

Surface Water Drainage Strategy  
for  
Units 6B 1 & 2  
Academy Business Park, Knowsley  
Undertaken on behalf of  
The Emerson Group

|                          |                                                            |
|--------------------------|------------------------------------------------------------|
| <b>Report Title:</b>     | <b>Units 6B 1 &amp; 2, Academy Business Park, Knowsley</b> |
| <b>Report Reference:</b> | <b>10708/DS/02 - FINAL</b>                                 |
| <b>Client:</b>           | <b>The Emerson Group</b>                                   |
| <b>Issue Date:</b>       | <b>August 2022</b>                                         |
| <b>Drafted By:</b>       | <b>Kevin Tyldesley</b>                                     |
| <b>Authorised By:</b>    | <b>Andrew Leng</b>                                         |

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## **1.0 INTRODUCTION**

- 1.1 WML Consulting have been commissioned by The Emerson Group to provide a Surface Water Drainage Strategy report for a proposed development at the Academy Business Park, Knowsley, L33 7BY.
- 1.2 This report provides a surface water drainage strategy for an updated two unit retail / food development at the Academy Business Park. This scheme updates part of the proposed site layout following the grant of planning permission for the wider mixed use scheme (LPA Ref: 19/00337/OUT). A copy of this planning consent can be found at Appendix 01.

## **2.0 SITE LOCATION AND DESCRIPTION**

- 2.1 The site is located at the southern portion of the Academy Business Park and is bounded by County Road to the south and Lees Road to the east.
- 2.2 The site is currently not developed, it is made up of an area of grassland plus existing access roads and hardstanding areas.
- 2.3 The site is irregular in shape and occupies a generally level area of land, which is at a level of around 42m AOD.
- 2.4 An intrusive site investigation has been carried out at the site. For further details refer to the Ensaf Consultants Phase 2 report dated April 2020.

## **3.0 DEVELOPMENT AND SURFACE WATER DRAINAGE PROPOSALS**

- 3.1 The proposed development comprises the construction of two retail / food units together with associated access roads, service areas, car parking areas and soft landscaping.
- 3.2 A plan indicating the proposed site layout together with the surface water drainage strategy and the external surfacing proposals can be found at appendix 02.
- 3.3 Surface water drainage calculations in support of the proposals indicated can be found at appendix 03, 04 and 05.
- 3.4 The results of the recent on-site infiltration testing, which yielded across the site an average infiltration rate of 0.03679m / hr, can be found at appendix 06.
- 3.5 A completed copy of Knowsley Councils Sustainable Drainage System pro-forma can be found at appendix 07.
- 3.6 Further information as requested within the pro-forma can be found as follows:-
  - Appendix 08 – SuDS Infiltration Checklist
  - Appendix 09 – SuDS Train Assessment
- 3.7 It is considered that the contents of this report demonstrate that the proposed development can be drained in manner that is appropriate when considering modern design standards.

## **APPENDIX 01**

### **Planning Consent Notice**



**Knowsley Council**

**REGENERATION AND ECONOMIC  
DEVELOPMENT DEPARTMENT**

**TOWN AND COUNTRY PLANNING ACT 1990**

## **OUTLINE PLANNING PERMISSION**

**Application No: 19/00337/OUT**

**Name and address of applicant**

Orbit Investment (Properties) Ltd  
Emerson House  
Heyes Lane  
Alderley Edge  
Cheshire  
SK9 7LF

**Name and address of agent**

The Emerson Group  
Planning Dept  
Heyes Lane  
Alderley Edge  
Cheshire  
SK9 7LF

**Date of Receipt:** 20 May 2019

**Date Valid:** 19 August 2019

**Address/Location Of Development**

Academy Business Park  
Lees Road  
Knowsley Industrial Park  
Kirkby  
Knowsley  
L33 7SA

**Description of Development**

**OUTLINE PLANNING APPLICATION FOR THE DEMOLITION OF WEIGHING STATION AND THE ERECTION OF 5 INDUSTRIAL UNITS (USE CLASS B1( C )/B2/B8); 7 TRADE COUNTER UNITS (B8 USE); 1 SELF-STORAGE FACILITY (B8 USE); 1 RETAIL/FOOD UNIT (USE CLASS A1/A3/A5) AND 1 DRIVE-THRU UNIT (USE CLASS A1/A3/A5) TOGETHER WITH CAR PARKING AND ASSOCIATED WORKS.**

The Council of the Metropolitan Borough of Knowsley hereby give notice in pursuance of the above Act(s) that Outline Planning Permission has been **granted** for the carrying out of the development referred to above in accordance with the application and plans submitted subject to the following condition(s):

1. Before any part of the development hereby granted permission is commenced, approval shall be obtained from the Local Planning Authority with respect to the reserved matters, namely landscaping.

Reason: The application is in outline form only

2. Application for approval of reserved matters must be made not later than the expiration of three years from the date of this permission and the development must be begun no later than the expiration of two years from the final approval of the reserved matters.

Reason: In order to comply with the requirements of Section 91 of the Town and Country Planning Act 1990 (as amended).

3. The development hereby permitted shall be carried out in accordance with the approved plans and documents listed in Schedule 1.

Reason: For the avoidance of doubt.

4. Prior to the commencement of development a Construction Environmental Management Plan shall be submitted to, and approved in writing by the Local Planning Authority. The Construction Environmental Management Plan shall include the following matters:
  - a) Methods for the mitigation of noise and vibration from building works, and also from the operation of any temporary power generation or pumping plant which will operate overnight.
  - b) Methods for dust control and suppression.
  - c) Control of transfer of mud out of the site - details of wheel washing facilities including location and type.
  - d) Layout of site compound including identification of areas for the storage of plant and materials, loading / unloading and turning areas for delivery vehicles.
  - e) Management of deliveries including prevention of waiting/layover of construction related traffic on the highway, measures for the control of traffic to and from the site and consideration of any temporary traffic management arrangements which may be necessary during periods of construction.
  - f) A programme of works including any phasing.
  - g) Construction staff parking arrangements.
  - h) Adequate provision for addressing any abnormal wear and tear to the highway.

The approved Construction Environmental Management Plan shall be complied with throughout the construction period for the development unless otherwise agreed in writing with the Local Planning Authority.

Reason: In the interests of amenity and highway safety and to comply with Policies CS2 and CS19 Knowsley Local Plan Core Strategy, adopted January 2016 and saved Policy ENV2 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

5. During the construction period no works and no deliveries or removal of materials shall take place outside the hours of 0800 to 1800 Monday to Friday (excluding Public Holidays), 0800 to 1300 Saturday and not at all on Sundays and Public Holidays except with the prior written permission of the Local Planning Authority.

Reason: In the interests of amenity and to comply with Policy CS19 of the Knowsley Local Plan, adopted January 2016 and saved Policy ENV2 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

6. No development shall commence until detailed plans and particulars of the sustainable drainage system, in the form of a 'Confirmed / Final' Sustainable Drainage Strategy, for the management and disposal of surface water from the site has been submitted to and approved in writing by the Local Planning Authority, in consultation with the Lead Local Flood Authority.

The details of the 'Confirmed / Final' Sustainable Drainage Strategy must be based on the principles of greenfield standard with the surface water run-off not exceeding the pre-development greenfield runoff rate for an existing greenfield site or 5.0 l/s, whichever is greater, be accompanied by a completed Sustainable Drainage Pro-forma and meet all requirements, including submission requirements, of Knowsley Council's 'Sustainable Drainage Technical Guidance.'

Reason: To ensure satisfactory sustainable drainage facilities are provided to serve the site in accordance with the Paragraph 163 of the National Planning Policy Framework, House of Commons Written Statement 161 for Sustainable Drainage Systems, and Policy CS24 in the Core Strategy Local Plan.

7. Prior to the commencement of development full details of a scheme for a surface water sustainable drainage system to serve the site, and method of implementation shall be submitted in accordance with a 'confirmed / final surface water drainage strategy for consideration by the Local Planning Authority in consultation with Lead Local Flood Authority.

For the avoidance of doubt the scheme shall include the following:-

- I. Information about the lifetime of the development and design of the sustainable drainage system design, including storm periods and intensity (1 in 30 & 1 in 100 year + appropriate allowance for climate change), discharge rates and volumes (both pre and post development), methods employed to delay and control surface water discharged from the site, and appropriate measures taken to prevent flooding;
  - I. Demonstrate that the surface water run-off would not exceed the predevelopment greenfield runoff rate for an existing greenfield site or 5 l/s, whichever is greater;
  - II. Demonstrate that the runoff volume from the development to any drain, sewer or surface water body in the 1 in 100 year (plus climate change), 6 hour rainfall event, does not exceed the greenfield runoff volume for the same event or is as close as is practicable;
  - III. Include details of a site investigation (which should be carried out prior to design) to support infiltration proposals;
  - IV. Topography and finished floor levels. Include details of how any flood water, including depths, will be safely managed in exceedance routes; and
  - V. Secure means of access for maintenance and easements, where applicable
  - VI. A timetable for implementing the scheme.

Reason: To ensure a satisfactory drainage system is provided to serve the site in accordance with the Paragraph 163 of the National Planning Policy Framework, House of Commons Written Statement 161 for Sustainable Drainage Systems and Policy CS24 in the Core Strategy Local Plan.

## 8. Contaminated Land

### A. Risk Assessment

No development shall take place until an assessment of the risks posed by any contamination within those phases has been submitted to and approved in writing by the Local Planning Authority. This assessment must be undertaken by a suitably qualified contaminated land practitioner, in accordance with authoritative guidance (CLR 11), and shall assess any contamination on the site, whether or not it originates on the site. Moreover, it must include (were relevant):

- I. a survey of the extent, scale and nature of contamination;
- II. an assessment of the potential risks to:
  - human health,
  - property (existing or proposed) including buildings, crops, livestock,
  - pets, woodland and service lines and pipes,
  - adjoining land,
  - groundwaters and surface waters,
  - ecological systems,
  - archaeological sites and ancient monuments.

### B. Submission of Remediation Scheme

Where land affected by contamination is found which poses unacceptable risks in any phase including phase 1, no development shall take place until a detailed remediation scheme has been submitted to and approved in writing by the Local Planning Authority. The scheme must include an appraisal of remediation options, identification of the preferred option(s), the proposed remediation objectives and remediation criteria, and a description and programme of the works to be undertaken including the verification plan. As a minimum, the scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to its intended use.

### C. Implementation of Approved Remediation Scheme

The approved remediation scheme shall be implemented and a verification report submitted to and approved in writing by the Local Planning Authority, prior to the development (or relevant phase of development) being brought into use.

### D. Reporting of Unexpected Contamination

In the event that contamination is found at any time when carrying out the approved development that was not previously identified it must be reported immediately to the Local Planning Authority. Development on the part of the site affected must be halted and a risk assessment carried out and submitted to and approved in writing by the Local Planning Authority. Where unacceptable risks are found remediation and verification schemes shall be submitted to and approved in writing by the Local Planning Authority. These shall be implemented prior to the development (or relevant phase of development) being brought into use.

## E. Importation of Soil/Material

No soil is to be imported to the site until it has been tested for contamination and assessed for its suitability for the proposed development; a suitable methodology for testing this material should be submitted to and agreed by the Local Planning Authority prior to the soils being imported onto site. The methodology should include the sampling frequency, testing schedules, criteria against which the analytical results will be assessed (as determined by the risk assessment) and source material information. The analysis shall then be carried out and evidence submitted to and approved in writing to by the Local Planning Authority.

Reason: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors in accordance with Policies CS2 and CS19 of the Knowsley Local Plan Core Strategy, adopted January 2016, and saved Policy ENV5 of the Knowsley Replacement Unitary Development Plan adopted June 2006.

9. Fixed plant and machinery associated with the development shall be designed to a level that is at least 5dB(A) below the existing LA90 background noise level as measured during the relevant time period. Any tonal, impulsive and/or irregular noise would be addressed by imposing a penalty as per the methodology set out in BS4142:2014, Methods for rating and assessing industrial and commercial sound.

Noise limits for fixed plant are to apply at a position 1m from the closest affected window of the nearest noise sensitive property.

Reason: In the interests of residential amenity and to comply with Policy CS19 of the Knowsley Local Plan, adopted January 2016 and saved Policy ENV2 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

10. Prior to any external lighting being installed a lighting scheme shall be submitted to and agreed in writing by the Local Planning Authority. The scheme shall include:
  - Drawings of the lighting and lighting columns
  - A site layout indicating positions of the lighting columns and fixtures
  - An isolux drawing including luminosity details
  - Manufacturers specifications
  - Maintenance details.
  - Details of support columns.

The scheme shall take into account the Institution of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light.

External lighting shall only be installed in accordance with the agreed scheme and shall be maintained thereafter in accordance with that agreed scheme unless otherwise agreed in writing with the Local Planning Authority.

Reason: In the interests of amenity and to comply with Policy CS19 of the Knowsley Local Plan, adopted January 2016 and saved Policy ENV3 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

11. Prior to the first use of the drive-thru unit or the A1/A3/A5 kiosk a scheme shall have been previously submitted to and approved in writing by then Local Planning

Authority detailing how the smoke and odour from each of the proposed A3/A5 uses will be controlled.

The information submitted must include;

- a. Details / specification of the equipment that will be installed to control odour and smoke
- b. The siting of any external ventilation stack; and,
- c. Details of any measures which are necessary to attenuate noise from the ventilation stack;

The approved scheme should take into account the requirements of the EMAQ guidance for the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, dated 5 September 2018 and shall be fully installed and operating prior to the unit to which it is applicable first comes into use. It shall thereafter be retained and operated to then manufacturer's specification whenever the permitted use is in operation.

Reason: In the interests of amenity and to comply with Policies CS2 and CS19 of the Knowsley Local Plan, adopted January 2016 and saved Policy ENV3 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

12. The drainage from the kitchen areas serving the A3/A5 uses (drive-thru unit and A1/A3/A5 kiosk) shall incorporate a grease trap of suitable size and design before its connection to any private or public sewer. The trap shall be installed and operating prior to the premises being brought into use. It shall thereafter be retained and operated in accordance with the approved specification at all times that the A3/A5 premises are in operation.

Reason: In the interests of amenity and to comply with Policies CS2 and CS19 of the Knowsley Local Plan, adopted January 2016 and saved Policy ENV3 of the Knowsley Replacement Unitary Development Plan, adopted June 2006.

13. No development shall take place until a scheme for the design and layout of highway improvement works has been submitted to and approved in writing by the Local Planning Authority. For the avoidance of doubt, the works shall include but not be limited to:
  - a) Refreshment of signing and lining opposite the northern access on Lees Road to highlight the one way section of carriageway and the parking restrictions therein;
  - b) Amendment to signing and/or lining between the southern and northern accesses on Lees Road to improve forward visibility at the bend opposite Gores Road and improved decelerating and turning facility for users of the northern access, with further infrastructure amendment to ensure conflict potential is minimised and vehicle tracking is optimised;
  - c) Sustainable access entrance design about County Road and Lees Road which should prevent run-out and deter potential dangerous crossings, possibly requiring guardrail;
  - d) Any additional recommendations forthcoming from a Road Safety Audit of this area, to be undertaken by the developer and the Audit Report submitted to and agreed in writing by the Local Planning Authority.
  - e) The approved scheme shall be implemented prior to occupation of any of the units 1A -1H as per the approved Proposed Site Plan.

Reason: To ensure the provision of safe and adequate means of access to the development in the interests of highway safety and amenity and to comply with Policies CS2, CS7 and CS19 of the Core Strategy, adopted January 2016.

14. Notwithstanding any submitted details on approved drawings no unit shall be first occupied until a scheme for the provision of cycle and motorcycle parking, in accordance with the Council's current standards, has been submitted to and approved in writing by the Local Planning Authority. The scheme shall be implemented with regard the appropriate unit as approved before that particular unit is first brought into use and shall be retained as such thereafter. For the avoidance of doubt, long stay cycle parking must be covered and offer a means to secure the cycles.

Reason: To ensure that adequate provision is made for parking cycles and motorcycles on the site and to comply with Policies CS2 and CS7 of the Core Strategy, adopted January 2016.

15. Notwithstanding any submitted details within 3 months of the development being first brought into use a Travel Plan shall be submitted to and approved in writing by the Local Planning Authority. The Plan shall include immediate, continuing and long-term measures to promote and encourage alternative modes of transport to the single-occupancy car. For the avoidance of doubt, the Travel Plan shall include, but not be limited to:

- Involvement of employees.
- Information on existing transport policies, services and facilities, travel behaviours and attitudes.
- Access for all modes of transport.
- Targets for mode share.
- Resource allocation including Travel Plan Co-ordinator and budget.
- A parking and management strategy.
- A marketing and communications strategy.
- Appropriate measures and actions to reduce car dependence and encourage sustainable travel.
- An action plan, including a timetable for the implementation of each of the above.
- Mechanisms for monitoring, reviewing and implementing the Travel Plan.

The approved Travel Plan shall be implemented in accordance with the timetable contained therein and shall continue to be implemented as long as any part of the development is occupied and in use.

An annual report shall be submitted to the Council no later than 1 month following the anniversary of the first occupation of the development for a period of 5 years. The report shall include a review of the Travel Plan measures, monitoring data and updated action plan.

Reason: To maximise opportunities for travel by modes of transport other than the private car, to ensure that the development is sustainable and to comply with Policies CS2 and CS7 of the Knowsley Local Plan Core Strategy adopted January 2016.

16. The development consisting of the five employment use units (B1(c)/B2/B8), in all comprising Units 1A - 1E as shown on the approved Proposed Site Plan drawing, shall be substantially completed prior to the first use of either the drive-thru unit or the food/retail kiosk (Use Class A1/A3/A5). For the avoidance of doubt this shall include as a minimum completion of the external walls and roof of the buildings and surfacing and layout of the approved car parking and servicing areas.

Reason: To ensure that the drive-thru unit and food/retail unit are not developed independently of the industrial unit employment uses and to ensure compliance with Policies CS4 and CS11 of the Knowsley Local Plan Core Strategy adopted January 2016 and saved Policy EC3 of the Knowsley Replacement Unitary Development Plan adopted June 2006.

17. The B8 Use units as shown on the approved Proposed Site Plan as Units 1F-1H and Units 6D-6G shall not be used for any other purpose other than Use Class B8 of the Town and Country Planning Use Classes Order 1987 as amended, or alternatively Use Class B2 within that Order. Any B8 Use of those units shall have a trade counter element within the unit of no more than 15% of floor area of that individual unit for any ancillary retail sales.

Reason: For the avoidance of doubt and to ensure that the retail use remains ancillary to the main B8 use of units, thus limiting the loss of B8 floorspace and to comply with Policies CS4 and CS11 of the Knowsley Local Plan Core Strategy adopted January 2016 and saved Policy EC3 of the Knowsley Replacement Unitary Development Plan adopted June 2006.

18. No unit shall be occupied until an outdoor, weatherproof electric vehicle charging point readily accessible from a dedicated parking space has been provided within the site to serve the unit. (The total development must have a minimum of 15 electric vehicle charging points).

All charge points shall be:

- a) A minimum of 7KW, and
- b) at Least Mode 3 or equivalent, and
- c) untethered, and
- d) located in order to comply with the Equality Act 2010 and the accessibility requirements set out in the Building Regulations Part M.

All EV charging points shall be clearly marked as such and their purpose explained to new occupants within any travel planning advice.

Reason: In the interests of air quality, promoting sustainable travel opportunities and to comply with Policies CS2, CS7 and CS19 of the Knowsley Local Plan Core Strategy, adopted January 2016 and NPPF Para 110.

**SCHEDULE 1**

| <b>Date Received</b> | <b>Ref. No</b>       | <b>Version</b> | <b>Drawing/Document Title</b>                  |
|----------------------|----------------------|----------------|------------------------------------------------|
| <b>30/01/2020</b>    | <b>389-PL-2102 C</b> | <b>-</b>       | <b>PROPOSED SITE PLAN 1:1250</b>               |
| <b>30/01/2020</b>    | <b>389-PL-2103 C</b> | <b>-</b>       | <b>PROPOSED SITE PLAN 1:500</b>                |
| <b>19/12/2019</b>    | <b>6757124-02</b>    | <b>-</b>       | <b>NOISE IMPACT ASSESSMENT</b>                 |
| <b>27/11/2019</b>    | <b>34244</b>         | <b>-</b>       | <b>ECONOMIC STATEMENT</b>                      |
| <b>25/11/2019</b>    | <b>33855</b>         | <b>-</b>       | <b>PLANNING STATEMENT</b>                      |
| <b>19/08/2019</b>    | <b>2271</b>          | <b>-</b>       | <b>TREE SURVEY</b>                             |
| <b>01/08/2019</b>    | <b>CBO-0281-008</b>  | <b>-</b>       | <b>UNIT 1E – SITE CIRCULATION AND TRACKING</b> |
| <b>01/08/2019</b>    | <b>CBO-0281-009</b>  | <b>-</b>       | <b>UNIT 1A-D - TRACKING</b>                    |
| <b>01/08/2019</b>    | <b>CBO-0281-010</b>  | <b>-</b>       | <b>UNIT 6C-G SITE CIRCULATION AND TRACKING</b> |
| <b>01/08/2019</b>    | <b>CBO-0281-011</b>  | <b>-</b>       | <b>UNIT 1F - TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-012</b>  | <b>-</b>       | <b>UNIT 1G - TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-013</b>  | <b>-</b>       | <b>UNIT 1H – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-014</b>  | <b>-</b>       | <b>UNIT 6G – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-015</b>  | <b>-</b>       | <b>UNIT 6F – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-016</b>  | <b>-</b>       | <b>UNIT 6E – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-017</b>  | <b>-</b>       | <b>UNIT 6D – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-018</b>  | <b>-</b>       | <b>UNIT 6C – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-019</b>  | <b>-</b>       | <b>UNIT 6A – TRACKING</b>                      |
| <b>01/08/2019</b>    | <b>CBO-0281-020</b>  | <b>-</b>       | <b>UNIT 6B – TRACKING</b>                      |
| <b>15/06/2019</b>    | <b>389-PL-2110</b>   | <b>A</b>       | <b>UNIT 1F-H PROPOSED FLOOR PLANS</b>          |
| <b>14/02/2020</b>    | <b>389-PL-2113</b>   | <b>B</b>       | <b>UNIT 6C-G PROPOSED FLOOR PLANS</b>          |
| <b>15/06/2019</b>    | <b>389-PL-2115</b>   | <b>A</b>       | <b>UNIT 6C-G PROPOSED ELEVATIONS</b>           |
| <b>15/06/2019</b>    | <b>389-PL-2116</b>   | <b>A</b>       | <b>UNIT 6A – PROPOSED FLOOR PLAN</b>           |

|            |                  |   |                                |
|------------|------------------|---|--------------------------------|
| 15/06/2019 | -                | - | TRAVEL PLAN                    |
| 15/06/2019 | -                | - | SUSTAINABILITY STATEMENT       |
| 15/06/2019 | -                | - | HEALTH IMPACT ASSESSMENT       |
| 15/06/2019 | -                | - | SUDS PROFORMA                  |
| 17/05/2019 | 389-PL-2104      | - | UNIT 1A-C PROPOSED FLOOR PLANS |
| 17/05/2019 | 389-PL-2105      | - | UNIT 1A-C PROPOSED ROOF PLANS  |
| 17/05/2019 | 389-PL-2106      | - | UNIT 1A-C PROPOSED ELEVATIONS  |
| 17/05/2019 | 389-PL-2107      | - | UNIT 1D-E PROPOSED FLOOR PLANS |
| 17/05/2019 | 389-PL-2108      | - | UNIT 1D-E PROPOSED ROOF PLANS  |
| 17/05/2019 | 389-PL-2109      | - | UNIT 1D-E PROPOSED ELEVATIONS  |
| 17/05/2019 | 389-PL-2111      | - | UNIT 1F-H PROPOSED FLOOR PLANS |
| 17/05/2019 | Update           | - | ECOLOGICAL ASSESSMENT          |
| 17/05/2019 | 1402/07-18/FD/LO | - | ECOLOGICAL ASSESSMENT          |
| 17/05/2019 | 8114G/FRA/01     | - | FLOOD RISK ASSESSMENT          |
| 17/05/2019 | 389-PL-2121      | - | UNIT 6B PROPOSED ELEVATIONS    |
| 17/05/2019 | 389-PL-2100      | - | LOCATION PLAN                  |
| 17/05/2019 | CBO-0281-013     | - | TRANSPORT STATEMENT            |
| 17/05/2019 | 389-PL-2122 A    | - | PROPOSED SITE SECTIONS         |
| 17/05/2019 | -                | - | DESIGN AND ACCESS STATEMENT    |
| 17/05/2019 | 8114/G/01-B      | - | PHASE 1 DESK STUDY             |
| 17/05/2019 | 389-PL-2117      | - | UNIT 6A PROPOSED ROOF PLAN     |
| 17/05/2019 | 389-PL-2118      | - | UNIT 6A PROPOSED ELEVATIONS    |
| 17/05/2019 | 389-PL-2112      | - | UNIT 1F-H PROPOSED ELEVATIONS  |
| 17/05/2019 | 389-PL-2119      | - | UNIT 6B PROPOSED FLOOR PLANS   |
| 17/05/2019 | 389-PL-2120      | - | UNIT 6B PROPOSED ROOF PLANS    |

## **REASON(S) FOR THE GRANTING OF PLANNING PERMISSION**

The decision to grant Outline planning permission has also been taken having regard to the policies and proposals as set out below, and to all relevant material considerations including supplementary planning guidance:-

### **KNOWSLEY LOCAL PLAN: CORE STRATEGY**

- SD1 - Sustainable Development
- CS1 - Spatial Strategy for Knowsley
- CS2 - Development Principles
- CS4 - Economy and Employment
- CS7 - Transport Networks
- CS11 - Principal Regeneration Area - Knowsley Industrial and Business Parks
- CS19 - Design Quality and Accessibility in New Development
- CS24 - Managing Flood Risk
- CS26 - Waste Management
- CS22 - Sustainable and Low Carbon Development

### **SAVED POLICIES - KNOWSLEY REPLACEMENT UNITARY DEVELOPMENT PLAN (ADOPTED JUNE 2006)**

- EC1 - Strategy for Provision of Employment Land
- EC2 - Sites Allocated for Employment Development
- EC3 - Primarily Industrial Areas
- ENV2 - Noise and Vibration
- ENV5 - Contaminated Land

This informative is only intended as a summary of the reason(s) for the granting of Outline planning permission. Should you require any further details relating to the decision please contact the relevant case officer (Lee Osborne on 0151 443 2395)

### **ARTICLE 35 STATEMENT**

The Local Planning Authority has acted positively and proactively in determining this application by identifying matters of concern within the application (as originally submitted) and negotiating with the applicant, acceptable amendments to the proposal to address those concerns. As a result, the Local Planning Authority has been able to grant planning permission for an acceptable proposal, in accordance with the presumption in favour of sustainable development, as set out within the National Planning Policy Framework.

### **NOTE FOR APPLICANT:**

**IMPORTANT - PLEASE READ CAREFULLY THE NOTES BELOW AS FAILURE TO COMPLY COULD MAKE THE DEVELOPMENT HEREBY PERMITTED UNAUTHORISED**

- 1) This planning permission is granted in strict accordance with the approved plans. It should be noted however that:
  - a) Any variation from the approved plans following commencement of the development, irrespective of the degree of variation, will constitute unauthorised development and may be liable to enforcement action.
  - b) You or your agent or any other person responsible for implementing this permission should inform Planning Services immediately of any proposed variation from the approved plans and ask to be advised as to the best method to resolve the matter. Most proposals

for variation to the approved plans will require the submission of a new planning application.

- 2) This permission is granted subject to conditions and it is the owner of the property and the person responsible for the implementation of the development who will be fully responsible for their compliance throughout the development and beyond.
- 3) If there is a condition that requires work to be carried out or details to be approved prior to the commencement of the development this is called a "condition precedent". The following should be noted with regards to conditions precedent.
  - a) If a condition precedent is not complied with prior to the start of development, the whole of the development will be unauthorised and you may be liable to enforcement action.
  - b) In addition, if the requirements of a condition precedent are subsequently not complied with, the development is unauthorised and the only way to rectify the development is the submission of a new application.

If any other type of condition is breached then you will be liable to a breach of condition notice.



**Executive Director - Regeneration and Economic Development**

**Date: 26 February 2020**

### **IMPORTANT NOTES FOR YOUR ATTENTION:**

1. This permission refers only to that required under the Town and Country Planning Acts and does not include any consent or approval under any other enactment, bylaw, order or regulation.
2. This permission refers only to those plans submitted as part of the Planning Application a copy of which is retained by the Local Planning Authority. The Local Planning Authority should be contacted in writing if it is proposed to amend these plans in any way as a further permission, may be required.
3. If a Building Regulations Consent is required for these works it is your responsibility to ensure that the plans submitted for both the Building Regulations Consent and Planning Permission are the same in all respects. Should the plans relating to one consent vary from the other, it will be necessary for you to submit amended plans to this Department and obtain the relevant approval(s) prior to commencing any works.

### **Appeals to the Secretary of State**

- If you are aggrieved by the decision of your local planning authority to refuse permission for the proposed development or to grant it subject to conditions, then you can appeal to the Secretary of State under section 78 of the Town and Country Planning Act 1990.
- If you want to appeal against your local planning authority's decision then you must do so within 6 months of the date of this notice.
- Appeals can be made online at: <https://www.gov.uk/planning-inspectorate>.  
If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000.
- The Secretary of State can allow a longer period for giving notice of an appeal but will not normally be prepared to use this power unless there are special circumstances which excuse the delay in giving notice of appeal.
- The Secretary of State need not consider an appeal if it seems to the Secretary of State that the local planning authority could not have granted planning permission for the proposed development or could not have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

## **APPENDIX 02**

### **Proposed development and drainage layout plan**

| Project      | Originator | Volume | Level | Type | Role | Number | Review No. |
|--------------|------------|--------|-------|------|------|--------|------------|
| 0708 - WML - | 00 -       | XX -   | DR -  | C -  | 1001 | P0     |            |

## **APPENDIX 03**

### **Surface water drainage calculations for the proposed roof area**

| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>ROOF AREA - REV 01 |                        |                 |  |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| Date AUGUST 2022<br>File 10708 - SW - UNITS 6B 1...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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|
| <p>Summary of Results for 100 year Return Period (+40%)</p> <p>Half Drain Time : 285 minutes.</p> <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>40.680</td><td>0.580</td><td>0.2</td><td>6.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>40.972</td><td>0.872</td><td>0.3</td><td>7.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>41.243</td><td>1.143</td><td>0.4</td><td>9.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>41.433</td><td>1.333</td><td>0.4</td><td>10.3</td><td>O K</td></tr><tr><td>180 min Summer</td><td>41.474</td><td>1.374</td><td>0.4</td><td>10.6</td><td>O K</td></tr><tr><td>240 min Summer</td><td>41.480</td><td>1.380</td><td>0.4</td><td>10.6</td><td>O K</td></tr><tr><td>360 min Summer</td><td>41.462</td><td>1.362</td><td>0.4</td><td>10.5</td><td>O K</td></tr><tr><td>480 min Summer</td><td>41.432</td><td>1.332</td><td>0.4</td><td>10.3</td><td>O K</td></tr><tr><td>600 min Summer</td><td>41.393</td><td>1.293</td><td>0.4</td><td>10.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>41.350</td><td>1.250</td><td>0.4</td><td>9.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>41.262</td><td>1.162</td><td>0.4</td><td>9.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>41.106</td><td>1.006</td><td>0.4</td><td>8.5</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>40.922</td><td>0.822</td><td>0.3</td><td>7.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>40.776</td><td>0.676</td><td>0.3</td><td>6.6</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>40.599</td><td>0.499</td><td>0.2</td><td>5.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>40.508</td><td>0.408</td><td>0.2</td><td>3.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>40.441</td><td>0.341</td><td>0.2</td><td>3.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>40.387</td><td>0.287</td><td>0.2</td><td>2.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>40.343</td><td>0.243</td><td>0.2</td><td>1.8</td><td>O K</td></tr><tr><td>15 min Winter</td><td>40.799</td><td>0.699</td><td>0.3</td><td>6.7</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>131.351</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>86.314</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>54.074</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>32.762</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>24.128</td><td>0.0</td><td>170</td></tr><tr><td>240 min Summer</td><td>19.312</td><td>0.0</td><td>196</td></tr><tr><td>360 min Summer</td><td>14.018</td><td>0.0</td><td>260</td></tr><tr><td>480 min Summer</td><td>11.175</td><td>0.0</td><td>328</td></tr><tr><td>600 min Summer</td><td>9.366</td><td>0.0</td><td>398</td></tr><tr><td>720 min Summer</td><td>8.105</td><td>0.0</td><td>468</td></tr><tr><td>960 min Summer</td><td>6.446</td><td>0.0</td><td>606</td></tr><tr><td>1440 min Summer</td><td>4.660</td><td>0.0</td><td>880</td></tr><tr><td>2160 min Summer</td><td>3.364</td><td>0.0</td><td>1280</td></tr><tr><td>2880 min Summer</td><td>2.667</td><td>0.0</td><td>1672</td></tr><tr><td>4320 min Summer</td><td>1.920</td><td>0.0</td><td>2460</td></tr><tr><td>5760 min Summer</td><td>1.519</td><td>0.0</td><td>3176</td></tr><tr><td>7200 min Summer</td><td>1.266</td><td>0.0</td><td>3896</td></tr><tr><td>8640 min Summer</td><td>1.090</td><td>0.0</td><td>4592</td></tr><tr><td>10080 min Summer</td><td>0.961</td><td>0.0</td><td>5344</td></tr><tr><td>15 min Winter</td><td>131.351</td><td>0.0</td><td>18</td></tr></tbody></table> |               |                                                                        |                        |                 |                                                                                     | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 40.680 | 0.580 | 0.2 | 6.0 | O K | 30 min Summer | 40.972 | 0.872 | 0.3 | 7.7 | O K | 60 min Summer | 41.243 | 1.143 | 0.4 | 9.3 | O K | 120 min Summer | 41.433 | 1.333 | 0.4 | 10.3 | O K | 180 min Summer | 41.474 | 1.374 | 0.4 | 10.6 | O K | 240 min Summer | 41.480 | 1.380 | 0.4 | 10.6 | O K | 360 min Summer | 41.462 | 1.362 | 0.4 | 10.5 | O K | 480 min Summer | 41.432 | 1.332 | 0.4 | 10.3 | O K | 600 min Summer | 41.393 | 1.293 | 0.4 | 10.1 | O K | 720 min Summer | 41.350 | 1.250 | 0.4 | 9.9 | O K | 960 min Summer | 41.262 | 1.162 | 0.4 | 9.4 | O K | 1440 min Summer | 41.106 | 1.006 | 0.4 | 8.5 | O K | 2160 min Summer | 40.922 | 0.822 | 0.3 | 7.4 | O K | 2880 min Summer | 40.776 | 0.676 | 0.3 | 6.6 | O K | 4320 min Summer | 40.599 | 0.499 | 0.2 | 5.1 | O K | 5760 min Summer | 40.508 | 0.408 | 0.2 | 3.9 | O K | 7200 min Summer | 40.441 | 0.341 | 0.2 | 3.0 | O K | 8640 min Summer | 40.387 | 0.287 | 0.2 | 2.3 | O K | 10080 min Summer | 40.343 | 0.243 | 0.2 | 1.8 | O K | 15 min Winter | 40.799 | 0.699 | 0.3 | 6.7 | O K | Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Time-Peak (mins) | 15 min Summer | 131.351 | 0.0 | 19 | 30 min Summer | 86.314 | 0.0 | 33 | 60 min Summer | 54.074 | 0.0 | 62 | 120 min Summer | 32.762 | 0.0 | 120 | 180 min Summer | 24.128 | 0.0 | 170 | 240 min Summer | 19.312 | 0.0 | 196 | 360 min Summer | 14.018 | 0.0 | 260 | 480 min Summer | 11.175 | 0.0 | 328 | 600 min Summer | 9.366 | 0.0 | 398 | 720 min Summer | 8.105 | 0.0 | 468 | 960 min Summer | 6.446 | 0.0 | 606 | 1440 min Summer | 4.660 | 0.0 | 880 | 2160 min Summer | 3.364 | 0.0 | 1280 | 2880 min Summer | 2.667 | 0.0 | 1672 | 4320 min Summer | 1.920 | 0.0 | 2460 | 5760 min Summer | 1.519 | 0.0 | 3176 | 7200 min Summer | 1.266 | 0.0 | 3896 | 8640 min Summer | 1.090 | 0.0 | 4592 | 10080 min Summer | 0.961 | 0.0 | 5344 | 15 min Winter | 131.351 | 0.0 | 18 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Max Level (m) | Max Depth (m)                                                          | Max Infiltration (l/s) | Max Volume (m³) | Status                                                                              |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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|
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40.680        | 0.580                                                                  | 0.2                    | 6.0             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 40.972        | 0.872                                                                  | 0.3                    | 7.7             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 41.243        | 1.143                                                                  | 0.4                    | 9.3             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 41.474        | 1.374                                                                  | 0.4                    | 10.6            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 41.480        | 1.380                                                                  | 0.4                    | 10.6            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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|
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 41.393        | 1.293                                                                  | 0.4                    | 10.1            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 40.776        | 0.676                                                                  | 0.3                    | 6.6             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 40.599        | 0.499                                                                  | 0.2                    | 5.1             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 40.508        | 0.408                                                                  | 0.2                    | 3.9             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                      |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.961         | 0.0                                                                    | 5344                   |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     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|
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 131.351       | 0.0                                                                    | 18                     |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |     |     |               |        |       |     |     |     |               |        |       |     |     |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |     |     |                |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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|     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |     |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    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|-----------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------|------------------------------|-----------------------|-------------------------------------------------------------------------------------|
| WML Consulting Ltd                                                                |                     |                                                                        |                              | Page 2                |                                                                                     |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL |                     | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>ROOF AREA - REV 01 |                              |                       |  |
| Date AUGUST 2022                                                                  |                     | Designed by KPT                                                        |                              |                       |                                                                                     |
| File 10708 - SW - UNITS 6B 1...                                                   |                     | Checked by DB                                                          |                              |                       |                                                                                     |
| Innovyze                                                                          |                     | Source Control 2014.1.1                                                |                              |                       |                                                                                     |
| Summary of Results for 100 year Return Period (+40%)                              |                     |                                                                        |                              |                       |                                                                                     |
| Storm<br>Event                                                                    | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                    | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status                                                                              |
| 30 min Winter                                                                     | 41.136              | 1.036                                                                  | 0.4                          | 8.6                   | O K                                                                                 |
| 60 min Winter                                                                     | 41.443              | 1.343                                                                  | 0.4                          | 10.4                  | O K                                                                                 |
| 120 min Winter                                                                    | 41.669              | 1.569                                                                  | 0.5                          | 11.7                  | Flood Risk                                                                          |
| 180 min Winter                                                                    | 41.725              | 1.625                                                                  | 0.5                          | 12.0                  | Flood Risk                                                                          |
| 240 min Winter                                                                    | 41.722              | 1.622                                                                  | 0.5                          | 12.0                  | Flood Risk                                                                          |
| 360 min Winter                                                                    | 41.698              | 1.598                                                                  | 0.5                          | 11.9                  | Flood Risk                                                                          |
| 480 min Winter                                                                    | 41.651              | 1.551                                                                  | 0.5                          | 11.6                  | Flood Risk                                                                          |
| 600 min Winter                                                                    | 41.593              | 1.493                                                                  | 0.5                          | 11.3                  | O K                                                                                 |
| 720 min Winter                                                                    | 41.531              | 1.431                                                                  | 0.5                          | 10.9                  | O K                                                                                 |
| 960 min Winter                                                                    | 41.408              | 1.308                                                                  | 0.4                          | 10.2                  | O K                                                                                 |
| 1440 min Winter                                                                   | 41.190              | 1.090                                                                  | 0.4                          | 8.9                   | O K                                                                                 |
| 2160 min Winter                                                                   | 40.944              | 0.844                                                                  | 0.3                          | 7.5                   | O K                                                                                 |
| 2880 min Winter                                                                   | 40.755              | 0.655                                                                  | 0.3                          | 6.4                   | O K                                                                                 |
| 4320 min Winter                                                                   | 40.552              | 0.452                                                                  | 0.2                          | 4.5                   | O K                                                                                 |
| 5760 min Winter                                                                   | 40.443              | 0.343                                                                  | 0.2                          | 3.1                   | O K                                                                                 |
| 7200 min Winter                                                                   | 40.363              | 0.263                                                                  | 0.2                          | 2.0                   | O K                                                                                 |
| 8640 min Winter                                                                   | 40.301              | 0.201                                                                  | 0.1                          | 1.3                   | O K                                                                                 |
| 10080 min Winter                                                                  | 40.250              | 0.150                                                                  | 0.1                          | 0.9                   | O K                                                                                 |
| Storm<br>Event                                                                    | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                              | Time-Peak<br>(mins)          |                       |                                                                                     |
| 30 min Winter                                                                     | 86.314              | 0.0                                                                    | 33                           |                       |                                                                                     |
| 60 min Winter                                                                     | 54.074              | 0.0                                                                    | 62                           |                       |                                                                                     |
| 120 min Winter                                                                    | 32.762              | 0.0                                                                    | 118                          |                       |                                                                                     |
| 180 min Winter                                                                    | 24.128              | 0.0                                                                    | 172                          |                       |                                                                                     |
| 240 min Winter                                                                    | 19.312              | 0.0                                                                    | 200                          |                       |                                                                                     |
| 360 min Winter                                                                    | 14.018              | 0.0                                                                    | 272                          |                       |                                                                                     |
| 480 min Winter                                                                    | 11.175              | 0.0                                                                    | 350                          |                       |                                                                                     |
| 600 min Winter                                                                    | 9.366               | 0.0                                                                    | 426                          |                       |                                                                                     |
| 720 min Winter                                                                    | 8.105               | 0.0                                                                    | 500                          |                       |                                                                                     |
| 960 min Winter                                                                    | 6.446               | 0.0                                                                    | 646                          |                       |                                                                                     |
| 1440 min Winter                                                                   | 4.660               | 0.0                                                                    | 936                          |                       |                                                                                     |
| 2160 min Winter                                                                   | 3.364               | 0.0                                                                    | 1344                         |                       |                                                                                     |
| 2880 min Winter                                                                   | 2.667               | 0.0                                                                    | 1760                         |                       |                                                                                     |
| 4320 min Winter                                                                   | 1.920               | 0.0                                                                    | 2552                         |                       |                                                                                     |
| 5760 min Winter                                                                   | 1.519               | 0.0                                                                    | 3288                         |                       |                                                                                     |
| 7200 min Winter                                                                   | 1.266               | 0.0                                                                    | 4032                         |                       |                                                                                     |
| 8640 min Winter                                                                   | 1.090               | 0.0                                                                    | 4672                         |                       |                                                                                     |
| 10080 min Winter                                                                  | 0.961               | 0.0                                                                    | 5344                         |                       |                                                                                     |
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|-----------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| WML Consulting Ltd                                                                |                                                                        | Page 3                                                                              |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>ROOF AREA - REV 01 |  |
| Date AUGUST 2022<br>File 10708 - SW - UNITS 6B 1...                               | Designed by KPT<br>Checked by DB                                       |                                                                                     |
| Innovyze Source Control 2014.1.1                                                  |                                                                        |                                                                                     |

Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.100            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.400             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

Time Area Diagram

Total Area (ha) 0.025

| Time (mins) | Area     |
|-------------|----------|
| From:       | To: (ha) |
| 0           | 4 0.025  |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                        |                                                                                     |                                      |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------|-------------------|------|--------------------------------------|---------|-------------------|-------|---------------|-----|-----------------------------|-------|----------|------|-------------|-----|------------------|--------|----------------------|-------|------------------|-----|----------------------------|-------|
| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                        | Page 4                                                                              |                                      |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>ROOF AREA - REV 01 |  |                                      |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Date AUGUST 2022<br>File 10708 - SW - UNITS 6B 1...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Designed by KPT<br>Checked by DB                                       |                                                                                     |                                      |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Innovyze Source Control 2014.1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                        |                                                                                     |                                      |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| <p style="text-align: center;"><u>Model Details</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 41.900</p> <p style="text-align: center;"><u>Filter Drain Structure</u></p> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.03679</td> <td>Trench Length (m)</td> <td>24.0</td> </tr> <tr> <td>Infiltration Coefficient Side (m/hr)</td> <td>0.03679</td> <td>Pipe Diameter (m)</td> <td>0.450</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Pipe Depth above Invert (m)</td> <td>0.150</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Invert Level (m)</td> <td>40.100</td> <td>Cap Volume Depth (m)</td> <td>1.645</td> </tr> <tr> <td>Trench Width (m)</td> <td>0.8</td> <td>Cap Infiltration Depth (m)</td> <td>1.645</td> </tr> </table> |                                                                        |                                                                                     | Infiltration Coefficient Base (m/hr) | 0.03679 | Trench Length (m) | 24.0 | Infiltration Coefficient Side (m/hr) | 0.03679 | Pipe Diameter (m) | 0.450 | Safety Factor | 2.0 | Pipe Depth above Invert (m) | 0.150 | Porosity | 0.30 | Slope (1:X) | 0.0 | Invert Level (m) | 40.100 | Cap Volume Depth (m) | 1.645 | Trench Width (m) | 0.8 | Cap Infiltration Depth (m) | 1.645 |
| Infiltration Coefficient Base (m/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.03679                                                                | Trench Length (m)                                                                   | 24.0                                 |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Infiltration Coefficient Side (m/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.03679                                                                | Pipe Diameter (m)                                                                   | 0.450                                |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Safety Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2.0                                                                    | Pipe Depth above Invert (m)                                                         | 0.150                                |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Porosity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.30                                                                   | Slope (1:X)                                                                         | 0.0                                  |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 40.100                                                                 | Cap Volume Depth (m)                                                                | 1.645                                |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
| Trench Width (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.8                                                                    | Cap Infiltration Depth (m)                                                          | 1.645                                |         |                   |      |                                      |         |                   |       |               |     |                             |       |          |      |             |     |                  |        |                      |       |                  |     |                            |       |
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## **APPENDIX 04**

### **Surface water drainage calculations for porous surfacing area 1**

| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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    |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
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---|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|------------------|--------|-------|-----|-----|-----|---------------|--------|-------|-----|------|-----|-------------|--------------|---------------------|------------------|---------------|---------|-----|----|---------------|--------|-----|----|---------------|--------|-----|----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|-------|-----|-----|----------------|-------|-----|-----|----------------|-------|-----|-----|-----------------|-------|-----|-----|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|------------------|-------|-----|------|---------------|---------|-----|----|
| No. 8 Oak Green                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               | 10708 - ACADEMY BP         |                        |                 |  |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| Stanley Green Business Park                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | UNITS 6B 1 & 2 - SW DESIGN |                        |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |               | POROUS CAR PARK 1 - REV 02 |                        |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
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| File 10708 - SW - PAVED AREA...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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    |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| <p>Summary of Results for 100 year Return Period (+40%)</p> <p>Half Drain Time : 292 minutes.</p> <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>41.407</td><td>0.277</td><td>3.1</td><td>50.0</td><td>O K</td></tr><tr><td>30 min Summer</td><td>41.491</td><td>0.361</td><td>3.1</td><td>65.3</td><td>O K</td></tr><tr><td>60 min Summer</td><td>41.568</td><td>0.438</td><td>3.1</td><td>79.1</td><td>O K</td></tr><tr><td>120 min Summer</td><td>41.624</td><td>0.494</td><td>3.1</td><td>89.1</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>41.636</td><td>0.506</td><td>3.1</td><td>91.4</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>41.631</td><td>0.501</td><td>3.1</td><td>90.5</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>41.611</td><td>0.481</td><td>3.1</td><td>86.9</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>41.591</td><td>0.461</td><td>3.1</td><td>83.3</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>41.571</td><td>0.441</td><td>3.1</td><td>79.7</td><td>O K</td></tr><tr><td>720 min Summer</td><td>41.551</td><td>0.421</td><td>3.1</td><td>76.1</td><td>O K</td></tr><tr><td>960 min Summer</td><td>41.512</td><td>0.382</td><td>3.1</td><td>69.0</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>41.439</td><td>0.309</td><td>3.1</td><td>55.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>41.345</td><td>0.215</td><td>3.1</td><td>38.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>41.273</td><td>0.143</td><td>3.1</td><td>25.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>41.192</td><td>0.062</td><td>3.1</td><td>11.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>41.174</td><td>0.044</td><td>2.7</td><td>8.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>41.167</td><td>0.037</td><td>2.3</td><td>6.7</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>41.162</td><td>0.032</td><td>2.0</td><td>5.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>41.158</td><td>0.028</td><td>1.7</td><td>5.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>41.443</td><td>0.313</td><td>3.1</td><td>56.6</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>133.616</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>87.778</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>54.957</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>33.261</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>24.473</td><td>0.0</td><td>180</td></tr><tr><td>240 min Summer</td><td>19.572</td><td>0.0</td><td>230</td></tr><tr><td>360 min Summer</td><td>14.207</td><td>0.0</td><td>286</td></tr><tr><td>480 min Summer</td><td>11.325</td><td>0.0</td><td>348</td></tr><tr><td>600 min Summer</td><td>9.491</td><td>0.0</td><td>416</td></tr><tr><td>720 min Summer</td><td>8.212</td><td>0.0</td><td>484</td></tr><tr><td>960 min Summer</td><td>6.530</td><td>0.0</td><td>616</td></tr><tr><td>1440 min Summer</td><td>4.720</td><td>0.0</td><td>880</td></tr><tr><td>2160 min Summer</td><td>3.406</td><td>0.0</td><td>1256</td></tr><tr><td>2880 min Summer</td><td>2.700</td><td>0.0</td><td>1612</td></tr><tr><td>4320 min Summer</td><td>1.943</td><td>0.0</td><td>2248</td></tr><tr><td>5760 min Summer</td><td>1.537</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.281</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.103</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>0.972</td><td>0.0</td><td>5080</td></tr><tr><td>15 min Winter</td><td>133.616</td><td>0.0</td><td>18</td></tr></tbody></table> |               |                            |                        |                 |                                                                                     | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 41.407 | 0.277 | 3.1 | 50.0 | O K | 30 min Summer | 41.491 | 0.361 | 3.1 | 65.3 | O K | 60 min Summer | 41.568 | 0.438 | 3.1 | 79.1 | O K | 120 min Summer | 41.624 | 0.494 | 3.1 | 89.1 | Flood Risk | 180 min Summer | 41.636 | 0.506 | 3.1 | 91.4 | Flood Risk | 240 min Summer | 41.631 | 0.501 | 3.1 | 90.5 | Flood Risk | 360 min Summer | 41.611 | 0.481 | 3.1 | 86.9 | Flood Risk | 480 min Summer | 41.591 | 0.461 | 3.1 | 83.3 | Flood Risk | 600 min Summer | 41.571 | 0.441 | 3.1 | 79.7 | O K | 720 min Summer | 41.551 | 0.421 | 3.1 | 76.1 | O K | 960 min Summer | 41.512 | 0.382 | 3.1 | 69.0 | O K | 1440 min Summer | 41.439 | 0.309 | 3.1 | 55.8 | O K | 2160 min Summer | 41.345 | 0.215 | 3.1 | 38.9 | O K | 2880 min Summer | 41.273 | 0.143 | 3.1 | 25.9 | O K | 4320 min Summer | 41.192 | 0.062 | 3.1 | 11.2 | O K | 5760 min Summer | 41.174 | 0.044 | 2.7 | 8.0 | O K | 7200 min Summer | 41.167 | 0.037 | 2.3 | 6.7 | O K | 8640 min Summer | 41.162 | 0.032 | 2.0 | 5.8 | O K | 10080 min Summer | 41.158 | 0.028 | 1.7 | 5.1 | O K | 15 min Winter | 41.443 | 0.313 | 3.1 | 56.6 | O K | Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Time-Peak (mins) | 15 min Summer | 133.616 | 0.0 | 18 | 30 min Summer | 87.778 | 0.0 | 33 | 60 min Summer | 54.957 | 0.0 | 62 | 120 min Summer | 33.261 | 0.0 | 122 | 180 min Summer | 24.473 | 0.0 | 180 | 240 min Summer | 19.572 | 0.0 | 230 | 360 min Summer | 14.207 | 0.0 | 286 | 480 min Summer | 11.325 | 0.0 | 348 | 600 min Summer | 9.491 | 0.0 | 416 | 720 min Summer | 8.212 | 0.0 | 484 | 960 min Summer | 6.530 | 0.0 | 616 | 1440 min Summer | 4.720 | 0.0 | 880 | 2160 min Summer | 3.406 | 0.0 | 1256 | 2880 min Summer | 2.700 | 0.0 | 1612 | 4320 min Summer | 1.943 | 0.0 | 2248 | 5760 min Summer | 1.537 | 0.0 | 2936 | 7200 min Summer | 1.281 | 0.0 | 3672 | 8640 min Summer | 1.103 | 0.0 | 4400 | 10080 min Summer | 0.972 | 0.0 | 5080 | 15 min Winter | 133.616 | 0.0 | 18 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max Level (m) | Max Depth (m)              | Max Infiltration (l/s) | Max Volume (m³) | Status                                                                              |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 41.407        | 0.277                      | 3.1                    | 50.0            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 41.568        | 0.438                      | 3.1                    | 79.1            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 41.624        | 0.494                      | 3.1                    | 89.1            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 41.192        | 0.062                      | 3.1                    | 11.2            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 41.174        | 0.044                      | 2.7                    | 8.0             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 41.167        | 0.037                      | 2.3                    | 6.7             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 41.162        | 0.032                      | 2.0                    | 5.8             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 41.443        | 0.313                      | 3.1                    | 56.6            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 133.616       | 0.0                        | 18                     |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 87.778        | 0.0                        | 33                     |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 54.957        | 0.0                        | 62                     |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 19.572        | 0.0                        | 230                    |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14.207        | 0.0                        | 286                    |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                       |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 133.616       | 0.0                        | 18                     |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |     |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                |        |       |     |      |     |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     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| ©1982-2014 XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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    |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     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|------------------------------------------------------|---------------------|----------------------------|------------------------------|-----------------------|-------------------------------------------------------------------------------------|
| WML Consulting Ltd                                   |                     |                            |                              | Page 2                |                                                                                     |
| No. 8 Oak Green                                      |                     | 10708 - ACADEMY BP         |                              |                       |  |
| Stanley Green Business Park                          |                     | UNITS 6B 1 & 2 - SW DESIGN |                              |                       |                                                                                     |
| Earl Rd, Cheadle Hulme, SK8 6QL                      |                     | POROUS CAR PARK 1 - REV 02 |                              |                       |                                                                                     |
| Date AUGUST 2022                                     |                     | Designed by KPT            |                              |                       |                                                                                     |
| File 10708 - SW - PAVED AREA...                      |                     | Checked by DB              |                              |                       |                                                                                     |
| Innovyze                                             |                     | Source Control 2014.1.1    |                              |                       |                                                                                     |
| Summary of Results for 100 year Return Period (+40%) |                     |                            |                              |                       |                                                                                     |
| Storm<br>Event                                       | Max<br>Level<br>(m) | Max<br>Depth<br>(m)        | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status                                                                              |
| 30 min Winter                                        | 41.539              | 0.409                      |                              | 3.1 73.9              | O K                                                                                 |
| 60 min Winter                                        | 41.628              | 0.498                      |                              | 3.1 89.9              | Flood Risk                                                                          |
| 120 min Winter                                       | 41.696              | 0.566                      |                              | 3.1 102.3             | Flood Risk                                                                          |
| 180 min Winter                                       | 41.717              | 0.587                      |                              | 3.1 106.0             | Flood Risk                                                                          |
| 240 min Winter                                       | 41.717              | 0.587                      |                              | 3.1 106.0             | Flood Risk                                                                          |
| 360 min Winter                                       | 41.693              | 0.563                      |                              | 3.1 101.6             | Flood Risk                                                                          |
| 480 min Winter                                       | 41.666              | 0.536                      |                              | 3.1 96.9              | Flood Risk                                                                          |
| 600 min Winter                                       | 41.639              | 0.509                      |                              | 3.1 91.9              | Flood Risk                                                                          |
| 720 min Winter                                       | 41.610              | 0.480                      |                              | 3.1 86.6              | Flood Risk                                                                          |
| 960 min Winter                                       | 41.551              | 0.421                      |                              | 3.1 76.0              | O K                                                                                 |
| 1440 min Winter                                      | 41.439              | 0.309                      |                              | 3.1 55.8              | O K                                                                                 |
| 2160 min Winter                                      | 41.300              | 0.170                      |                              | 3.1 30.7              | O K                                                                                 |
| 2880 min Winter                                      | 41.207              | 0.077                      |                              | 3.1 13.9              | O K                                                                                 |
| 4320 min Winter                                      | 41.171              | 0.041                      | 2.5                          | 7.3                   | O K                                                                                 |
| 5760 min Winter                                      | 41.162              | 0.032                      | 2.0                          | 5.8                   | O K                                                                                 |
| 7200 min Winter                                      | 41.157              | 0.027                      | 1.6                          | 4.8                   | O K                                                                                 |
| 8640 min Winter                                      | 41.153              | 0.023                      | 1.4                          | 4.2                   | O K                                                                                 |
| 10080 min Winter                                     | 41.150              | 0.020                      | 1.2                          | 3.6                   | O K                                                                                 |
| Storm<br>Event                                       |                     | Rain<br>(mm/hr)            | Flooded<br>Volume<br>(m³)    | Time-Peak<br>(mins)   |                                                                                     |
| 30 min Winter                                        |                     | 87.778                     | 0.0                          | 33                    |                                                                                     |
| 60 min Winter                                        |                     | 54.957                     | 0.0                          | 62                    |                                                                                     |
| 120 min Winter                                       |                     | 33.261                     | 0.0                          | 120                   |                                                                                     |
| 180 min Winter                                       |                     | 24.473                     | 0.0                          | 176                   |                                                                                     |
| 240 min Winter                                       |                     | 19.572                     | 0.0                          | 232                   |                                                                                     |
| 360 min Winter                                       |                     | 14.207                     | 0.0                          | 332                   |                                                                                     |
| 480 min Winter                                       |                     | 11.325                     | 0.0                          | 374                   |                                                                                     |
| 600 min Winter                                       |                     | 9.491                      | 0.0                          | 452                   |                                                                                     |
| 720 min Winter                                       |                     | 8.212                      | 0.0                          | 528                   |                                                                                     |
| 960 min Winter                                       |                     | 6.530                      | 0.0                          | 674                   |                                                                                     |
| 1440 min Winter                                      |                     | 4.720                      | 0.0                          | 952                   |                                                                                     |
| 2160 min Winter                                      |                     | 3.406                      | 0.0                          | 1316                  |                                                                                     |
| 2880 min Winter                                      |                     | 2.700                      | 0.0                          | 1612                  |                                                                                     |
| 4320 min Winter                                      |                     | 1.943                      | 0.0                          | 2204                  |                                                                                     |
| 5760 min Winter                                      |                     | 1.537                      | 0.0                          | 2952                  |                                                                                     |
| 7200 min Winter                                      |                     | 1.281                      | 0.0                          | 3672                  |                                                                                     |
| 8640 min Winter                                      |                     | 1.103                      | 0.0                          | 4328                  |                                                                                     |
| 10080 min Winter                                     |                     | 0.972                      | 0.0                          | 5136                  |                                                                                     |
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| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                | Page 3                                                                              |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------|-----|---------------|-----|-----------------------|-----|-------------|-------|--------|-------------------|-------------|-------|------------|--------|-----------------------|----|---------|-------|----------------------|-------|---------------|-----|------------------|-----|-------------|--|------|-------|-----|------|---|---|-------|
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 1 - REV 02 |  |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Date AUGUST 2022                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Designed by KPT                                                                |                                                                                     |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| File 10708 - SW - PAVED AREA...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Checked by DB                                                                  |                                                                                     |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                | Source Control 2014.1.1                                                             |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| <p style="text-align: center;"><u>Rainfall Details</u></p> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.400</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.400</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+40</td> </tr> </table> <p style="text-align: center;"><u>Time Area Diagram</u></p> <p>Total Area (ha) 0.221</p> <table> <thead> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.221</td> </tr> </tbody> </table> |                                                                                |                                                                                     | Rainfall Model | FSR | Winter Storms | Yes | Return Period (years) | 100 | Cv (Summer) | 0.750 | Region | England and Wales | Cv (Winter) | 0.840 | M5-60 (mm) | 19.400 | Shortest Storm (mins) | 15 | Ratio R | 0.400 | Longest Storm (mins) | 10080 | Summer Storms | Yes | Climate Change % | +40 | Time (mins) |  | Area | From: | To: | (ha) | 0 | 4 | 0.221 |
| Rainfall Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FSR                                                                            | Winter Storms                                                                       | Yes            |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Return Period (years)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 100                                                                            | Cv (Summer)                                                                         | 0.750          |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | England and Wales                                                              | Cv (Winter)                                                                         | 0.840          |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| M5-60 (mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 19.400                                                                         | Shortest Storm (mins)                                                               | 15             |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Ratio R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.400                                                                          | Longest Storm (mins)                                                                | 10080          |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Summer Storms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Yes                                                                            | Climate Change %                                                                    | +40            |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| Time (mins)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                | Area                                                                                |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| From:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | To:                                                                            | (ha)                                                                                |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 4                                                                              | 0.221                                                                               |                |     |               |     |                       |     |             |       |        |                   |             |       |            |        |                       |    |         |       |                      |       |               |     |                  |     |             |  |      |       |     |      |   |   |       |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                |                                                                                     |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------|-----------|------|------------------------------|------|------------|------|-----------------------|-------|-------------|-----|---------------|-----|-------------------------|---|----------|------|----------------------|---|------------------|--------|----------------------|-------|
| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                | Page 4                                                                              |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 1 - REV 02 |  |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Date AUGUST 2022                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Designed by KPT                                                                |                                                                                     |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| File 10708 - SW - PAVED AREA...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Checked by DB                                                                  |                                                                                     |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                | Source Control 2014.1.1                                                             |                                      |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| <p style="text-align: center;"><u>Model Details</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 41.880</p> <p style="text-align: center;"><u>Porous Car Park Structure</u></p> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.03679</td> <td>Width (m)</td> <td>14.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>43.0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>167.2</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>41.130</td> <td>Cap Volume Depth (m)</td> <td>0.595</td> </tr> </table> |                                                                                |                                                                                     | Infiltration Coefficient Base (m/hr) | 0.03679 | Width (m) | 14.0 | Membrane Percolation (mm/hr) | 1000 | Length (m) | 43.0 | Max Percolation (l/s) | 167.2 | Slope (1:X) | 0.0 | Safety Factor | 2.0 | Depression Storage (mm) | 5 | Porosity | 0.30 | Evaporation (mm/day) | 3 | Invert Level (m) | 41.130 | Cap Volume Depth (m) | 0.595 |
| Infiltration Coefficient Base (m/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0.03679                                                                        | Width (m)                                                                           | 14.0                                 |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Membrane Percolation (mm/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1000                                                                           | Length (m)                                                                          | 43.0                                 |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Max Percolation (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 167.2                                                                          | Slope (1:X)                                                                         | 0.0                                  |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Safety Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.0                                                                            | Depression Storage (mm)                                                             | 5                                    |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Porosity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.30                                                                           | Evaporation (mm/day)                                                                | 3                                    |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 41.130                                                                         | Cap Volume Depth (m)                                                                | 0.595                                |         |           |      |                              |      |            |      |                       |       |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
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## **APPENDIX 05**

### **Surface water drainage calculations for porous surfacing area 2**

| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |    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--|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|-----------------|--------|-------|-----|-----|-----|------------------|--------|-------|-----|-----|-----|---------------|--------|-------|-----|------|-----|-------------|--------------|---------------------|------------------|---------------|---------|-----|----|---------------|--------|-----|----|---------------|--------|-----|----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|--------|-----|-----|----------------|-------|-----|-----|----------------|-------|-----|-----|----------------|-------|-----|-----|-----------------|-------|-----|-----|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|-----------------|-------|-----|------|------------------|-------|-----|------|---------------|---------|-----|----|
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 2 - REV 02 |                        |                 |  |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| Date AUGUST 2022<br>File 10708 - SW - PAVED AREA...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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| Innovyze                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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              |       |     |      |               |         |     |    |
| <p>Summary of Results for 100 year Return Period (+40%)</p> <p>Half Drain Time : 212 minutes.</p> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>41.408</td><td>0.208</td><td>1.3</td><td>15.6</td><td>O K</td></tr><tr><td>30 min Summer</td><td>41.472</td><td>0.272</td><td>1.3</td><td>20.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>41.527</td><td>0.327</td><td>1.3</td><td>24.5</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>41.561</td><td>0.361</td><td>1.3</td><td>27.1</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>41.563</td><td>0.363</td><td>1.3</td><td>27.2</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>41.557</td><td>0.357</td><td>1.3</td><td>26.8</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>41.539</td><td>0.339</td><td>1.3</td><td>25.4</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>41.520</td><td>0.320</td><td>1.3</td><td>24.0</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>41.501</td><td>0.301</td><td>1.3</td><td>22.6</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>41.482</td><td>0.282</td><td>1.3</td><td>21.2</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>41.446</td><td>0.246</td><td>1.3</td><td>18.5</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>41.382</td><td>0.182</td><td>1.3</td><td>13.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>41.311</td><td>0.111</td><td>1.3</td><td>8.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>41.267</td><td>0.067</td><td>1.3</td><td>5.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>41.243</td><td>0.043</td><td>1.1</td><td>3.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>41.234</td><td>0.034</td><td>0.9</td><td>2.6</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>41.229</td><td>0.029</td><td>0.7</td><td>2.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>41.225</td><td>0.025</td><td>0.6</td><td>1.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>41.222</td><td>0.022</td><td>0.6</td><td>1.6</td><td>O K</td></tr><tr><td>15 min Winter</td><td>41.436</td><td>0.236</td><td>1.3</td><td>17.7</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>133.616</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>87.778</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>54.957</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>33.261</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>24.473</td><td>0.0</td><td>170</td></tr><tr><td>240 min Summer</td><td>19.572</td><td>0.0</td><td>196</td></tr><tr><td>360 min Summer</td><td>14.207</td><td>0.0</td><td>260</td></tr><tr><td>480 min Summer</td><td>11.325</td><td>0.0</td><td>328</td></tr><tr><td>600 min Summer</td><td>9.491</td><td>0.0</td><td>394</td></tr><tr><td>720 min Summer</td><td>8.212</td><td>0.0</td><td>462</td></tr><tr><td>960 min Summer</td><td>6.530</td><td>0.0</td><td>596</td></tr><tr><td>1440 min Summer</td><td>4.720</td><td>0.0</td><td>850</td></tr><tr><td>2160 min Summer</td><td>3.406</td><td>0.0</td><td>1192</td></tr><tr><td>2880 min Summer</td><td>2.700</td><td>0.0</td><td>1528</td></tr><tr><td>4320 min Summer</td><td>1.943</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>1.537</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.281</td><td>0.0</td><td>3656</td></tr><tr><td>8640 min Summer</td><td>1.103</td><td>0.0</td><td>4392</td></tr><tr><td>10080 min Summer</td><td>0.972</td><td>0.0</td><td>5128</td></tr><tr><td>15 min Winter</td><td>133.616</td><td>0.0</td><td>18</td></tr></table> |               |                                                                                |                        |                 |                                                                                     | Storm Event | Max Level (m) | Max Depth (m) | Max Infiltration (l/s) | Max Volume (m³) | Status | 15 min Summer | 41.408 | 0.208 | 1.3 | 15.6 | O K | 30 min Summer | 41.472 | 0.272 | 1.3 | 20.4 | O K | 60 min Summer | 41.527 | 0.327 | 1.3 | 24.5 | Flood Risk | 120 min Summer | 41.561 | 0.361 | 1.3 | 27.1 | Flood Risk | 180 min Summer | 41.563 | 0.363 | 1.3 | 27.2 | Flood Risk | 240 min Summer | 41.557 | 0.357 | 1.3 | 26.8 | Flood Risk | 360 min Summer | 41.539 | 0.339 | 1.3 | 25.4 | Flood Risk | 480 min Summer | 41.520 | 0.320 | 1.3 | 24.0 | Flood Risk | 600 min Summer | 41.501 | 0.301 | 1.3 | 22.6 | Flood Risk | 720 min Summer | 41.482 | 0.282 | 1.3 | 21.2 | Flood Risk | 960 min Summer | 41.446 | 0.246 | 1.3 | 18.5 | O K | 1440 min Summer | 41.382 | 0.182 | 1.3 | 13.7 | O K | 2160 min Summer | 41.311 | 0.111 | 1.3 | 8.3 | O K | 2880 min Summer | 41.267 | 0.067 | 1.3 | 5.0 | O K | 4320 min Summer | 41.243 | 0.043 | 1.1 | 3.2 | O K | 5760 min Summer | 41.234 | 0.034 | 0.9 | 2.6 | O K | 7200 min Summer | 41.229 | 0.029 | 0.7 | 2.1 | O K | 8640 min Summer | 41.225 | 0.025 | 0.6 | 1.8 | O K | 10080 min Summer | 41.222 | 0.022 | 0.6 | 1.6 | O K | 15 min Winter | 41.436 | 0.236 | 1.3 | 17.7 | O K | Storm Event | Rain (mm/hr) | Flooded Volume (m³) | Time-Peak (mins) | 15 min Summer | 133.616 | 0.0 | 18 | 30 min Summer | 87.778 | 0.0 | 33 | 60 min Summer | 54.957 | 0.0 | 62 | 120 min Summer | 33.261 | 0.0 | 120 | 180 min Summer | 24.473 | 0.0 | 170 | 240 min Summer | 19.572 | 0.0 | 196 | 360 min Summer | 14.207 | 0.0 | 260 | 480 min Summer | 11.325 | 0.0 | 328 | 600 min Summer | 9.491 | 0.0 | 394 | 720 min Summer | 8.212 | 0.0 | 462 | 960 min Summer | 6.530 | 0.0 | 596 | 1440 min Summer | 4.720 | 0.0 | 850 | 2160 min Summer | 3.406 | 0.0 | 1192 | 2880 min Summer | 2.700 | 0.0 | 1528 | 4320 min Summer | 1.943 | 0.0 | 2204 | 5760 min Summer | 1.537 | 0.0 | 2936 | 7200 min Summer | 1.281 | 0.0 | 3656 | 8640 min Summer | 1.103 | 0.0 | 4392 | 10080 min Summer | 0.972 | 0.0 | 5128 | 15 min Winter | 133.616 | 0.0 | 18 |
| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Max Level (m) | Max Depth (m)                                                                  | Max Infiltration (l/s) | Max Volume (m³) | Status                                                                              |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 41.408        | 0.208                                                                          | 1.3                    | 15.6            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 41.472        | 0.272                                                                          | 1.3                    | 20.4            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 41.527        | 0.327                                                                          | 1.3                    | 24.5            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.561        | 0.361                                                                          | 1.3                    | 27.1            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.563        | 0.363                                                                          | 1.3                    | 27.2            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.557        | 0.357                                                                          | 1.3                    | 26.8            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.539        | 0.339                                                                          | 1.3                    | 25.4            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.520        | 0.320                                                                          | 1.3                    | 24.0            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 41.482        | 0.282                                                                          | 1.3                    | 21.2            | Flood Risk                                                                          |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.311        | 0.111                                                                          | 1.3                    | 8.3             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.267        | 0.067                                                                          | 1.3                    | 5.0             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.243        | 0.043                                                                          | 1.1                    | 3.2             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.234        | 0.034                                                                          | 0.9                    | 2.6             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.229        | 0.029                                                                          | 0.7                    | 2.1             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 41.225        | 0.025                                                                          | 0.6                    | 1.8             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 41.222        | 0.022                                                                          | 0.6                    | 1.6             | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 41.436        | 0.236                                                                          | 1.3                    | 17.7            | O K                                                                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |    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| Storm Event                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 15 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 30 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 60 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 120 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 180 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 240 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 360 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 480 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11.325        | 0.0                                                                            | 328                    |                 |                                                                                     |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 600 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 720 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 960 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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      |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                  |        |       |     |     |     |               |        |       |     |      |     |             |              |                     |                  |               |         |     |    |               |        |     |    |               |        |     |    |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |        |     |     |                |       |     |     |                |       |     |     |                |       |     |     |                 |       |     |     |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                 |       |     |      |                  |       |     |      |               |         |     |    |
| 1440 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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              |       |     |      |               |         |     |    |
| 2160 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 2880 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 4320 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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              |       |     |      |               |         |     |    |
| 5760 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 7200 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| 8640 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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              |       |     |      |               |         |     |    |
| 10080 min Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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              |       |     |      |               |         |     |    |
| 15 min Winter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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                                 |             |               |               |                        |                 |        |               |        |       |     |      |     |               |        |       |     |      |     |               |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |            |                |        |       |     |      |     |                 |        |       |     |      |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |        |       |     |     |     |                 |  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| ©1982-2014 XP Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| WML Consulting Ltd                                                                |                     |                                                                                |                              | Page 2                |                                                                                     |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL |                     | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 2 - REV 02 |                              |                       |  |
| Date AUGUST 2022<br>File 10708 - SW - PAVED AREA...                               |                     | Designed by KPT<br>Checked by DB                                               |                              |                       |                                                                                     |
| Innovyze                                                                          |                     | Source Control 2014.1.1                                                        |                              |                       |                                                                                     |
| Summary of Results for 100 year Return Period (+40%)                              |                     |                                                                                |                              |                       |                                                                                     |
| Storm<br>Event                                                                    | Max<br>Level<br>(m) | Max<br>Depth<br>(m)                                                            | Max<br>Infiltration<br>(l/s) | Max<br>Volume<br>(m³) | Status                                                                              |
| 30 min Winter                                                                     | 41.508              | 0.308                                                                          | 1.3                          | 23.1                  | Flood Risk                                                                          |
| 60 min Winter                                                                     | 41.573              | 0.373                                                                          | 1.3                          | 27.9                  | Flood Risk                                                                          |
| 120 min Winter                                                                    | 41.617              | 0.417                                                                          | 1.3                          | 31.3                  | Flood Risk                                                                          |
| 180 min Winter                                                                    | 41.624              | 0.424                                                                          | 1.3                          | 31.8                  | Flood Risk                                                                          |
| 240 min Winter                                                                    | 41.616              | 0.416                                                                          | 1.3                          | 31.2                  | Flood Risk                                                                          |
| 360 min Winter                                                                    | 41.591              | 0.391                                                                          | 1.3                          | 29.4                  | Flood Risk                                                                          |
| 480 min Winter                                                                    | 41.565              | 0.365                                                                          | 1.3                          | 27.4                  | Flood Risk                                                                          |
| 600 min Winter                                                                    | 41.537              | 0.337                                                                          | 1.3                          | 25.3                  | Flood Risk                                                                          |
| 720 min Winter                                                                    | 41.509              | 0.309                                                                          | 1.3                          | 23.1                  | Flood Risk                                                                          |
| 960 min Winter                                                                    | 41.453              | 0.253                                                                          | 1.3                          | 19.0                  | O K                                                                                 |
| 1440 min Winter                                                                   | 41.357              | 0.157                                                                          | 1.3                          | 11.8                  | O K                                                                                 |
| 2160 min Winter                                                                   | 41.263              | 0.063                                                                          | 1.3                          | 4.7                   | O K                                                                                 |
| 2880 min Winter                                                                   | 41.243              | 0.043                                                                          | 1.1                          | 3.3                   | O K                                                                                 |
| 4320 min Winter                                                                   | 41.231              | 0.031                                                                          | 0.8                          | 2.3                   | O K                                                                                 |
| 5760 min Winter                                                                   | 41.225              | 0.025                                                                          | 0.6                          | 1.9                   | O K                                                                                 |
| 7200 min Winter                                                                   | 41.221              | 0.021                                                                          | 0.5                          | 1.5                   | O K                                                                                 |
| 8640 min Winter                                                                   | 41.218              | 0.018                                                                          | 0.5                          | 1.3                   | O K                                                                                 |
| 10080 min Winter                                                                  | 41.216              | 0.016                                                                          | 0.4                          | 1.2                   | O K                                                                                 |
| Storm<br>Event                                                                    | Rain<br>(mm/hr)     | Flooded<br>Volume<br>(m³)                                                      | Time-Peak<br>(mins)          |                       |                                                                                     |
| 30 min Winter                                                                     | 87.778              | 0.0                                                                            | 32                           |                       |                                                                                     |
| 60 min Winter                                                                     | 54.957              | 0.0                                                                            | 62                           |                       |                                                                                     |
| 120 min Winter                                                                    | 33.261              | 0.0                                                                            | 118                          |                       |                                                                                     |
| 180 min Winter                                                                    | 24.473              | 0.0                                                                            | 174                          |                       |                                                                                     |
| 240 min Winter                                                                    | 19.572              | 0.0                                                                            | 226                          |                       |                                                                                     |
| 360 min Winter                                                                    | 14.207              | 0.0                                                                            | 280                          |                       |                                                                                     |
| 480 min Winter                                                                    | 11.325              | 0.0                                                                            | 356                          |                       |                                                                                     |
| 600 min Winter                                                                    | 9.491               | 0.0                                                                            | 430                          |                       |                                                                                     |
| 720 min Winter                                                                    | 8.212               | 0.0                                                                            | 504                          |                       |                                                                                     |
| 960 min Winter                                                                    | 6.530               | 0.0                                                                            | 644                          |                       |                                                                                     |
| 1440 min Winter                                                                   | 4.720               | 0.0                                                                            | 894                          |                       |                                                                                     |
| 2160 min Winter                                                                   | 3.406               | 0.0                                                                            | 1192                         |                       |                                                                                     |
| 2880 min Winter                                                                   | 2.700               | 0.0                                                                            | 1496                         |                       |                                                                                     |
| 4320 min Winter                                                                   | 1.943               | 0.0                                                                            | 2208                         |                       |                                                                                     |
| 5760 min Winter                                                                   | 1.537               | 0.0                                                                            | 2936                         |                       |                                                                                     |
| 7200 min Winter                                                                   | 1.281               | 0.0                                                                            | 3584                         |                       |                                                                                     |
| 8640 min Winter                                                                   | 1.103               | 0.0                                                                            | 4400                         |                       |                                                                                     |
| 10080 min Winter                                                                  | 0.972               | 0.0                                                                            | 5120                         |                       |                                                                                     |
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|                                                                                   |                                                                                |                                                                                     |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| WML Consulting Ltd                                                                |                                                                                | Page 3                                                                              |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 2 - REV 02 |  |
| Date AUGUST 2022<br>File 10708 - SW - PAVED AREA...                               | Designed by KPT<br>Checked by DB                                               |                                                                                     |
| Innovyze Source Control 2014.1.1                                                  |                                                                                |                                                                                     |

Rainfall Details

|                       |                   |                       |       |
|-----------------------|-------------------|-----------------------|-------|
| Rainfall Model        | FSR               | Winter Storms         | Yes   |
| Return Period (years) | 100               | Cv (Summer)           | 0.750 |
| Region                | England and Wales | Cv (Winter)           | 0.840 |
| M5-60 (mm)            | 19.400            | Shortest Storm (mins) | 15    |
| Ratio R               | 0.400             | Longest Storm (mins)  | 10080 |
| Summer Storms         | Yes               | Climate Change %      | +40   |

Time Area Diagram

Total Area (ha) 0.071

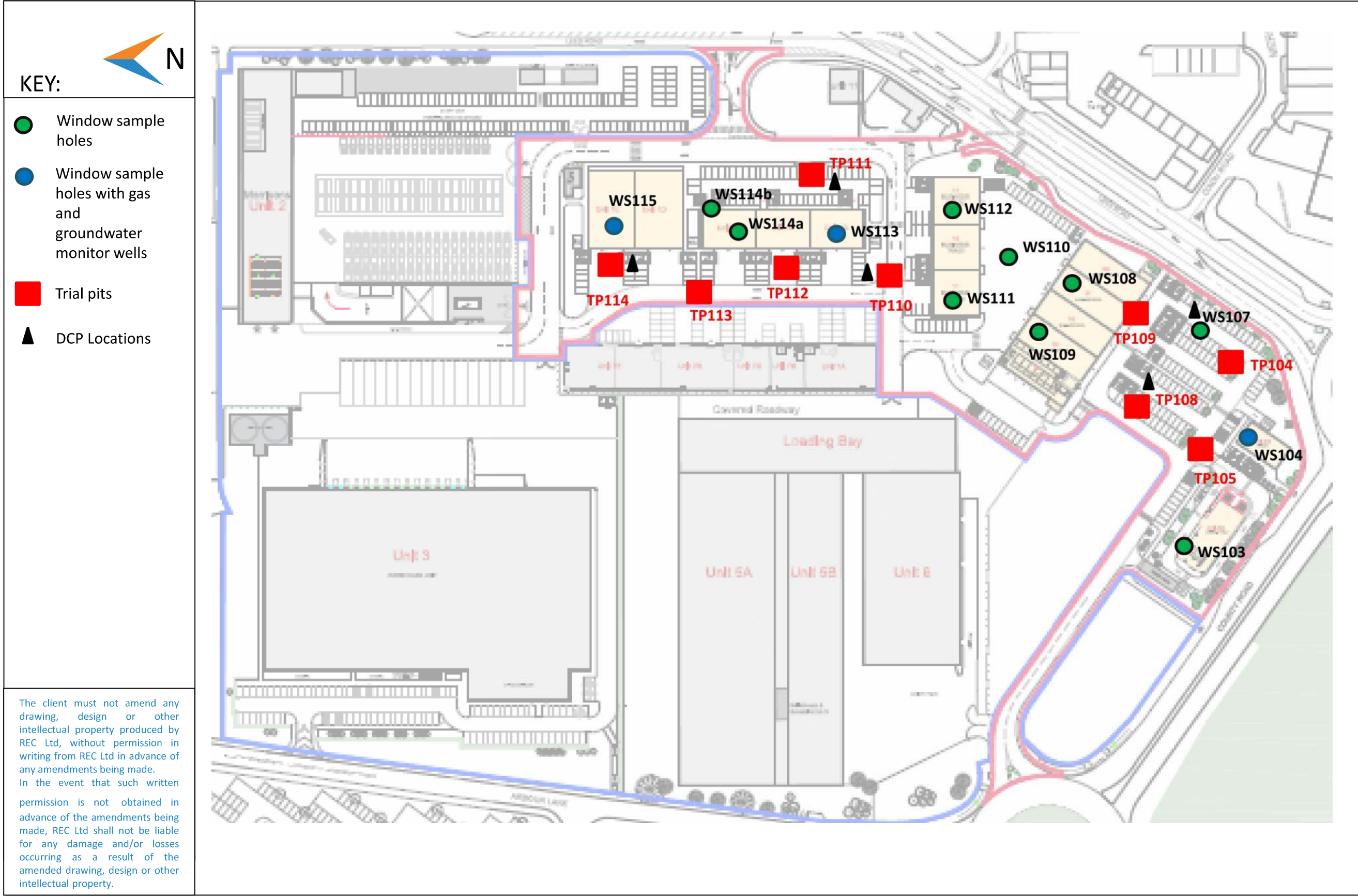
| Time (mins) | Area     |
|-------------|----------|
| From:       | To: (ha) |
| 0           | 4 0.071  |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                |                                                                                     |                                      |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|---------|-----------|-----|------------------------------|------|------------|------|-----------------------|------|-------------|-----|---------------|-----|-------------------------|---|----------|------|----------------------|---|------------------|--------|----------------------|-------|
| WML Consulting Ltd                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                | Page 4                                                                              |                                      |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| No. 8 Oak Green<br>Stanley Green Business Park<br>Earl Rd, Cheadle Hulme, SK8 6QL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10708 - ACADEMY BP<br>UNITS 6B 1 & 2 - SW DESIGN<br>POROUS CAR PARK 2 - REV 02 |  |                                      |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Date AUGUST 2022<br>File 10708 - SW - PAVED AREA...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Designed by KPT<br>Checked by DB                                               |                                                                                     |                                      |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Innovyze Source Control 2014.1.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                |                                                                                     |                                      |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| <p style="text-align: center;"><u>Model Details</u></p> <p style="text-align: center;">Storage is Online Cover Level (m) 41.780</p> <p style="text-align: center;"><u>Porous Car Park Structure</u></p> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.03679</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>50.0</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>69.4</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>41.200</td> <td>Cap Volume Depth (m)</td> <td>0.425</td> </tr> </table> |                                                                                |                                                                                     | Infiltration Coefficient Base (m/hr) | 0.03679 | Width (m) | 5.0 | Membrane Percolation (mm/hr) | 1000 | Length (m) | 50.0 | Max Percolation (l/s) | 69.4 | Slope (1:X) | 0.0 | Safety Factor | 2.0 | Depression Storage (mm) | 5 | Porosity | 0.30 | Evaporation (mm/day) | 3 | Invert Level (m) | 41.200 | Cap Volume Depth (m) | 0.425 |
| Infiltration Coefficient Base (m/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.03679                                                                        | Width (m)                                                                           | 5.0                                  |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Membrane Percolation (mm/hr)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1000                                                                           | Length (m)                                                                          | 50.0                                 |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Max Percolation (l/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 69.4                                                                           | Slope (1:X)                                                                         | 0.0                                  |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Safety Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.0                                                                            | Depression Storage (mm)                                                             | 5                                    |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Porosity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.30                                                                           | Evaporation (mm/day)                                                                | 3                                    |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
| Invert Level (m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 41.200                                                                         | Cap Volume Depth (m)                                                                | 0.425                                |         |           |     |                              |      |            |      |                       |      |             |     |               |     |                         |   |          |      |                      |   |                  |        |                      |       |
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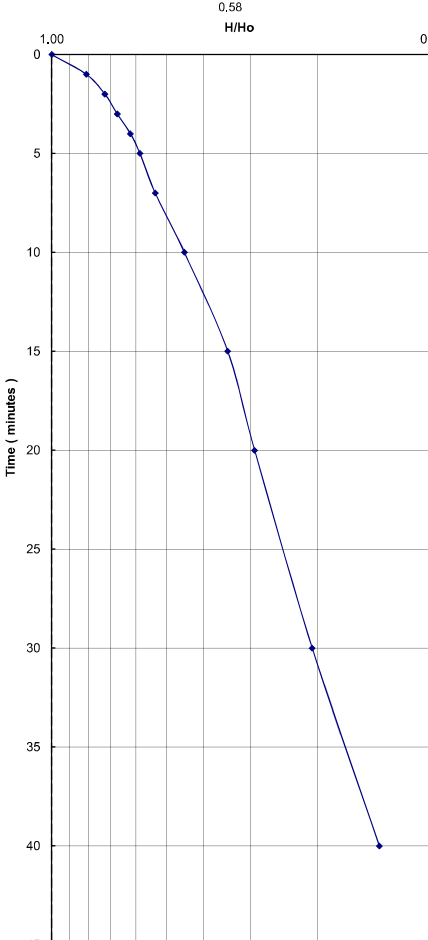
## **APPENDIX 06**

### **Infiltration test results**



| IN SITU PERMEABILITY TEST                                                                              |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Name</b> Academy Business Park<br><b>Job Number</b> 9256G                                      |                                                                                                    | <b>Date</b> 29-Mar-20<br><b>Borehole Number</b> WS101                                                                                                                                                                                                                                                                                                                    |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| FIELD MEASUREMENTS                                                                                     |                                                                                                    | BOREHOLE INFORMATION                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time Elapsed (t) mins</b><br>0.00<br>1.00<br>2.00<br>3.00<br>4.00<br>5.00<br>7.00<br>10.00<br>15.00 | <b>Depth at Time, t(m)</b><br>0.40<br>0.49<br>0.54<br>0.61<br>0.66<br>0.70<br>0.76<br>0.87<br>0.93 | <b>H (m)</b><br>0.60<br>0.51<br>0.46<br>0.39<br>0.34<br>0.30<br>0.24<br>0.13<br>0.07                                                                                                                                                                                                                                                                                     | <b>H/Ho</b><br>1.00<br>0.85<br>0.77<br>0.65<br>0.57<br>0.50<br>0.40<br>0.22<br>0.12 | Depth to base of casing: 0.50 m<br>Depth to base of borehole before test: 1.00 m<br>Depth to base of borehole after test: 1.00 m<br><br>Test Section: 0.50 m<br><br>Depth to standing water: 1.00 m<br>Depth to induced water: 0.40 m<br><br>Diameter of Borehole (D): 0.77 m<br>Diameter of Piezo/Standpipe (d): 0.05 m<br><br>Test Length (L): 0.34 m<br>Diameter of test length (D): 0.770 m<br><br>Differential head at start of test (Ho): 0.60 m<br>Differential Head at end of test (Hf): 0.07 m<br><br>Time elapsed at end of test (tf): 900 sec |
|                                                                                                        |                                                                                                    | <b>PERMEABILITY CALCULATION</b><br><br>H/Ho < 0.37, thus permeability is calculated as a variable head test.<br><br><i>Therefore</i><br><br>Permeability, $K = A/F \times T$<br><br><i>where</i><br>CROSS SECTIONAL BOREHOLE AREA ( 4.66E-01 m <sup>2</sup><br>SHAPE FACTOR (F) 4.98<br>TIME WHERE H/Ho =0.37 (T) 4.50E+02 sec<br><br><b>PERMEABILITY</b> 2.08E-04 m/sec |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                        |                                                                                                    | <b>Remarks:</b>                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| IN SITU PERMEABILTY TEST |                     |                                |      |                                                                      |                    |
|--------------------------|---------------------|--------------------------------|------|----------------------------------------------------------------------|--------------------|
| Site Name<br>Job Number  |                     | Academy Business Park<br>9256G |      | Date<br>Borehole Number                                              | 29-Mar-20<br>WS102 |
| FIELD MEASUREMENTS       |                     |                                |      | BOREHOLE INFORMATION                                                 |                    |
| Time Elapsed (t) mins    | Depth at Time, t(m) | H (m)                          | H/Ho |                                                                      |                    |
| 0.00                     | 0.51                | 0.49                           | 1.00 | Depth to base of casing: 0.50 m                                      |                    |
| 1.00                     | 0.55                | 0.45                           | 0.92 | Depth to base of borehole before test: 1.00 m                        |                    |
| 2.00                     | 0.57                | 0.43                           | 0.88 | Depth to base of borehole after test: 1.00 m                         |                    |
| 3.00                     | 0.59                | 0.41                           | 0.84 |                                                                      |                    |
| 4.00                     | 0.60                | 0.40                           | 0.82 | Test Section: 0.50 m                                                 |                    |
| 5.00                     | 0.61                | 0.39                           | 0.80 |                                                                      |                    |
| 7.00                     | 0.62                | 0.38                           | 0.78 | Depth to standing water: 1.00 m                                      |                    |
| 10.00                    | 0.63                | 0.37                           | 0.76 | Depth to induced water: 0.51 m                                       |                    |
| 15.00                    | 0.65                | 0.35                           | 0.71 |                                                                      |                    |
| 20.00                    | 0.66                | 0.34                           | 0.69 |                                                                      |                    |
| 30.00                    | 0.68                | 0.32                           | 0.65 | Diameter of Borehole (D): 0.77 m                                     |                    |
| 45.00                    | 0.69                | 0.31                           | 0.63 | Diameter of Piezo/Standpipe (d): 0.05 m                              |                    |
| 60.00                    | 0.71                | 0.29                           | 0.59 |                                                                      |                    |
| 90.00                    | 0.75                | 0.25                           | 0.51 | Test Length (L): 0.37 m                                              |                    |
|                          |                     |                                |      | Diameter of test length (D): 0.770 m                                 |                    |
|                          |                     |                                |      |                                                                      |                    |
|                          |                     |                                |      | Differential head at start of test (Ho): 0.49 m                      |                    |
|                          |                     |                                |      | Differential Head at end of test (Hf): 0.25 m                        |                    |
|                          |                     |                                |      | Time elapsed at end of test (tf): 5400 sec                           |                    |
|                          |                     |                                |      | PERMEABILITY CALCULATION                                             |                    |
|                          |                     |                                |      | H/Ho > 0.37, thus permeability is calculated as a constant head test |                    |
|                          |                     |                                |      | Therefore                                                            |                    |
|                          |                     |                                |      | Permeability, $K = Q / H \times F$                                   |                    |
|                          |                     |                                |      | where                                                                |                    |
|                          |                     |                                |      | FLOW RATE (Q)                                                        | 2.07E-05 m3/secs   |
|                          |                     |                                |      | AVERAGE HEAD (Hc)                                                    | 0.37 m             |
|                          |                     |                                |      | SHAPE FACTOR (F)                                                     | 1.80E+02           |
|                          |                     |                                |      | PERMEABILITY                                                         | 1.12E-05 m/sec     |
|                          |                     |                                |      |                                                                      |                    |
|                          |                     |                                |      | Remarks:                                                             |                    |

| IN SITU PERMEABILTY TEST                                                            |                     |                                |      |                                                                       |                    |
|-------------------------------------------------------------------------------------|---------------------|--------------------------------|------|-----------------------------------------------------------------------|--------------------|
| Site Name<br>Job Number                                                             |                     | Academy Business Park<br>9256G |      | Date<br>Borehole Number                                               | 29-Mar-20<br>WS104 |
| FIELD MEASUREMENTS                                                                  |                     |                                |      | BOREHOLE INFORMATION                                                  |                    |
| Time Elapsed (t) mins                                                               | Depth at Time, t(m) | H (m)                          | H/Ho |                                                                       |                    |
| 0.00                                                                                | 0.38                | 0.58                           | 1.00 | Depth to base of casing: 0.50 m                                       |                    |
| 1.00                                                                                | 0.49                | 0.47                           | 0.81 | Depth to base of borehole before test: 0.96 m                         |                    |
| 2.00                                                                                | 0.54                | 0.42                           | 0.72 | Depth to base of borehole after test: 0.96 m                          |                    |
| 3.00                                                                                | 0.57                | 0.39                           | 0.67 |                                                                       |                    |
| 4.00                                                                                | 0.60                | 0.36                           | 0.62 | Test Section: 0.46 m                                                  |                    |
| 5.00                                                                                | 0.62                | 0.34                           | 0.59 |                                                                       |                    |
| 7.00                                                                                | 0.65                | 0.31                           | 0.53 | Depth to standing water: 0.96 m                                       |                    |
| 10.00                                                                               | 0.70                | 0.26                           | 0.45 | Depth to induced water: 0.38 m                                        |                    |
| 15.00                                                                               | 0.76                | 0.20                           | 0.34 |                                                                       |                    |
| 20.00                                                                               | 0.79                | 0.17                           | 0.29 |                                                                       |                    |
| 30.00                                                                               | 0.84                | 0.12                           | 0.21 | Diameter of Borehole (D): 0.77 m                                      |                    |
| 40.00                                                                               | 0.88                | 0.08                           | 0.14 | Diameter of Piezo/Standpipe (d): 0.05 m                               |                    |
|                                                                                     |                     |                                |      | Test Length (L): 0.33 m                                               |                    |
|                                                                                     |                     |                                |      | Diameter of test length (D): 0.770 m                                  |                    |
|                                                                                     |                     |                                |      | Differential head at start of test (Ho): 0.58 m                       |                    |
|                                                                                     |                     |                                |      | Differential Head at end of test (Hf): 0.08 m                         |                    |
|                                                                                     |                     |                                |      | Time elapsed at end of test (tf): 2400 sec                            |                    |
|  |                     |                                |      | PERMEABILITY CALCULATION                                              |                    |
|                                                                                     |                     |                                |      | H/Ho < 0.37, thus permeability is calculated as a variable head test. |                    |
|                                                                                     |                     |                                |      | Therefore                                                             |                    |
|                                                                                     |                     |                                |      | Permeability, $K = A/F \times T$                                      |                    |
|                                                                                     |                     |                                |      | where                                                                 |                    |
|                                                                                     |                     |                                |      | CROSS SECTIONAL BOREHOLE AREA (                                       | 4.66E-01 m2        |
|                                                                                     |                     |                                |      | SHAPE FACTOR (F)                                                      | 4.98               |
|                                                                                     |                     |                                |      | TIME WHERE H/Ho =0.37 (T)                                             | 8.10E+02 sec       |
|                                                                                     |                     |                                |      | PERMEABILITY                                                          | 1.15E-04 m/sec     |
|                                                                                     |                     |                                |      | Remarks:                                                              |                    |

| IN SITU PERMEABILTY TEST                                              |                     |                                |      |                                                 |
|-----------------------------------------------------------------------|---------------------|--------------------------------|------|-------------------------------------------------|
| Site Name<br>Job Number                                               |                     | Academy Business Park<br>9256G |      |                                                 |
| Date<br>Borehole Number                                               |                     | 29-Mar-20<br>WS106             |      |                                                 |
| FIELD MEASUREMENTS                                                    |                     |                                |      | BOREHOLE INFORMATION                            |
| Time Elapsed (t) mins                                                 | Depth at Time, t(m) | H (m)                          | H/Ho |                                                 |
| 0.00                                                                  | 0.41                | 0.64                           | 1.00 | Depth to base of casing: 0.50 m                 |
| 1.00                                                                  | 0.60                | 0.45                           | 0.70 | Depth to base of borehole before test: 1.05 m   |
| 2.00                                                                  | 0.66                | 0.39                           | 0.61 | Depth to base of borehole after test: 1.05 m    |
| 3.00                                                                  | 0.72                | 0.33                           | 0.52 |                                                 |
| 4.00                                                                  | 0.77                | 0.28                           | 0.44 | Test Section: 0.50 m                            |
| 5.00                                                                  | 0.81                | 0.24                           | 0.38 |                                                 |
| 7.00                                                                  | 0.89                | 0.16                           | 0.25 | Depth to standing water: 1.05 m                 |
| 10.00                                                                 | 0.98                | 0.07                           | 0.11 | Depth to induced water: 0.41 m                  |
|                                                                       |                     |                                |      | Diameter of Borehole (D): 0.77 m                |
|                                                                       |                     |                                |      | Diameter of Piezo/Standpipe (d): 0.05 m         |
|                                                                       |                     |                                |      | Test Length (L): 0.36 m                         |
|                                                                       |                     |                                |      | Diameter of test length (D): 0.770 m            |
|                                                                       |                     |                                |      | Differential head at start of test (Ho): 0.64 m |
|                                                                       |                     |                                |      | Differential Head at end of test (Hf): 0.07 m   |
|                                                                       |                     |                                |      | Time elapsed at end of test (tf): 600 sec       |
| PERMEABILITY CALCULATION                                              |                     |                                |      |                                                 |
| H/Ho < 0.37, thus permeability is calculated as a variable head test. |                     |                                |      |                                                 |
| Therefore                                                             |                     |                                |      |                                                 |
| Permeability, K = A/FxT                                               |                     |                                |      |                                                 |
| where                                                                 |                     |                                |      |                                                 |
| CROSS SECTIONAL BOREHOLE AREA ( 4.66E-01 m2                           |                     |                                |      |                                                 |
| SHAPE FACTOR (F) 5.00                                                 |                     |                                |      |                                                 |
| TIME WHERE H/Ho =0.37 (T) 3.16E+02 sec                                |                     |                                |      |                                                 |
| PERMEABILITY 2.95E-04 m/sec                                           |                     |                                |      |                                                 |
| Remarks:                                                              |                     |                                |      |                                                 |

| <table><tr><th>Time (minutes)</th><th>H/Ho</th></tr><tr><td>0</td><td>1.00</td></tr><tr><td>1</td><td>0.70</td></tr><tr><td>2</td><td>0.61</td></tr><tr><td>3</td><td>0.52</td></tr><tr><td>4</td><td>0.44</td></tr><tr><td>5</td><td>0.38</td></tr><tr><td>7</td><td>0.25</td></tr><tr><td>10</td><td>0.11</td></tr></table> |      |  |  | Time (minutes) | H/Ho | 0 | 1.00 | 1 | 0.70 | 2 | 0.61 | 3 | 0.52 | 4 | 0.44 | 5 | 0.38 | 7 | 0.25 | 10 | 0.11 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--|--|----------------|------|---|------|---|------|---|------|---|------|---|------|---|------|---|------|----|------|
| Time (minutes)                                                                                                                                                                                                                                                                                                                | H/Ho |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 0                                                                                                                                                                                                                                                                                                                             | 1.00 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 1                                                                                                                                                                                                                                                                                                                             | 0.70 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 2                                                                                                                                                                                                                                                                                                                             | 0.61 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 3                                                                                                                                                                                                                                                                                                                             | 0.52 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 4                                                                                                                                                                                                                                                                                                                             | 0.44 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 5                                                                                                                                                                                                                                                                                                                             | 0.38 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 7                                                                                                                                                                                                                                                                                                                             | 0.25 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |
| 10                                                                                                                                                                                                                                                                                                                            | 0.11 |  |  |                |      |   |      |   |      |   |      |   |      |   |      |   |      |   |      |    |      |

| IN SITU PERMEABILITY TEST                                                                              |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Name</b> Academy Business Park<br><b>Job Number</b> 9256G                                      |                                                                                                    | <b>Date</b> 29-Mar-20<br><b>Borehole Number</b> WS113                                                                                                                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| FIELD MEASUREMENTS                                                                                     |                                                                                                    | BOREHOLE INFORMATION                                                                                                                                                                                                                                                                                                                                |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time Elapsed (t) mins</b><br>0.00<br>1.00<br>2.00<br>3.00<br>4.00<br>5.00<br>7.00<br>10.00<br>15.00 | <b>Depth at Time, t(m)</b><br>0.42<br>0.55<br>0.61<br>0.65<br>0.68<br>0.71<br>0.75<br>0.82<br>0.95 | <b>H (m)</b><br>0.58<br>0.45<br>0.39<br>0.35<br>0.32<br>0.29<br>0.25<br>0.18<br>0.05                                                                                                                                                                                                                                                                | <b>H/Ho</b><br>1.00<br>0.78<br>0.67<br>0.60<br>0.55<br>0.50<br>0.43<br>0.31<br>0.09 | Depth to base of casing: 0.50 m<br>Depth to base of borehole before test: 1.00 m<br>Depth to base of borehole after test: 1.00 m<br><br>Test Section: 0.50 m<br><br>Depth to standing water: 1.00 m<br>Depth to induced water: 0.42 m<br><br>Diameter of Borehole (D): 0.77 m<br>Diameter of Piezo/Standpipe (d): 0.05 m<br><br>Test Length (L): 0.32 m<br>Diameter of test length (D): 0.770 m<br><br>Differential head at start of test (Ho): 0.58 m<br>Differential Head at end of test (Hf): 0.05 m<br><br>Time elapsed at end of test (tf): 900 sec |
|                                                                                                        |                                                                                                    | PERMEABILITY CALCULATION                                                                                                                                                                                                                                                                                                                            |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                        |                                                                                                    | <p>H/Ho &lt; 0.37, thus permeability is calculated as a variable head test.</p> <p>Therefore</p> <p>Permeability, <math>K = A/F \times T</math></p> <p>where</p> <p>CROSS SECTIONAL BOREHOLE AREA ( 4.66E-01 m<sup>2</sup></p> <p>SHAPE FACTOR (F) 4.97</p> <p>TIME WHERE H/Ho =0.37 (T) 5.10E+02 sec</p> <p><b>PERMEABILITY</b> 1.84E-04 m/sec</p> |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                        |                                                                                                    | <b>Remarks:</b>                                                                                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| IN SITU PERMEABILTY TEST |                     |                                                                       |      |                                                 |
|--------------------------|---------------------|-----------------------------------------------------------------------|------|-------------------------------------------------|
| Site Name<br>Job Number  |                     | Academy Business Park<br>9256G                                        |      |                                                 |
| Date<br>Borehole Number  |                     | 29-Mar-20<br>WS115                                                    |      |                                                 |
| FIELD MEASUREMENTS       |                     | BOREHOLE INFORMATION                                                  |      |                                                 |
| Time Elapsed (t) mins    | Depth at Time, t(m) | H (m)                                                                 | H/Ho |                                                 |
| 0.00                     | 0.60                | 0.50                                                                  | 1.00 | Depth to base of casing: 0.50 m                 |
| 1.00                     | 0.75                | 0.35                                                                  | 0.70 | Depth to base of borehole before test: 1.10 m   |
| 2.00                     | 0.80                | 0.30                                                                  | 0.60 | Depth to base of borehole after test: 1.10 m    |
| 3.00                     | 0.84                | 0.26                                                                  | 0.52 |                                                 |
| 4.00                     | 0.87                | 0.23                                                                  | 0.46 | Test Section: 0.60 m                            |
| 5.00                     | 0.90                | 0.20                                                                  | 0.40 | Depth to standing water: 1.10 m                 |
| 7.00                     | 0.97                | 0.13                                                                  | 0.26 | Depth to induced water: 0.60 m                  |
|                          |                     |                                                                       |      | Diameter of Borehole (D): 0.77 m                |
|                          |                     |                                                                       |      | Diameter of Piezo/Standpipe (d): 0.05 m         |
|                          |                     |                                                                       |      | Test Length (L): 0.32 m                         |
|                          |                     |                                                                       |      | Diameter of test length (D): 0.770 m            |
|                          |                     |                                                                       |      | Differential head at start of test (Ho): 0.50 m |
|                          |                     |                                                                       |      | Differential Head at end of test (Hf): 0.13 m   |
|                          |                     |                                                                       |      | Time elapsed at end of test (tf): 420 sec       |
|                          |                     | PERMEABILITY CALCULATION                                              |      |                                                 |
|                          |                     | H/Ho < 0.37, thus permeability is calculated as a variable head test. |      |                                                 |
|                          |                     | Therefore                                                             |      |                                                 |
|                          |                     | Permeability, $K = A/F \times T$                                      |      |                                                 |
|                          |                     | where                                                                 |      |                                                 |
|                          |                     | CROSS SECTIONAL BOREHOLE AREA ( 4.66E-01 m2                           |      |                                                 |
|                          |                     | SHAPE FACTOR (F) 4.97                                                 |      |                                                 |
|                          |                     | TIME WHERE H/Ho =0.37 (T) 3.26E+02 sec                                |      |                                                 |
|                          |                     | PERMEABILITY 2.88E-04 m/sec                                           |      |                                                 |
|                          |                     | Remarks:                                                              |      |                                                 |

## **APPENDIX 07**

### **Knowsley Councils Sustainable Drainage System Pro-forma**

# PRO-FORMA 1: Sustainable Drainage System: Planning Permission

**This pro-forma is a requirement of the Planning Validation Checklist.** You **must complete all white boxes in full** and submit this pro-forma along with your supporting evidence to the Local Planning Authority for any application which seeks planning permission for major development (as defined in section 2 of [Statutory Instrument 2015 No. 595](#)).

This pro-forma supports developers and regulators in **summarising and confirming** how surface water from a development will be managed sustainably under current and future conditions. It should be completed in conjunction with the Council's 'Completing your Pro Forma' document and your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#).

The pro-forma follows Policy CS24 of [Knowsley MBC's Local Plan](#), [National Planning Policy Framework](#), [House of Commons Written Statement \(HWSW 161\) on SuDS](#), [Planning Practice Guidance](#) and [Defra's Non-Statutory Technical Standards for Sustainable Drainage Systems](#). It is supported by the [Defra/EA Guidance on Rainfall Runoff Management](#) and can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or approved Industry Standard surface water management design software. The Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#) also provides further information.

## Section 1: Development Details

|                                                                                                                                                                                                                                                                             |                  |                                                                |                                                      |                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------|
| <b>Development Name</b>                                                                                                                                                                                                                                                     |                  | Academy Business Park, Units 6B 1 & 2                          |                                                      |                                                                     |
| <b>Development Address (including postcode)</b>                                                                                                                                                                                                                             |                  | Lees Road, Knowsley Industrial Park, Kirkby, Knowsley, L33 7SA | <b>Planning Application Reference (if available)</b> | N/A                                                                 |
| <b>Development Grid Reference</b>                                                                                                                                                                                                                                           | <b>Northings</b> | 398050                                                         | <b>Expected lifetime of development (years)</b>      | 25                                                                  |
|                                                                                                                                                                                                                                                                             | <b>Eastings</b>  | 342527                                                         | <b>Have you submitted a Flood Risk Assessment?</b>   | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| <b>Total Development Site Area (Ha)</b>                                                                                                                                                                                                                                     |                  | 0.2 hectares                                                   | <b>Type of Planning Application (✓)</b>              | <b>Outline</b> <input type="checkbox"/>                             |
| <b>Site area served by proposed drainage system (excluding open space) (Ha)*</b>                                                                                                                                                                                            |                  | 0.317 hectares                                                 |                                                      | <b>Full</b> <input checked="" type="checkbox"/>                     |
| <b>Is your surface water drainage system designed to a (tick all that apply):</b>                                                                                                                                                                                           |                  |                                                                |                                                      | <b>Hybrid</b> <input type="checkbox"/>                              |
| <b>Greenfield Standard</b> <ul style="list-style-type: none"> <li>Site is undeveloped and a new drainage system will be installed; OR</li> <li>Site is already developed and a new surface water drainage system will be installed to serve the new development.</li> </ul> |                  | <input checked="" type="checkbox"/>                            |                                                      | <b>Reserved Matters</b> <input type="checkbox"/>                    |
| <b>Previously Developed Standard</b> <ul style="list-style-type: none"> <li>Site is already developed and the <i>entirety</i> of the existing surface water drainage system will be used to serve the new development.</li> </ul>                                           |                  | <input type="checkbox"/>                                       |                                                      |                                                                     |

# PRO-FORMA 1: Sustainable Drainage System: Planning Permission

## Section 2: Impermeable Area and Existing Drainage For outline or reserved matters applications, go to Section 3

|                                                                                                                | Existing (E)                          | Proposed (P)                 | Difference (P – E)                                       | Evidence Checklist                  |                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------------------|----------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Impermeable Area (Ha)                                                                                          | 0.326                                 | 0.317                        | -0.009                                                   | <input checked="" type="checkbox"/> | Plans showing development layout of site with existing and proposed impermeable areas.                                                                                                                                                                                                           |
| State Drainage Method                                                                                          | Traditional below ground piped system | SuDS Infiltration techniques | N/A                                                      | <input checked="" type="checkbox"/> | Plans showing current and proposed locations of sustainable drainage system.                                                                                                                                                                                                                     |
| Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site? |                                       |                              | Yes <input type="checkbox"/> No <input type="checkbox"/> | <input checked="" type="checkbox"/> | Plans showing existing layout to include: <ul style="list-style-type: none"> <li>• Watercourses, open or culverted</li> <li>• Water bodies – ponds, swales etc.</li> <li>• Sewers, including manholes</li> <li>• Highway drains, include manholes</li> <li>• Soakaways, filter drains</li> </ul> |

## Section 3: Surface Water Discharge Hierarchy – Planning Practice Guidance

| Surface Water Discharge Method                                                | Proposed?                                                | If YES - Evidence Checklist         |                                                                                                                                                                          | If NO - Evidence Checklist |                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Infiltration to ground                                                     | Yes <input type="checkbox"/> No <input type="checkbox"/> | <input checked="" type="checkbox"/> | Completed Infiltration Checklist from CIRIA The SuDS Manual C753 Appendix B<br><i>An editable version of this form is available on <a href="#">SusDrain website</a>.</i> | <input type="checkbox"/>   | Geotechnical Survey, including Soil Permeability Testing stating Percolation Coefficient, in accordance with BRE 365<br><b>AND</b><br>Statement providing justification in your Sustainable Drainage Strategy |
| 2. Discharge to watercourse or surface water body<br>(Main River or Ordinary) | Yes <input type="checkbox"/> No <input type="checkbox"/> | <input type="checkbox"/>            | Watercourse and/or Water Body Survey Report                                                                                                                              | <input type="checkbox"/>   | Plan showing nearby watercourses and water bodies<br><b>AND</b><br>Statement providing justification in your Sustainable Drainage Strategy                                                                    |
| 3. Discharge to surface water sewer                                           | Yes <input type="checkbox"/> No <input type="checkbox"/> | <input type="checkbox"/>            | Water and Sewerage Company written agreement for the Right to Connect.                                                                                                   | <input type="checkbox"/>   | Plan showing nearby sewers<br><b>AND</b><br>Statement providing justification in your Sustainable Drainage Strategy                                                                                           |
| 4. Discharge to combined sewer                                                | Yes <input type="checkbox"/> No <input type="checkbox"/> |                                     |                                                                                                                                                                          |                            |                                                                                                                                                                                                               |

# PRO-FORMA 1: Sustainable Drainage System: Planning Permission

## Section 4: Calculate Peak Discharge Rates – Technical Standards S2 and S3 (unless S1 applies)

| Rainfall Event   | Existing Rate (l/s) | Greenfield Rate (l/s) | Proposed Rate (l/s)<br><i>Brownfield sites must reduce discharge rates by 50%</i> | Evidence Checklist       |                                            |
|------------------|---------------------|-----------------------|-----------------------------------------------------------------------------------|--------------------------|--------------------------------------------|
| Qbar             |                     |                       |                                                                                   | <input type="checkbox"/> | MicroDrainage (or equivalent) calculations |
| 1:1 Year Event   |                     |                       |                                                                                   |                          |                                            |
| 1:30 Year Event  |                     |                       |                                                                                   |                          |                                            |
| 1:100 Year Event |                     |                       |                                                                                   |                          |                                            |

## Section 5: Calculate Discharge Volume – Technical Standards S4 and S6 (unless S1 applies)

| Rainfall Event          | Existing Volume (m <sup>3</sup> ) | Greenfield Volume (m <sup>3</sup> ) | Proposed Volume (m <sup>3</sup> ) | Evidence Checklist       |                                            |
|-------------------------|-----------------------------------|-------------------------------------|-----------------------------------|--------------------------|--------------------------------------------|
| 1:100 Year 6 Hour Event |                                   |                                     |                                   | <input type="checkbox"/> | MicroDrainage (or equivalent) calculations |

## Section 6: Infiltration

| Site Information                                                                                                                                                                                                                                                                                                                                                                               | ✓                                                                                                                   | Evidence Checklist                  |                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------|
| Do your sustainable drainage proposals include any infiltration?                                                                                                                                                                                                                                                                                                                               | Yes <input checked="" type="checkbox"/><br>No <input type="checkbox"/><br><i>If NO, please move on to Section 7</i> | <input checked="" type="checkbox"/> | Proposed sustainable drainage plans                                      |
| You should submit an alternative 'Plan B' sustainable drainage design utilising an alternative discharge method if site specific ground conditions are unknown at this stage. This will become the default design in the event infiltration proposals are not feasible upon site specific ground investigation.<br><br>Have you submitted an alternative 'Plan B' sustainable drainage design? | Yes <input type="checkbox"/><br>No <input type="checkbox"/>                                                         | <input type="checkbox"/>            | 'Plan B' conceptual sustainable drainage plans and statement of approach |

# PRO-FORMA 1: Sustainable Drainage System: Planning Permission

## Section 7: Storage – Technical Standards S7, S8 and S9

| Storage Details                                                                                                                                                                                                                                                                                                                                                       | Details | Evidence Checklist                  |                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|
| State climate change allowance used (%)                                                                                                                                                                                                                                                                                                                               | 40%     | <input checked="" type="checkbox"/> | State / use in MicroDrainage                                                                                |
| State storage volume provided (m <sup>3</sup> ) (excluding non-void spaces )<br><i>Must include an allowance for climate change and urban creep.</i>                                                                                                                                                                                                                  |         | <input type="checkbox"/>            | Drainage plans showing location of attenuation and all flow control devices and any supporting calculations |
| Summarise how storage will be provided for 1:30 year event on site.<br><i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas <b>and</b> no flooding occurs offsite in a 1 in 100 year (+ climate change allowance) event.</i>                                                                      |         | <input type="checkbox"/>            | Plans showing size and location of storage and supporting calculations                                      |
| Summarise how storage will be provided for 1:100 year (+ climate change) 6 hour event on site.<br><i>Where storage above the 1:30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by MicroDrainage (or equivalent) calculations.</i> |         | <input type="checkbox"/>            | Plans showing size and location of storage and supporting calculations                                      |

## Section 8: Operation and Maintenance – Technical Standard S12 and HCWS161

| Consideration                                                                                                                 | Select <u>ALL</u> that apply (✓)                                                                                                                        |                                     | Evidence Checklist                  |                                                              |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------------------------------|
| State how <u>ALL</u> components of the sustainable drainage system will be maintained for the design life of the development. | Sustainable drainage features are at property level                                                                                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Statement provided within your Sustainable Drainage Strategy |
|                                                                                                                               | Sustainable drainage system to be adopted by Water and Sewerage Company through a Section 104 agreement ( <i>Water Industry Act 1991</i> )              | <input type="checkbox"/>            |                                     |                                                              |
|                                                                                                                               | Applicant to secure maintenance of sustainable drainage features by entering into a Section 106 agreement ( <i>Town and Country Planning Act 1990</i> ) | <input type="checkbox"/>            |                                     |                                                              |

# PRO-FORMA 1: Sustainable Drainage System: Planning Permission

## Declaration and Submission

*This pro-forma has been completed using evidence from information which has been submitted with my planning application.*

*The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.*

## Submitter Details

|                           |                 |                                                       |                                   |
|---------------------------|-----------------|-------------------------------------------------------|-----------------------------------|
| Form <u>completed</u> by  | Kevin Tyldesley | Email Address                                         | kevin.tyldesley@wmlconsulting.com |
|                           |                 | Daytime Telephone                                     | 0161 482 0600                     |
| Form <u>signed off</u> by | Andrew Leng     | Accreditation(s) and/or Qualification(s) of Signatory | BEng(Hons), CEng, MIStructE,      |
| Date (dd/mm/yyyy)         | 19/08/2022      | Company                                               | WML Consulting Ltd                |

## Client Details

|      |                |         |                   |
|------|----------------|---------|-------------------|
| Name | Peter Hilldrup | Company | The Emerson Group |
|------|----------------|---------|-------------------|

## **Appendix 08**

### **SuDS Infiltration Checklist**

| Table B.6 Infiltration assessment checklist |                                             |
|---------------------------------------------|---------------------------------------------|
| Requirements                                |                                             |
| Site ID                                     | Academy Business Park, Units 6B 1 & 2.      |
| Asset ID                                    | Infiltration trenches and porous paving.    |
| Infiltration component location             | Refer to drawing 10708-WML-00-XX-DR-C-1001. |
| Infiltration component type                 | Infiltration trenches and porous paving.    |
|                                             |                                             |

| Infiltration capacity                                                                                                                                                                                                                                                                                                  | Details                                                                           | Acceptable submission? | Further requirements |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------|----------------------|
| Confirm that infiltration test results have been provided, along with trial pit records with soil/rock descriptions of the materials in which the test has been completed in accordance with BS EN ISO 14688-1:2002+A1:2013 or BS EN ISO 14689-1:2003                                                                  | Refer to site investigation reports.                                              |                        |                      |
| Confirm that the infiltration tests have been undertaken at the location, depth and with a head of water that replicates the proposed design                                                                                                                                                                           | Refer to site investigation reports.                                              |                        |                      |
| Confirm that infiltration tests state which stratum the results are appropriate to and any limitations in the test. For example, has the infiltration rate been estimated by assuming water only infiltrates into one particular stratum such as a discrete layer of limestone?                                        | Refer to site investigation reports.                                              |                        |                      |
| Confirm that the infiltration tests follow BRE (1991) or Bettess (1996) as far as is relevant to the design. If not, state what variations have been made to the test and why                                                                                                                                          | Refer to site investigation reports.                                              |                        |                      |
| Confirm that the head of water in the infiltration test falls to less than 25% of the initial head of water.<br>(Note: if this does not occur the results should not be extrapolated – the results should state “Infiltration test cannot be determined.”)                                                             | Refer to site investigation reports.                                              |                        |                      |
| Confirm that account has been taken of the soil descriptions and an assessment of the likely impact of water on the soil and long-term infiltration rate has been included (eg high initial infiltration rates in dry mudstone may not be representative of long-term values when soaking water has caused weathering) | No significant reduction of the infiltration rate used in the design anticipated. |                        |                      |
| Confirm what measures are necessary to prevent construction activities (especially compaction) changing the infiltration characteristics                                                                                                                                                                               | Over trafficking to be kept to a minimum.                                         |                        |                      |
| Confirm that the test infiltration capacity is likely to be representative of the wider ground mass (e.g. the test has not been undertaken in a limited extent of sand within a mass of clay)                                                                                                                          | Refer to site investigation reports.                                              |                        |                      |
| Groundwater levels                                                                                                                                                                                                                                                                                                     |                                                                                   |                        |                      |

## Appendix B: Infiltration assessment checklist

| Infiltration capacity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Details                                                                                                          | Acceptable submission? | Further requirements |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------|----------------------|
| Confirm that evidence has been provided of groundwater levels and seasonal variations (e.g. via relevant groundwater records or on-site monitoring in wells)                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Refer to site investigation reports.                                                                             |                        |                      |
| Confirm that the maximum likely groundwater levels are >1 m below the base of the infiltration device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Refer to site investigation                                                                                      |                        |                      |
| <b>Ground stability</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                  |                        |                      |
| Confirm that it has been demonstrated that infiltration will not cause significant risk of instability (eg retaining walls, slopes, solution features or loosely consolidated fill) or movement that could adversely affect any nearby buildings or other structures. Where infiltration is proposed closer than 5m to the foundations of buildings or structures that this assessment should be approved by a suitably qualified professional such as a registered ground engineering adviser. The BGS Infiltration SuDS Map is a useful source of information. Some local authorities have solifluction maps | No infiltration features proposed within 5m of existing or proposed buildings or near retaining walls or slopes. |                        |                      |
| Confirm that an assessment has been taken of the potential for subsidence due to infiltration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | As above.                                                                                                        |                        |                      |
| <b>Ground contamination</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                  |                        |                      |
| Confirm that an assessment of the potential for deterioration in groundwater quality due to infiltration, such as due to mobilisation of contamination, has been undertaken. Note: this assessment should be undertaken by a qualified geo-environmental engineer or similarly qualified person, and may require a site investigation with contamination testing. The BGS Infiltration SuDS Map can provide useful preliminary information                                                                                                                                                                     | Refer to site investigation reports.                                                                             |                        |                      |
| Confirm that a suitable treatment train has been provided before the runoff reaches the soil (to reduce risks of groundwater contamination to an acceptable level) – see National SuDS Standards and this manual                                                                                                                                                                                                                                                                                                                                                                                               | Confirmed.                                                                                                       |                        |                      |
| <b>Flood risk</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                  |                        |                      |
| Confirm that an assessment has been undertaken of the potential effect of infiltration on groundwater levels local to any infiltration component and the potential wider impact of multiple infiltration components within the site, with respect to groundwater flood risk                                                                                                                                                                                                                                                                                                                                    | Refer to site investigation reports.                                                                             |                        |                      |
| Confirm that an assessment has been undertaken of the risk of springs developing in layered geology/steep topography due to the proposed infiltration                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No layered geology or steep topography.                                                                          |                        |                      |
| Confirm that details of overflows or additional discharge points if total infiltration cannot be relied on for all return period events have been provided                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Not required.                                                                                                    |                        |                      |
| <b>Combined sewer risk</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                  |                        |                      |
| Confirm that an assessment has been undertaken of the risk of groundwater leakage into any local combined sewers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | No combined sewers nearby.                                                                                       |                        |                      |

## **Appendix 09**

### **SuDS Train Assessment**

## **10708 - Academy Business Park – Units 6B 1 & 2**

### **SuDS Management Train Assessment**

#### **Roof area**

From table 26.2 of the SuDS manual, the proposed roof area is deemed to have a “low” pollution hazard level, i.e. TSS = 0.3, Metals = 0.2 and Hydrocarbons = 0.05.

Whilst from table 26.3 of the SuDS manual, the proposed filter drain serving the roof area will provide mitigation indices of TSS = 0.7, Metals = 0.7 and Hydrocarbons = 0.5.

Therefore the solution is considered to be satisfactory.

#### **Car park and access road areas**

From table 26.2 of the SuDS manual, the proposed car park and access road areas are deemed to have a “medium” pollution hazard level, i.e. TSS = 0.7, Metals = 0.6, Hydrocarbons = 0.7.

Whilst from table 26.3 of the SuDS manual, the proposed porous surfacing serving the vehicular areas will provide mitigation indices of TSS = 0.7, Metals = 0.6 and Hydrocarbons = 0.7.

Therefore the solution is considered to be satisfactory.