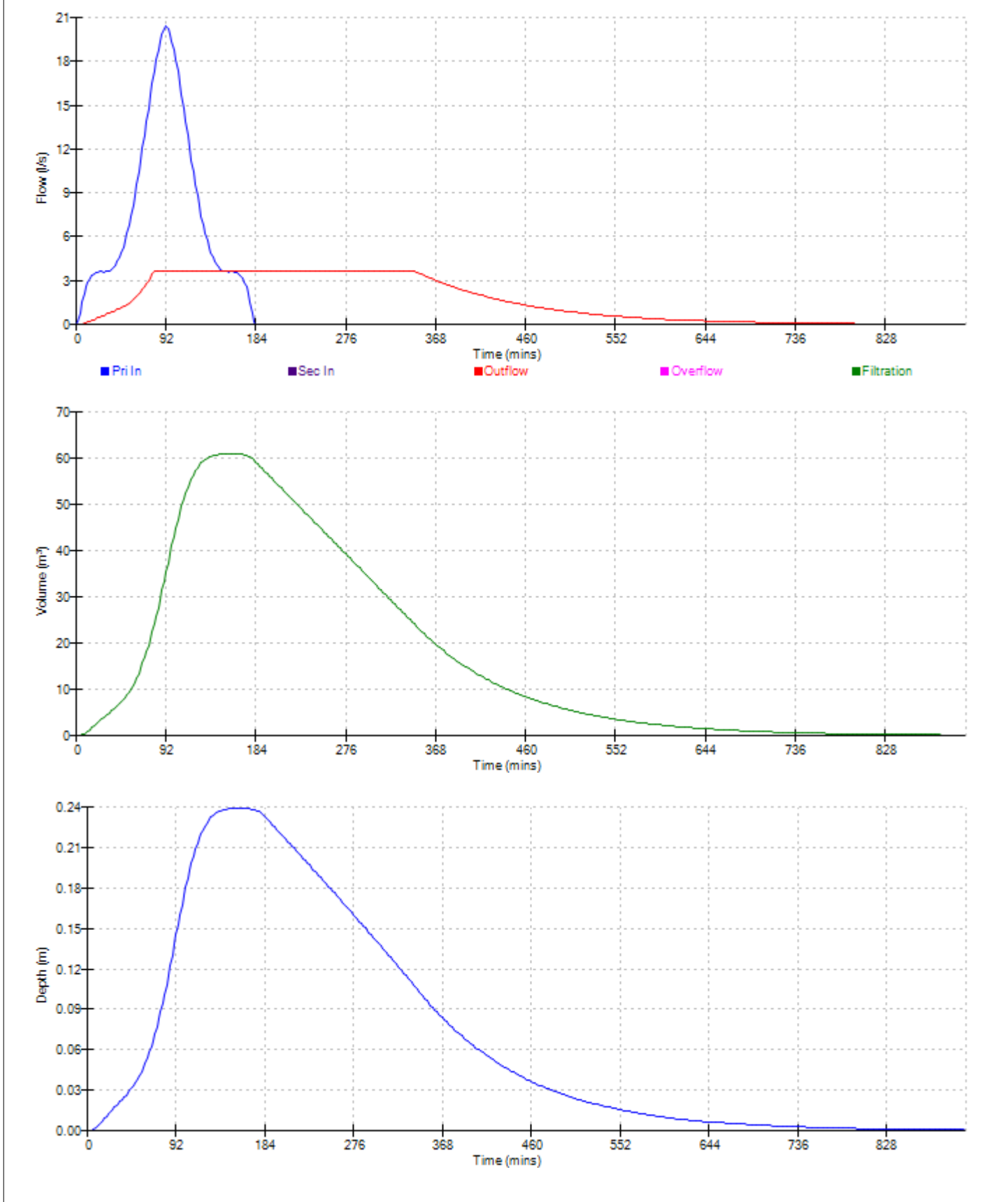
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	226.2	0.300	300.5	0.600	383.8	0.900	476.2
0.100	249.9	0.400	327.2	0.700	413.6	1.000	509.0
0.200	274.7	0.500	355.0	0.800	444.4		

Depth/Flow Relationship Outflow Control

Invert Level (m) 67.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6000	0.700	3.6000	1.300	3.6000	1.900	3.6000	2.500	3.6000
0.200	3.6000	0.800	3.6000	1.400	3.6000	2.000	3.6000	2.600	3.6000
0.300	3.6000	0.900	3.6000	1.500	3.6000	2.100	3.6000	2.700	3.6000
0.400	3.6000	1.000	3.6000	1.600	3.6000	2.200	3.6000	2.800	3.6000
0.500	3.6000	1.100	3.6000	1.700	3.6000	2.300	3.6000	2.900	3.6000
0.600	3.6000	1.200	3.6000	1.800	3.6000	2.400	3.6000	3.000	3.6000

Event: 180 min Winter



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XP Solutions	Source Control 2015.1	

Summary of Results for 30 year Return Period (+35%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	67.166	0.166	3.6	40.7	O K
30 min Summer	67.212	0.212	3.6	53.4	O K
60 min Summer	67.255	0.255	3.6	65.6	O K
120 min Summer	67.287	0.287	3.6	74.9	O K
180 min Summer	67.295	0.295	3.6	77.3	O K
240 min Summer	67.297	0.297	3.6	77.9	O K
360 min Summer	67.296	0.296	3.6	77.6	O K
480 min Summer	67.291	0.291	3.6	76.0	O K
600 min Summer	67.283	0.283	3.6	73.6	O K
720 min Summer	67.274	0.274	3.6	71.0	O K
960 min Summer	67.255	0.255	3.6	65.4	O K
1440 min Summer	67.216	0.216	3.6	54.5	O K
2160 min Summer	67.165	0.165	3.6	40.6	O K
2880 min Summer	67.127	0.127	3.6	30.6	O K
4320 min Summer	67.091	0.091	3.3	21.6	O K
5760 min Summer	67.076	0.076	2.7	17.9	O K
7200 min Summer	67.066	0.066	2.4	15.4	O K
8640 min Summer	67.058	0.058	2.1	13.6	O K
10080 min Summer	67.053	0.053	1.9	12.2	O K
15 min Winter	67.185	0.185	3.6	45.9	O K
30 min Winter	67.237	0.237	3.6	60.3	O K
60 min Winter	67.285	0.285	3.6	74.4	O K
120 min Winter	67.323	0.323	3.6	85.8	O K
180 min Winter	67.334	0.334	3.6	89.3	O K
240 min Winter	67.336	0.336	3.6	89.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	95.892	0.0	43.0	18
30 min Summer	64.522	0.0	58.0	33
60 min Summer	41.595	0.0	74.8	62
120 min Summer	25.992	0.0	93.5	120
180 min Summer	19.488	0.0	105.1	164
240 min Summer	15.823	0.0	113.8	194
360 min Summer	11.794	0.0	127.3	260
480 min Summer	9.560	0.0	137.5	328
600 min Summer	8.117	0.0	146.0	398
720 min Summer	7.098	0.0	153.2	464
960 min Summer	5.740	0.0	165.2	598
1440 min Summer	4.249	0.0	183.5	864
2160 min Summer	3.140	0.0	203.4	1216
2880 min Summer	2.531	0.0	218.6	1556
4320 min Summer	1.866	0.0	241.7	2244
5760 min Summer	1.503	0.0	259.6	2944
7200 min Summer	1.272	0.0	274.5	3680
8640 min Summer	1.109	0.0	287.4	4408
10080 min Summer	0.988	0.0	298.7	5144
15 min Winter	95.892	0.0	48.2	18
30 min Winter	64.522	0.0	64.9	32
60 min Winter	41.595	0.0	83.7	60
120 min Winter	25.992	0.0	104.7	118
180 min Winter	19.488	0.0	117.8	174
240 min Winter	15.823	0.0	127.5	224

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Summary of Results for 30 year Return Period (+35%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
360 min Winter	67.332	0.332	3.6	88.5	O K
480 min Winter	67.323	0.323	3.6	85.8	O K
600 min Winter	67.311	0.311	3.6	82.0	O K
720 min Winter	67.297	0.297	3.6	77.8	O K
960 min Winter	67.266	0.266	3.6	68.7	O K
1440 min Winter	67.205	0.205	3.6	51.4	O K
2160 min Winter	67.130	0.130	3.6	31.3	O K
2880 min Winter	67.095	0.095	3.4	22.4	O K
4320 min Winter	67.072	0.072	2.6	16.8	O K
5760 min Winter	67.058	0.058	2.1	13.5	O K
7200 min Winter	67.050	0.050	1.8	11.5	O K
8640 min Winter	67.043	0.043	1.6	10.0	O K
10080 min Winter	67.039	0.039	1.4	8.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
360 min Winter	11.794	0.0	142.5	280
480 min Winter	9.560	0.0	154.1	358
600 min Winter	8.117	0.0	163.5	434
720 min Winter	7.098	0.0	171.6	506
960 min Winter	5.740	0.0	185.0	648
1440 min Winter	4.249	0.0	205.5	910
2160 min Winter	3.140	0.0	227.8	1252
2880 min Winter	2.531	0.0	244.8	1528
4320 min Winter	1.866	0.0	270.7	2248
5760 min Winter	1.503	0.0	290.8	2992
7200 min Winter	1.272	0.0	307.5	3672
8640 min Winter	1.109	0.0	321.9	4416
10080 min Winter	0.988	0.0	334.6	5144

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.327	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+35

Time Area Diagram

Total Area (ha) 0.240

Time (mins)	Area
From:	To: (ha)

0	4	0.240
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Model Details

Storage is Online Cover Level (m) 68.000

Tank or Pond Structure

Invert Level (m) 67.000

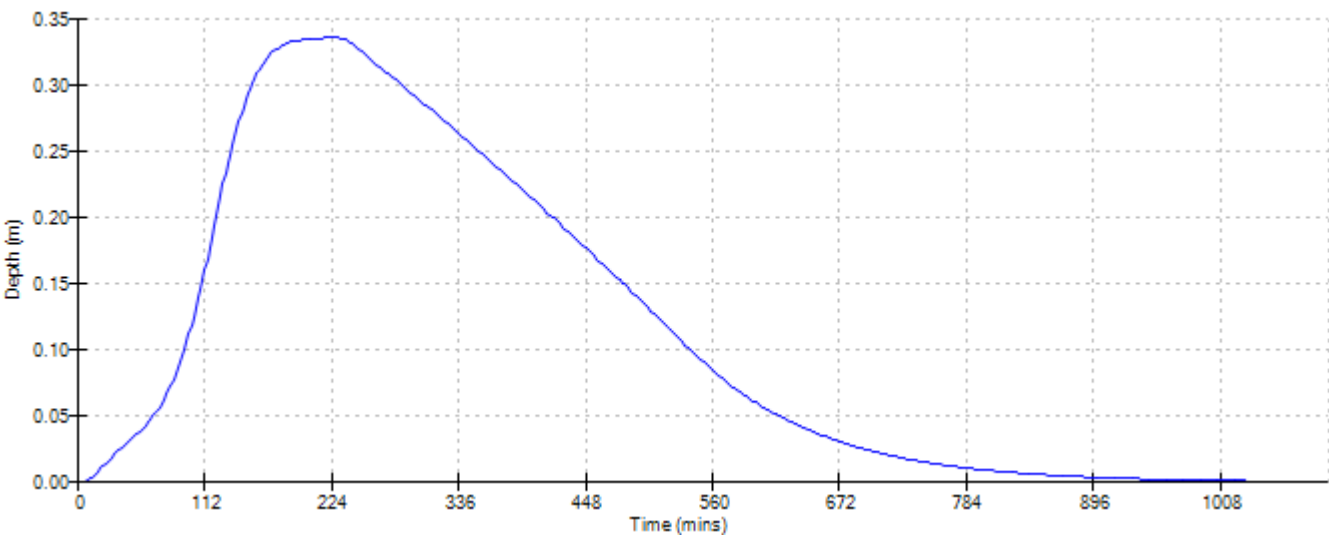
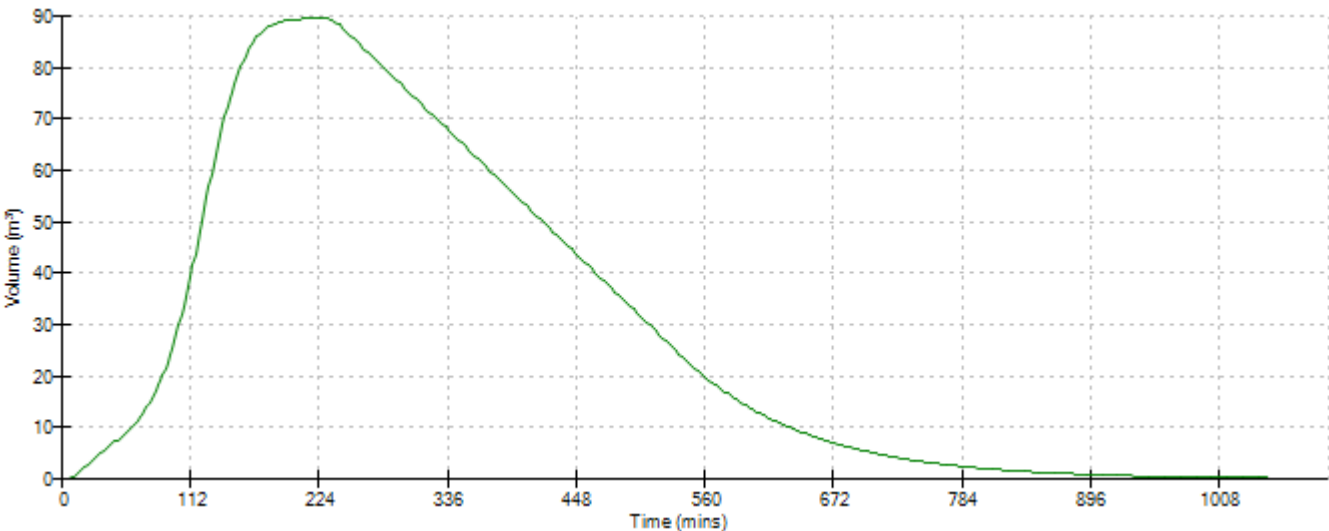
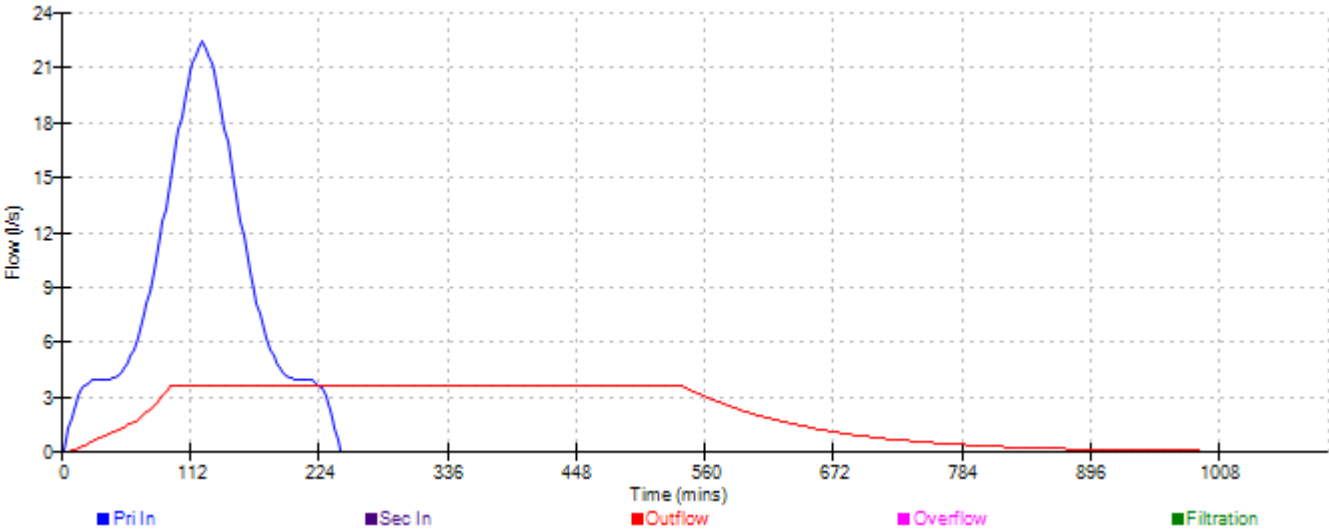
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	226.2	0.300	300.5	0.600	383.8	0.900	476.2
0.100	249.9	0.400	327.2	0.700	413.6	1.000	509.0
0.200	274.7	0.500	355.0	0.800	444.4		

Depth/Flow Relationship Outflow Control

Invert Level (m) 67.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6000	0.700	3.6000	1.300	3.6000	1.900	3.6000	2.500	3.6000
0.200	3.6000	0.800	3.6000	1.400	3.6000	2.000	3.6000	2.600	3.6000
0.300	3.6000	0.900	3.6000	1.500	3.6000	2.100	3.6000	2.700	3.6000
0.400	3.6000	1.000	3.6000	1.600	3.6000	2.200	3.6000	2.800	3.6000
0.500	3.6000	1.100	3.6000	1.700	3.6000	2.300	3.6000	2.900	3.6000
0.600	3.6000	1.200	3.6000	1.800	3.6000	2.400	3.6000	3.000	3.6000

Event: 240 min Winter



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Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	67.159	0.159	3.6	39.0	O K
30 min Summer	67.206	0.206	3.6	51.6	O K
60 min Summer	67.249	0.249	3.6	63.7	O K
120 min Summer	67.279	0.279	3.6	72.4	O K
180 min Summer	67.284	0.284	3.6	74.1	O K
240 min Summer	67.285	0.285	3.6	74.2	O K
360 min Summer	67.281	0.281	3.6	73.2	O K
480 min Summer	67.274	0.274	3.6	70.9	O K
600 min Summer	67.264	0.264	3.6	68.2	O K
720 min Summer	67.254	0.254	3.6	65.2	O K
960 min Summer	67.233	0.233	3.6	59.1	O K
1440 min Summer	67.192	0.192	3.6	47.8	O K
2160 min Summer	67.142	0.142	3.6	34.4	O K
2880 min Summer	67.108	0.108	3.6	25.8	O K
4320 min Summer	67.082	0.082	3.0	19.4	O K
5760 min Summer	67.068	0.068	2.5	16.0	O K
7200 min Summer	67.059	0.059	2.1	13.7	O K
8640 min Summer	67.052	0.052	1.9	12.0	O K
10080 min Summer	67.046	0.046	1.7	10.7	O K
15 min Winter	67.178	0.178	3.6	43.9	O K
30 min Winter	67.230	0.230	3.6	58.3	O K
60 min Winter	67.278	0.278	3.6	72.2	O K
120 min Winter	67.314	0.314	3.6	83.0	O K
180 min Winter	67.323	0.323	3.6	85.6	O K
240 min Winter	67.321	0.321	3.6	85.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	91.965	0.0	41.3	18
30 min Summer	62.496	0.0	56.1	33
60 min Summer	40.510	0.0	72.8	62
120 min Summer	25.280	0.0	91.0	120
180 min Summer	18.851	0.0	101.7	160
240 min Summer	15.223	0.0	109.5	192
360 min Summer	11.268	0.0	121.6	256
480 min Summer	9.086	0.0	130.7	324
600 min Summer	7.682	0.0	138.2	392
720 min Summer	6.693	0.0	144.4	462
960 min Summer	5.379	0.0	154.8	596
1440 min Summer	3.945	0.0	170.3	850
2160 min Summer	2.885	0.0	186.9	1208
2880 min Summer	2.308	0.0	199.3	1528
4320 min Summer	1.681	0.0	217.8	2244
5760 min Summer	1.344	0.0	232.1	2944
7200 min Summer	1.130	0.0	244.0	3680
8640 min Summer	0.981	0.0	254.1	4408
10080 min Summer	0.870	0.0	263.1	5144
15 min Winter	91.965	0.0	46.2	18
30 min Winter	62.496	0.0	62.9	32
60 min Winter	40.510	0.0	81.6	60
120 min Winter	25.280	0.0	101.8	118
180 min Winter	18.851	0.0	113.9	172
240 min Winter	15.223	0.0	122.6	222

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Summary of Results for 100 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
360 min Winter	67.315	0.315	3.6	83.2	O K
480 min Winter	67.303	0.303	3.6	79.7	O K
600 min Winter	67.289	0.289	3.6	75.4	O K
720 min Winter	67.273	0.273	3.6	70.7	O K
960 min Winter	67.240	0.240	3.6	61.1	O K
1440 min Winter	67.176	0.176	3.6	43.6	O K
2160 min Winter	67.108	0.108	3.6	25.8	O K
2880 min Winter	67.086	0.086	3.1	20.4	O K
4320 min Winter	67.064	0.064	2.3	15.1	O K
5760 min Winter	67.052	0.052	1.9	12.1	O K
7200 min Winter	67.044	0.044	1.6	10.2	O K
8640 min Winter	67.038	0.038	1.4	8.8	O K
10080 min Winter	67.034	0.034	1.2	7.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
360 min Winter	11.268	0.0	136.2	278
480 min Winter	9.086	0.0	146.4	354
600 min Winter	7.682	0.0	154.7	428
720 min Winter	6.693	0.0	161.8	502
960 min Winter	5.379	0.0	173.4	642
1440 min Winter	3.945	0.0	190.7	894
2160 min Winter	2.885	0.0	209.3	1208
2880 min Winter	2.308	0.0	223.2	1532
4320 min Winter	1.681	0.0	243.9	2252
5760 min Winter	1.344	0.0	260.0	2984
7200 min Winter	1.130	0.0	273.2	3680
8640 min Winter	0.981	0.0	284.6	4416
10080 min Winter	0.870	0.0	294.7	5088

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XP Solutions Source Control 2015.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.327	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.240

Time (mins)	Area
From:	To: (ha)

0	4	0.240
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Model Details

Storage is Online Cover Level (m) 68.000

Tank or Pond Structure

Invert Level (m) 67.000

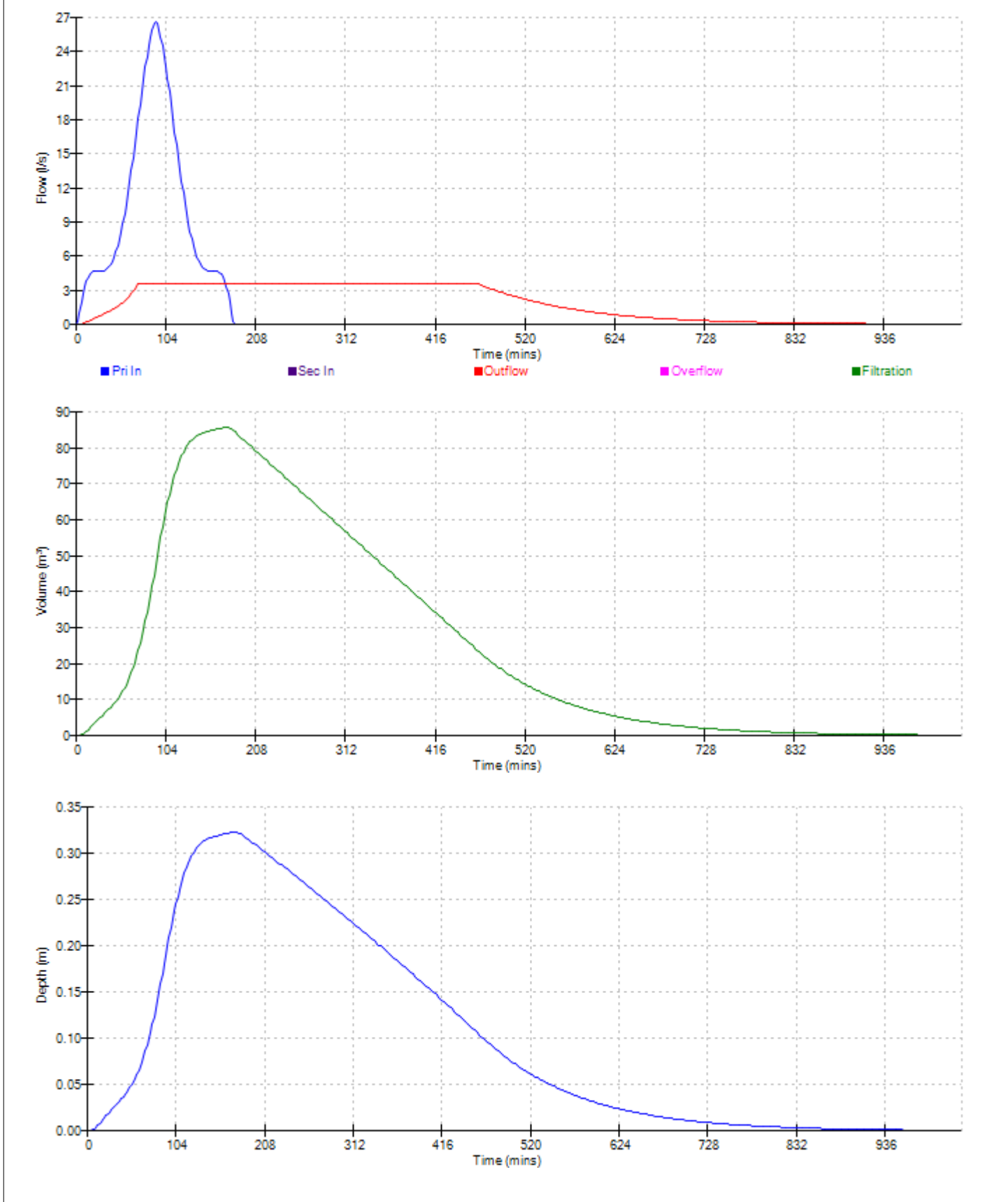
Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	226.2	0.300	300.5	0.600	383.8	0.900	476.2
0.100	249.9	0.400	327.2	0.700	413.6	1.000	509.0
0.200	274.7	0.500	355.0	0.800	444.4		

Depth/Flow Relationship Outflow Control

Invert Level (m) 67.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6000	0.700	3.6000	1.300	3.6000	1.900	3.6000	2.500	3.6000
0.200	3.6000	0.800	3.6000	1.400	3.6000	2.000	3.6000	2.600	3.6000
0.300	3.6000	0.900	3.6000	1.500	3.6000	2.100	3.6000	2.700	3.6000
0.400	3.6000	1.000	3.6000	1.600	3.6000	2.200	3.6000	2.800	3.6000
0.500	3.6000	1.100	3.6000	1.700	3.6000	2.300	3.6000	2.900	3.6000
0.600	3.6000	1.200	3.6000	1.800	3.6000	2.400	3.6000	3.000	3.6000

Event: 180 min Winter



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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
15 min Summer	67.226	0.226	3.6	57.4	O K
30 min Summer	67.293	0.293	3.6	76.6	O K
60 min Summer	67.355	0.355	3.6	95.7	O K
120 min Summer	67.405	0.405	3.6	111.8	O K
180 min Summer	67.421	0.421	3.6	117.2	O K
240 min Summer	67.425	0.425	3.6	118.4	O K
360 min Summer	67.424	0.424	3.6	118.1	O K
480 min Summer	67.419	0.419	3.6	116.3	O K
600 min Summer	67.411	0.411	3.6	113.7	O K
720 min Summer	67.402	0.402	3.6	110.8	O K
960 min Summer	67.382	0.382	3.6	104.3	O K
1440 min Summer	67.339	0.339	3.6	90.8	O K
2160 min Summer	67.277	0.277	3.6	72.0	O K
2880 min Summer	67.222	0.222	3.6	56.1	O K
4320 min Summer	67.139	0.139	3.6	33.6	O K
5760 min Summer	67.099	0.099	3.6	23.4	O K
7200 min Summer	67.085	0.085	3.1	20.1	O K
8640 min Summer	67.075	0.075	2.7	17.6	O K
10080 min Summer	67.067	0.067	2.4	15.7	O K
15 min Winter	67.252	0.252	3.6	64.5	O K
30 min Winter	67.325	0.325	3.6	86.2	O K
60 min Winter	67.394	0.394	3.6	108.3	O K
120 min Winter	67.452	0.452	3.6	127.4	O K
180 min Winter	67.473	0.473	3.6	134.7	O K
240 min Winter	67.480	0.480	3.6	137.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	133.350	0.0	59.9	18
30 min Summer	90.619	0.0	81.4	33
60 min Summer	58.739	0.0	105.6	62
120 min Summer	36.656	0.0	131.8	122
180 min Summer	27.334	0.0	147.5	180
240 min Summer	22.073	0.0	158.8	240
360 min Summer	16.339	0.0	176.3	296
480 min Summer	13.175	0.0	189.6	358
600 min Summer	11.138	0.0	200.4	424
720 min Summer	9.704	0.0	209.5	492
960 min Summer	7.799	0.0	224.5	628
1440 min Summer	5.720	0.0	247.0	896
2160 min Summer	4.184	0.0	271.0	1280
2880 min Summer	3.347	0.0	289.0	1644
4320 min Summer	2.438	0.0	315.8	2332
5760 min Summer	1.948	0.0	336.6	2944
7200 min Summer	1.638	0.0	353.8	3680
8640 min Summer	1.422	0.0	368.5	4408
10080 min Summer	1.262	0.0	381.5	5144
15 min Winter	133.350	0.0	67.1	18
30 min Winter	90.619	0.0	91.2	33
60 min Winter	58.739	0.0	118.3	62
120 min Winter	36.656	0.0	147.7	120
180 min Winter	27.334	0.0	165.2	176
240 min Winter	22.073	0.0	177.9	232

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
360 min Winter	67.480	0.480	3.6	137.1	O K
480 min Winter	67.471	0.471	3.6	134.0	O K
600 min Winter	67.461	0.461	3.6	130.5	O K
720 min Winter	67.448	0.448	3.6	126.1	O K
960 min Winter	67.418	0.418	3.6	116.2	O K
1440 min Winter	67.353	0.353	3.6	95.2	O K
2160 min Winter	67.257	0.257	3.6	66.2	O K
2880 min Winter	67.174	0.174	3.6	43.0	O K
4320 min Winter	67.093	0.093	3.4	22.1	O K
5760 min Winter	67.075	0.075	2.7	17.7	O K
7200 min Winter	67.064	0.064	2.3	14.9	O K
8640 min Winter	67.056	0.056	2.0	12.9	O K
10080 min Winter	67.049	0.049	1.8	11.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
360 min Winter	16.339	0.0	197.5	338
480 min Winter	13.175	0.0	212.4	384
600 min Winter	11.138	0.0	224.4	458
720 min Winter	9.704	0.0	234.7	536
960 min Winter	7.799	0.0	251.5	686
1440 min Winter	5.720	0.0	276.6	968
2160 min Winter	4.184	0.0	303.5	1364
2880 min Winter	3.347	0.0	323.7	1700
4320 min Winter	2.438	0.0	353.8	2252
5760 min Winter	1.948	0.0	377.0	2992
7200 min Winter	1.638	0.0	396.3	3680
8640 min Winter	1.422	0.0	412.8	4408
10080 min Winter	1.262	0.0	427.3	5144

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Rainfall Model	FSR	Winter Storms	Yes
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Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.327	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.240

Time (mins)	Area
From:	To: (ha)

0	4 0.240
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Model Details

Storage is Online Cover Level (m) 68.000

Tank or Pond Structure

Invert Level (m) 67.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
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Depth/Flow Relationship Outflow Control

Invert Level (m) 67.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6000	0.700	3.6000	1.300	3.6000	1.900	3.6000	2.500	3.6000
0.200	3.6000	0.800	3.6000	1.400	3.6000	2.000	3.6000	2.600	3.6000
0.300	3.6000	0.900	3.6000	1.500	3.6000	2.100	3.6000	2.700	3.6000
0.400	3.6000	1.000	3.6000	1.600	3.6000	2.200	3.6000	2.800	3.6000
0.500	3.6000	1.100	3.6000	1.700	3.6000	2.300	3.6000	2.900	3.6000
0.600	3.6000	1.200	3.6000	1.800	3.6000	2.400	3.6000	3.000	3.6000

Event: 240 min Winter

