



# **DRAINAGE TECHNICAL NOTE – RESPONSE TO LEAD LOCAL FLOOD AUTHORITY COMMENTS**

**PROPOSED EMPLOYMENT DEVELOPMENT  
HORSEPOOL GRANGE, STANTON UNDER BARDON**

## DOCUMENT CONTROL

| project number: ADC3968 |          |            | report reference: ADC3968-RP-H |                |
|-------------------------|----------|------------|--------------------------------|----------------|
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## 1.0 INTRODUCTION

- 1.1 This Drainage Technical Note has been produced by ADC Infrastructure, to address comments made by the Lead Local Flood Authority (LLFA) on an outline planning application (ref: 26/00423/OUT) for the development of up to 10,500sqm of employment floorspace (use class B2/B8) (all matters reserved except access)
- 1.2 This report should be read in conjunction with the previously submitted Flood Risk Assessment and Drainage Strategy report ADC3968-RP-C and the previously submitted Technical Note ADC3968-RP-D which partially address the previous LLFA comments dated 11/06/26.
- 1.3 The LLFA comments, presented in **Appendix A**, state:

### ***Comment 1 – Existing topography and Drainage – Catchment Transfer***

- The technical note has provided some initial site walkover findings that suggest there is no outfall to the ditch on the western boundary, despite the field draining in this direction. It is therefore concluded that the western ditch is not a viable outfall. The LLFA notes this conclusion. To ensure the proposed catchment transfer does not increase flood risk to the eastern catchment, surface water runoff rates should be limited to the 1 in 2-year greenfield rate of the eastern catchment only (i.e. the area to be transferred from the western catchment should not be factored into greenfield runoff calculations).

### **Comment 2 – SuDS basin location in the north**

- The existing ground levels and outline nature of the application are noted and this comment is addressed.

### **Comment 3, 4, 5 – SuDS and National Standards for Drainage Systems**

- The LLFA notes the outline strategy relating to the types of SuDS which could be utilised on this development including the constraints which prevent the use of some SuDS features.
- With permeable paving likely to face significant constraints there will be more impermeable areas on the site. There remain uncertainties over the ability of this application site to comply with Standard 2 of the National Standards for Sustainable Drainage Systems (SuDS) at Reserved Matters stage. This will be compounded by the additional storage requirements which will be required following the LLFA's response to Comment 1 (catchment transfer of surface water).
- Whilst the LLFA recognises full details of the drainage proposals can be conditioned, the applicant should provide greater assurance over the deliverability of a policy compliant drainage scheme at Reserved Matters stage based on a reduced runoff rate and therefore greater storage volume requirements due to the catchment transfer of surface water. This should also recognise that the use of permeable paving and extensive use of attenuation basins is likely to be a significant site constraint. To satisfy the LLFA's concerns, a conceptual ratio plan or calculation which demonstrates that the site has sufficient space to comply with the 1:5 ratio within Standard 2 of the National Standards for SuDS. The applicant may wish to consider the use of rainwater harvesting for non-potable use to support the proposals.
- Notwithstanding any surface water drainage details submitted under this application, as the proposals are for outline permission, no specific drainage elements are fixed at this

stage. As such, the LLFA would require that later reserved matters and detailed design fully comply with the National Standards for SuDS and to any other amended local or national policy/guidance relevant at the time of submission of those details. This includes (but is not limited to) a re-assessment of discharge rates, contributing areas, attenuation scale and the retention of the first 5mm of rainfall on-site. Any departure from the standard should be fully substantiated and agreed with the LLFA.

## 2.0 RESPONSE TO LLFA COMMENTS

### Comment 1 – Existing Topography and Drainage – Catchment Transfer

- 2.1 As requested by the LLFA due to the minor catchment transfer associated with the drainage strategy, the proposed discharge rate for the site has been further reduced.
- 2.2 Within the original Flood Risk Assessment and Drainage Strategy the discharge from each catchment was split as follows. This equates to a final discharge rate of 15.9L/s, within the original strategy.

| Catchment    | Impermeable Area (ha) | QBar (l/s)  | 1 in 1 Year (l/s) | 1 in 2 Year (l/s) | 1 in 30 Year (l/s) | 1 in 100 Year (l/s) |
|--------------|-----------------------|-------------|-------------------|-------------------|--------------------|---------------------|
| Unit 1       | 0.305                 | 2.0         | 1.7               | 1.8               | 4.1                | 5.2                 |
| Unit 1 A-B   | 0.299                 | 2.0         | 1.6               | 1.7               | 3.9                | 5.0                 |
| Unit 1 C-E   | 0.356                 | 2.3         | 1.9               | 2.1               | 4.7                | 6.0                 |
| Unit 2       | 0.527                 | 3.4         | 2.9               | 3.1               | 6.9                | 8.9                 |
| Unit 3       | 0.941                 | 6.2         | 5.1               | 5.5               | 12.3               | 15.8                |
| Road         | 0.285                 | 1.9         | 1.5               | 1.7               | 3.7                | 4.8                 |
| <b>Total</b> | <b>2.713</b>          | <b>17.8</b> | <b>14.7</b>       | <b>15.9</b>       | <b>35.6</b>        | <b>45.7</b>         |

- 2.3 The eastern drainage catchment accounts for 2.228ha approximately 82% of the entire site impermeable area. Each catchment discharge rate has been refined to be reflective of the impermeable area contributing to the eastern drainage catchment and has been calculated using the UK SuDS greenfield runoff rate. The full outputs are included within **Appendix B**, and a summary of the results is provided in the table below.
- 2.4 The Surface Water Catchment and Exceedance Plan, drawing 3968-ADC-HDG-XX-DR-CD-0521, presented in **Appendix C**, illustrates the updated catchments.

| Catchment    | Impermeable Area (ha) | QBar (l/s)  | 1 in 1 Year (l/s) | 1 in 2 Year (l/s) | 1 in 30 Year (l/s) | 1 in 100 Year (l/s) |
|--------------|-----------------------|-------------|-------------------|-------------------|--------------------|---------------------|
| Unit 1       | 0.217                 | 1.4         | 1.2               | 1.3               | 2.8                | 3.6                 |
| Unit 1 A-B   | 0.299                 | 2.0         | 1.6               | 1.7               | 3.9                | 5.0                 |
| Unit 1 C-E   | 0.068                 | 0.4         | 0.4               | 0.4               | 0.9                | 1.1                 |
| Unit 2       | 0.527                 | 3.4         | 2.9               | 3.1               | 6.9                | 8.9                 |
| Unit 3       | 0.884                 | 5.8         | 4.8               | 5.1               | 11.6               | 14.9                |
| Road         | 0.233                 | 1.5         | 1.3               | 1.4               | 3.0                | 3.9                 |
| <b>Total</b> | <b>2.228</b>          | <b>14.5</b> | <b>12.2</b>       | <b>13.1</b>       | <b>29.1</b>        | <b>37.4</b>         |

- 2.5 Point 3.22 of the National SuDS Standards states:

*“Where the peak allowable discharge rate requires flow control with orifices (or equivalent) with a diameter of less than 50mm, the flow control shall be robustly protected from blockage risks. Regardless of this, the risk of blockage for all flow controls shall be assessed and mitigated against”*

- 2.6 Flow controls with the capability of restricting flows to a magnitude of 1.3, 0.4 and 1.4L/s typically possess orifice sizes with a diameter of less than 50mm. To safeguard the development from future blockage risk surface water runoff for each flow control chamber is to be designed with a minimum flow rate of 1.5L/s. Consequently, the discharge rate for Unit 1, Unit 1 C-E and Road, will discharge at a rate of 1.5L/s.

- 2.7 To ensure that the development remains at the eastern catchment 1 in 2-year discharge rate of 13.1L/s, an additional Flow Control has been included within SW17, which will restrict the discharge from the development to 13.1L/s
- 2.8 The InfoDrainage calculations have been amended to reflect the reduced discharge rates. The amended calculations are presented within **Appendix D**. Further, the proposed drainage strategy layout, drawing 3968-ADC-HDG-XX-DR-CD-0501, presented in **Appendix E**, has also been updated to reflect the reduced discharge rate.

### Comment 3, 4, 5 – SuDS and National Standards for Drainage Systems

- 2.9 The total impermeable area of the site to be drained is **27,182m<sup>2</sup>**.

- 2.10 Standard 2 of the National Standards for SuDS states the following:

*“2.6 Evidence shall be provided to demonstrate that the runoff from each positively drained surface, for at least 5mm of rainfall, is either collected for use, infiltrated into the ground, or else captured, conveyed and stored within SuDS features. These features shall naturally absorb or retain runoff and from these the runoff will be ‘lost’ to soils or the atmosphere and will not discharge off the site.”*

Based upon the updated drainage strategy, see **Appendix E**, the proposed attenuation basins provide a total base area of approximately 1395m<sup>2</sup>. A ground investigation has not been carried out for the development; however, BGS mapping illustrates the site is underlain by the Edwalton Member-Mudstone bedrock and Oadby Till Member-Diamicton superficial deposit. The Oadby Till member is predominantly a clayey/silty clay with some variable sand, gravel, flint, chalk and limestone fragments, therefore infiltration testing would be required to determine a suitable rate for use in any design calculations. However, if any local sand/gravel lenses are present within the Oadby Till member at the site, this may offer some localised infiltration drainage potential.

- 2.11 The National Standards for SuDS states the following for detention basins:

*“Areas of the development drained to detention basins with a flat unlined base, for example, can infiltrate to ground (without specific provision for routing low flows directly to the outlet), shall be assumed to comply where the drained impermeable surface area is up to 5 times the vegetated detention basin surface area receiving the runoff for any soil type.*

*Areas of the development drained to detention basins with a flat unlined base where infiltration rates are greater than 1x10<sup>-6</sup> m/s shall be assumed to comply where the drained impermeable surface area is up to 25 times the base area of the basin. For example, to comply with standard 2 for an impermeable surface area of 500m<sup>2</sup>, the area of the flat unlined basin base shall be 20m<sup>2</sup>.”*

- 2.12 Given there has been no intrusive ground investigation, the depth of superficial deposit and corresponding infiltration rate is unknown and could vary between less than and greater than 1x10<sup>-6</sup>m/s. As such calculations for both ratios have been undertaken.
- 2.13 If infiltration testing is shown to be less than 1x10<sup>-6</sup>m/s at detailed design, the maximum impermeable area that can be defined as achieving the interception criteria as a result of the proposed attenuation basins is as follows:

$$5 \times 1395 = 6975\text{m}^2 < 27,182\text{m}^2$$

- 2.14 If infiltration testing is shown to be greater than  $1 \times 10^{-6} \text{m/s}$  at detailed design, the maximum impermeable area that can be defined as achieving the interception criteria as a result of the proposed attenuation basins is as follows:

$$25 \times 1395 = 34,875\text{m}^2 > 27,182\text{m}^2$$

- 2.15 As can be seen if infiltration is proved to be greater than  $1 \times 10^{-6} \text{m/s}$  at the SuDS basin locations, no additional SuDS are required to fulfil the interception requirement; however, additional SuDS are required if this infiltration criteria is not achieved.

#### Additional SuDS

- 2.16 If the infiltration rate is proved to be less than  $1 \times 10^{-6} \text{m/s}$  at detailed design, it is considered that additional SuDS will be required to demonstrate compliance with the National SuDS Standards.

*“All surfaces drained to rainwater harvesting systems designed to BS EN 16941<sup>[footnote 8]</sup>, whether for surface water management or just water supply, provided the RWH system design is based on regular daily demand for non-potable water from surface water runoff.”*

- 2.17 Rainwater harvesting is proposed for all industrial roof areas within the development, the design of which is subject to reserved matters design and will be designed in accordance with BS EN 16941. The proposed roof area on the development is approximately  $10,460\text{m}^2$ . As such, the total interception area provided when added to the detention basin component is as follows:

$$6975 + 10460 = 17435\text{m}^2 < 27,182\text{m}^2$$

- 2.18 As this area is less than the total impermeable area of the site, it is considered that further additional SuDS will be required to demonstrate compliance with the National SuDS Standards.

*“All permeable surfaces, whether lined or not, shall be assumed to comply provided there is no additional area drained to the permeable pavement.*

*Where the surface also drains an adjacent impermeable area, compliance shall be assumed for all soil types where the system is unlined if the additional impermeable area is no greater than the permeable area.*

*Where the infiltration capacity of the ground below the permeable surface is greater than  $1 \times 10^{-6} \text{m/s}$  and unlined, up to 5 times the permeable surface area may be added as additional contributing area. For example, to comply with standard 2 for an impermeable surface area of  $100\text{m}^2$ , the area of the permeable surface shall be  $20\text{m}^2$ .”*

- 2.19 As illustrated on the proposed drainage strategy, see **Appendix E**, pervious surfacing is proposed within the communal parking areas onsite, and accounts for an area of approximately  $1825\text{m}^2$ . The assessment is considering a scenario where the infiltration rate is less than  $1 \times 10^{-6} \text{m/s}$ , therefore the permeable paving only provides interception for its drained area:

$$17465 + 1725 = 19190\text{m}^2 < 27,182\text{m}^2$$

- 2.20 As this is still less than the total site impermeable area, an additional area of  $8022\text{m}^2$  of permeable paving is required within the proposed yard areas of each unit. This area will be strategically positioned at detailed design to fit in with the structural requirements and vehicle usage of the hardstanding areas; however, an indication has been provided on the drawing in **Appendix E**.

The following calculation demonstrates the additional 8022m<sup>2</sup> of permeable paving would achieve an interception area that is equal to the proposed impermeable area of the scheme, therefore the interception criteria in Standard 2 of the National SuDS Standards would be achieved.

$$19160 + 8022 = 27182m^2$$

### **3.0 SUMMARY**

#### **Comment 1 – Existing Topography and Drainage – Catchment Transfer**

- 3.1 As requested by the LLFA due to the minor catchment transfer associated with the drainage strategy, the proposed discharge rate for the site has been further reduced to be reflective of the eastern catchment 1 in 2-year greenfield runoff rate of 13.1L/s.
- 3.2 The corresponding InfoDrainage Calculations and Drainage Strategy had been updated to be reflective of the new discharge rates from each catchment area. This includes the implementation of an additional Flow Control Chamber within SW17, to limit the final discharge rate to 13.1L/s and allow appropriately sized flow controls to be incorporated elsewhere upstream within the drainage system to safeguard the drainage system from potential blockages.

#### **Comment 3, 4, 5 – SuDS and National Standards for Drainage Systems**

- 3.3 In summary a combination of attenuation basins, rainwater harvesting and permeable paving can be provided to meet the 1:5 interception ratio stated within Standard 2 of the National Standards for SuDS, if the infiltration rate is found via testing at a later stage to be less than  $1 \times 10^{-6}$  m/s. The drainage strategy drawing has been updated to show the SuDS locations to achieve compliance with Standard 2.
- 3.4 If, however, the site infiltration rate is found to be greater than  $1 \times 10^{-6}$  m/s a 1:25 interception ratio can be applied to the attenuation basins. Consequently, the proposed attenuation basins provide sufficient interception for the site impermeable area, and the proposed additional Rainwater Harvesting and Yard Permeable Paving will not be required.

## APPENDIX A

# LEAD LOCAL FLOOD AUTHORITY (LLFA) COMMENTS

|                                                                                                                                                                         |                                               |                                                                             |                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------|
| <b>Application address</b><br>Land East of Horspool Grange, Stanton under Bardon                                                                                        |                                               | <b>Planning ref.</b>                                                        | 26/00423/OUT                                |
|                                                                                                                                                                         |                                               | <b>Our ref.</b>                                                             | 2026/0423/04/F/R1                           |
| <b>Description</b><br>Outline planning application for a development of up to 10,500sqm of employment floorspace (use class B2/B8) (all matters reserved except access) |                                               | <b>Consultation date</b>                                                    | 04/08/2026                                  |
|                                                                                                                                                                         |                                               | <b>Response date</b>                                                        | 25/08/2026                                  |
| <b>Planning officer</b>                                                                                                                                                 | Ashleigh Gade                                 | <b>Reviewing officer</b>                                                    | Harvey Speed                                |
| <b>Application type</b>                                                                                                                                                 | Outline                                       | <b>Extension requested</b>                                                  | <input type="checkbox"/>                    |
| <b>Refer to standing advice</b><br><input type="checkbox"/>                                                                                                             | <b>Conditions</b><br><input type="checkbox"/> | <b>Further consultation required</b><br><input checked="" type="checkbox"/> | <b>Concerns</b><br><input type="checkbox"/> |

### Consultation checklist

| No. | Description                                                              | Check                               |
|-----|--------------------------------------------------------------------------|-------------------------------------|
| 1   | Location plan                                                            | <input checked="" type="checkbox"/> |
| 2   | Proposed layout plan                                                     | <input checked="" type="checkbox"/> |
| 3   | Evidence that the site can be drained                                    | <input checked="" type="checkbox"/> |
| 4   | Topographic and ground investigation details                             | <input checked="" type="checkbox"/> |
| 5   | The total impermeable area pre and post development                      | <input checked="" type="checkbox"/> |
| 6   | All potential flood risk sources have been identified and assessed       | <input checked="" type="checkbox"/> |
| 7   | Existing and proposed peak discharge rates                               | <input type="checkbox"/>            |
| 8   | Consideration of sustainable drainage systems                            | <input checked="" type="checkbox"/> |
| 9   | Attenuation volume calculations                                          | <input type="checkbox"/>            |
| 10  | Consideration of the maintenance and management of all drainage elements | <input checked="" type="checkbox"/> |

### LLFA Key Observations and Advice

Leicestershire County Council as Lead Local Flood Authority (LLFA) notes that the 4.1ha greenfield site is located within Flood Zone 1 being at low risk of fluvial flooding and a low risk of surface water flooding. The proposals seek to restrict surface water discharge to the 1 in 2 year greenfield return period via attenuation tanks and 3 attenuation basins to the on-site watercourse.

The LLFA was previously consulted on this application and requested the submission of additional information in its response dated 11<sup>th</sup> June 2026, as summarised below:

- Existing topography and drainage

- SuDS basin location in the north
- Use of open space around the detention basins
- Permeable paving
- Drainage west of the site

In response to the LLFA's previous comments, a technical note has been produced on behalf of the applicant by ADC Infrastructure (reference ADC39682-RP-D). The LLFA's comments are below.

**Comment 1 - Existing topography and drainage – Catchment transfer**

The technical note has provided some initial site walkover findings that suggest there is no outfall to the ditch on the western boundary, despite the field draining in this direction. It is therefore concluded that the western ditch is not a viable outfall. The LLFA notes this conclusion. To ensure the proposed catchment transfer does not increase flood risk to the eastern catchment, surface water runoff rates should be limited to the 1 in 2-year greenfield rate of the eastern catchment only (i.e. the area to be transferred from the western catchment should not be factored into greenfield runoff calculations).

Evidence of downstream connectivity of the eastern catchment has been provided.

**Comment 2 - SuDS basin location in the north**

The existing ground levels and outline nature of the application are noted and this comment is addressed.

**Comments 3, 4, 5 – SuDS and National Standards for Sustainable Drainage Systems**

The LLFA notes the outline strategy relating to the types of SuDS which could be utilised on this development including the constraints which prevent the use of some SuDS features.

With permeable paving likely to face significant constraints there will be more impermeable areas on the site. There remain uncertainties over the ability of this application site to comply with Standard 2 of the National Standards for Sustainable Drainage Systems (SuDS) at Reserved Matters stage. This will be compounded by the additional storage requirements which will be required following the LLFA's response to Comment 1 (catchment transfer of surface water).

Whilst the LLFA recognises full details of the drainage proposals can be conditioned, the applicant should provide greater assurance over the deliverability of a policy compliant drainage scheme at Reserved Matters stage based on a reduced runoff rate and therefore greater storage volume requirements due to the catchment transfer of surface water. This should also recognise that the use of permeable paving and extensive use of attenuation basins is likely to be a significant site constraint. To satisfy the LLFA's concerns, a conceptual ratio plan or calculation which demonstrates that the site has sufficient space to comply with the 1:5 ratio within Standard 2 of the National Standards for SuDS. The applicant may wish to consider the use of rainwater harvesting for non-potable use to support the proposals.

Notwithstanding any surface water drainage details submitted under this application, as the proposals are for outline permission, no specific drainage elements are fixed at this stage. As such, the LLFA would require that later reserved matters and detailed design fully comply with the National Standards for SuDS and to any other amended local or national policy/guidance relevant at the time of submission of those details. This includes (but is not limited to) a re-assessment of discharge rates, contributing areas, attenuation scale and the retention of the first 5mm of rainfall on-site. Any departure from the standard should be fully substantiated and agreed with the LLFA.

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Leicestershire County Council as Lead Local Flood Authority (LLFA) advises the Local Planning Authority (LPA) that the application documents as submitted are insufficient for the LLFA. In order to satisfy the requirements of the LLFA, the following information should be provided:

- Revised surface water runoff rate to the eastern catchment which is based on the current greenfield runoff rate of the eastern catchment only.
  - Conceptual plan / calculations showing that the ratio requirements of Standard 2 of the National Standards for SuDS can be achieved at Reserved Matters stage.
- 

## **Advice to the Local Planning Authority**

### **1. Standing Advice – National Planning Policy Framework**

When determining planning applications, the local planning authority should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where informed by a site-specific Flood Risk Assessment (FRA) confirming it will not put the users of the development at risk. Where an FRA is applicable this should be undertaken in accordance with the requirements of the National Planning Policy Framework and accompanying Planning Practice Guidance.

### **2. Standing Advice – Consent**

Where there are any works proposed as part of an application which are likely to affect flows in an ordinary watercourse or ditch, the applicant will require consent under Section 23 of the Land Drainage Act 1991. This is in addition to any planning permission that may be granted. Guidance on this process and a sample application form can be found via the following website: <http://www.leicestershire.gov.uk/flood-risk-management>

Applicants are advised to refer to Leicestershire County Council's culverting policy contained within the Local Flood Risk Management Strategy Appendix document, available at the above link. No development should take place within 5 metres of any watercourse or ditch without first contacting the County Council for advice.

This consent does not consider local watercourse bylaws. It is the responsibility of the applicant to check if the local borough or district council has their own bylaws which the proposals will also need to consider.

### **3. Standing Advice – Maintenance**

Note that it is the responsibility of the Local Planning Authority under the DEFRA/DCLG legislation (April 2015) to ensure that a system to facilitate the future maintenance of SuDS features can be managed and maintained in perpetuity before commencement of the works.

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Additional information and guidance is available here:

<https://www.leicestershire.gov.uk/environment-and-planning/flooding-and-drainage/>

*Note: Response provided by the Lead Local Flood Authority under the delegated authority of the Director of the Growth, Environment and Transport Department.*

## APPENDIX B

# GREENFIELD RUNOFF RATE CALCULATIONS

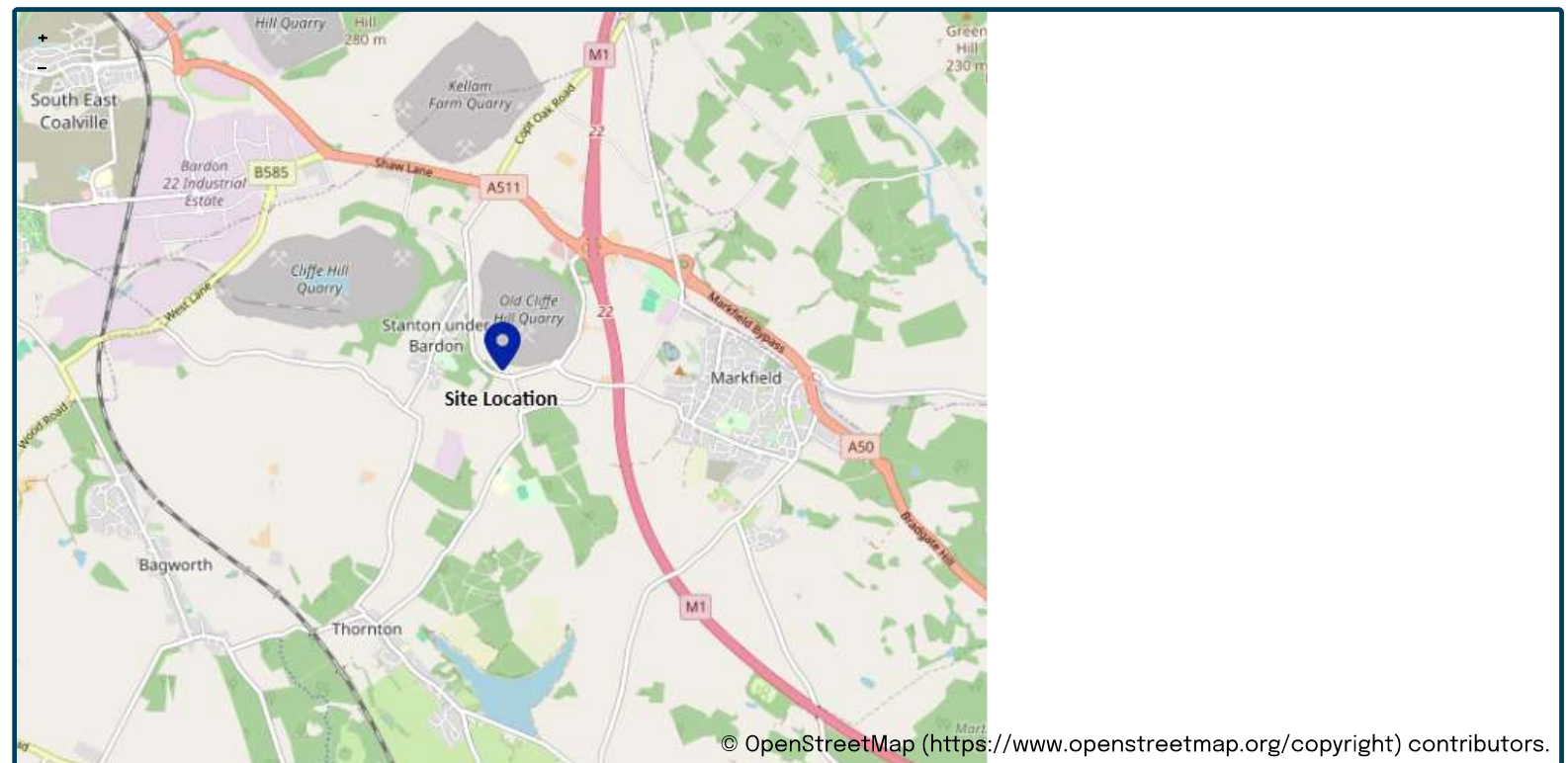
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                    |
|---------------|--------------------|
| Date          | 10/09/2026         |
| Calculated by | ADC Infrastructure |
| Reference     | Unit 1             |
| Model version | 2.2.3              |

## Location

|               |                      |
|---------------|----------------------|
| Site name     | Horsepool Grange     |
| Site location | Stanton-Under-Bardon |



|                                       |        |
|---------------------------------------|--------|
| Site easting (British National Grid)  | 447202 |
| Site northing (British National Grid) | 309995 |

## Site details

|                      |       |    |
|----------------------|-------|----|
| Total site area (ha) | 0.217 | ha |
|----------------------|-------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   |                                    |                                                                     |
|-----------------------------------|------------------------------------|---------------------------------------------------------------------|
|                                   | <u>My value</u>                    | <u>Map value</u>                                                    |
| SAAR9120 (mm)                     | <input type="text" value="789"/>   | <input type="text" value="mm"/>                                     |
| BFIHOST19scaled                   | <input type="text" value="0.332"/> | <input type="text"/>                                                |
| QMed-QBar conversion              | <input type="text" value="1.124"/> | <input checked="" type="radio"/> <input type="text" value="1.124"/> |
| QMed (l/s)                        | <input type="text" value="1.3"/>   | <input type="text" value="l/s"/>                                    |
| QBar (FEH statistical 2025) (l/s) | <input type="text" value="1.4"/>   | <input type="text" value="l/s"/>                                    |

## Growth curve factors

|                        |                                   |                                                                 |
|------------------------|-----------------------------------|-----------------------------------------------------------------|
|                        | <u>My value</u>                   | <u>Map value</u>                                                |
| Hydrological region    | <input type="text" value="4"/>    | <input checked="" type="radio"/> <input type="text" value="4"/> |
| 1 year growth factor   | <input type="text" value="0.83"/> | <input type="text"/>                                            |
| 2 year growth factor   | <input type="text" value="0.89"/> | <input type="text"/>                                            |
| 10 year growth factor  | <input type="text" value="1.49"/> | <input type="text"/>                                            |
| 30 year growth factor  | <input type="text" value="2"/>    | <input type="text"/>                                            |
| 100 year growth factor | <input type="text" value="2.57"/> | <input type="text"/>                                            |
| 200 year growth factor | <input type="text" value="3.04"/> | <input type="text"/>                                            |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 1.2                    | l/s |
| Flow rate 2 year (l/s)    | 1.3                    | l/s |
| Flow rate 10 years (l/s)  | 2.1                    | l/s |
| Flow rate 30 years (l/s)  | 2.8                    | l/s |
| Flow rate 100 years (l/s) | 3.6                    | l/s |
| Flow rate 200 years (l/s) | 4.3                    | l/s |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

## Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

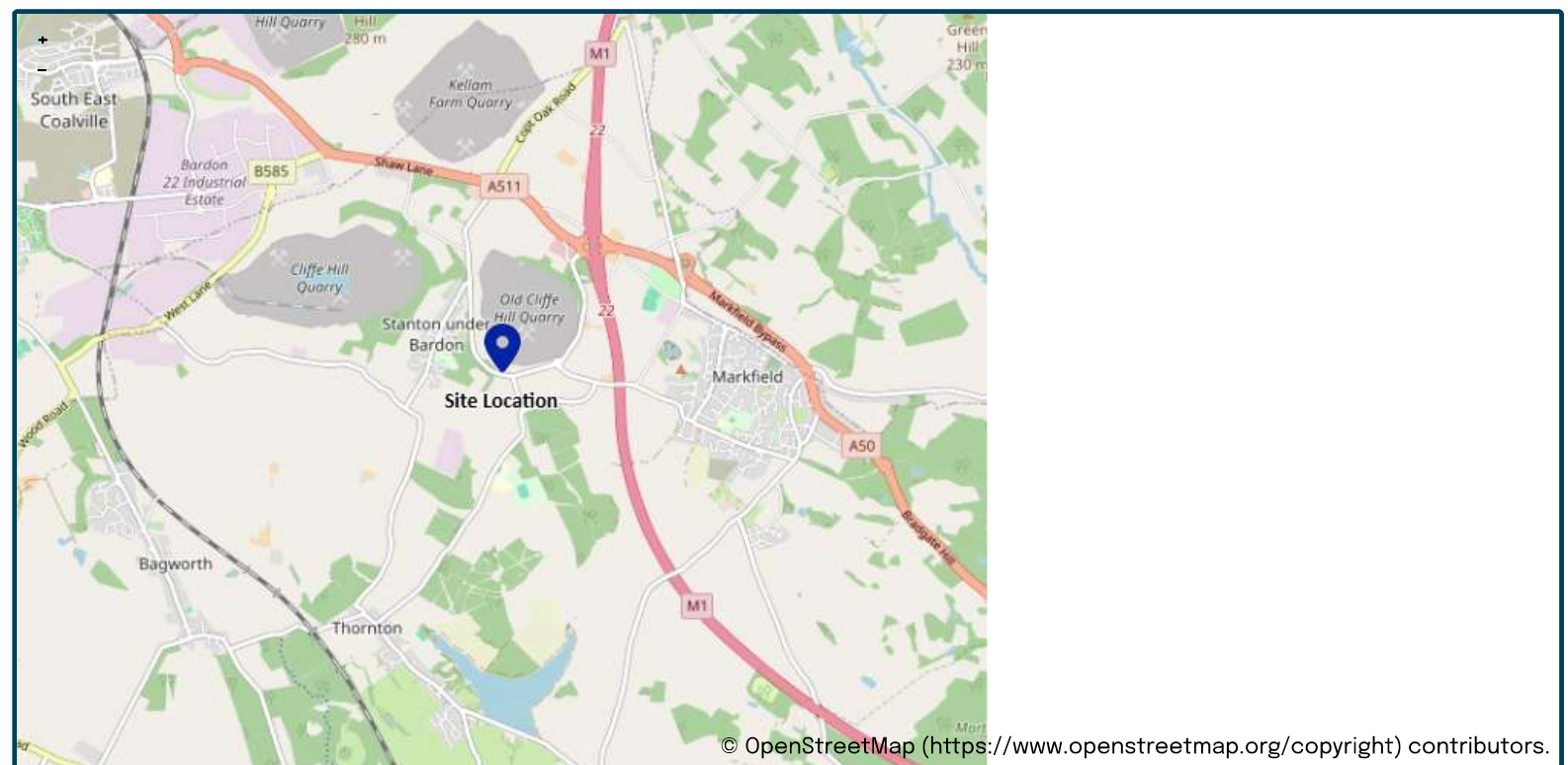
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                                                 |
|---------------|-------------------------------------------------|
| Date          | <input type="text" value="10/09/2026"/>         |
| Calculated by | <input type="text" value="ADC Infrastructure"/> |
| Reference     | <input type="text" value="Unit 1A-B"/>          |
| Model version | <input type="text" value="2.2.3"/>              |

## Location

|               |                                                   |
|---------------|---------------------------------------------------|
| Site name     | <input type="text" value="Horsepool Grange"/>     |
| Site location | <input type="text" value="Stanton-Under-Bardon"/> |



|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Site easting (British National Grid)  | <input type="text" value="447201"/> |
| Site northing (British National Grid) | <input type="text" value="309973"/> |

## Site details

|                      |                                    |    |
|----------------------|------------------------------------|----|
| Total site area (ha) | <input type="text" value="0.299"/> | ha |
|----------------------|------------------------------------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   |                                    |                                                                     |
|-----------------------------------|------------------------------------|---------------------------------------------------------------------|
|                                   | <u>My value</u>                    | <u>Map value</u>                                                    |
| SAAR9120 (mm)                     | <input type="text" value="789"/>   | <input type="text" value="mm"/>                                     |
| BFIHOST19scaled                   | <input type="text" value="0.332"/> | <input type="text"/>                                                |
| QMed-QBar conversion              | <input type="text" value="1.124"/> | <input checked="" type="radio"/> <input type="text" value="1.124"/> |
| QMed (l/s)                        | <input type="text" value="1.7"/>   | <input type="text" value="l/s"/>                                    |
| QBar (FEH statistical 2025) (l/s) | <input type="text" value="2"/>     | <input type="text" value="l/s"/>                                    |

## Growth curve factors

|                        |                                   |                                                                 |
|------------------------|-----------------------------------|-----------------------------------------------------------------|
|                        | <u>My value</u>                   | <u>Map value</u>                                                |
| Hydrological region    | <input type="text" value="4"/>    | <input checked="" type="radio"/> <input type="text" value="4"/> |
| 1 year growth factor   | <input type="text" value="0.83"/> | <input type="text"/>                                            |
| 2 year growth factor   | <input type="text" value="0.89"/> | <input type="text"/>                                            |
| 10 year growth factor  | <input type="text" value="1.49"/> | <input type="text"/>                                            |
| 30 year growth factor  | <input type="text" value="2"/>    | <input type="text"/>                                            |
| 100 year growth factor | <input type="text" value="2.57"/> | <input type="text"/>                                            |
| 200 year growth factor | <input type="text" value="3.04"/> | <input type="text"/>                                            |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 1.6                    | l/s |
| Flow rate 2 year (l/s)    | 1.7                    | l/s |
| Flow rate 10 years (l/s)  | 2.9                    | l/s |
| Flow rate 30 years (l/s)  | 3.9                    | l/s |
| Flow rate 100 years (l/s) | 5.0                    | l/s |
| Flow rate 200 years (l/s) | 5.9                    | l/s |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

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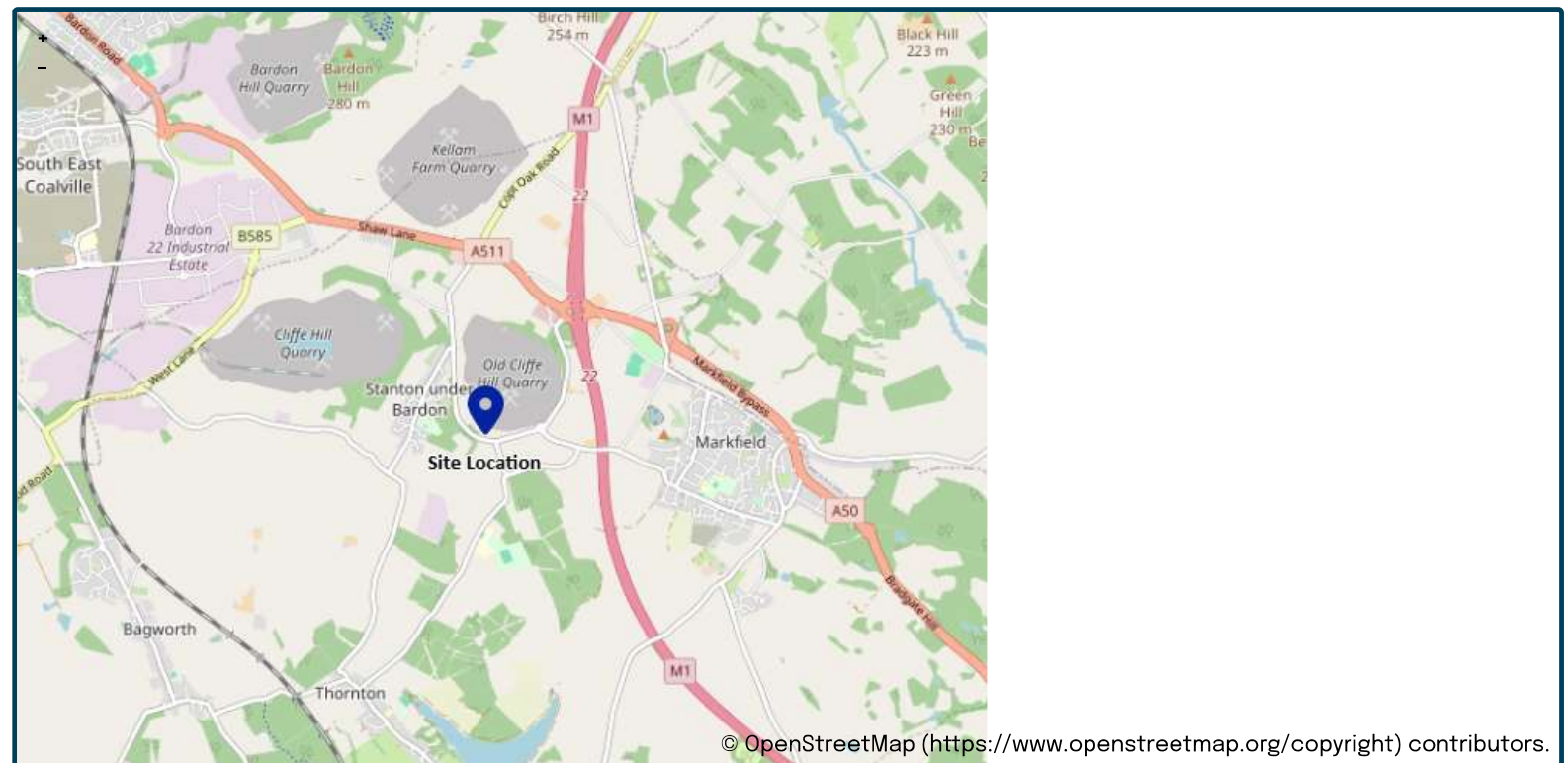
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                    |
|---------------|--------------------|
| Date          | 10/09/2026         |
| Calculated by | ADC Infrastructure |
| Reference     | Unit 1C-E          |
| Model version | 2.2.3              |

## Location

|               |                      |
|---------------|----------------------|
| Site name     | Horsepool Grange     |
| Site location | Stanton-Under-Bardon |



|                                       |        |
|---------------------------------------|--------|
| Site easting (British National Grid)  | 447202 |
| Site northing (British National Grid) | 309995 |

## Site details

|                      |       |    |
|----------------------|-------|----|
| Total site area (ha) | 0.068 | ha |
|----------------------|-------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   | <u>My value</u>                    | <u>Map value</u>                                                    |
|-----------------------------------|------------------------------------|---------------------------------------------------------------------|
| SAAR9120 (mm)                     | <input type="text" value="789"/>   | <input type="text" value="mm"/>                                     |
| BFIHOST19scaled                   | <input type="text" value="0.332"/> | <input type="text"/>                                                |
| QMed-QBar conversion              | <input type="text" value="1.124"/> | <input checked="" type="radio"/> <input type="text" value="1.124"/> |
| QMed (l/s)                        | <input type="text" value="0.4"/>   | <input type="text" value="l/s"/>                                    |
| QBar (FEH statistical 2025) (l/s) | <input type="text" value="0.4"/>   | <input type="text" value="l/s"/>                                    |

## Growth curve factors

|                        | <u>My value</u>                   | <u>Map value</u>                                                |
|------------------------|-----------------------------------|-----------------------------------------------------------------|
| Hydrological region    | <input type="text" value="4"/>    | <input checked="" type="radio"/> <input type="text" value="4"/> |
| 1 year growth factor   | <input type="text" value="0.83"/> | <input type="text"/>                                            |
| 2 year growth factor   | <input type="text" value="0.89"/> | <input type="text"/>                                            |
| 10 year growth factor  | <input type="text" value="1.49"/> | <input type="text"/>                                            |
| 30 year growth factor  | <input type="text" value="2"/>    | <input type="text"/>                                            |
| 100 year growth factor | <input type="text" value="2.57"/> | <input type="text"/>                                            |
| 200 year growth factor | <input type="text" value="3.04"/> | <input type="text"/>                                            |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 0.4                    | l/s |
| Flow rate 2 year (l/s)    | 0.4                    | l/s |
| Flow rate 10 years (l/s)  | 0.7                    | l/s |
| Flow rate 30 years (l/s)  | 0.9                    | l/s |
| Flow rate 100 years (l/s) | 1.1                    | l/s |
| Flow rate 200 years (l/s) | 1.4                    | l/s |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

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This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                                                 |
|---------------|-------------------------------------------------|
| Date          | <input type="text" value="10/09/2026"/>         |
| Calculated by | <input type="text" value="ADC Infrastructure"/> |
| Reference     | <input type="text" value="Unit 2"/>             |
| Model version | <input type="text" value="2.2.3"/>              |

## Location

|               |                                                   |
|---------------|---------------------------------------------------|
| Site name     | <input type="text" value="Horsepool Grange"/>     |
| Site location | <input type="text" value="Stanton-Under-Bardon"/> |



|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Site easting (British National Grid)  | <input type="text" value="447204"/> |
| Site northing (British National Grid) | <input type="text" value="309988"/> |

## Site details

|                      |                                    |    |
|----------------------|------------------------------------|----|
| Total site area (ha) | <input type="text" value="0.527"/> | ha |
|----------------------|------------------------------------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   | <u>My value</u>                         | <u>Map value</u>                                  |
|-----------------------------------|-----------------------------------------|---------------------------------------------------|
| SAAR9120 (mm)                     | <div><div>789</div><div>mm</div></div>  |                                                   |
| BFIHOST19scaled                   | <div><div>0.332</div><div></div></div>  |                                                   |
| QMed-QBar conversion              | <div><div>1.124</div><div></div></div>  | <div><div><div></div></div><div>1.124</div></div> |
| QMed (l/s)                        | <div><div>3.1</div><div>l/s</div></div> |                                                   |
| QBar (FEH statistical 2025) (l/s) | <div><div>3.4</div><div>l/s</div></div> |                                                   |

## Growth curve factors

|                        | <u>My value</u>                       | <u>Map value</u>                              |
|------------------------|---------------------------------------|-----------------------------------------------|
| Hydrological region    | <div><div>4</div><div></div></div>    | <div><div><div></div></div><div>4</div></div> |
| 1 year growth factor   | <div><div>0.83</div><div></div></div> |                                               |
| 2 year growth factor   | <div><div>0.89</div><div></div></div> |                                               |
| 10 year growth factor  | <div><div>1.49</div><div></div></div> |                                               |
| 30 year growth factor  | <div><div>2</div><div></div></div>    |                                               |
| 100 year growth factor | <div><div>2.57</div><div></div></div> |                                               |
| 200 year growth factor | <div><div>3.04</div><div></div></div> |                                               |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 2.9                    | l/s |
| Flow rate 2 year (l/s)    | 3.1                    | l/s |
| Flow rate 10 years (l/s)  | 5.1                    | l/s |
| Flow rate 30 years (l/s)  | 6.9                    | l/s |
| Flow rate 100 years (l/s) | 8.9                    | l/s |
| Flow rate 200 years (l/s) | 10.5                   | l/s |

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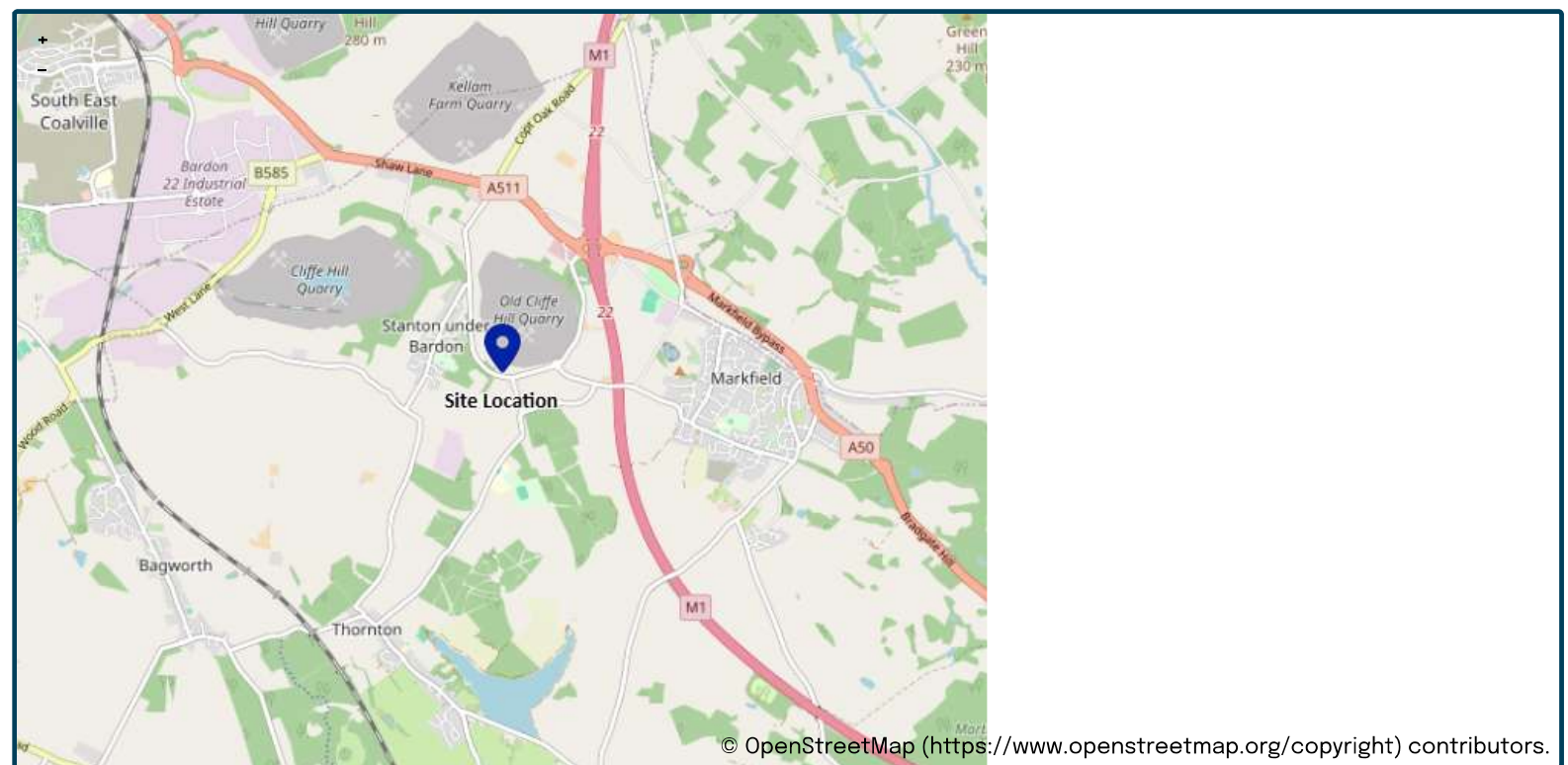
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                                                 |
|---------------|-------------------------------------------------|
| Date          | <input type="text" value="10/09/2026"/>         |
| Calculated by | <input type="text" value="ADC Infrastructure"/> |
| Reference     | <input type="text" value="Unit 3"/>             |
| Model version | <input type="text" value="2.2.3"/>              |

## Location

|               |                                                   |
|---------------|---------------------------------------------------|
| Site name     | <input type="text" value="Horsepool Grange"/>     |
| Site location | <input type="text" value="Stanton-Under-Bardon"/> |



|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Site easting (British National Grid)  | <input type="text" value="447205"/> |
| Site northing (British National Grid) | <input type="text" value="309984"/> |

## Site details

|                      |                                    |    |
|----------------------|------------------------------------|----|
| Total site area (ha) | <input type="text" value="0.884"/> | ha |
|----------------------|------------------------------------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   | <u>My value</u>                    | <u>Map value</u>                                                    |
|-----------------------------------|------------------------------------|---------------------------------------------------------------------|
| SAAR9120 (mm)                     | <input type="text" value="789"/>   | <input type="text" value="mm"/>                                     |
| BFIHOST19scaled                   | <input type="text" value="0.332"/> | <input type="text"/>                                                |
| QMed-QBar conversion              | <input type="text" value="1.124"/> | <input checked="" type="radio"/> <input type="text" value="1.124"/> |
| QMed (l/s)                        | <input type="text" value="5.1"/>   | <input type="text" value="l/s"/>                                    |
| QBar (FEH statistical 2025) (l/s) | <input type="text" value="5.8"/>   | <input type="text" value="l/s"/>                                    |

## Growth curve factors

|                        | <u>My value</u>                   | <u>Map value</u>                                                |
|------------------------|-----------------------------------|-----------------------------------------------------------------|
| Hydrological region    | <input type="text" value="4"/>    | <input checked="" type="radio"/> <input type="text" value="4"/> |
| 1 year growth factor   | <input type="text" value="0.83"/> | <input type="text"/>                                            |
| 2 year growth factor   | <input type="text" value="0.89"/> | <input type="text"/>                                            |
| 10 year growth factor  | <input type="text" value="1.49"/> | <input type="text"/>                                            |
| 30 year growth factor  | <input type="text" value="2"/>    | <input type="text"/>                                            |
| 100 year growth factor | <input type="text" value="2.57"/> | <input type="text"/>                                            |
| 200 year growth factor | <input type="text" value="3.04"/> | <input type="text"/>                                            |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 4.8                    | l/s |
| Flow rate 2 year (l/s)    | 5.1                    | l/s |
| Flow rate 10 years (l/s)  | 8.6                    | l/s |
| Flow rate 30 years (l/s)  | 11.6                   | l/s |
| Flow rate 100 years (l/s) | 14.9                   | l/s |
| Flow rate 200 years (l/s) | 17.6                   | l/s |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

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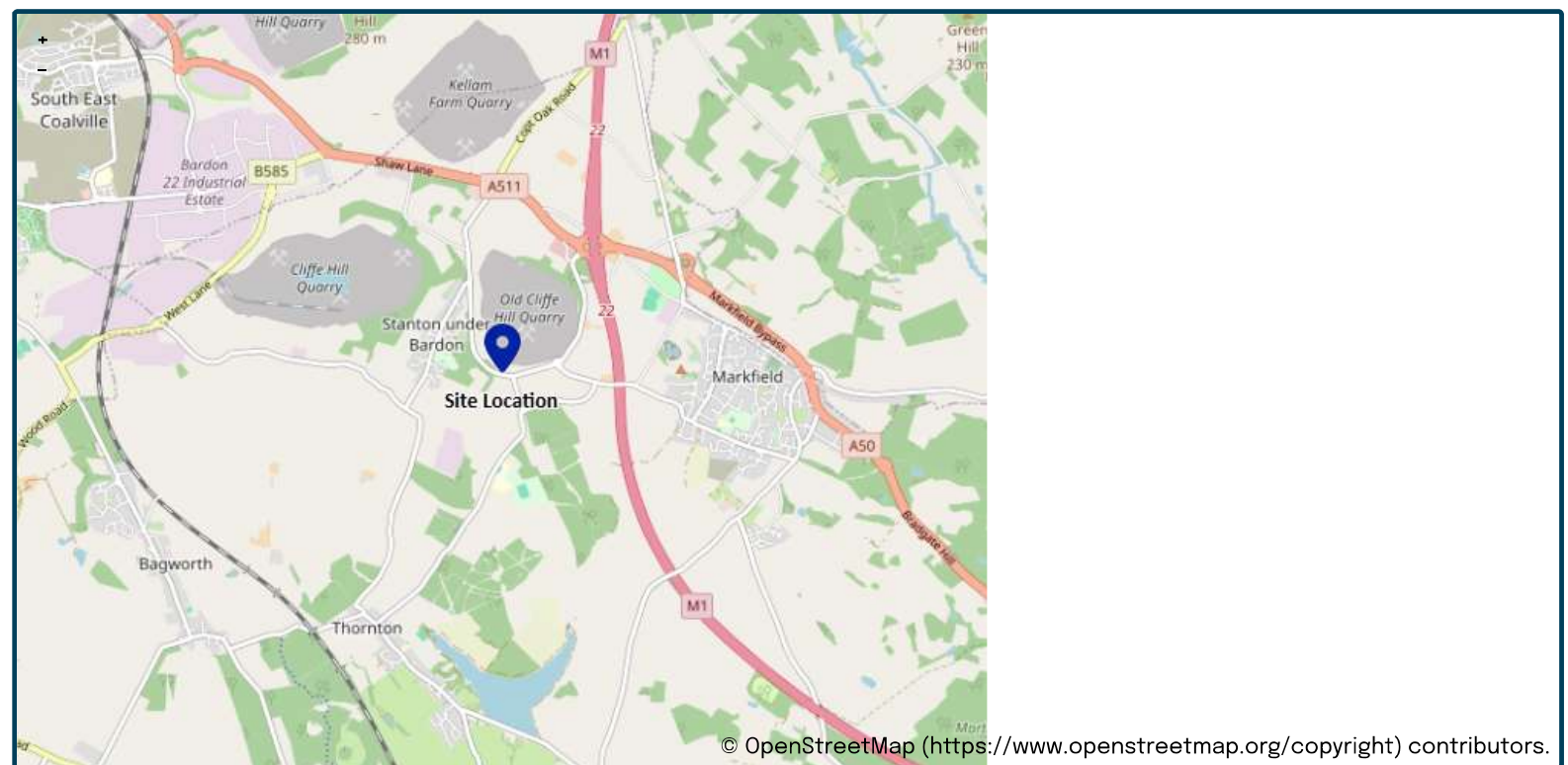
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

## Project details

|               |                                                 |
|---------------|-------------------------------------------------|
| Date          | <input type="text" value="10/09/2026"/>         |
| Calculated by | <input type="text" value="ADC Infrastructure"/> |
| Reference     | <input type="text" value="Road"/>               |
| Model version | <input type="text" value="2.2.3"/>              |

## Location

|               |                                                   |
|---------------|---------------------------------------------------|
| Site name     | <input type="text" value="Horsepool Grange"/>     |
| Site location | <input type="text" value="Stanton-Under-Bardon"/> |



|                                       |                                     |
|---------------------------------------|-------------------------------------|
| Site easting (British National Grid)  | <input type="text" value="447201"/> |
| Site northing (British National Grid) | <input type="text" value="309973"/> |

## Site details

|                      |                                    |    |
|----------------------|------------------------------------|----|
| Total site area (ha) | <input type="text" value="0.233"/> | ha |
|----------------------|------------------------------------|----|

# Greenfield runoff

## Method

|        |                        |
|--------|------------------------|
| Method | FEH statistical (2025) |
|--------|------------------------|

## FEH statistical (2025)

|                                   | <u>My value</u>                    | <u>Map value</u>                                                    |
|-----------------------------------|------------------------------------|---------------------------------------------------------------------|
| SAAR9120 (mm)                     | <input type="text" value="789"/>   | <input type="text" value="mm"/>                                     |
| BFIHOST19scaled                   | <input type="text" value="0.332"/> | <input type="text"/>                                                |
| QMed-QBar conversion              | <input type="text" value="1.124"/> | <input checked="" type="radio"/> <input type="text" value="1.124"/> |
| QMed (l/s)                        | <input type="text" value="1.4"/>   | <input type="text" value="l/s"/>                                    |
| QBar (FEH statistical 2025) (l/s) | <input type="text" value="1.5"/>   | <input type="text" value="l/s"/>                                    |

## Growth curve factors

|                        | <u>My value</u>                   | <u>Map value</u>                                                |
|------------------------|-----------------------------------|-----------------------------------------------------------------|
| Hydrological region    | <input type="text" value="4"/>    | <input checked="" type="radio"/> <input type="text" value="4"/> |
| 1 year growth factor   | <input type="text" value="0.83"/> | <input type="text"/>                                            |
| 2 year growth factor   | <input type="text" value="0.89"/> | <input type="text"/>                                            |
| 10 year growth factor  | <input type="text" value="1.49"/> | <input type="text"/>                                            |
| 30 year growth factor  | <input type="text" value="2"/>    | <input type="text"/>                                            |
| 100 year growth factor | <input type="text" value="2.57"/> | <input type="text"/>                                            |
| 200 year growth factor | <input type="text" value="3.04"/> | <input type="text"/>                                            |

# Results

|                           |                        |     |
|---------------------------|------------------------|-----|
| Method                    | FEH statistical (2025) |     |
| Flow rate 1 year (l/s)    | 1.3                    | l/s |
| Flow rate 2 year (l/s)    | 1.4                    | l/s |
| Flow rate 10 years (l/s)  | 2.3                    | l/s |
| Flow rate 30 years (l/s)  | 3.0                    | l/s |
| Flow rate 100 years (l/s) | 3.9                    | l/s |
| Flow rate 200 years (l/s) | 4.6                    | l/s |

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

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## APPENDIX C

# SURFACE WATER CATCHMENT AND EXCEEDANCE PLAN



Horsepool Grange Site

This drawing references the data noted below

| Data                 | Source       | Reference           | Rev. | Dated    |
|----------------------|--------------|---------------------|------|----------|
| Site Layout          | Marrons      | Illustrative Layout | 0    | 15.04.26 |
| Topographical Survey | SV Surveying | 25483-25-01         | -    | 16.11.25 |

General Notes

1.

Do not scale this drawing. All dimensions must be checked/verified on site.

2.

This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

3.

All dimensions are in metres unless noted otherwise. All levels are in metres unless noted otherwise.

4.

Any discrepancies noted on site are to be reported to the engineer immediately.

Key

Site Red Boundary

Drainage Features

Proposed Attenuation Tank

Proposed Attenuation Basin

Existing Field Drainage Ditch

Drainage Ditch Clear Margin

Catchment Boundaries

Unit 1

Unit 1A-B

Unit 1C-E

Unit 2

Unit 3

Road

Western Drainage Catchment

Exceedance Flow Path

|     |          |                               |    |    |
|-----|----------|-------------------------------|----|----|
| P02 | 14.09.26 | Update to Drainage Catchments | RM | RW |
| P01 | 21.01.26 | First Issue                   | RM | RW |
| Rev | Date     | Description                   | Dr | Ch |

Client:

Marrons

Project:

Horsepool Grange, Stanton under Barton

Title:

Surface Water Catchment and Exceedance Plan

ADC INFRASTRUCTURE

© ADC Infrastructure Limited

Size:

A1

Scale:

1:500

Status:

PRELIMINARY

| Project | Originator | Volume | Level | Type | Role | Number | Status | Revision |
|---------|------------|--------|-------|------|------|--------|--------|----------|
| 3968    | -ADC       | -HGN   | -XX   | -DR  | -CH  | -0521  | S1     | P02      |

## APPENDIX D

# INFODRAINAGE CALCULATIONS

|                                                                     |                                                                             |                   |                    |                                                                                     |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|-------------------------------------------------------------------------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1 | Date:<br>10/09/2026                                                         |                   |                    |  |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase              | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |                                                                                     |
|                                                                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |                                                                                     |



### Roof Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.102 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



### Yard Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.203 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



### Basin Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.051 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Basin

Type : Pond

### Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 182.000 |
| Depth (m)            | 1.300   |
| Base Level (m)       | 180.700 |
| Freeboard (mm)       | 300     |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 3.00    |
| Total Volume (m³)    | 338.319 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 245.57    | 0.000       |
| 0.100     | 262.52    | 25.399      |
| 0.200     | 280.03    | 52.522      |
| 0.300     | 298.11    | 81.424      |
| 0.400     | 316.75    | 112.163     |
| 0.500     | 335.96    | 144.794     |
| 0.600     | 355.74    | 179.374     |
| 0.700     | 376.08    | 215.960     |
| 0.800     | 396.99    | 254.609     |
| 0.900     | 418.46    | 295.376     |
| 1.000     | 440.49    | 338.319     |
| 1.100     | 463.10    | 383.494     |
| 1.200     | 486.27    | 430.957     |
| 1.300     | 510.00    | 480.766     |

### Inlets

#### Inlet

|                    |                |
|--------------------|----------------|
| Inlet Type         | Point Inflow   |
| Incoming Item(s)   | Yard Area      |
| Bypass Destination | Roof Area      |
| Capacity Type      | (None)         |
|                    | No Restriction |

#### Inlet (1)

|                    |                |
|--------------------|----------------|
| Inlet Type         | Lateral Inflow |
| Incoming Item(s)   | Basin Area     |
| Bypass Destination | (None)         |
| Capacity Type      | No Restriction |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |

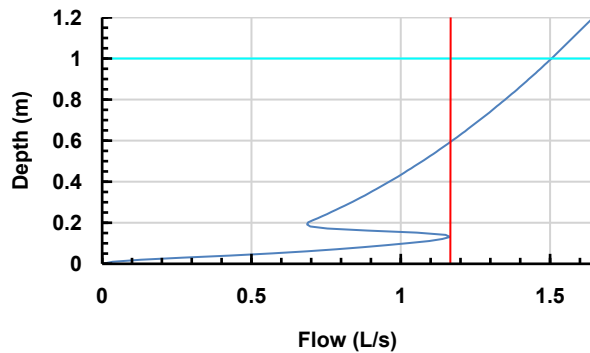


## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 180.700                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 1.5                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0056-1500-1000-1500 |
|----------------|-------------------------|



### Advanced

|                 |             |
|-----------------|-------------|
| Perimeter       | Circular    |
| Length (m)      | 20.141      |
| Friction Scheme | Manning's n |
| n               | 0.022       |

|                                                                     |  |                                                                             |                   |                                                                                     |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1 |  | Date:<br>10/09/2026                                                         |                   |  |                    |
|                                                                     |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     | Approved By:<br>RW |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase       |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |                    |

| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Basin Area   | Basin        |            | Time of Concentration | 0.051        | 100                       | 0               | 100                                | 0.051              |
| Roof Area    | Basin        |            | Time of Concentration | 0.102        | 100                       | 0               | 100                                | 0.102              |
| Yard Area    | Basin        |            | Time of Concentration | 0.203        | 100                       | 0               | 100                                | 0.203              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.356</b> |                           |                 |                                    | <b>0.356</b>       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

FEH

Type: FEH

|                  |                                     |
|------------------|-------------------------------------|
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

| Return Period (years) | Increase Rainfall (%) |
|-----------------------|-----------------------|
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1        |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Avg. Depth**

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Resident Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Basin              | FEH: 100 years: +40 %: 960 mins: Winter | 181.688           | 181.688           | 0.988             | 0.988             | 17.3              | 333.043                   | 0.000                    | 0.000                  | 1.5                | 144.185                     | 1.559                    | OK     |

|                                                                        |                                                                             |                   |                    |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                        | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase                 | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**Roof Area**

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.101 |
|-----------|-------|

**Dynamic Sizing**

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



**Yard Area**

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.198 |
|-----------|-------|

**Dynamic Sizing**

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                        |                                                                             |                   |                    |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                        | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Tank

Type : Tank

### Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 176.400 |
| Depth (m)            | 1.000   |
| Base Level (m)       | 175.400 |
| Freeboard (mm)       | 0       |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 0.00    |
| Total Volume (m³)    | 270.000 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 270.00    | 0.000       |
| 1.000     | 270.00    | 270.000     |

### Inlets

#### Inlet

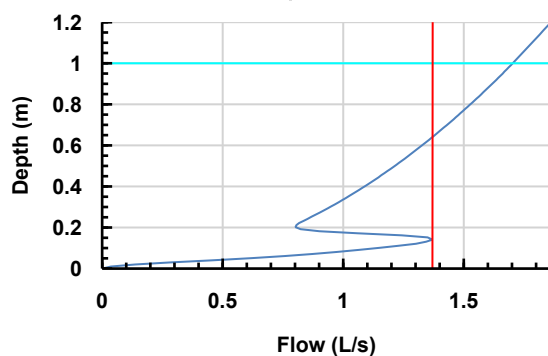
|                    |                        |
|--------------------|------------------------|
| Inlet Type         | Point Inflow           |
| Incoming Item(s)   | Roof Area<br>Yard Area |
| Bypass Destination | (None)                 |
| Capacity Type      | No Restriction         |

### Outlets

#### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 175.400                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 1.7                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0059-1700-1000-1700 |
|----------------|-------------------------|



|                                                                             |                                                                    |                   |                                                                                     |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B      | Date:<br>10/09/2026                                                |                   |                                                                                     |
|                                                                             | Designed by:<br>RM                                                 | Checked by:<br>RW | Approved By:<br>RW                                                                  |
|                                                                             | Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase |                   |                                                                                     |
| ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                                                                    |                   |  |

Advanced

|            |          |
|------------|----------|
| Perimeter  | Circular |
| Length (m) | 31.869   |

|                                                                        |  |                                                                             |                   |                                                                                     |  |
|------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B |  | Date:<br>10/09/2026                                                         |                   |  |  |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase          |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     |  |
|                                                                        |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |  |

| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Roof Area    | Tank         |            | Time of Concentration | 0.101        | 100                       | 0               | 100                                | 0.101              |
| Yard Area    | Tank         |            | Time of Concentration | 0.198        | 100                       | 0               | 100                                | 0.198              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.299</b> |                           |                 |                                    | <b>0.299</b>       |

|                                                                        |                                                                             |                   |                    |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                        | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                        | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

|                  |                                     |
|------------------|-------------------------------------|
| FEH              | Type: FEH                           |
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

| Return Period (years) | Increase Rainfall (%) |
|-----------------------|-----------------------|
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 1A-B     |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:  
Max. Avg. Depth**

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Residual Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Tank               | FEH: 100 years: +40 %: 720 mins: Winter | 176.385           | 176.385           | 0.985             | 0.985             | 18.5              | 266.072                   | 0.000                    | 0.000                  | 1.7                | 119.367                     | 1.455                    | OK     |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase              | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



### Roof Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.151 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



### Yard Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.205 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



### Basin Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.059 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Basin

Type : Pond

### Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 177.400 |
| Depth (m)            | 1.300   |
| Base Level (m)       | 176.100 |
| Freeboard (mm)       | 300     |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 3.00    |
| Total Volume (m³)    | 403.799 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 301.97    | 0.000       |
| 0.100     | 320.74    | 31.131      |
| 0.200     | 340.06    | 64.166      |
| 0.300     | 359.96    | 99.162      |
| 0.400     | 380.42    | 136.176     |
| 0.500     | 401.44    | 175.265     |
| 0.600     | 423.03    | 216.484     |
| 0.700     | 445.19    | 259.890     |
| 0.800     | 467.91    | 305.540     |
| 0.900     | 491.20    | 353.491     |
| 1.000     | 515.05    | 403.799     |
| 1.100     | 539.47    | 456.520     |
| 1.200     | 564.45    | 511.711     |
| 1.300     | 590.00    | 569.429     |

### Inlets

#### Inlet

|                    |                |
|--------------------|----------------|
| Inlet Type         | Point Inflow   |
| Incoming Item(s)   | Yard Area      |
| Bypass Destination | Roof Area      |
| Capacity Type      | (None)         |
|                    | No Restriction |

#### Inlet (1)

|                    |                |
|--------------------|----------------|
| Inlet Type         | Lateral Inflow |
| Incoming Item(s)   | Basin Area     |
| Bypass Destination | (None)         |
| Capacity Type      | No Restriction |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |

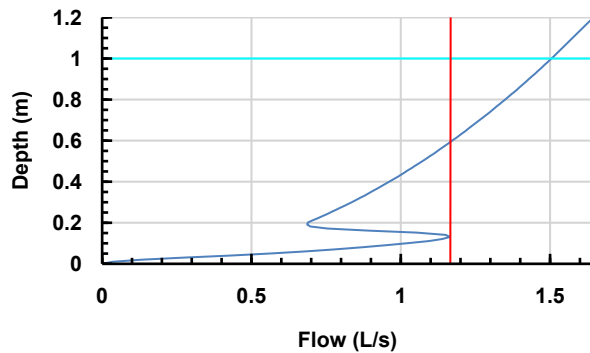


## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 176.100                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 1.5                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0056-1500-1000-1500 |
|----------------|-------------------------|



### Advanced

|                 |             |
|-----------------|-------------|
| Perimeter       | Circular    |
| Length (m)      | 20.141      |
| Friction Scheme | Manning's n |
| n               | 0.022       |

|                                                                     |  |                                                                             |                   |                                                                                     |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3 |  | Date:<br>10/09/2026                                                         |                   |  |                    |
|                                                                     |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     | Approved By:<br>RW |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase       |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |                    |

| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Basin Area   | Basin        |            | Time of Concentration | 0.059        | 100                       | 0               | 100                                | 0.059              |
| Roof Area    | Basin        |            | Time of Concentration | 0.151        | 100                       | 0               | 100                                | 0.151              |
| Yard Area    | Basin        |            | Time of Concentration | 0.205        | 100                       | 0               | 100                                | 0.205              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.415</b> |                           |                 |                                    | <b>0.415</b>       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

FEH

Type: FEH

|                  |                                     |
|------------------|-------------------------------------|
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

| Return Period (years) | Increase Rainfall (%) |
|-----------------------|-----------------------|
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 3        |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:  
Max. Avg. Depth**

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Residual Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Basin              | FEH: 100 years: +40 %: 960 mins: Winter | 177.090           | 177.090           | 0.990             | 0.990             | 20.2              | 398.587                   | 0.000                    | 0.000                  | 1.5                | 144.654                     | 1.291                    | OK     |

|                                                                     |                                                                             |                   |                    |                                                                                     |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|-------------------------------------------------------------------------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 | Date:<br>10/09/2026                                                         |                   |                    |  |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase              | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |                                                                                     |
|                                                                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |                                                                                     |



#### Roof Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.202 |
|-----------|-------|

#### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



#### Yard Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.325 |
|-----------|-------|

#### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



#### Basin Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.039 |
|-----------|-------|

#### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Basin

Type : Pond

### Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 177.500 |
| Depth (m)            | 1.300   |
| Base Level (m)       | 176.200 |
| Freeboard (mm)       | 300     |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 3.00    |
| Total Volume (m³)    | 242.728 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 165.00    | 0.000       |
| 0.100     | 178.94    | 17.192      |
| 0.200     | 193.45    | 35.808      |
| 0.300     | 208.53    | 55.902      |
| 0.400     | 224.17    | 77.532      |
| 0.500     | 240.37    | 100.754     |
| 0.600     | 257.14    | 125.625     |
| 0.700     | 274.48    | 152.201     |
| 0.800     | 292.38    | 180.539     |
| 0.900     | 310.85    | 210.696     |
| 1.000     | 329.88    | 242.728     |
| 1.100     | 349.48    | 276.691     |
| 1.200     | 369.64    | 312.642     |
| 1.300     | 390.37    | 350.638     |

### Inlets

#### Inlet

|                    |                |
|--------------------|----------------|
| Inlet Type         | Point Inflow   |
| Incoming Item(s)   | Yard Area      |
| Bypass Destination | Roof Area      |
| Capacity Type      | (None)         |
|                    | No Restriction |

#### Inlet (1)

|                    |                |
|--------------------|----------------|
| Inlet Type         | Lateral Inflow |
| Incoming Item(s)   | Basin Area     |
| Bypass Destination | (None)         |
| Capacity Type      | No Restriction |

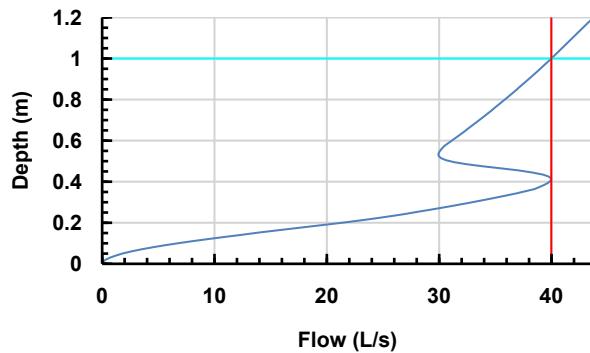
|                                                                     |  |                                                                             |                   |                                                                                     |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 |  | Date:<br>10/09/2026                                                         |                   |  |                    |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     | Approved By:<br>RW |
|                                                                     |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |                    |

## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | Pipe                                   |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 176.200                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 40.0                                   |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0255-4000-1000-4000 |
|----------------|-------------------------|



### Advanced

|                 |             |
|-----------------|-------------|
| Perimeter       | Circular    |
| Length (m)      | 20.141      |
| Friction Scheme | Manning's n |
| n               | 0.022       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Tank

Type : Tank

## Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 175.600 |
| Depth (m)            | 1.000   |
| Base Level (m)       | 174.600 |
| Freeboard (mm)       | 0       |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 0.00    |
| Total Volume (m³)    | 500.000 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 500.00    | 0.000       |
| 1.000     | 500.00    | 500.000     |

## Inlets

### Inlet

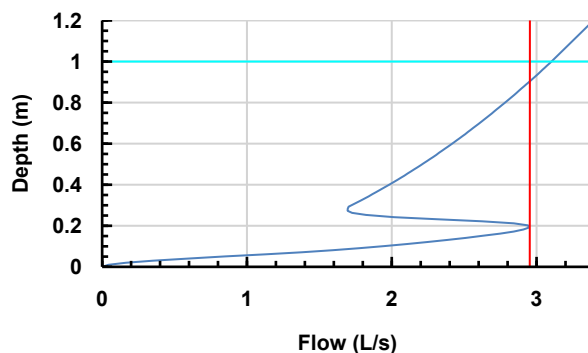
|                    |                |
|--------------------|----------------|
| Inlet Type         | Point Inflow   |
| Incoming Item(s)   | Pipe           |
| Bypass Destination | (None)         |
| Capacity Type      | No Restriction |

## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 174.600                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 3.1                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0080-3100-1000-3100 |
|----------------|-------------------------|



## Advanced

|            |          |
|------------|----------|
| Perimeter  | Circular |
| Length (m) | 30.899   |

|                                                                     |  |                                                                             |                   |                                                                                     |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 |  | Date:<br>10/09/2026                                                         |                   |  |                    |
|                                                                     |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     | Approved By:<br>RW |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase       |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |                    |

| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Basin Area   | Basin        |            | Time of Concentration | 0.039        | 100                       | 0               | 100                                | 0.039              |
| Roof Area    | Basin        |            | Time of Concentration | 0.202        | 100                       | 0               | 100                                | 0.202              |
| Yard Area    | Basin        |            | Time of Concentration | 0.325        | 100                       | 0               | 100                                | 0.325              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.566</b> |                           |                 |                                    | <b>0.566</b>       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

|                  |                                     |
|------------------|-------------------------------------|
| FEH              | Type: FEH                           |
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

| Return Period (years) | Increase Rainfall (%) |
|-----------------------|-----------------------|
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 4        |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:  
Max. Avg. Depth**

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Residual Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Basin              | FEH: 100 years: +40 %: 120 mins: Summer | 177.195           | 177.194           | 0.995             | 0.994             | 188.7             | 241.041                   | 0.000                    | 0.000                  | 39.7               | 372.066                     | 0.695                    | OK     |
| Tank               | FEH: 100 years: +40 %: 720 mins: Winter | 175.590           | 175.590           | 0.990             | 0.990             | 31.7              | 495.052                   | 0.000                    | 0.000                  | 3.1                | 211.864                     | 0.990                    | OK     |

|                                                                     |                                                                             |                   |                    |                                                                                     |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|-------------------------------------------------------------------------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5 | Date:<br>10/09/2026                                                         |                   |                    |  |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase              | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |                                                                                     |
|                                                                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |                                                                                     |



### Roof Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.503 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |



### Yard Area

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.438 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Tank

Type : Tank

## Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 175.360 |
| Depth (m)            | 1.000   |
| Base Level (m)       | 174.360 |
| Freeboard (mm)       | 0       |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 0.00    |
| Total Volume (m³)    | 850.000 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 850.00    | 0.000       |
| 1.000     | 850.00    | 850.000     |

## Inlets

### Inlet

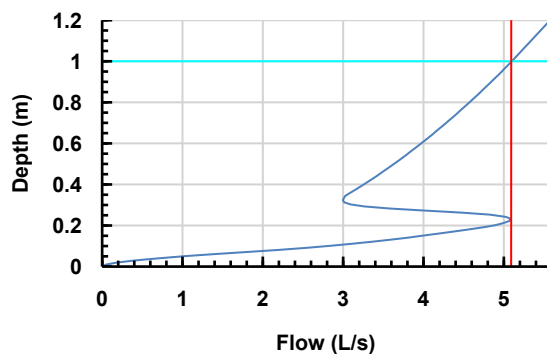
|                    |                        |
|--------------------|------------------------|
| Inlet Type         | Point Inflow           |
| Incoming Item(s)   | Roof Area<br>Yard Area |
| Bypass Destination | (None)                 |
| Capacity Type      | No Restriction         |

## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 174.360                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 5.1                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0102-5100-1000-5100 |
|----------------|-------------------------|



|                                                                             |                                                                    |                   |                                                                                     |
|-----------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5         | Date:<br>10/09/2026                                                |                   |                                                                                     |
|                                                                             | Designed by:<br>RM                                                 | Checked by:<br>RW | Approved By:<br>RW                                                                  |
|                                                                             | Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase |                   |                                                                                     |
| ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                                                                    |                   |  |

Advanced

|            |          |
|------------|----------|
| Perimeter  | Circular |
| Length (m) | 31.869   |

|                                                                     |  |                                                                             |                   |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5 |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase       |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Roof Area    | Tank         |            | Time of Concentration | 0.503        | 100                       | 0               | 100                                | 0.503              |
| Yard Area    | Tank         |            | Time of Concentration | 0.438        | 100                       | 0               | 100                                | 0.438              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.941</b> |                           |                 |                                    | <b>0.941</b>       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

FEH

Type: FEH

|                  |                                     |
|------------------|-------------------------------------|
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

|                       |                       |
|-----------------------|-----------------------|
| Return Period (years) | Increase Rainfall (%) |
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 5        |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:  
Max. Avg. Depth

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Resident Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Tank               | FEH: 100 years: +40 %: 720 mins: Winter | 175.352           | 175.352           | 0.992             | 0.992             | 58.3              | 843.259                   | 0.000                    | 0.000                  | 5.1                | 360.469                     | 0.793                    | OK     |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 6 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Inflows<br>Storm Phase: Phase              | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



**Road Area**

Type : Catchment Area

|           |       |
|-----------|-------|
| Area (ha) | 0.285 |
|-----------|-------|

### Dynamic Sizing

| Runoff Method                | Time of Concentration |
|------------------------------|-----------------------|
| Summer Volumetric Runoff     | 1.000                 |
| Winter Volumetric Runoff     | 1.000                 |
| Time of Concentration (mins) | 5                     |
| Percentage Impervious (%)    | 100                   |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 6 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls<br>Storm Phase: Phase  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



Tank

Type : Tank

## Dimensions

|                      |         |
|----------------------|---------|
| Exceedance Level (m) | 176.200 |
| Depth (m)            | 1.000   |
| Base Level (m)       | 175.200 |
| Freeboard (mm)       | 0       |
| Initial Depth (m)    | 0.000   |
| Porosity (%)         | 100     |
| Average Slope (1:X)  | 0.00    |
| Total Volume (m³)    | 260.000 |

| Depth (m) | Area (m²) | Volume (m³) |
|-----------|-----------|-------------|
| 0.000     | 260.00    | 0.000       |
| 1.000     | 260.00    | 260.000     |

## Inlets

### Inlet

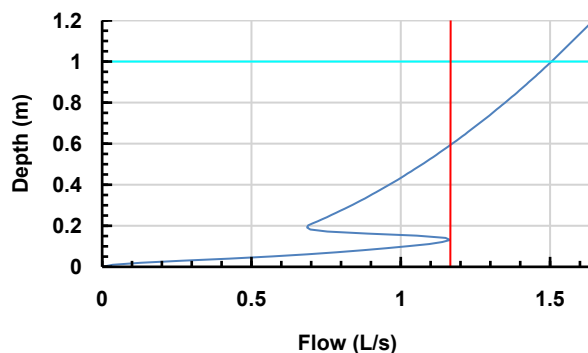
|                    |                |
|--------------------|----------------|
| Inlet Type         | Point Inflow   |
| Incoming Item(s)   | Road Area      |
| Bypass Destination | (None)         |
| Capacity Type      | No Restriction |

## Outlets

### Outlet

|                     |                                        |
|---------------------|----------------------------------------|
| Outgoing Connection | (None)                                 |
| Outlet Type         | Hydro-Brake®                           |
| Invert Level (m)    | 175.200                                |
| Design Depth (m)    | 1.000                                  |
| Design Flow (L/s)   | 1.5                                    |
| Objective           | Minimise Upstream Storage Requirements |
| Application         | Surface Water Only                     |
| Sump Available      | <input type="checkbox"/>               |

|                |                         |
|----------------|-------------------------|
| Unit Reference | CHE-0056-1500-1000-1500 |
|----------------|-------------------------|



## Advanced

|            |          |
|------------|----------|
| Perimeter  | Circular |
| Length (m) | 31.869   |

|                                                                     |  |                                                                             |                   |                                                                                     |                    |
|---------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 6 |  | Date:<br>10/09/2026                                                         |                   |  |                    |
|                                                                     |  | Designed by:<br>RM                                                          | Checked by:<br>RW |                                                                                     | Approved By:<br>RW |
| Report Details:<br>Type: Inflow Summary<br>Storm Phase: Phase       |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                                                                                     |                    |

| Inflow Label | Connected To | Flow (L/s) | Runoff Method         | Area (ha)    | Percentage Impervious (%) | Urban Creep (%) | Adjusted Percentage Impervious (%) | Area Analysed (ha) |
|--------------|--------------|------------|-----------------------|--------------|---------------------------|-----------------|------------------------------------|--------------------|
| Road Area    | Tank         |            | Time of Concentration | 0.285        | 100                       | 0               | 100                                | 0.285              |
| <b>TOTAL</b> |              | <b>0.0</b> |                       | <b>0.285</b> |                           |                 |                                    | <b>0.285</b>       |

|                                                                     |                                                                             |                   |                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 6 | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                     | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Title:<br><br>Rainfall Analysis Criteria                     | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |



|                                 |                          |
|---------------------------------|--------------------------|
| Runoff Type                     | Dynamic                  |
| Output Interval (mins)          | 5                        |
| Time Step                       | Default                  |
| Urban Creep                     | Apply Global Value       |
| Urban Creep Global Value (%)    | 0                        |
| Junction Flood Risk Margin (mm) | 300                      |
| Perform No Discharge Analysis   | <input type="checkbox"/> |

### Rainfall

|                  |                                     |
|------------------|-------------------------------------|
| FEH              | Type: FEH                           |
| Site Location    | GB 447195 309995 SK 47195 09995     |
| Rainfall Version | 2022                                |
| Summer           | <input checked="" type="checkbox"/> |
| Winter           | <input checked="" type="checkbox"/> |

### Return Period

| Return Period (years) | Increase Rainfall (%) |
|-----------------------|-----------------------|
| 100.0                 | 40.000                |

### Storm Durations

| Duration (mins) | Run Time (mins) |
|-----------------|-----------------|
| 15              | 30              |
| 30              | 60              |
| 60              | 120             |
| 120             | 240             |
| 180             | 360             |
| 240             | 480             |
| 360             | 720             |
| 480             | 960             |
| 600             | 1200            |
| 720             | 1440            |
| 960             | 1920            |
| 1440            | 2880            |
| 2160            | 4320            |
| 2880            | 5760            |
| 4320            | 8640            |
| 5760            | 11520           |

|                                                                            |  |                                                                             |                   |                    |
|----------------------------------------------------------------------------|--|-----------------------------------------------------------------------------|-------------------|--------------------|
| ADC3968:<br>Horsepool Grange<br>Stanton-under-Bardon<br>Catchment 6        |  | Date:<br>10/09/2026                                                         |                   |                    |
|                                                                            |  | Designed by:<br>RM                                                          | Checked by:<br>RW | Approved By:<br>RW |
| Report Details:<br>Type: Stormwater Controls Summary<br>Storm Phase: Phase |  | ADC Infrastructure Ltd:<br>34-36 Carrington Street<br>Nottingham<br>NG1 7FG |                   |                    |





**FEH: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By:  
Max. Avg. Depth**

| Stormwater Control | Storm Event                             | Max. US Level (m) | Max. DS Level (m) | Max. US Depth (m) | Max. DS Depth (m) | Max. Inflow (L/s) | Max. Residual Volume (m³) | Max. Flooded Volume (m³) | Total Lost Volume (m³) | Max. Outflow (L/s) | Total Discharge Volume (m³) | Percentage Available (%) | Status |
|--------------------|-----------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|--------------------------|------------------------|--------------------|-----------------------------|--------------------------|--------|
| Tank               | FEH: 100 years: +40 %: 720 mins: Winter | 176.189           | 176.189           | 0.989             | 0.989             | 17.7              | 257.210                   | 0.000                    | 0.000                  | 1.5                | 105.752                     | 1.073                    | OK     |

## APPENDIX E

### UPDATED DRAINAGE STRATEGY



Horsepool Grange Site

Note:  
The preliminary earthworks surrounding each detention basin are indicative and basin on existing ground levels. The levels and size of each detention basin is subject to a detailed earthworks strategy.

Note:  
The drainage levels are indicative and based on existing ground levels, and are subject to change following the site levels design and earthworks strategy. The attenuation tank positions are indicative and subject to confirmation of a detailed site layout.

Note:  
The proposed yard permeable paving and roof rainwater harvesting are infiltration testing and detailed design at reserved matters stage

This drawing references the data noted below

| Data                 | Source       | Reference           | Rev. | Dated    |
|----------------------|--------------|---------------------|------|----------|
| Site Layout          | Marrons      | Illustrative Layout | O    | 15.04.26 |
| Topographical Survey | SV Surveying | 25483-25-01         | -    | 16.11.25 |

General Notes

1.

Do not scale this drawing. All dimensions must be checked/verified on site.

2.

This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

3.

All dimensions are in metres unless noted otherwise. All levels are in metres unless noted otherwise.

4.

Any discrepancies noted on site are to be reported to the engineer immediately.

Key

Site Boundary

Drainage Features

Proposed Surface water gravity sewer

Proposed Attenuation Tank

Proposed Shared Parking Permeable Surfacing

Proposed Yard Parking Permeable Surfacing

Proposed Attenuation Basin

Existing Field Drainage Ditch

Drainage Ditch Clear Margin

|     |          |                               |    |    |
|-----|----------|-------------------------------|----|----|
| P04 | 14.09.26 | Update to Drainage Catchments | RM | RW |
| P03 | 21.01.26 | Update to Drainage Strategy   | RM | RW |
| P02 | 23.12.25 | Update to Masterplan          | RM | RW |
| P01 | 17.10.25 | First Issue                   | RM | RW |
| Rev | Date     | Description                   | Dr | Ch |

Client:

Marrons

Project:

Horsepool Grange, Stanton under Barton

Title:

Preliminary Drainage Layout

ADC

INFRASTRUCTURE

© ADC Infrastructure Limited

Size:

A1

Scale:

1:500

Status:

PRELIMINARY

| Project | Originator | Volume | Level | Type | Role | Number | Status | Revision |
|---------|------------|--------|-------|------|------|--------|--------|----------|
| 3968    | -ADC       | -HGN   | -XX   | -DR  | -CH  | -0511  | S1     | P04      |